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SEVENTY-FIRST
ANNUAL REPORT
OF THE
REGISTRAR-GENERAL
OF
BIRTHS, DEATHS, AND MARRIAGES
IN ENGLAND AND WALES.
(1908.)

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



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REPORT

TO

THE RIGHT HONOURABLE JOHN BURNS, M.P.,
President of the Local Government Board, &c., &c.

(1908.)

SIR,

I HAVE the honour to submit to you the following Report on the estimated population, and on the marriages, births, and deaths registered in England and Wales during the year 1908.

From returns furnished by the registrars acting throughout the country, the provisional numbers of marriages, births, and deaths for the year 1908 have already been published in the "General Abstract," and in somewhat greater detail as regards the causes of death for the counties of England and Wales, and for London and other large towns, in the "Annual Summary," which publication was issued in May, 1909.

The present Report also relates to the year 1908, 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.

POPULATION.

In previous Reports reference has been made to the difficulty of estimating populations for years subsequent to the last census. The records of registration give the numbers of births and the numbers of deaths in each year, but there is no complete record of emigration from and immigration into England and Wales.* It is possible that in course of time such complete returns will be made, but it is quite impracticable to keep records of the numbers of persons moving from one county or town to another and therefore the intercensal populations of such areas must be estimated by some process of calculation. Failing authoritative returns of the total movement of the population, the total population at all ages for the whole country is provisionally calculated on the assumption that the rate of increase which had prevailed at the last intercensal period has since been maintained; a method which is not likely to lead to serious error when so large an

* The Board of Trade Returns of Emigration and Immigration have been much improved in recent years, and now show the balance on passenger movement into and out of the United Kingdom. (See Table 45, page 92.)

area as the whole country is dealt with. The total thus estimated has been distributed among the various divisions of the country in proportions determined by their rates of growth during the last intercensal period. Any assumption used for estimating populations for counties, towns, districts, &c., at a date so far removed from the last census must be faulty, but the method described above appears to be less unsatisfactory than any other which suggests itself.

When the population is enumerated decennially, the impossibility of making trustworthy estimates of population for intercensal years is obvious. The only remedy is the taking of a census at more frequent intervals.

The population of England and Wales, enumerated at the end of March, 1901, consisted of 32,527,843 persons. From that date until the middle of 1908 the number of births exceeded the number of deaths by 2,940,866. Had neither emigration nor immigration occurred this surplus would have raised the population in the middle of the year to 35,468,709. In the absence of precise information on this point, the populations in the Reports are, as already stated provisionally estimated on the assumption that the rate of increase which had prevailed in the last completed intercensal period has since been maintained.

Estimated in this way the population of England and Wales in the middle of the year 1908 amounted to 35,348,780 persons, of whom 17,071,524 were males and 18,277,256 were females. This population has been distributed among the constituent areas after making due allowance for their several rates of growth in the intercensal period. For the purpose of the present calculation the intermediate London Census in 1896 has been left out of account.

The Division of the Country for Statistical purposes.

In these Reports the statistics are presented for the divisions, counties, districts, and sub-districts into which the country is divided for registration purposes.

When in the year 1837 the system of birth, death and marriage registration for the whole of England and Wales came into force, the Poor Law Unions which had been created some few years earlier were adopted as the units of area for registration purposes. No doubt at that time these unions or groups of parishes were the most convenient areas on which to base the administration of the new system of birth and death registration, and they naturally became associated with the statistics of births and deaths which were developed from the data collected in the process of registration.

The subsequent partition of the country into urban and rural administrative divisions, under the Public Health Act of 1875, introduced a new factor into the case. These divisions are not as a rule co-terminous with the older poor law areas, but they have become so intimately connected with vital statistics that the desirability of a closer relation between them and registration areas is obvious.

If the system of birth and death registration were now to be inaugurated, the boundaries of registration districts would undoubtedly be based upon the boundaries of urban and rural areas, and not on those of poor law areas, but certain administrative and financial difficulties stand in the way of substituting another system for the existing one. At present the guardians pay the fees for registration, receive the Registrars' contributions under the Poor Law

Officers' Superannuation Act, and are responsible for the payment of the pensions to which the Registrars are entitled on retirement. In any change of the system of registration it would be necessary to provide compensation for Registrars whose fees and prospective pensions were adversely affected; and moreover it would be necessary to adjust the terms on which the financial responsibilities of the old authorities should be taken over by those who were in future to pay the fees and pensions.

Apart from the question of the assimilation of registration and public health areas, there remains, with regard to the presentation of mortality statistics, the difficult problem of the distribution of deaths occurring outside the administrative areas to which they belong. Nearly one-fifth of the deaths in England and Wales, for example, occur in public institutions, and in a great number of instances the deceased inmates have been received from administrative areas other than those in which the institutions are situated.

With the limited staff of the General Register Office the work of allocating as accurately as possible deaths of non-residents has hitherto of necessity been restricted to London, but mortality statistics relating to 75 other large towns and 142 smaller towns, as published in the Quarterly Returns and in the Annual Summary have been approximately corrected by the aid of special returns furnished to the Registrar-General by the local registrars.

A reference will be found in the concluding section of this report to some suggested methods of dealing with the question of the assimilation of registration and public health areas.

MARRIAGES.

The marriages in England and Wales during the year 1908 numbered 264,940, corresponding to a rate of 14.9 persons married per 1000 of the population at all ages. This rate was 0.9 per 1000 below the corresponding rate in 1907 and 0.9 below the average rate in the ten years 1898-1907.

Complete statistics of the marriages recorded in England and Wales are available only from 1st July, 1837, on which date the Births, Deaths, and Marriage Registration Acts of 1836 came into operation. The proportion to the total population of persons married during the 71 years (1838-1908) ranged between a maximum of 17.9 per 1000 living in 1853, and a minimum of 14.2 per 1000 in 1886, the mean annual rate in the whole period being 16.0 per 1000.

In previous reports it has been pointed out that although it was possible many years ago to trace some correspondence between the fluctuations in the marriage rate and the fluctuations in the price of wheat, in more recent years the figures show no such parallelism.

It will be seen, however, from Table A, that in recent years the fluctuations of the marriage rate show some correspondence with the fluctuations of exports and of employment. In other words, the alternating periods of commercial prosperity and depression have some effect on the increase or decrease in the proportion of marriages.

For example, the rise in the marriage rate in the years 1906 and 1907 corresponded to a rise in the value of exports and in the amount of employment, while the considerable fall that took place in the marriage rate in the year 1908 corresponded to a reduction in exports and a high proportion of unemployed.

TABLE A.—PROPORTIONAL NUMBERS showing the FLUCTUATIONS in the MARRIAGE-RATE, in the VALUE OF EXPORTS per HEAD of the POPULATION, and in EMPLOYMENT, 1876-1908.

	England and Wales.	United Kingdom.	
	Marriage-rate per 1,000 Unmarried and Widowed Persons aged 15 Years and upwards.	Value of Exports per Head of Population.*	State of Employment.†
1876-80	100	100	100
1881	99	113	103
1882	100	116	104
1883	100	114	104
1884	97	110	99
1885	92	100	97
1886	90	99	96
1887	91	102	99
1888	90	107	102
1889	94	113	104
1890	96	118	104
1891	96	110	103
1892	94	100	101
1893	90	96	98
1894	91	94	98
1895	91	97	100
1896	95	102	103
1897	96	99	103
1898	97	97	103
1899	98	105	104
1900	94	110	104
1901	94	110	103
1902	93	111	102
1903	92	114	101
1904	90	117	100
1905	90	126	101
1906	92	142	102
1907	93	159	102
1908	88	139	97

* Calculated from figures given in the Statistical Abstract of the Board of Trade ; but excluding values of ships exported, which since 1899 have been included in the Statistical Abstract.

† Figures supplied by the Board of Trade ; based on returns furnished by various Trade Unions which pay unemployed benefit to their members.

Methods of Measuring the Marriage Rate.—The crude marriage rate, *i.e.*, the proportion of persons married to the total population at all ages, is useful for comparing the rates of marriage in a population from year to year. But the crude rate is not adapted for comparisons extending over a long series of years, because it takes no account of the effect of the changing constitution of a population ; nor is it well adapted for comparing the rates in two or more communities, because of the differences in the sex and age constitution of the respective populations.

In the preceding Report a table was published which gave, in detail of groups of ages for the four last census periods, the changes that have taken place in the proportions of the unmarried, the married, and the widowed in the populations aged 15 years and upwards. Reference to that table shows that the proportion of bachelors in England and Wales in 1000 males aged 15 years and upwards rose from 384 in 1871 to 411 in 1901 ; among 1000 females aged 15 years and upwards the proportion of spinsters increased from 361 to 395, while on the other hand the proportion of widowed persons steadily decreased throughout the period. In view of the changing constitution of the population, a better method of measuring the marriage rate is to eliminate the married persons and young children, and to calculate the rate on the unmarried and widowed portion of the population aged 15 years and upwards, so dealing with that section of the population only in which marriages take place.

Before deductions are drawn from the several calculations in the following pages, it would be well to point out that the changes in the rate of marriage in years since the last census must be regarded as approximate only, because the estimates of total population on which the proportions are based depend on an assumption, and estimates of sections of the population, such as the numbers of persons of specified ages, depend on further assumptions. It should also be noted that calculations based on the ages at marriage must be used with caution, because in earlier years a comparatively high proportion of the ages were unstated.

Table B., page x, shows for each of the years 1876-1908 the marriage rates based on the total population, and the rates based on that section of the population in which marriages take place. It will be seen from the latter calculation that the marriage rate based upon the total population does not show adequately the real decline that has taken place in the marriage rate.

For the purposes of comparison, the mean rate in the period 1876-80 is taken as a standard in each case ; the rates based on the total population were above the standard in 16 of the 27 years (1881-1907), whereas those based on the numbers of marriageable persons in the population were, with one exception, below the standard.

A still more precise method of calculating the marriage rate over an extended period would be to take account not only of the changes in the proportion of marriageable persons in the population, but also of the changes in their ages. A difficulty arises, however, in attempting to make such a calculation owing to the comparatively high proportion of unstated ages in the marriages in earlier years.* On the assumption, however, that an approximation to the number of marriages in each age group may be obtained by distributing the unrecorded ages in the same proportions as the recorded ages, a rate has been calculated for the period 1876-80 based on the age constitution and proportions of marriageable men and of marriageable women at the Census of 1901. Taking this corrected rate as a standard, the marriage rate in 1908, when compared with the rate of 1876-80, shows a fall of 15·4 per cent.

* See remarks relating to unstated ages at marriage on page xiv.

Marriages.

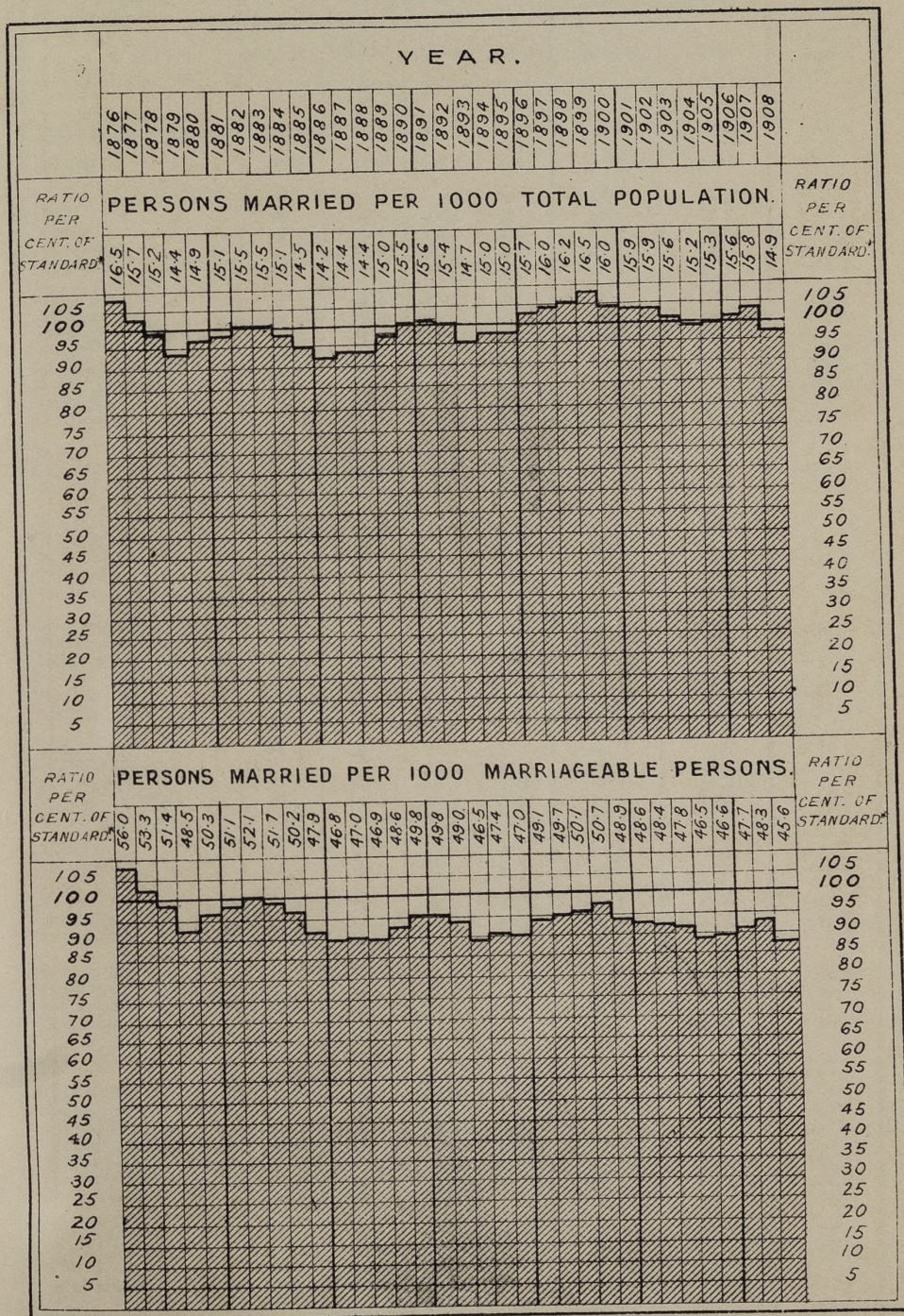
TABLE B.—ENGLAND AND WALES.—MARRIAGE RATES, 1876-1908.

Period.	Calculated on the total population at all ages.		Calculated on the total number of marriageable persons in the population.	
	Rate per 1000.	Compared with rate in 1876-80 taken as 100.	Rate per 1000.	Compared with rate in 1876-80 taken as 100.
1876-1880 ...	15.3	100.0	51.9	100.0
1881-1885 ...	15.2	99.3	50.6	97.5
1886-1890 ...	14.7	96.1	47.8	92.1
1891-1895 ...	15.1	98.7	47.9	92.3
1896-1900 ...	16.1	105.2	49.7	95.8
1901-1905 ...	15.6	102.0	47.6	91.7
1876 ...	16.5	107.8	56.0	107.9
1877 ...	15.7	102.6	53.3	102.7
1878 ...	15.2	99.3	51.4	99.0
1879 ...	14.4	94.1	48.5	93.4
1880 ...	14.9	97.4	50.3	96.9
1881 ...	15.1	98.7	51.1	98.5
1882 ...	15.5	101.3	52.1	100.4
1883 ...	15.5	101.3	51.7	99.6
1884 ...	15.1	98.7	50.2	96.7
1885 ...	14.5	94.8	47.9	92.3
1886 ...	14.2	92.8	46.8	90.2
1887 ...	14.4	94.1	47.0	90.6
1888 ...	14.4	94.1	46.9	90.4
1889 ...	15.0	98.0	48.6	93.6
1890 ...	15.5	101.3	49.8	96.0
1891 ...	15.6	102.0	49.8	96.0
1892 ...	15.4	100.7	49.0	94.4
1893 ...	14.7	96.1	46.5	89.6
1894 ...	15.0	98.0	47.4	91.3
1895 ...	15.0	98.0	47.0	90.6
1896 ...	15.7	102.6	49.1	94.6
1897 ...	16.0	104.6	49.7	95.8
1898 ...	16.2	105.9	50.1	96.5
1899 ...	16.5	107.8	50.7	97.7
1900 ...	16.0	104.6	48.9	94.2
1901 ...	15.9	103.9	48.6	93.6
1902 ...	15.9	103.9	48.4	93.3
1903 ...	15.6	102.0	47.8	92.1
1904 ...	15.2	99.3	46.5	89.6
1905 ...	15.3	100.0	46.6	89.8
1906 ...	15.6	102.0	47.7	91.9
1907 ...	15.8	103.3	48.3	93.1
1908 ...	14.9	97.4	45.6	87.9

Marriages in Counties.—Table C. on page xi shows for the registration counties of England and Wales the marriage rates in the years around the four past censuses, in the quinquennial period 1903-7, and in the year 1908. The rates are based on the proportions of persons married to the unmarried and widowed population aged 15 years and upwards.

MARRIAGE-RATES.

DIAGRAM I: MARRIAGE-RATES, ENGLAND & WALES. 1876-1908.



* The Standard adopted is the average rate in the five years 1876-80.

TABLE C.—ANNUAL MARRIAGE RATES in each REGISTRATION COUNTY, 1870-1908.

Registration Counties.	Persons married per 1000 of the unmarried and widowed population aged 15 years and upwards.*						Increase or Decrease per cent, in each County between the period 1870-72 and 1908.
	Census periods.				Five-year period.	Year.	
	1870-72.	1880-82.	1890-92.	1900-02.	1903-07.	1908.	
England and Wales ..	57.2	51.5	49.8	48.7	47.4	45.6	-20.3
London	60.9	56.2	52.3	50.3	48.3	44.8	-26.4
Surrey	38.3	39.2	37.0	38.0	38.9	36.7	-4.2
Kent	46.1	46.0	42.4	43.5	40.4	37.5	-18.7
Sussex	44.5	42.3	38.4	39.0	37.5	35.2	-20.9
Hampshire	48.9	48.0	44.7	44.5	44.5	44.4	-9.2
Berkshire	47.0	43.4	43.7	43.2	43.5	42.1	-10.4
Middlesex	34.8	38.0	37.8	42.5	44.4	41.9	+20.4
Hertfordshire ..	41.0	37.2	38.0	39.3	40.5	41.8	+2.0
Buckinghamshire	47.7	45.7	44.5	44.5	47.1	44.7	-10.1
Oxfordshire	46.6	41.4	41.7	41.6	43.6	45.6	-2.1
Northamptonshire	58.0	53.0	53.6	49.4	46.4	45.1	-22.2
Huntingdonshire	52.1	44.8	44.7	46.0	46.9	46.0	-11.7
Bedfordshire ..	52.3	48.0	43.2	43.8	44.5	46.4	-11.3
Cambridgeshire..	52.0	41.8	45.3	46.3	44.8	43.7	-16.0
Essex	45.9	46.2	48.4	49.3	47.7	45.1	-1.7
Suffolk	51.8	50.2	46.9	47.0	44.5	43.8	-15.4
Norfolk	52.3	50.2	45.9	45.5	45.2	46.5	-11.1
Wiltshire	47.4	44.5	44.8	45.0	46.9	45.1	-4.9
Dorsetshire	45.6	42.7	43.1	41.5	42.9	38.1	-16.4
Devonshire	50.6	46.7	45.7	43.4	44.4	44.2	-12.6
Cornwall	44.6	38.7	39.8	38.4	39.7	42.4	-4.9
Somersetshire ..	45.6	42.2	43.1	40.7	41.3	41.2	-9.6
Gloucestershire ..	58.1	50.9	49.2	47.2	45.6	44.1	-24.1
Herefordshire ..	38.6	35.4	38.3	38.6	37.7	37.8	-2.1
Shropshire	44.9	37.9	40.2	42.0	39.2	37.9	-15.6
Staffordshire ..	71.6	60.0	58.7	55.9	52.9	49.5	-30.9
Worcestershire ..	56.2	47.5	47.0	46.1	44.1	41.2	-26.7
Warwickshire ..	62.9	53.2	56.4	54.7	53.2	51.2	-18.6
Leicestershire ..	61.8	55.1	53.4	51.6	49.6	47.9	-22.5
Rutlandshire ..	43.1	37.0	38.3	37.2	36.1	42.3	-1.9
Lincolnshire ..	53.1	47.9	49.9	50.6	51.4	50.5	-4.9
Nottinghamshire	68.1	64.8	58.4	58.1	55.7	55.8	-18.1
Derbyshire	60.0	51.2	54.3	53.5	51.2	49.9	-16.8
Cheshire	54.7	46.8	45.5	43.8	43.7	42.5	-22.3
Lancashire	66.1	56.8	52.8	50.3	49.2	47.0	-28.9
West Riding	66.1	55.2	54.1	52.0	49.7	48.0	-27.4
East Riding	63.8	54.9	53.7	50.4	48.7	48.6	-23.8
North Riding ..	50.7	49.7	45.9	47.4	47.3	48.1	-5.1
Durham	70.9	62.9	57.6	58.9	56.2	53.7	-24.3
Northumberland ..	64.4	54.1	52.9	51.1	48.6	47.0	-27.0
Cumberland	47.6	45.7	42.6	43.7	43.3	42.3	-11.1
Westmorland ..	44.7	39.2	37.7	36.4	36.6	40.1	-10.3
Monmouthshire ..	64.4	55.6	57.5	55.6	56.3	58.7	-8.9
South Wales	56.8	51.2	54.9	53.5	51.4	52.9	-6.9
Glamorganshire ..	67.6	60.3	63.3	59.2	56.4	58.3	-13.8
Carmarthenshire ..	53.0	45.6	45.4	46.4	46.6	49.3	-7.0
Pembrokeshire ..	47.0	41.6	42.8	42.8	43.9	42.1	-10.4
Cardiganshire ..	38.1	31.7	31.3	30.9	30.1	30.0	-21.3
Brecknockshire ..	50.5	44.1	47.1	52.3	46.9	44.5	-11.9
Radnorshire	43.3	38.1	34.6	40.1	29.3	26.0	-40.0
North Wales	43.0	38.7	40.6	39.8	37.6	35.7	-17.0
Montgomeryshire ..	41.6	33.3	37.7	37.2	37.9	36.9	-11.3
Flintshire	38.3	36.0	42.1	37.2	36.2	38.5	+0.5
Denbighshire ..	45.7	42.0	46.8	43.9	41.3	39.7	-13.1
Merionethshire ..	44.8	37.6	36.1	38.6	34.3	30.7	-31.5
Carnarvonshire ..	44.0	41.3	39.5	39.0	36.8	32.9	-25.2
Anglesey	37.9	36.6	36.1	38.5	35.6	35.4	-6.6

* See remarks, page ix.

Among registration counties with populations exceeding 100,000 persons the highest and lowest marriage rates in the year 1908, in proportion to the marriageable section of the population, were as follows:—

Registration Counties with the highest Marriage rates.	Persons married per 1000 marriageable population.	Registration Counties with the lowest Marriage rates.	Persons married per 1000 marriageable population.
England and Wales ... 45.6.			
Monmouthshire ...	58.7	Shropshire ...	37.9
Glamorganshire ...	58.3	Herefordshire ...	37.8
Nottinghamshire ...	55.8	Kent ...	37.5
Durham ...	53.7	Surrey ...	36.7
Warwickshire ...	51.2	Sussex ...	35.2
Lincolnshire ...	50.5	Carnarvonshire ...	32.9

It should be observed that the differences between the marriage rates are not due entirely to variations in the economic conditions in the several counties, but are due in some measure to differences in the age and sex constitution of the respective marriageable populations.

Marriage Rates of Bachelors, Spinsters, Widowers and Widows.—The following table supplies an even more satisfactory measure of the rate of marriage than the comparison of the marriages with the total population of marriageable age.

MEAN ANNUAL MARRIAGE RATE PER 1000 LIVING, AGED 15 YEARS AND UPWARDS.*

Period.	Bachelors.		Widowers.		Spinsters.		Widows.	
	Rate per 1000.	Compared with rate in 1880-82 taken as 100.	Rate per 1000.	Compared with rate in 1880-82 taken as 100.	Rate per 1000.	Compared with rate in 1880-82 taken as 100.	Rate per 1000.	Compared with rate in 1880-82 taken as 100.
1880-82 ...	58.7	100.0	52.9	100.0	59.0	100.0	15.5	100.0
1890-92 ...	57.1	97.3	50.7	95.8	55.7	94.4	15.2	98.1
1900-02 ...	54.7	93.2	44.4	83.9	53.0	89.8	14.4	92.9
1903 ...	54.0	92.0	40.6	76.7	52.2	88.5	13.4	86.5
1904 ...	52.8	89.9	38.0	71.8	50.9	86.3	12.5	80.6
1905 ...	52.9	90.1	38.3	72.4	51.0	86.4	12.6	81.3
1906 ...	54.2	92.3	38.6	73.0	52.3	88.6	12.6	81.3
1907 ...	54.8	93.4	39.4	74.5	53.0	89.8	12.7	81.9
1908 ...	51.7	88.1	38.0	71.8	50.0	84.7	12.4	80.0

* The rates in each period are based on the age constitution, and proportions of these particular sections of the population as enumerated at the Census of 1901.

The fall in the marriage rate in the period reviewed in the table has been greater among widowers and widows than among the unmarried of either sex, but the apparent tendency among the widowed not to re-marry is not so great as it would appear to be from the above statement, because there has been a considerable

decrease in the proportions of persons who have become widowed at the younger ages. The number of widows is always much greater than that of widowers, because, in the first place, men marry later in life than women, secondly, because the duration of male life is shorter than that of female life, and thirdly because the proportion of widows who re-marry is much lower than the proportion of widowers who re-marry.

The next table gives a general view of the changes in the proportions of first marriages and re-marriages since the year 1876; here again it will be observed that the proportion of widowed persons who re-married shows an almost continuous decrease.

PROPORTIONS OF FIRST MARRIAGES AND RE-MARRIAGES IN 1000 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 ...	917	83	938	62	885	32	53	30
1907 ...	916	84	939	61	885	31	54	30
1908 ...	914	86	936	64	881	33	55	31

The Divorced.—The numbers of persons divorced annually have been increasing for many years, and were more numerous in

AVERAGE ANNUAL NUMBER OF PERSONS DIVORCED, AND OF DIVORCED PERSONS WHO RE-MARRIED, 1876-1908.

Period.	Number of Persons divorced.	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 ...	554.0	103.8	55.8	48.0	42.0	12.2	1.6	31.2	15.2
1881-85 ...	671.2	128.0	68.2	59.8	52.8	12.6	2.8	42.0	15.0
1886-90 ...	706.8	169.0	79.8	89.2	64.8	10.8	4.2	65.0	20.0
1891-95 ...	743.6	213.8	109.6	104.2	88.8	15.0	5.8	75.4	23.0
1896-1900 ...	980.0	345.2	172.4	172.8	137.8	24.4	10.2	125.8	36.8
1901-05 ...	1126.4	509.2	261.6	247.6	204.8	37.8	19.0	181.0	47.6
1906 ...	1092	676	351	325	268	55	28	227	70
1907 ...	1288	636	309	327	259	31	19	259	49
1908 ...	1314	708	365	343	270	63	26	267	50

1908 than in any previous year. The marriages of persons described as divorced have also steadily increased, and in the year 1908 were the highest on record.

The number of divorced persons who re-married in 1876-80 was equal to about 19 per cent. of the number divorced during that period, whereas in 1908 the proportion had risen to more than 50 per cent. It should be pointed out, however, that in some cases persons who have been divorced abroad re-marry in this country, and also that the figures given in the table refer only to persons described in the marriage register as divorced, and possibly this description is not given in all cases in which it is applicable.

Ages at Marriage.—Attention has been drawn in recent reports to the gradual improvement that has taken place in the marriage registers in reference to the definite statement of ages at marriage.

Seventy years ago the ages of both parties were stated in only six per cent. of the marriages. In the course of the next thirty years the proportion had risen to 70 per cent., in 1880 to 82 per cent., and in 1890 to 96 per cent. Since that date the increase, although necessarily less marked, has been continuous. In the year 1896 the proportion exceeded 98 per cent. and gradually rose until in the year under review (1908) precise statements of age were made by 99.19 per cent. of the husbands, and 99.09 per cent. of the wives. Unstated ages are more frequent in re-marriages than in first marriages, and most frequent of all in re-marriages of widowers.

AVERAGE ANNUAL MARRIAGE-RATES OF UNMARRIED and WIDOWED PERSONS at SIX AGE GROUPS, 1880-2; 1890-2; and 1900-2.

		Aged 15 years and upwards.*	15-	20-	25-	35-	45-	55 and upwards.
<i>Bachelors.</i>								
1880-2	...	58.7	4.6	106.8	112.4	40.5	14.3	3.0
1890-2	...	57.1	3.1	94.7	122.4	43.4	15.2	3.5
1900-2	...	54.7	2.5	85.9	123.7	44.2	14.6	3.3
<i>Widowers.†</i>								
1880-2	...	52.9	30.6	192.9	246.5	157.8	76.9	16.0
1890-2	...	50.7	14.1	153.4	231.7	151.1	74.7	15.5
1900-2	...	44.4	—	132.6	201.7	134.1	65.3	13.5
<i>Spinsters.</i>								
1880-2	...	59.0	21.5	121.9	80.6	26.3	10.4	1.6
1890-2	...	55.7	16.2	112.4	85.7	26.4	10.3	1.7
1900-2	...	53.0	13.0	104.8	88.5	25.3	9.1	1.5
<i>Widows.†</i>								
1880-2	...	15.5	56.6	155.3	114.5	50.2	18.6	2.6
1890-2	...	15.2	49.3	150.4	114.3	50.3	17.8	2.4
1900-2	...	14.4	54.9	140.7	115.9	48.9	15.6	2.1

* See note to table on page xii.

† The apparent anomaly, that the rates for widowers and widows at all ages are much lower than those for bachelors and spinsters respectively, while at each separate age-period they are higher, is explained by the fact that the higher rates for bachelors relate to age-periods at which the numbers of bachelors living are comparatively large, while the higher rates for widowers relate to age-periods at which the numbers of widowers living are comparatively small.

For the purposes of this table the marriages in which the ages were not stated have been distributed to the various ages in the proportions shown in the stated cases.

Broadly speaking, the ages of the men at marriage are, so far as concerns the growth of population, of less importance than the ages of women at marriage. The fact that child-bearing is practically limited to the period between the ages 15 and 45 years, and that the fertility of married women is highest at the earlier age groups, makes it evident that any great alteration in the ages of women at marriage must necessarily have important effects on the birth-rate.

The foregoing table shows approximately the rate of marriage at different ages; the calculations have been restricted to the last three census periods in order to avoid errors which might arise from erroneous estimates of sections of the population for intercensal years.

It will be noticed that among bachelors and spinsters there has been a considerable decrease in the marriage rates at the age groups 15-20 and 20-25 years, and an increase in the rates at the age groups 25-35 and 35-45 years among bachelors, and at the age group 25-35 years among spinsters. The decrease in the rate of marriage among the widowed affected every age group except at ages 25-35 among widows, which showed a slight increase.

For the assistance of those who desire to investigate this subject further, the age constitution of bachelors, widowers, spinsters, and widows who married in the period 1886-1908 is given in the following tables.

ENGLAND AND WALES.—AGE-CONSTITUTION OF BACHELORS and SPINSTERS who MARRIED reduced to 1,000 MARRIAGES at ALL AGES, 1886-1908.

Period.	All Ages.	Minors.				Full Age.							Age not Stated.	
		Under 18 Years.	18-	19-	20-	21-	25-	30-	35-	40-	45-	50-		55 and upwards.
<i>Bachelors.</i>														
1886-1890	1000	0	4	20	47	424	309	96	33	13	6	3	2	43
1891-1895	1000	0	3	17	43	415	333	108	37	14	6	3	2	19
1896-1900	1000	0	3	15	39	411	346	110	39	15	6	3	2	11
1901-1905	1000	0	3	13	35	390	360	122	41	16	7	3	2	8
1906	1000	0	3	12	32	380	368	127	43	16	7	3	2	7
1907	1000	0	2	11	31	379	368	130	44	16	7	3	2	7
1908	1000	0	2	11	30	374	369	132	46	18	7	3	2	6
<i>Spinsters.</i>														
1886-1890	1000	9	37	72	97	417	219	62	23	10	5	2	1	46
1891-1895	1000	7	31	66	94	425	241	70	25	11	5	2	1	22
1896-1900	1000	6	27	59	89	434	253	74	26	11	5	2	1	13
1901-1905	1000	5	23	53	82	428	272	79	28	12	5	2	1	10
1906	1000	5	22	51	77	428	278	83	28	11	6	2	1	8
1907	1000	5	22	48	76	423	281	85	29	12	6	2	1	9
1908	1000	5	21	48	75	419	282	88	31	12	6	3	2	8

ENGLAND AND WALES.—AGE-CONSTITUTION of WIDOWERS and WIDOWS who MARRIED reduced to 1,000 MARRIAGES at ALL AGES, 1886-1908.

Period.	All Ages.	Minors.	Full Age.											Age not Stated.
			21-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70 and upwards.	
<i>Widowers.</i>														
1886-1890	1000	0	13	81	133	151	139	120	94	70	53	27	15	104
1891-1895	1000	0	12	76	132	153	148	126	106	74	55	29	18	71
1896-1900	1000	0	10	73	131	158	150	136	109	84	56	30	19	44
1901-1905	1000	0	10	68	130	155	152	136	116	83	62	32	20	36
1906 ..	1000	0	10	66	125	149	152	143	117	87	60	36	20	35
1907 ..	1000	—	8	63	126	150	155	136	119	91	62	38	22	30
1908 ..	1000	0	8	60	123	154	156	142	118	87	64	37	23	28
<i>Widows.</i>														
1886-1890	1000	1	30	119	164	173	145	117	73	46	26	10	3	93
1891-1895	1000	1	27	115	170	177	157	119	78	47	29	10	4	66
1896-1900	1000	1	26	113	175	188	157	127	81	50	28	11	3	40
1901-1905	1000	1	28	122	182	190	158	118	78	47	29	11	4	32
1906 ..	1000	1	23	113	180	184	162	131	78	48	31	12	4	33
1907 ..	1000	1	25	108	180	192	158	128	82	50	30	14	5	27
1908 ..	1000	1	23	108	174	196	160	131	78	53	31	14	5	26

Marriages of Minors.—The proportion of marriages under age was at its maximum in the year 1874 both for males and females. It will be seen from the subjoined table that since that period the ratio of such marriages to total marriages has declined continuously.

Period.	All Ages.	Minors.	Minors in 1000 Marriages.	
			Husbands.	Wives.
1876-80	77.8	217.0
1881-85	73.0	215.0
1886-90	63.2	200.2
1891-95	56.2	182.6
1896-1900	51.2	168.0
1901	49.6	159.9
1902	47.0	153.7
1903	45.7	152.3
1904	45.6	152.7
1905	43.8	146.9
1906	43.0	145.7
1907	40.7	141.8
1908	40.3	139.7

The numbers of men and women under 21 years who married in 1908 were 10,675 and 37,003 respectively; so that of every 1,000 men

who married 40, and of every 1,000 women 140, were minors.* This is the lowest proportion of minors recorded among both men and women.

In the year 1908, among registration counties with populations exceeding 100,000 persons the highest and lowest proportions per 1,000 of husbands and of wives under age at marriage were as shown in the annexed table.

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

Registration Counties.	Highest proportions of minors per 1000 Marriages.	Registration Counties.	Lowest proportions of minors per 1000 Marriages.
<i>Husbands.</i>			
England and Wales, 40.			
Nottinghamshire	70	Wiltshire	26
Durham	60	Berkshire	25
Leicestershire	60	Kent	22
Staffordshire	60	Surrey	22
Monmouthshire	59	Hampshire	21
Bedfordshire	52	Shropshire	19
Derbyshire	52	Carnarvonshire	16
West Riding of Yorkshire	52	Herefordshire	14
<i>Wives.</i>			
England and Wales, 140.			
Durham	230	Gloucestershire	92
Monmouthshire	209	Hertfordshire	90
Nottinghamshire	208	Somersetshire	88
Glamorganshire	188	Shropshire	81
Derbyshire	187	Denbighshire	80
North Riding of Yorkshire	179	Herefordshire	79
Northumberland	177	Carnarvonshire	63
West Riding of Yorkshire	175		

It may be observed that marriages of minors are proportionately more common in Scotland than in England and Wales; while in Ireland the proportion of such marriages is far below the English and Scottish ratios.

Mean Age at Marriage.—Although the mean age at marriage is for many purposes a convenient summary of the statement as to age, it is still only a summary. It does not necessarily reflect all the changes, nor even the most important changes in the ages at which people marry. For the purpose of tracing the relations between the marriage rate and the birth rate, the marriage rates at ages, and the age constitution of those sections of the community that marry, are of greater value to the statistician than is the mean age at marriage.

* 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 on page xiv giving the marriage rates at several age groups in the three past census periods.

In view of the great reduction that has taken place in the disturbing factor of unstated ages, it has become possible to measure with approximate accuracy for a series of recent years the mean age at marriage, based on the recorded ages.

The figures in the following table show not only the mean ages of husbands and wives in all marriages, but also the mean ages of bachelors, spinsters, widowers, and widows.

It will be noted 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.

ENGLAND AND WALES.—MEAN AGES AT MARRIAGE 1896-1908 (recorded ages).
HUSBANDS.

Year.	All Husbands.	All Bachelors.	All Widowers.	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

WIVES.

Year.	All Wives.	All Spinsters.	All Widows.	Spinsters with Bachelors.	Widows with Bachelors.	Spinsters with Widowers.	Widows with Widowers.
1896 ...	26.21	25.08	40.58	24.54	35.69	32.43	44.81
1897 ...	26.18	25.10	40.74	24.59	35.95	32.31	45.00
1898 ...	26.18	25.14	40.59	24.62	35.85	32.68	45.04
1899 ...	26.21	25.16	40.83	24.65	36.12	32.83	45.16
1900 ...	26.29	25.23	40.74	24.71	36.19	32.97	44.95
1901 ...	26.39	25.31	40.43	24.77	35.65	33.04	44.96
1902 ...	26.37	25.36	40.25	24.86	35.62	32.86	44.95
1903 ...	26.35	25.37	40.27	24.89	35.69	32.93	45.01
1904 ...	26.32	25.37	40.35	24.90	35.82	33.03	45.22
1905 ...	26.38	25.43	40.53	24.96	36.02	33.08	45.29
1906 ...	26.41	25.46	40.79	24.99	36.27	33.30	45.53
1907 ...	26.40	25.54	40.91	25.06	36.32	33.43	45.68
1908 ...	26.61	25.63	41.02	25.13	36.43	33.71	45.86

The mean age at marriage varies in different parts of the country, and the following comparison for the year 1908 between London and the rest of England and Wales, may be of interest. It will be noted that except in the marriages of widowers with widows the mean age at marriage was higher in the Metropolis than in the rest of the country.

In marriages of—	Husbands.		Wives.	
	England and Wales, less London.	London.	England and Wales, less London.	London.
Bachelors	27.06	27.96	25.46	25.94
Widowers	45.57	46.44	38.10	37.90
Spinsters	27.73	28.62	25.57	25.98
Widows	42.39	42.39	41.10	40.60
Bachelors with spinsters	26.80	27.61	25.07	25.47
Bachelors with widows	34.30	35.90	36.34	36.91
Widowers with spinsters	42.68	44.26	33.67	33.95
Widowers with widows	50.69	50.45	45.97	45.16
In all marriages	28.65	29.56	26.54	26.98

NOTE.—The table is to be read as follows:—The mean age of all the bachelors who married was 27.96 years in London, and 27.06 in the rest of the country; the mean age of their wives being 25.94 and 25.46 years respectively. The mean age of all the spinsters who married was 25.98 years in London, and 25.57 in the rest of the country: the mean age of their husbands being 28.62 and 27.73 years respectively.

Signature in Marriage Register.—In the year 1908 the proportion of those who at the time of marriage were unable to sign their names in the register was 1.3 per cent. in the case of bridegrooms and 1.5 in the case of brides.

DECREASE IN ILLITERATE MARRIAGES.

Period.	In every 100 Marriages the Proportion who Signed the Marriage Register with Marks.			Comparison with Rate in 1841-45 taken as 100.	
	Men.	Women.	Both.	Men.	Women.
1841-1845	32.6	48.9	?	100	100
1846-1850	31.4	46.2	?	96	94
1851-1855	30.2	43.5	22.5	93	89
1856-1860	27.1	38.1	18.6	83	78
1861-1865	23.6	32.9	15.1	72	67
1866-1870	20.5	28.3	12.3	63	58
1871-1875	18.5	25.2	10.4	57	52
1876-1880	14.8	20.0	7.5	45	41
1881-1885	12.3	15.5	5.4	38	32
1886-1890	8.4	9.8	3.0	26	20
1891-1895	5.1	6.0	1.7	16	12
1896-1900	3.2	3.7	1.0	10	8
1901-1905	2.0	2.4	0.6	6	5
1906	1.5	1.9	0.5	5	4
1907	1.4	1.7	0.4	4	3
1908	1.3	1.5	0.4	4	3

It will be seen from the preceding table that in the period 1841-45, approximately one in three of the men and one in two of the women who married signed the marriage register with marks instead of

writing their names. How defective the elementary education of the population was at that time is evident from these figures. From that date the proportions of illiterate persons of each sex steadily declined, and the effect of the Education Act of 1870, which practically brought nearly every child in the country under educational influences, is reflected in the rapid decline in the proportions since 1885.

Taking the country in the aggregate, the proportion of illiterate women has always been somewhat higher than the proportion of illiterate men; but there are wide differences between the several counties in this respect. The general rule is that in the counties adjacent to the Metropolis and in the agricultural counties the women are more educated than the men, whereas in the mining and industrial counties the reverse is the case, the men being more educated than the women (see Table 12, page 13). Speaking generally, and of both sexes, elementary education appears to be most diffused in the little counties of Rutland and Westmorland, and in Surrey, Sussex, Middlesex, and Berkshire, while the parts that show the greatest deficiency are Cambridgeshire, Huntingdonshire, Cornwall, Staffordshire, Durham, Monmouthshire, and Wales.

The case of London is exceptional. In the year 1908 the proportion of bridegrooms who could not sign their names in the marriage register was 1·3 per cent., and of brides 1·9 per cent. This proportion of illiteracy is not, however, common to all parts of London, it is practically confined to the group of Eastern Registration Districts, where a large proportion of signatures by mark occur in the marriages of Foreign Jews. If these districts be excluded, the proportion of illiteracy in London will be reduced to 0·5 out of every 100 men, and 0·7 out of every 100 women who married.

As a means of testing the state of elementary education in the several divisions of the United Kingdom, it will be interesting to examine the proportions of illiterate marriages as shown by the latest returns.

				In every 100 Marriages the proportion who signed the Marriage Register with Marks.	
				1908.	
				Men.	Women.
England	...	...	...	1·3	1·5
Wales	...	...	...	2·0	2·2
Scotland	...	...	...	1·3*	1·7*
Ireland	...	...	...	8·0	5·5

* Figures relate to the year 1907.

Buildings in which Marriages may be Solemnized.—At the end of the year 1908 the number of churches or chapels of the Established

Church, and of registered buildings in which marriages could be legally solemnized were as follows:—

Established Church	...	...	...	15,715
All other Religious Denominations	...	...	...	15,274
Total	...	...	...	30,989

The increase upon the numbers at the end of the previous year was: Established Church 51, other religious denominations 288.

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, 1908, and the number of buildings registered for the solemnization of marriages appear in the following table:—

Denomination.	Buildings certified to the Registrar-General as Meeting places for Religious Worship.	Buildings registered for the Solemnization of Marriages.*
Roman Catholics	1,323	1,279
Wesleyan Methodists	7,340	3,475
Congregationalists	3,162	2,820
Baptists	2,948	2,527
Primitive Methodists	4,146	1,542
United Methodist Church†	1,924	1,114
Calvinistic Methodists	1,145	843
Presbyterians	434	434
Unitarians	174	192
New Jerusalem Church...	48	53
Catholic Apostolic Church	71	49
Countess of Huntingdon's Connexion	44	43
Salvation Army	1,224	35
Society of Friends	383	—†
Jews	194	—†
All others	2,492	868

* Of these buildings nearly 1000 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.

† In accordance with the provisions of the United Methodist Church Act of 1907, the Bible Christian Church, the Methodist New Connexion Church and the United Methodist Free Churches have become merged in the single denomination of the United Methodist Church.

‡ It is not necessary for buildings to be registered for the Solemnization of Quaker or Jewish Marriages. Under section 31 of the Births, Deaths, and Marriages Registration Act (1836) 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

1908 the number of such buildings which had been brought under the operation of the Act, and so remained, was 2,580 out of the total of 15,274; the numbers of these buildings and the denominations to which they belonged, were as follows:—

1,213	Wesleyan Methodists.
414	Congregationalists.
268	Primitive Methodists.
246	Baptists.
225	United Methodist Church.
67	Calvinistic Methodists.
147	Other Denominations, and Unsectarian.

2,580 Total.

These 2,580 registered buildings were distributed among 476 of the registration districts. In the remaining 157 registration districts there was no registered building under the operation of the Act.

Mode of Solemnization.—The following table shows the changes in the mode of solemnization of marriages that have taken place since 1851.

Period.	Of 1000 Marriages.						
	According to the Rites of the Established Church.	Not according to the Rites of the Established Church.	In Registered Buildings.		Quakers.	Jews.	Civil Marriages in Superintendent Registrar's Office.
			Roman Catholics.	Nonconformists.			
1851-55	842	158	48	62	0.4	1.7	46
1856-60	820	180	46	71	0.4	1.8	61
1861-65	788	212	47	85	0.3	1.8	78
1866-70	769	231	43	96	0.5	1.8	90
1871-75	752	248	41	102	0.3	2.3	102
1876-80	727	273	42	112	0.3	2.4	116
1881-85	711	289	44	114	0.3	2.7	128
1886-90	702	298	42	116	0.3	3.8	136
1891-95	692	308	41	118	0.3	4.9	144
1896-1900	681	319	40	123	0.4	5.9	150
1901-05	650	350	41	130	0.3	7.3	171
1906	631	369	42	130	0.3	8.3	188
1907	624	376	42	131	0.4	7.2	195
1908	616	384	41	132	0.4	6.6	204

Of the marriages contracted in England and Wales during the year 1908, 163,086, or 616 per 1000, were solemnized according to the rites of the Established Church, and 101,854 or 384 per 1,000 were contracted otherwise. It will be observed from the above figures that the proportion of church marriages is the lowest on record, the decrease of 8 per 1,000 since the previous year being balanced by an increase in the proportion of civil marriages in superintendent registrars' offices.

With regard to marriages in the Established Church it will be of further interest to give a statement showing what proportion were by Licence, Banns, and Superintendent Registrar's Certificate respectively.

	Proportional Numbers of Marriages according to the Rites of the Established Church.					
	Total.	Special Licence.	Licence.	Banns.	Superintendent Registrar's Certificate.	Not stated.
1851-55	100	0.01	14.94	78.17	2.77	4.11
1856-60	100	0.01	15.54	78.51	3.01	2.93
1861-65	100	0.01	14.56	79.85	3.04	2.54
1866-70	100	0.01	13.29	81.79	2.94	1.97
1871-75	100	0.01	11.50	85.08	2.68	0.73
1876-80	100	0.02	11.12	85.96	2.46	0.44
1881-85	100	0.05	8.84	88.29	2.48	0.34
1886-90	100	0.02	7.26	90.15	2.30	0.27
1891-95	100	0.02	6.23	91.64	1.88	0.23
1896-1900	100	0.01	5.10	93.32	1.40	0.17
1901-05	100	0.02	4.80	93.97	1.09	0.12
1906	100	0.02	4.43	94.41	1.05	0.09
1907	100	0.01	4.41	94.46	1.02	0.10
1908	100	0.02	4.46	94.46	0.96	0.10

These figures show that while the proportion of marriages by Licence and by Superintendent Registrar's Certificate have, with slight fluctuations, steadily declined, the increase in the proportion of marriages by Banns has been continuous.

The proportion of Roman Catholic marriages which was 41 per 1000 in 1908 has remained practically stationary since 1871.

Marriages in registered buildings belonging to the various non-conformist bodies have increased from 62 per 1000 of the total marriages in the period 1851-5 to 132 per 1000 in the year under review.

It has already been stated that under the provisions of the Marriage Act, 1898, marriages may be solemnized in registered buildings in the presence of duly authorised persons without the attendance of a registrar of marriages. The proportions per 1000 of such marriages from the date when the Act came into operation have been as follows:—

PROPORTION PER 1000 OF TOTAL MARRIAGES.

Year.	In Registered Buildings.		Year.	In Registered Buildings.	
	Before Registrar.	Before Authorised Person.		Before Registrar.	Before Authorised Person.
1899	113	11	1904	101	30
1900	106	22	1905	100	32
1901	104	24	1906	97	33
1902	101	26	1907	96	35
1903	102	28	1908	95	37

The proportion of Jewish marriages which had, with slight fluctuations, steadily increased for many years, until in the year 1906 it reached 8.3 per 1000, fell to 6.6 per 1000 in the year

under notice. Of the 1756 Jewish marriages contracted in the year 1908 in England and Wales, 1247 or 71 per cent. were registered in London, 177 or 10 per cent. in the city of Manchester, and 117 or 7 per cent. in the city of Leeds. Of the Jewish marriages in London, no fewer than 1019 or 82 per cent. were registered in a group of three registration districts—London City, Whitechapel, and Mile End Old Town.

Civil marriages, that is to say, marriages taking place in the office of a superintendent registrar, steadily increased from an average of 46 per 1000 in the period 1851-55 to 204 per 1000 in the year 1908.

The following table shows, among counties with populations exceeding 100,000 persons, the highest proportions per 1000 in the year 1908 of marriages solemnized according to the rites of the Established Church, and of those contracted otherwise :—

Proportion per 1000 of total Marriages.			
According to Rites of Established Church.	Roman Catholics.	Nonconformists.	Civil Marriages.
England and Wales 616	England and Wales 41	England and Wales 132	England and Wales 204
Buckinghamshire 749	Lancashire .. 105	Carnarvonshire 373	Glamorganshire 467
Hertfordshire .. 745	Durham 80	Denbighshire .. 340	Carmarthenshire 446
Worcestershire .. 745	Northumberland 70	Carmarthenshire 335	Carnarvonshire 356
Suffolk 743	Cumberland .. 70	Cornwall.. .. 323	Denbighshire .. 307
Cambridgeshire .. 737	North Riding of Yorkshire 69	Monmouthshire 243	Northumberland 305
Oxfordshire .. 730	Cheshire 49	Glamorganshire 216	Monmouthshire 287
Norfolk 729		Cheshire 180	Durham 278
Dorsetshire .. 721			

BIRTHS.

The births registered in the year 1908 numbered 940,383; of these 902,852 were legitimate, and 37,531 were illegitimate.

In proportion to the total population of both sexes and all ages, the total births were equal to a rate of 26.5 per 1,000 living, this rate was 0.2 per 1,000 above that recorded in 1907, but was no less than 1.6 per 1,000 below the average of the low rates in the ten years 1898-1907.

In the year 1876 the birth-rate attained in this country 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 until in the year 1907 it was no more than 26.3 per 1,000. Although the slight rise in the crude birth-rate to 26.5 per 1,000 in the year 1908 is noteworthy, it is probably a reflection of the upward change in the marriage-rate, which took place in the years 1905-7.

There is no present indication of any real check in the decline of the birth-rate—the provisional returns for the first three quarters of the year 1909 show a decrease in each quarter, when compared with those for the corresponding quarters of the previous year, while the heavy fall in the marriage-rate which took place in the year 1908 will probably tend to depress the birth-rate further in the years immediately following.

One of the factors determining the birth-rate should be the marriage-rate, not the marriage-rate of the same or even the next preceding year, but the combined rates of several preceding years. An examination of the Tables, however, shows that it is somewhat difficult to trace over a long series of years a close correspondence between the two series of rates.

It is well known, however, that apart from the fluctuations in the marriage-rate, there are other factors at work to account for the great fall in the birth-rate that has taken place during the past thirty years, and it may be added that a decreasing birth-rate is a feature common to nearly all European Countries and also to the principal Colonial States. (See International Statistical Tables, pages 108-145.)

The effect of the fall in the birth-rate on the growth of the population has been to some extent modified by the concurrent decline in the death-rate, but it is obvious that the death-rate cannot decline indefinitely. A statement is given on page xxxvi which shows the rate of natural increase in the population in the past 30 years. The annual rate of increase by excess of births over deaths, which had been 14.56 per 1,000 living in the period 1876-80, fell with fluctuations to 11.85 per 1,000 living in the year 1908.

Excluding the effects of migration and of changes in the rates of mortality, the decline in the birth-rate has had an important effect on the age constitution of the population. This subject is illustrated by detailed Tables and fully discussed in the last Census Report. From that report it will be seen how important the changes in the age-constitution of the population have been in recent years.

Speaking in general terms, the whole population of the country may be divided into children, adults, and old people. It may be noted that a considerable reduction had taken place at the last Census in the proportion of children, and a corresponding increase in the proportion of adults, while the proportion of old people had remained unaffected. There can be little doubt, owing to the fall in the birth-rate since the last enumeration of the population, that the results of the next Census will show, other factors being equal, a further reduction in the proportion of children in the population.

The following statement shows the changes in the proportion of women of conceptive ages in the population, the changes in the age constitution of the married female population, and the changes in the married rate at the four past Censuses—all factors affecting the birth-rate :—

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 1000 Marriageable Persons in the Population.
			Aged 15-20 years.	Aged 20-25 years.	Aged 25-35 years.	Aged 35-45 years.	
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

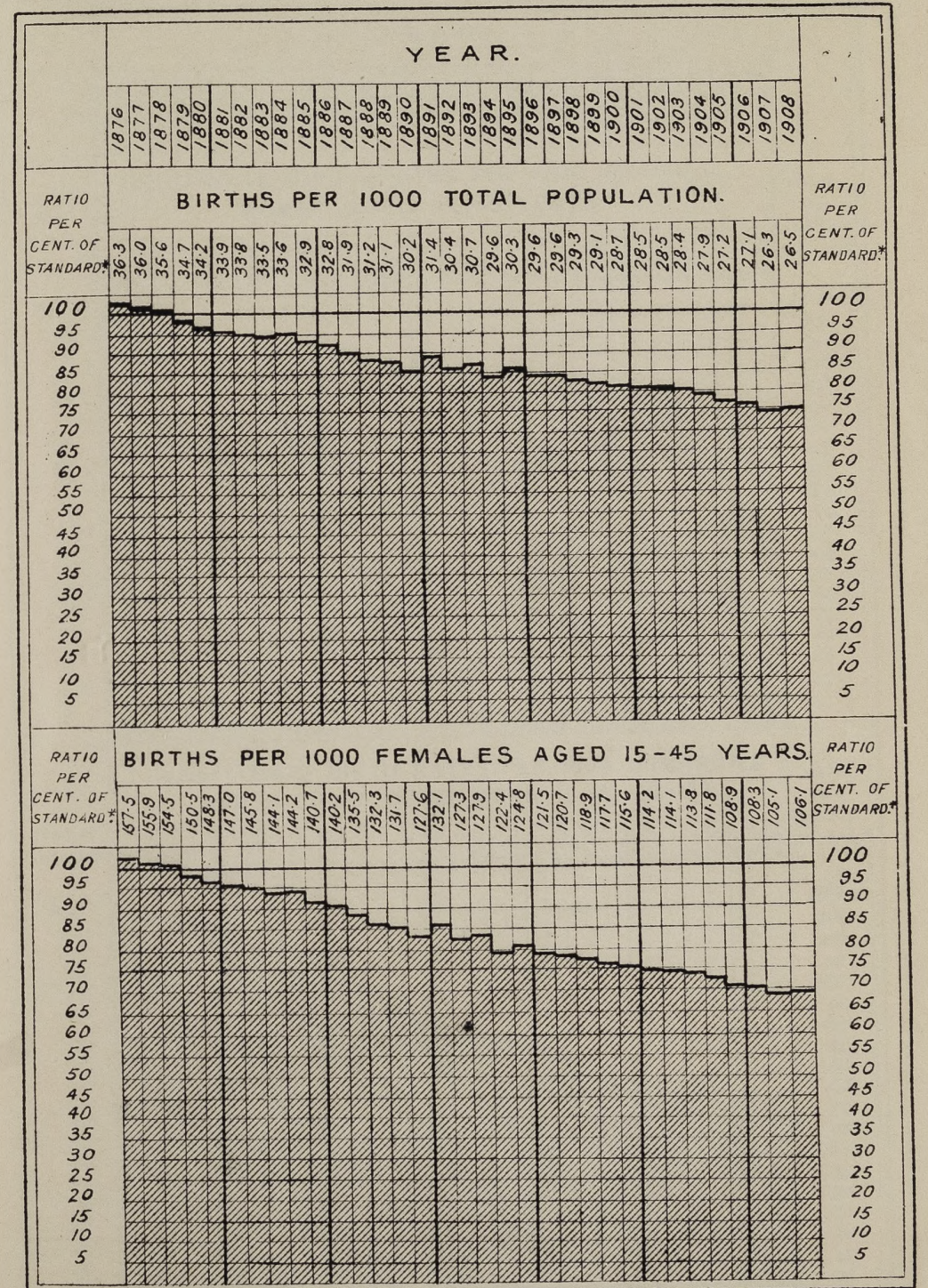
TABLE D.—ENGLAND AND WALES.—BIRTH-RATES, 1876-1908.

Period.	(a.)		(b.)		(c.)		(d.)	
	Birth-rate calculated on Total Population at All Ages.		Birth-rate calculated on the Female Population aged 15-45 years.		Legitimate Birth-rate calculated on the Married Female Population aged 15-45 years.		Illegitimate Birth-rate 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	28.1	79.6	112.5	73.4	230.7	77.9	8.4	58.3
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	114.1	74.4	234.2	79.0	8.4	58.3
1903 ...	28.4	80.5	113.8	74.2	233.3	78.7	8.4	58.3
1904 ...	27.9	79.0	111.8	72.9	229.1	77.3	8.4	58.3
1905 ...	27.2	77.1	108.9	71.0	223.2	75.3	8.2	56.9
1906 ...	27.1	76.8	108.3	70.6	222.0	74.9	8.1	56.3
1907 ...	26.3	74.5	105.1	68.6	215.6	72.8	7.8	54.2
1908 ...	26.5	75.1	106.1	69.2	217.6	73.4	8.0	55.6

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, and has remained constant since 1901. 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.

BIRTH-RATES.

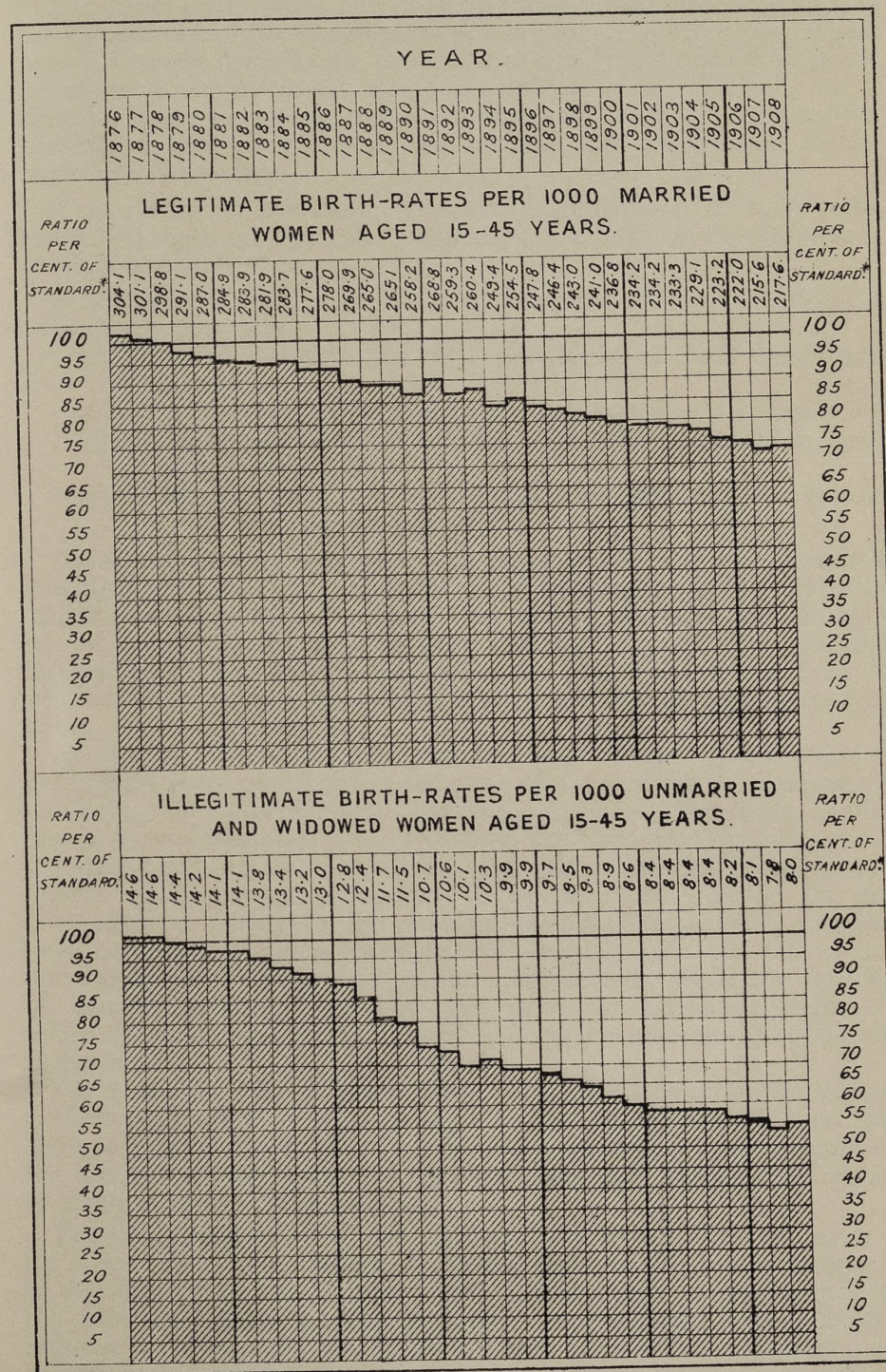
DIAGRAM II.—BIRTH-RATES, ENGLAND & WALES. 1876-1908.



* The Standard adopted is the average rate in the five years 1876-80.

BIRTH-RATES.

DIAGRAM III- LEGITIMATE AND ILLEGITIMATE BIRTH-RATES.
ENGLAND & WALES, 1876-1908.



*The Standard adopted is the average rate in the five years 1876-80.

Measuring the Birth-rate.—It has been pointed out in previous reports that the crude birth-rate, *i.e.*, the ratio of births to the population at all ages, is of considerable value for comparing the birth statistics of a population from year to year, or in conjunction with the death-rate, for ascertaining the rate of natural increase in a community.

The crude birth-rate is not, however, adapted for close inquiry into the significance of the variations which are found to occur over a long period, because it masks the effect of the changing constitution of the population in regard to sex, age, and condition as to marriage, nor is it well adapted for comparing the rates in two or more communities because of the differences in the sex and age constitution of the respective populations.

It is desirable, therefore, to make a comparison of birth-rates, based not only on the total population, but also on the number of possible mothers.

In Table D on page xxvi 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 diagrams, which afford a ready means of gauging the fall in the birth-rate during the past thirty years. In view of the changing constitution of the population and the time that has elapsed since the last Census, special attention is directed to the note at the foot of Table D with reference to the trustworthiness of the figures for intercensal 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 25 per cent. Based on the proportion of births to the number of possible mothers, *i.e.*, the total number of women living at child-bearing ages, the fall in the rate amounted to 31 per cent. in the same period ; while the fertility of married women, based on the ratio of legitimate births to wives of conceptive ages, showed a decrease amounting to nearly 27 per cent.

Put in another way, if the fertility of married women in proportion to their numbers had been as high in 1908 as in 1876-80 then the legitimate births would have numbered 1,229,679 in 1908 instead of the 902,852 actually recorded, giving a legitimate birth-rate of 34·69 or 9·22 in excess of that recorded.

But if the population in 1908 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 1908 population, assuming it to be constituted as in 1901, is sufficient to account for a *rise* of 1·02 in the legitimate birth-rate.

The fall in the legitimate birth-rate since 1876-80 is 8.20, therefore this net fall must be made up of a potential rise of 1.02 due to increased proportion of wives aged 15-45, and a fall of 9.22 due to diminished fertility of wives from whatever cause.

The fall due to decrease of illegitimacy is 0.62, making up the total fall of 8.82. 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 in the population, and a fall due to (2) their diminished fertility. Had the latter remained as in 1876-80, 67,649 births would have resulted, giving an illegitimate birth-rate of 1.91, or 0.85 more than that actually recorded. This figure then represents the effect of (2), so the difference between it and 0.62, the actual fall in illegitimate birth rate must represent the potential rise, 0.23, 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:—

	Birth-rate.		
	Total.	Legitimate.	Illegitimate.
Potential effect of increased proportion (assumed constant since 1901) of women aged 15-45 in the population.	+ 2.96	+ 2.82	+ 0.14
Potential effect of change in proportion of married to total women aged 15-45.	- 1.71	- 1.80	+ 0.09
Effect of diminished fertility ...	- 10.07	- 9.22	- 0.85
Recorded fall 1876-80 to 1908 ...	- 8.82	- 8.20	- 0.62

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 probably 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 changes in the constitution of the population, so that these cannot be appealed to as helping to explain the fall in birth-rate. It should be noted too that while the constitution of the population in 1908 has necessarily been assumed in the above comparison to be the same as at the 1901 Census, it is probable that the increase in proportion of wives aged 15-45, which had been going on from 1876-80 to 1901, has continued since that date. If this is so the effect of diminished fertility is masked in the recorded birth-rate to a somewhat greater extent than that shown in the table.

The fact is also significant that at the last Census period, 1900-02, the fertility of English wives was lower than that recorded in any European country except France. (See page lix.)

Rates of Fertility among Married Women in Counties.—Table E, on page xxix, shows the proportions of legitimate births per 1000 married women aged 15-45 years in each registration county. The number of married women of conceptive ages in England and Wales in the

TABLE E.—ANNUAL FERTILITY RATES OF MARRIED WOMEN in each REGISTRATION COUNTY, 1870-1908.

Registration Counties.	Legitimate Births per 1000 Married Women aged 15-45 years.*						Decrease per cent. in each County between the period 1870-72 and 1908.
	Census periods.				Five-year period.	Year.	
	1870-72.	1880-82.	1890-92.	1900-02.	1903-07.	1908.	
England and Wales..	292.5	286.0	263.8	235.5	224.5	217.6	25.6
London	269.9	272.6	250.4	227.8	213.3	198.2	26.6
Surrey	285.1	284.3	244.4	208.2	214.7	213.1	25.3
Kent	288.8	287.6	255.6	221.2	208.9	193.7	32.9
Sussex	284.6	270.2	235.9	203.3	190.5	180.3	36.6
Hampshire ..	272.9	273.9	243.3	211.6	208.6	204.7	25.0
Berkshire ..	294.5	290.0	257.6	219.0	212.5	205.6	30.2
Middlesex ..	288.0	293.6	252.3	224.1	229.0	219.8	23.7
Hertfordshire	300.0	291.7	264.0	224.8	222.8	221.4	26.2
Buckinghamshire	299.5	291.9	270.4	230.4	223.8	214.6	28.3
Oxfordshire ..	295.7	294.7	271.1	228.0	220.8	228.9	22.6
Northamptonshire	297.5	290.6	265.8	222.0	191.6	175.5	41.0
Huntingdonshire	302.3	274.9	262.5	236.0	234.2	229.0	24.2
Bedfordshire ..	296.0	283.1	256.8	219.1	207.2	219.3	25.9
Cambridgeshire	294.3	276.6	255.0	223.9	216.6	210.5	28.5
Essex	293.7	300.4	270.0	238.5	221.8	204.6	30.3
Suffolk	290.2	293.6	269.5	236.5	226.4	218.3	24.8
Norfolk	273.1	279.3	257.2	229.5	217.5	210.7	22.8
Wiltshire	297.9	291.6	261.3	225.1	226.5	221.1	25.8
Dorsetshire ..	288.8	286.8	254.7	219.2	218.3	206.5	28.5
Devonshire ..	284.5	284.5	252.2	208.4	200.9	192.7	32.3
Cornwall	294.0	287.7	262.0	219.6	201.1	204.0	30.6
Somersetshire ..	293.0	292.0	267.6	221.0	215.3	206.1	29.7
Gloucestershire	285.7	281.5	259.3	224.6	214.1	195.5	31.6
Herefordshire ..	285.6	279.2	272.3	235.0	227.0	219.1	23.3
Shropshire	302.7	286.8	275.3	257.0	257.0	236.9	21.7
Staffordshire ..	320.2	311.1	298.7	270.1	251.1	241.5	24.6
Worcestershire ..	296.6	288.3	268.2	239.0	219.9	207.6	30.0
Warwickshire ..	291.5	287.3	264.5	243.2	232.3	226.6	22.3
Leicestershire ..	300.6	295.0	268.4	232.7	211.3	196.9	34.5
Rutlandshire ..	295.9	297.9	258.5	227.5	217.6	210.6	28.8
Lincolnshire ..	293.4	284.1	255.3	228.3	224.5	232.9	20.6
Nottinghamshire	285.6	287.8	260.5	242.9	236.8	240.0	16.0
Derbyshire	296.6	293.2	270.8	243.9	229.0	233.9	21.1
Cheshire	292.8	286.0	266.9	230.8	221.2	214.0	26.9
Lancashire	297.1	285.0	264.3	233.7	221.6	216.5	27.1
West Riding ..	293.0	272.7	249.3	223.0	207.3	201.4	31.3
East Riding ..	281.9	274.9	258.1	238.7	222.8	218.4	22.5
North Riding ..	313.6	304.2	274.5	260.4	257.0	266.0	15.2
Durham	324.1	307.9	299.7	282.7	269.5	271.2	16.3
Northumberland	313.0	300.1	290.0	266.8	255.8	251.2	19.7
Cumberland ..	311.8	309.7	288.6	256.5	248.7	241.1	22.7
Westmorland ..	305.9	300.2	267.4	218.9	207.6	186.7	39.0
Monmouthshire ..	304.1	298.7	304.6	283.5	287.2	301.6	0.8
South Wales:—	317.3	305.9	301.0	271.4	263.7	263.4	17.0
Glamorganshire ..	313.1	303.4	303.5	274.0	264.0	266.2	15.0
Carmarthenshire ..	344.1	321.7	309.4	274.9	283.7	290.6	15.5
Pembrokeshire ..	319.6	320.4	291.9	253.8	254.1	235.1	26.4
Cardiganshire ..	315.2	296.4	277.3	245.4	238.0	218.7	30.6
Brecknockshire ..	310.6	296.4	292.1	272.9	269.2	257.9	17.0
Radnorshire ..	308.6	302.5	282.6	264.2	223.7	184.8	40.1
North Wales:—	300.1	283.1	261.7	245.1	235.4	218.0	27.4
Montgomeryshire ..	308.7	292.5	273.2	253.0	244.6	230.2	25.4
Flintshire	310.4	284.0	285.7	246.4	272.5	281.4	9.3
Denbighshire ..	301.2	289.6	282.8	265.3	251.0	236.9	21.3
Merionethshire ..	311.0	287.2	255.5	247.7	224.1	188.5	39.4
Carnarvonshire ..	289.9	271.8	237.2	226.7	209.8	186.2	35.8
Anglesey	277.2	275.1	240.7	224.2	221.6	198.9	28.2

* See note to Table D, page xxvi.

middle of the year 1908 is estimated at 4,138,620, and the children born alive to these women numbered 902,852, so that 218 in every 1000 bore living children. It will be seen, however, from the following statement that the proportions vary considerably in different parts of the country. Among registration counties with populations exceeding 100,000 persons the counties with the highest and lowest fertility rates in the year 1908 were as follows:—

Registration Counties with the Highest Fertility Rates.	Legitimate Birth-rates per 1000 Married Women aged 15-45 years.	Registration Counties with the Lowest Fertility Rates.	Legitimate Birth-rates per 1000 Married Women aged 15-45 years.
England and Wales, 217·6.			
Monmouthshire ...	301·6	Northamptonshire ...	175·5
Carmarthenshire ...	290·6	Sussex ...	180·3
Durham ...	271·2	Carnarvonshire ...	186·2
Glamorganshire ...	266·2	Devonshire ...	192·7
North Riding of Yorkshire.	266·0	Kent ...	193·7
Northumberland ...	251·2	Gloucestershire ...	195·5
Staffordshire ...	241·5	Leicestershire ...	196·9
Cumberland ...	241·1	London ...	198·2
Nottinghamshire ...	240·0	West Riding of Yorkshire.	201·4
Denbighshire ...	236·9	Cornwall ...	204·0
Shropshire ...	236·9		

It will be noted that the fertility rates are highest in the mining counties and lowest in the agricultural counties, but these disparities are in a considerable measure due to differences in the age constitution of the married women in the several counties. The considerable variations in the proportions of young married women in different parts of the country is shown by a few examples taken from a table published in the last Annual Report which gave the legitimate birth rates and the age distribution of married women of conceptive ages in each registration county at the last census.

	Legitimate Birth-rates per 1000 Married Women aged 15-45 years, 1900-2.	Of the Married Women aged 15-45 years, the proportion per cent. at three groups of ages at the Census of 1901.		
		15-25 years.	25-35 years.	35-45 years.
England and Wales ...	235·5	12·5	46·8	40·7
Monmouthshire ...	283·5	14·2	47·8	38·0
Durham ...	282·7	16·1	46·9	37·0
Glamorganshire ...	274·0	15·1	48·2	36·7
Staffordshire ...	270·1	14·0	47·3	38·7
Northumberland ...	266·8	15·1	47·3	37·6
Sussex ...	203·3	10·0	45·8	44·2
Surrey ...	208·2	9·8	46·8	43·4
Devonshire ...	208·4	10·3	45·5	44·2
Hampshire ...	211·6	11·4	46·3	42·3
Westmorland ...	218·9	8·3	45·0	46·7

It will be seen from these instances that high and low fertility rates coincide with high and low proportions of young married women in the several counties. Although however such coincidence is the general rule there are some exceptions notably London and the West Riding of Yorkshire, where, notwithstanding the fact that the proportions of young wives were above the mean for the whole country, the fertility rates are below it; on the other hand, in North Wales, in South Wales (less Glamorganshire) in Cumberland and in Shropshire, in spite of the low proportions of young wives and the correspondingly high proportions of elderly wives, the fertility rates are comparatively high. (See Table E. page xxviii of Seventieth Annual Report).

Birth-rates and age distribution of married women in Urban and Rural Districts.—From Table E. which gives the fertility rates of married women in each registration county it might be inferred that the fertility of married women is greater in urban than in rural areas. That such is not the case is shown by the following figures which

TABLE F.—LEGITIMATE BIRTH RATES and AGE CONSTITUTION of MARRIED WOMEN in ENGLAND and WALES, in 21 large Towns and in the aggregate of 112 Rural Registration Districts, 1901.

	Legitimate Birth-rate per 1000 Married Women aged 15-45 years, 1901.	Of the Married Women aged 15-45 years, the proportion per 1000 at three groups of ages at the Census of 1901.		
		15-25 years.	25-35 years.	35-45 years.
England and Wales ...	234·2	125	468	407
Aggregate of 112 Rural Registration Districts.*	244·0	102	446	452
Aggregate of 21 large Towns† ...	228·9	135	474	391
Rhondda ...	298·9	189	485	326
Newcastle-on-Tyne ...	256·4	151	476	373
Liverpool ...	251·2	146	473	381
Hull ...	251·1	154	475	371
Birmingham ...	246·1	147	480	373
Preston ...	243·4	120	466	414
Sheffield ...	238·6	164	473	363
Cardiff ...	236·7	133	473	394
Norwich ...	230·2	124	456	420
London ...	228·4	131	474	395
Bristol ...	222·4	124	480	390
Leeds ...	221·7	127	482	391
Manchester ...	220·6	136	483	381
Leicester ...	218·1	129	477	394
Nottingham ...	213·3	137	450	413
Portsmouth ...	210·7	138	472	390
Plymouth ...	207·3	129	476	395
Blackburn ...	205·0	116	457	427
Brighton ...	198·9	114	463	423
Oldham ...	184·9	116	468	416
Bradford ...	176·1	112	468	420

* 112 entirely Rural Registration Districts with an aggregate population of 1,330,319 persons at the date of the Census of 1901.

† 21 large Towns with an aggregate population of 9,799,866 persons at the date of the Census of 1901.

enable a more accurate comparison to be made of birth rates in town and country areas than is furnished by selecting groups of urban and rural counties. The statistics in the Table relate to 21 representative towns containing at the date of the last census an aggregate population of 9,799,866 persons, and to the 112 entirely rural unions or registration districts containing an aggregate population of 1,330,319 persons. The figures show that the fertility of married women living in the country districts is about seven per cent. greater than that of women residing in the selected towns.

The greater fertility in rural districts would be still more marked if the age constitution of the married women in the two areas were nearly alike. The rural districts labour however under a disadvantage in this respect because owing to the migration of young persons from rural to industrial areas the proportion of young married women in the rural districts is considerably below the proportion in the towns or in the country as a whole.

Sex Proportions at Birth.—In 1908 the births of males in England and Wales numbered 478,410 and the births of females 461,973; the male births were therefore to the female births in the proportion of 1036 to 1000. The proportions in successive groups of years 1838-1908 are shown in Table 4, page 6; since the commencement of birth registration the ratios had ranged from 1032 to 1054 per 1000. The proportion of boys to girls at birth is lower in England and Wales than in any European country. The excess in the proportional number of boys in the several counties of England and Wales varies considerably; in registration counties with populations exceeding 100,000 the highest and lowest proportions borne by male to female births during the ten years 1899-1908, were as follows:—

Registration Counties.	Highest proportion of Male to 1000 Female births, 1899-1908.	Registration Counties.	Lowest proportion of Male to 1000 Female births, 1899-1908.
England and Wales, 1036.			
Carnarvonshire ...	1066	Herefordshire ...	1015
Bedfordshire ...	1059	Shropshire ...	1026
Denbighshire ...	1058	Leicestershire ...	1027
Buckinghamshire ...	1056	Hertfordshire ...	1028
Cambridgeshire ...	1056	Berkshire ...	1029
Cumberland ...	1056	Nottinghamshire ...	1030
North Riding of Yorkshire.	1053	Warwickshire ...	1031
Monmouthshire ...	1048	Wiltshire ...	1031
Suffolk ...	1048	Oxfordshire ...	1032
		West Riding of Yorkshire.	1032

Illegitimate Births.—The births registered during the year 1908 included 902,852 of legitimate children and 37,531 of illegitimate children.

The measure of illegitimacy is usually obtained by taking the proportion of illegitimate births to the total births; this method, though convenient, is defective, because it ignores the varying proportions of unmarried and widowed women in the population.

It is undoubtedly a better method to compare the number of illegitimate children with the number of single and widowed women of conceptive ages. Except for census years, however, such ratios

must be used with caution, because estimates of sections of the population such, for example, as the number of unmarried and widowed females, are specially liable to error.

The following table shows for a series of years the results of the two methods of calculating the ratio of illegitimacy.

TABLE G.—ENGLAND AND WALES.—ILLEGITIMATE BIRTH-RATES, 1876-1908.

Period.	In proportion to total Births.		In proportion to the Unmarried and Widowed Female population aged 15-45 years.	
	Rate per 1000.	Compared with rate in 1876-80 taken as 100.	Rate per 1000.	Compared with rate in 1876-80 taken as 100.
1876-1880 ...	47·5	100·0	14·4	100·0
1881-1885 ...	48·0	101·1	13·5	93·8
1886-1890 ...	46·3	97·5	11·8	81·9
1891-1895 ...	42·4	89·3	10·1	70·1
1896-1900 ...	41·0	86·3	9·2	63·9
1901-1905 ...	39·5	83·2	8·4	58·3
1876 ...	46·8	98·5	14·6	101·4
1877 ...	47·5	100·0	14·6	101·4
1878 ...	47·2	99·4	14·4	100·0
1879 ...	47·9	100·8	14·2	98·6
1880 ...	48·3	101·7	14·1	97·9
1881 ...	48·8	102·7	14·1	97·9
1882 ...	48·5	102·1	13·8	95·8
1883 ...	47·9	100·8	13·4	93·1
1884 ...	47·1	99·2	13·2	91·7
1885 ...	47·9	100·8	13·0	90·3
1886 ...	47·4	99·8	12·8	88·9
1887 ...	47·5	100·0	12·4	86·1
1888 ...	46·3	97·5	11·7	81·3
1889 ...	45·9	96·6	11·5	79·9
1890 ...	44·2	93·1	10·7	74·3
1891 ...	42·4	89·3	10·6	73·6
1892 ...	41·9	88·2	10·1	70·1
1893 ...	42·5	89·5	10·3	71·5
1894 ...	43·1	90·7	9·9	68·8
1895 ...	42·1	88·6	9·9	68·8
1896 ...	42·3	89·1	9·7	67·4
1897 ...	41·7	87·8	9·5	66·0
1898 ...	41·5	87·4	9·3	64·6
1899 ...	40·0	84·2	8·9	61·8
1900 ...	39·7	83·6	8·6	59·7
1901 ...	38·9	81·9	8·4	58·3
1902 ...	39·0	82·1	8·4	58·3
1903 ...	39·3	82·7	8·4	58·3
1904 ...	39·9	84·0	8·4	58·3
1905 ...	40·2	84·6	8·2	56·9
1906 ...	40·0	84·2	8·1	56·3
1907 ...	39·4	82·9	7·8	54·2
1908 ...	39·9	84·0	8·0	55·6

TABLE H.—ANNUAL ILLEGITIMATE BIRTH-RATES in each REGISTRATION COUNTY, 1870-1908.

Registration Counties	Illegitimate Births to 1000 Unmarried and Widowed Females, aged 15-45 years.*						Decrease per cent. in each County between the period 1870-2 and 1908.
	Census periods.				Five-year period.	Year.	
	1870-72.	1880-82.	1890-92.	1900-02.	1903-07.	1908.	
England and Wales..	17'0	14'1	10'5	8'5	8'2	8'0	52'9
London	10'3	9'8	8'1	6'9	6'8	6'7	35'0
Surrey	9'5	8'5	6'6	5'9	5'7	5'5	42'1
Kent	14'7	12'1	9'3	7'5	7'5	7'1	51'7
Sussex	13'7	11'5	8'7	7'2	6'7	6'7	51'1
Hampshire ..	13'6	11'8	8'5	7'3	7'0	6'8	50'0
Berkshire ..	16'8	13'4	10'3	8'7	8'4	9'2	45'2
Middlesex ..	9'4	9'4	6'5	5'9	5'9	5'4	42'6
Hertfordshire..	18'4	15'3	10'4	7'0	7'2	6'3	65'8
Buckinghamshire	19'0	16'5	12'6	9'1	8'6	7'5	60'5
Oxfordshire ..	19'0	15'4	10'4	9'0	9'1	10'1	46'8
Northamptonshire	18'7	15'9	11'7	9'1	8'6	8'0	57'2
Huntingdonshire	19'8	14'0	12'9	10'9	9'7	11'3	42'9
Bedfordshire ..	21'1	18'0	11'2	8'4	8'2	7'6	64'0
Cambridgeshire	19'3	15'6	12'4	9'6	10'1	9'9	48'7
Essex	16'2	12'7	9'1	7'3	6'9	6'8	58'0
Suffolk	22'0	17'8	14'0	12'0	12'0	11'8	46'4
Norfolk	27'3	22'6	16'7	13'4	13'1	12'3	54'9
Wiltshire	17'1	14'7	10'3	9'2	8'8	8'6	49'7
Dorsetshire ..	14'2	13'1	9'6	7'2	7'2	7'4	47'0
Devonshire ..	14'0	10'6	8'1	6'7	6'5	6'5	53'6
Cornwall	16'5	14'8	11'2	8'6	7'9	7'7	53'3
Somersetshire..	13'3	11'3	7'4	6'0	5'8	6'0	54'9
Gloucestershire	12'9	11'6	8'2	6'3	6'2	5'7	55'8
Herefordshire..	21'4	19'0	13'4	11'2	11'2	10'7	50'0
Shropshire ..	28'2	21'8	16'6	12'8	13'0	11'4	59'6
Staffordshire ..	24'6	19'4	14'5	11'2	11'0	10'1	58'9
Worcestershire	16'3	13'7	9'2	7'2	6'7	6'7	58'9
Warwickshire ..	14'9	13'2	9'7	7'6	7'2	6'8	54'4
Leicestershire	19'9	16'1	11'4	8'6	7'7	6'9	65'3
Rutlandshire ..	18'1	12'7	7'9	7'2	8'2	9'1	49'7
Lincolnshire ..	22'3	18'5	14'2	12'2	12'2	12'2	45'3
Nottinghamshire	24'5	21'7	15'4	12'7	12'3	12'3	49'8
Derbyshire ..	22'5	17'7	12'8	10'0	9'9	9'2	59'1
Cheshire	17'5	14'2	10'3	7'7	7'2	6'7	61'7
Lancashire ..	16'2	13'6	10'2	7'9	7'6	7'3	54'9
West Riding ..	20'4	16'1	11'4	9'4	8'9	8'6	57'8
East Riding ..	23'0	18'2	14'3	12'2	11'6	12'1	47'4
North Riding..	27'7	20'2	15'4	12'1	11'3	11'9	57'0
Durham	24'0	18'0	13'8	11'1	11'1	11'9	50'4
Northumberland	21'1	17'9	12'4	10'2	9'9	10'1	52'1
Cumberland ..	29'2	23'9	18'6	12'3	12'0	12'3	57'9
Westmorland..	21'9	17'9	13'1	8'6	8'7	8'3	62'1
Monmouthshire	18'6	15'9	11'3	10'2	9'2	9'2	50'5
South Wales:—	18'8	14'8	10'8	8'7	8'9	8'6	54'3
Glamorganshire	17'7	13'5	10'3	8'5	8'9	8'8	50'3
Carmarthenshire	18'2	13'9	9'4	7'7	8'2	7'0	61'5
Pembrokeshire	21'6	15'9	12'4	8'9	9'9	10'0	53'7
Cardiganshire ..	16'0	14'8	11'8	8'9	7'4	8'3	48'1
Brecknockshire	19'9	18'0	12'5	10'1	9'0	6'6	66'8
Radnorshire ..	41'8	33'2	20'1	14'4	11'9	10'0	76'1
North Wales:—	21'9	17'9	14'2	12'0	11'6	10'7	51'1
Montgomeryshire	29'5	24'3	16'7	13'1	12'9	11'3	61'7
Flintshire ..	18'7	18'4	13'1	9'7	11'3	10'6	43'3
Denbighshire ..	21'1	17'6	13'4	12'3	11'7	10'9	48'3
Merionethshire	24'4	19'5	16'4	13'5	13'2	12'5	48'8
Carnarvonshire	18'3	13'9	12'7	10'3	9'7	8'9	51'4
Anglesey	19'7	16'7	15'7	16'1	14'2	14'3	27'4

* See note to Table page D, xxvi.

Comparing the proportion of illegitimate births in England and Wales in the year 1908 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 about 16 per cent., but based on the number of unmarried and widowed women of conceptive ages the decrease during the same period amounted to about 44 per cent.; this latter figure represents with approximate accuracy the decrease in the proportion of illegitimacy.

In the section of this report dealing with International Statistics, a table will be found (page lx) from which a comparison can be made between the proportion of illegitimacy in this country and in certain European and Colonial States. It will be noted from the figures in the table that the ratio of illegitimate births in proportion to the unmarried and widowed section of the population aged 15-45 years was in every country (except in the Netherlands and in Ireland) above the proportion recorded in England and Wales.

Illegitimate Births in Counties.—It is difficult to explain the variations in the rates of illegitimacy in the several counties. It was pointed out in the previous report that, broadly speaking, the single and widowed women in London, in the counties south of the Thames, and in the south-western counties, have comparatively few illegitimate children; on the other hand, the number of illegitimate children is comparatively high in Shropshire, in Herefordshire, in Staffordshire, in Nottinghamshire, in Cumberland, in North Wales, and also in nearly all the counties on the eastern seaboard, viz., Suffolk, Norfolk, Lincolnshire, the East and North Ridings of Yorkshire, and Durham. It was formerly assumed that there was an indirect connection between female illiteracy and illegitimacy, but there is no conclusive evidence that such is the case at the present day. The proportions of illegitimacy and the proportions of married women who signed the marriage register by mark are relatively high in Staffordshire, in North Wales, in Durham, in Nottinghamshire, and in the North Riding of Yorkshire; on the other hand in Norfolk, in Suffolk, and in Lincolnshire there is a comparatively high proportion of illegitimacy and a low proportion of illiteracy. A study of the facts in Table H may possibly assist those who are interested in the welfare of the people to investigate the causes of the discrepancies which appear in the several counties.

Natural Increase.—The increase or decrease of population is governed by two factors; (1) the balance between births and deaths, and (2) the balance between emigration and immigration. As regards this country the balance between births and deaths has invariably, at least in recent times, resulted in an excess of births over deaths; in reference to migration emigrants have invariably exceeded immigrants, at all events since 1851.

Dealing with the question of natural increase, *i.e.*, the excess of births over deaths, it will be observed from the following statement that the average annual rate fell, from 14'56 per 1000 living in the quinquennium 1876-1880 to 11'58 per 1000 in the quinquennium 1896-1900; in 1901-5 the rate rose again to 12'10 followed by a fall in the years 1906 and 1907, and by a slight recovery in the year 1908. The fall in the natural rate of increase is due to the birth rate having declined more rapidly than the death rate.

	Mean Annual Birth-rate per 1000 living.	Mean Annual Death-rate per 1000 living.	Mean Annual rate of increase, by excess of Births over Deaths, per 1000 living.
1876-1880	35·35	20·79	14·56
1881-1885	33·51	19·40	14·11
1886-1890	31·44	18·89	12·55
1891-1895	30·48	18·71	11·77
1896-1900	29·27	17·69	11·58
1901-1905	28·10	16·00	12·10
1906	27·07	15·38	11·69
1907	26·27	15·00	11·27
1908	26·53	14·68	11·85

DEATHS.

The deaths of 520,456 persons were registered in England and Wales in the year 1908; of these, 268,714 were males and 251,742 were females.

In the year under review the deaths from all causes corresponded to a rate of 14·7 per 1000 of the population; this rate was 0·3 per 1000 below the rate in 1907, and lower than the rate in any other year on record. Compared with the average in the ten years 1898-1907, the death-rate in 1908 showed a decrease of 1·7 per 1000.

During the eight years of the current century, the death-rate, with slight fluctuations, fell from 16·9 per 1000 in 1901 to 14·7 per 1000 in 1908. In five of these eight years, viz., 1902, 1903, 1905, 1907 and 1908, the death-rate has been successively the lowest on record.

Looking back over the mortality statistics of the past fifty years, it will be seen from the following Table and the accompanying diagram that, after correction for variations of sex and age constitution, the annual rate of mortality in the quinquennium 1861-65 was equal to 21·4 per 1000 persons living. From that date the death-rate fell steadily, declining in the whole period under review by nearly one-third.

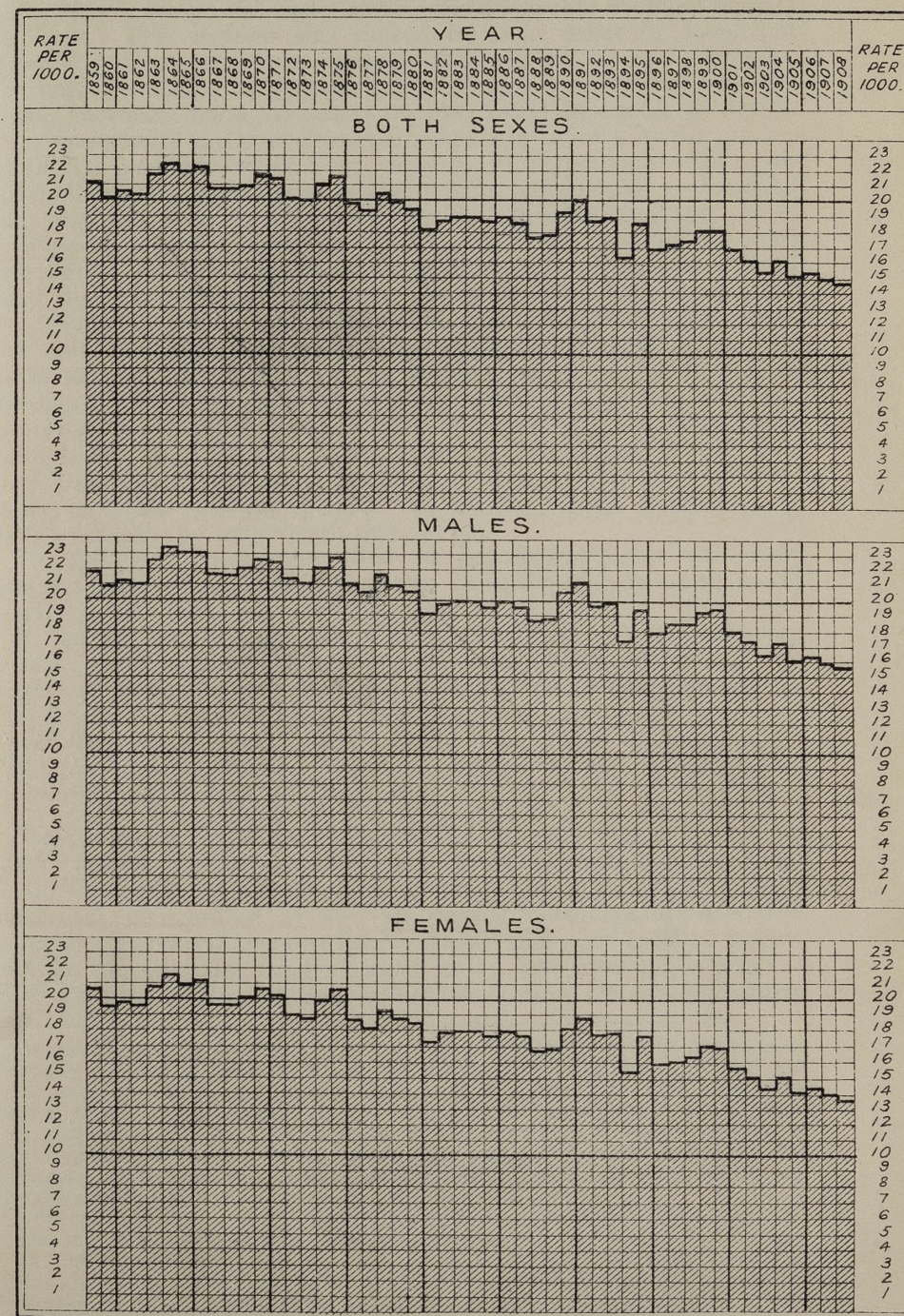
ENGLAND AND WALES.—ANNUAL RATE* of MORTALITY per 1000 LIVING, corrected for SEX and AGE CONSTITUTION, 1861-1908.

Period.	Persons.	Males.	Fe-males.	Period.	Persons.	Males.	Fe-males.
1861-1865 ...	21·4	22·3	20·6	1901 ...	16·9	18·1	15·8
1866-1870 ...	21·2	22·2	20·3	1902 ...	16·2	17·4	15·2
1871-1875 ...	20·9	22·0	19·8	1903 ...	15·4	16·5	14·4
1876-1880 ...	19·8	21·0	18·7	1904 ...	16·2	17·3	15·2
1881-1885 ...	18·7	19·7	17·8	1905 ...	15·2	16·2	14·3
1886-1890 ...	18·5	19·6	17·5	1906 ...	15·4	16·4	14·4
1891-1895 ...	18·5	19·6	17·5	1907 ...	15·0	16·0	14·1
1896-1900 ...	17·6	18·8	16·5	1908 ...	14·7	15·7	13·7
1901-1905 ...	16·0	17·1	15·0				

* The death-rates in this table are based upon the constitution of the population as enumerated at the Census of 1901, and differ, therefore, from the crude death-rates given in Table 4, page 6.

CORRECTED DEATH-RATES.

DIAGRAM IV.—DEATH-RATES FROM ALL CAUSES PER 1000 LIVING, CORRECTED FOR VARIATIONS OF SEX AND AGE CONSTITUTION. ENGLAND & WALES, 1859-1908.



Note.—The death-rates throughout the entire period are based upon the sex and age constitution of the population as enumerated in 1901.

It is a fair assumption that this satisfactory reduction in the rate of mortality is mainly due to the advance in medical science and to the increased attention paid to hygienic matters by the individual, the local administrative authorities, and the State, since the passing of the Public Health Act in 1875.

Mortality of each Sex.—It will be observed from the foregoing Table that in the period under review the death-rate declined by 31·3 per cent. This decline was shared by both sexes in somewhat different proportions. Among males the rate fell by 29·6 per cent., and among females by 33·5 per cent. It may be observed that the higher mortality among males is mainly caused by excess of deaths from immaturity and convulsions among male infants, by the greater liability of men to deaths from violence in connection with their occupations, and to excess of mortality from tuberculosis, pneumonia, and respiratory diseases. Moreover, the greater mortality from intemperance among men has considerable influence in the same direction. On the other hand, in addition to the special risk of death from the dangers connected with child-bearing, women are also specially liable to cancer of the mammary and generative organs.

A study of the Tables relating to causes of death (pages 53 and 61) shows that a considerable decrease has taken place in recent years in the mortality among females from phthisis, and in the mortality associated with child-bearing. The decrease in mortality from phthisis has been greater among females than among males; this, in addition to the decreased mortality associated with child-bearing, mainly accounts for the greater fall in the female death-rate as compared with the male death-rate.

The following Table shows that the female death-rate was lower than the male rate at every age group except 5-10 years and 10-15 years.

In the Report on the Census of 1901 (*see* page 56), the following remarks were made in reference to the ages of old people:—"The ages of old people are probably still on the whole over-stated, both in the Death registers and in the Census Returns; but they were over-stated to a much greater extent from 30 to 60 years ago." This point must be borne in mind when using the figures relating to the death-rates at the later age groups.

Death-rates in Counties.—In Table I, on page xxxix the crude death-rates are compared with the death-rates corrected on the basis of the sex and age-constitution of the population of the whole country as enumerated at the last census.* It thus appears that correction increased the death-rate during the year 1908 in twelve counties, the increase being as much as 1·1 per 1000 in Glamorgan-shire, 1·2 in the West Riding of Yorkshire, and 1·8 in Lancashire.

* In recent Annual Reports attention has been drawn to the modifying effects of the steady decrease in the birth-rate on the age-constitution of the population and consequently on the rate of mortality. The crude death-rate, that is the proportion borne by deaths from all causes to each thousand of the population at all ages is a fairly trustworthy test of relative mortality when comparing the death-rates year by year for the whole country, or for the same district; but corrected death-rates are necessary when comparisons for an extended period are made, or when one district is compared with another.

In the 68th Report (pp. xxxviii-xxxix) a full description was given of two methods used in this office for applying to crude death-rates the correction for difference of sex and age-constitution: (1) the "direct" method (when the death-rates at the several age-groups are known) used in the Annual Reports; (2) the "indirect" method (when the death-rates at the several age-groups are not known) used in the Annual Summaries.

ENGLAND AND WALES.—ANNUAL DEATH-RATES PER 1000 LIVING AT TWELVE AGE-PERIODS, 1876-1908.

Ages.	1876-1880.	1881-1885.	1886-1890.	1891-1895.	1896-1900.	1901-1905.	1906.	1907.	1908.	Decrease per cent. in 1908 compared with 1876-80.
<i>Males.</i>										
All ages*	21'0	19'7	19'6	19'6	18'8	17'1	16'4	16'0	15'7	25'2
Under 5 years.	67'0	61'3	61'9	62'9	62'4	53'8	49'3	44'8	44'5	33'6
5-10 ..	6'3	5'8	4'9	4'5	4'1	3'6	3'4	3'3	3'2	49'2
10-15 ..	3'4	3'2	2'8	2'6	2'3	2'1	2'0	1'9	1'9	44'1
15-20 ..	4'9	4'5	4'1	4'0	3'6	3'2	3'0	2'9	2'7	44'9
20-25 ..	6'7	6'0	5'5	5'2	4'9	4'3	3'9	3'8	3'7	44'8
25-35 ..	8'7	8'2	7'4	7'1	6'5	5'9	5'6	5'6	5'4	37'9
35-45 ..	13'4	12'8	12'0	12'0	11'1	9'9	9'5	9'5	9'1	32'1
45-55 ..	19'8	19'3	19'4	19'6	18'3	17'3	16'8	16'9	16'4	17'2
55-65 ..	34'9	34'2	35'2	35'9	34'1	32'9	33'2	33'7	33'0	5'4
65-75 ..	69'4	68'7	72'1	72'5	68'3	67'2	68'7	70'5	70'3	+ 1'3
75-85 ..	152'2	145'4	147'9	149'3	142'9	137'4	136'9	138'3	137'8	9'5
85 years and upwards.	331'6	297'8	313'8	291'0	282'6	283'0	319'5	316'0	303'7	8'4
<i>Females.</i>										
All ages*	18'7	17'8	17'5	17'5	16'5	15'0	14'4	14'1	13'7	26'7
Under 5 years.	56'8	51'9	52'0	52'8	52'7	44'9	41'2	37'0	36'6	35'6
5-10 ..	5'9	5'7	4'9	4'6	4'2	3'7	3'6	3'4	3'2	45'8
10-15 ..	3'5	3'3	2'9	2'8	2'4	2'2	2'2	2'0	1'9	45'7
15-20 ..	5'0	4'7	4'1	4'0	3'3	3'0	2'7	2'7	2'5	50'0
20-25 ..	6'2	5'9	5'2	4'8	4'1	3'6	3'3	3'2	3'1	50'0
25-35 ..	8'0	7'9	6'9	6'6	5'6	5'0	4'7	4'6	4'5	43'8
35-45 ..	11'2	11'0	10'3	10'2	9'1	8'2	7'8	7'8	7'4	33'9
45-55 ..	15'4	15'2	15'0	15'2	14'3	13'3	13'0	13'1	12'8	16'9
55-65 ..	28'6	28'1	28'8	29'5	27'4	25'7	25'3	26'0	25'0	12'6
65-75 ..	60'8	59'0	61'7	63'1	58'4	56'4	56'1	59'7	57'7	5'1
75-85 ..	135'5	128'9	132'3	134'4	126'8	121'5	123'2	127'0	124'3	8'3
85 years and upwards.	299'0	265'4	276'2	264'2	258'5	261'3	287'4	293'4	286'4	4'2

* The death-rates at all ages are based on the age constitution of the population at the Census of 1901.

On the other hand correction diminished the rate in forty counties; the decrease amounting to as much as 3'2 in Montgomeryshire, 3'4 in Huntingdonshire, 3'5 in Rutlandshire, and 3'8 in Cardiganshire.

TABLE I.—ENGLAND AND WALES: COMPARISON OF CRUDE and CORRECTED DEATH-RATES IN REGISTRATION COUNTIES, 1908.

Registration County.	Crude Death-rates.	Corrected Death-rates.*	Increase or Decrease of Death-rate due to Correction.
England and Wales	14'7	14'7	—
London	14'0	14'7	+ 0'7
Surrey	12'7	12'7	—
Kent	12'2	11'6	— 0'6
Sussex	12'5	11'2	— 1'3
Hampshire	13'0	12'2	— 0'8
Berkshire	12'7	11'4	— 1'3
Middlesex	11'8	12'5	+ 0'7
Hertfordshire	13'1	11'8	— 1'3
Buckinghamshire	12'5	10'9	— 1'6
Oxfordshire	14'0	11'6	— 2'4
Northamptonshire	11'9	11'1	— 0'8
Huntingdonshire	14'1	10'7	— 3'4
Bedfordshire	13'2	11'8	— 1'4
Cambridgeshire	14'2	12'1	— 2'1
Essex	11'9	12'0	+ 0'1
Suffolk	14'6	12'1	— 2'5
Norfolk	14'5	11'8	— 2'7
Wiltshire	12'9	11'0	— 1'9
Dorsetshire	12'9	11'0	— 1'9
Devonshire	14'7	12'9	— 1'8
Cornwall	14'7	12'4	— 2'3
Somersetshire	13'6	11'6	— 2'0
Gloucestershire	13'5	12'6	— 0'9
Herefordshire	14'4	11'5	— 2'9
Shropshire	14'7	12'5	— 2'2
Staffordshire	15'3	15'8	+ 0'5
Worcestershire... ..	13'2	12'8	— 0'4
Warwickshire	15'4	15'6	+ 0'2
Leicestershire	13'2	13'1	— 0'1
Rutlandshire	14'6	11'1	— 3'5
Lincolnshire	14'8	13'0	— 1'8
Nottinghamshire	15'1	15'1	—
Derbyshire	14'1	14'4	+ 0'3
Cheshire... ..	14'7	15'2	+ 0'5
Lancashire	16'9	18'7	+ 1'8
West Riding of Yorkshire	15'4	16'6	+ 1'2
East Riding of Yorkshire	15'4	15'0	— 0'4
North Riding of Yorkshire	17'0	16'4	— 0'6
Durham	16'8	17'5	+ 0'7
Northumberland	16'4	17'1	+ 0'7
Cumberland	15'7	15'3	— 0'4
Westmorland	13'1	11'6	— 1'5
Monmouthshire	17'5	17'5	—
South Wales	16'7	16'9	+ 0'2
Glamorganshire	16'7	17'8	+ 1'1
Carmarthenshire	17'8	17'1	— 0'7
Pembrokeshire	15'4	13'7	— 1'7
Cardiganshire	17'8	14'0	— 3'8
Brecknockshire	17'0	15'3	— 1'7
Radnorshire	11'0	9'5	— 1'5
North Wales	15'3	13'7	— 1'6
Montgomeryshire	14'7	11'5	— 3'2
Flintshire	16'6	15'3	— 1'3
Denbighshire	15'7	14'8	— 0'9
Merionethshire	14'9	13'2	— 1'7
Carnarvonshire	14'8	13'5	— 1'3
Anglesey	15'6	13'0	— 2'6

* Based on the sex and age-constitution of the population of England and Wales at the Census of 1901.

Among Registration Counties the highest and lowest corrected death-rates during the year were as follows:—

Registration Counties.	Highest Corrected Death-rates.	Registration Counties.	Lowest Corrected Death-rates.
Lancashire	18.7	Northamptonshire	11.1
Glamorganshire	17.8	Rutlandshire	11.1
Durham	17.5	Wiltshire	11.0
Monmouthshire	17.5	Dorsetshire	11.0
Northumberland	17.1	Buckinghamshire	10.9
Carmarthenshire	17.1	Huntingdonshire	10.7
West Riding of Yorkshire	16.6	Radnorshire	9.5
North Riding of Yorkshire	16.4		

Tables 18 and 19, pages 19 and 20, give the death-rates at various ages for males and females separately in each of the Registration Counties of England and Wales, and thus illustrate the variations of sex and age mortality in different parts of the country.

Infantile Mortality.—Of the 520,456 deaths registered in the year 1908 in England and Wales, 113,254 were those of infants under one year of age, corresponding to a rate of 120 per 1000 births. Although this rate was 2 per 1000 above that recorded in 1907, it was 22 per 1000 below the average rate in the ten years 1898–1907.

It was pointed out in the last Report that since the beginning of this century the rate of infantile mortality has with fluctuations shown an appreciable decline. Without doubt this result is in some part due to the manifest awakening of the public conscience to the necessity of providing for the more effective protection of infant life.

There is every reason for congratulation on the general improvement that has taken place in this respect, but it should be observed that while there are many urban and rural areas in England and Wales where the loss of infants under one year of age does not exceed from eight to ten per cent. of the total births, there are on the other hand many manufacturing and mining centres where the wastage of child life is excessive, the loss in such areas in the first year of life amounting to from 15 to 20 per cent. of the total births (see Tables K and L, pages xlv–xlvi).

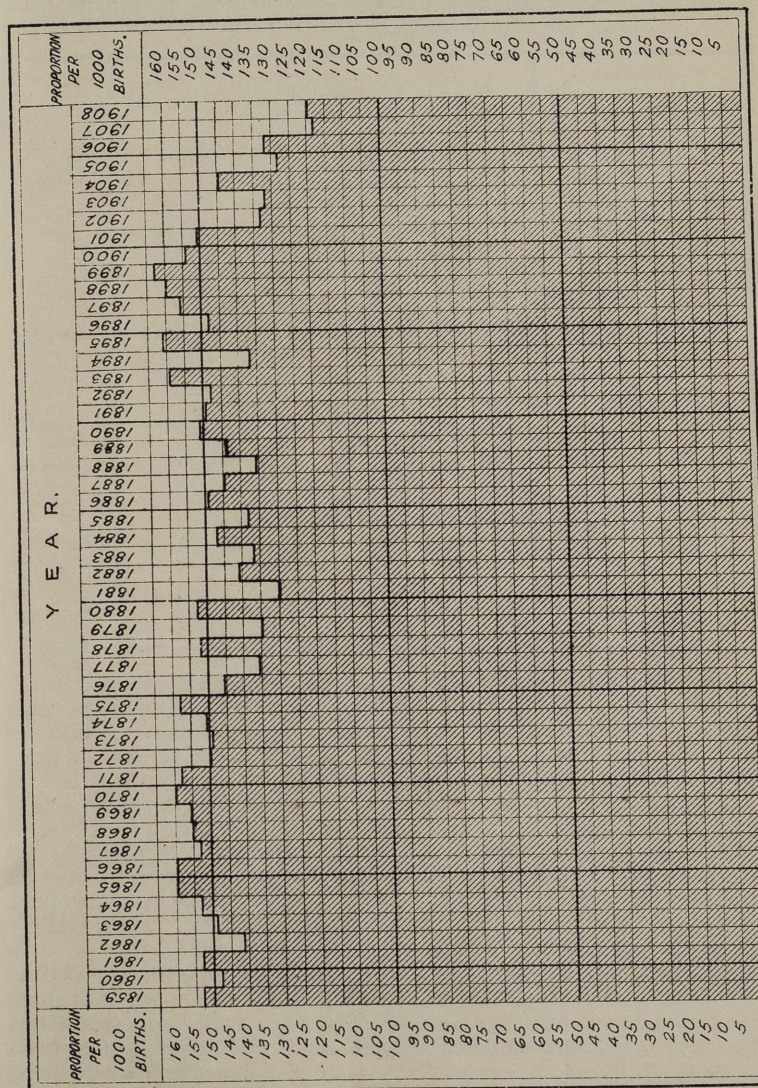
It may be assumed that further reduction in the mortality of young children in the country as a whole will largely depend on the improvement in health administration and the better recognition of parental responsibility in industrial areas.

In several preceding reports the special influence of temperature and rainfall upon the mortality among infants has been referred to.

If the records for a long series of years are examined, it will be noted that the rates of mortality are subject to wide fluctuation, and that these fluctuations are most marked in the third quarter of the year, when epidemic diarrhoea among infants becomes most prevalent. It has been shown, by means of tables published in previous Reports, that an excessive rise in the rate of infantile mortality in the third quarter corresponds with high summer temperature, especially if accompanied by deficient rainfall. The effects of temperature and

INFANTILE MORTALITY.

DIAGRAM V-DEATHS OF CHILDREN UNDER ONE YEAR OF AGE PER 1000 BIRTHS, ENGLAND & WALES, 1859–1908.



rainfall must be considered together, for, although the amount of rainfall may not be great, frequent rainfall throughout the summer months has an undoubted effect in checking the rise in the infantile diarrhoeal rate which usually takes place at that time of the year. The climatic conditions experienced in the summer of the year 1907 exemplified this. It will be seen from the subjoined table that, in the third quarter of that year, both the temperature and the rainfall were considerably below the average, but although the amount of the rainfall was deficient, the combination of cool and showery weather was undoubtedly the main factor in reducing the infantile mortality rate in the third quarter of that year to the lowest on record.

Year.	Deaths of Children under one year. to 1,000 Births.					Observations at Greenwich—Third Quarter of each Year.	
	Com- plete Year.	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	Mean Temperature of Earth at depth of 3 ft. 2 ins.	Amount of Rainfall.
1898 ..	160	141	123	225	153	62.0	Inches. 2.5
1899...	163	137	116	255	145	64.0	4.3
1900...	154	148	131	188	151	61.3	4.6
1901...	151	137	118	208	142	62.0	5.1
1902...	133	140	120	125	149	59.6	5.7
1903...	132	131	110	133	154	60.2	12.3
1904...	145	143	113	190	136	61.4	4.8
1905...	128	132	106	155	120	61.6	5.8
1906...	132	126	102	176	126	62.0	3.8
1907...	118	135	104	99	136	59.2	3.5
Average in 10 years, 1898-1907.	142	137	114	175	141	61.3	5.2
1908...	120	123	97	126	139	60.2	8.2

For the past four years a series of tables has been published in these reports showing for each of the first four weeks after birth, and also for each successive month, from the first to the twelfth, the mortality among infants from the principal causes of death (see Dr. Stevenson's letter, pages cxxi-cxxvii, and tables on pages 74-87). It may be observed here that of the total mortality under one year of age about one-third takes place in the first month of life, and, further, that of the deaths at this early period about three-fourths are due to a group of conditions—premature birth, congenital defects, atrophy, debility, and inanition—which may be described under the heading "immaturity." Dr. Newman in his work* on infant mortality states that "it is evident, if infants die within a few days or hours of birth, or even if dying later, show unmistakable signs of being unequal to the calls of bare physical existence, that there must be something more than external conditions of food or management which is working to their hurt. The explanation is clearly to be found in ante-natal conditions."

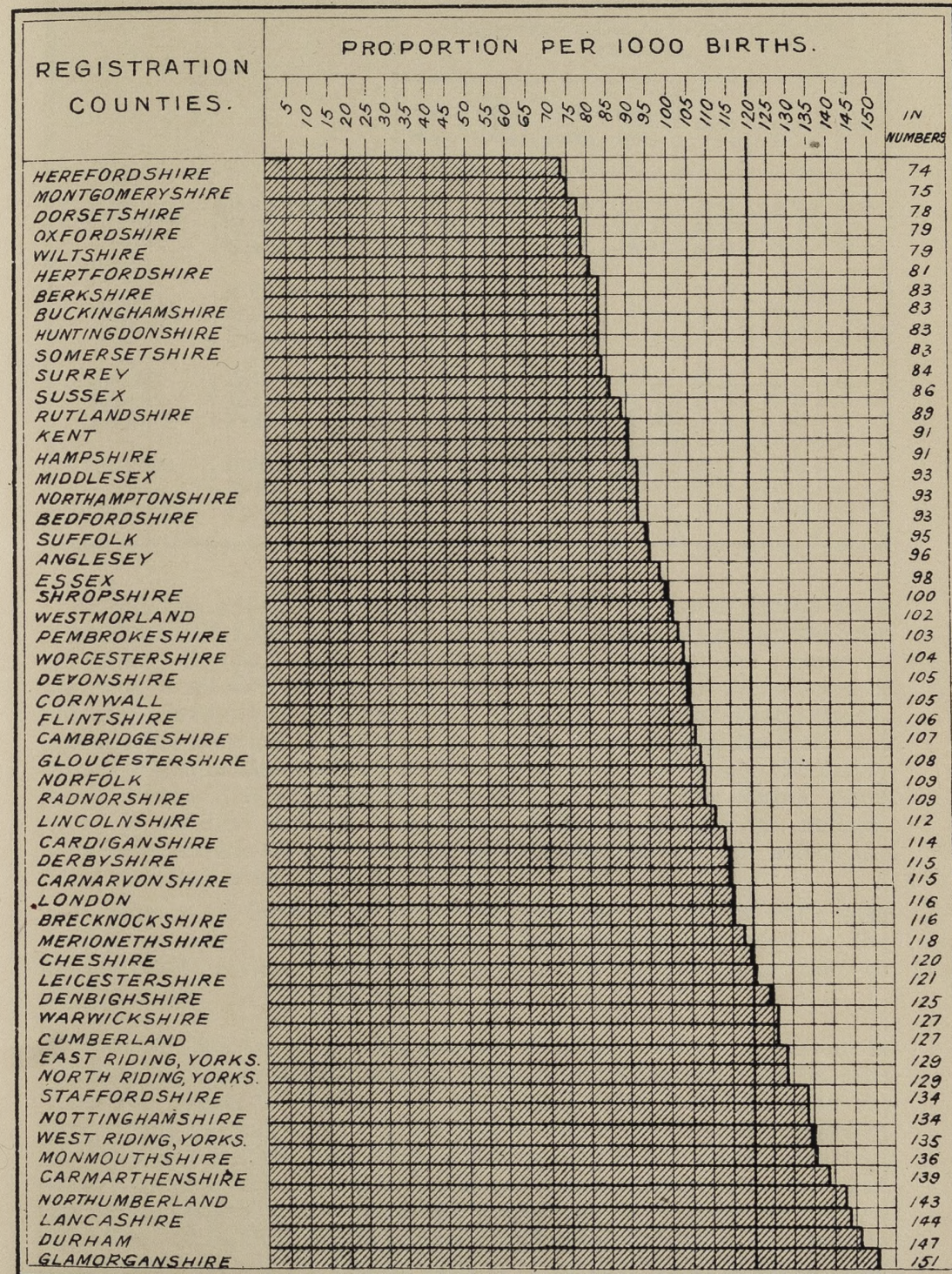
* "Infant Mortality; a Social Problem." By George Newman, M.D., F.R.S.E., &c., page 62.

TABLE J.—INFANTILE MORTALITY RATES in each REGISTRATION COUNTY in QUINQUENNIAL PERIODS 1876-1905, and in the YEARS 1906, 1907, and 1908.

Registration Counties.	Deaths of Children under 1 year to 1000 Births.									Increase (+) or Decrease (-) per cent. in each County between the period 1876-80 and 1908.
	Quinquennial Periods.						Years.			
	1876-1880.	1881-1885.	1886-1890.	1891-1895.	1896-1900.	1901-1905.	1906.	1907.	1908.	
England and Wales	145	139	145	151	156	138	132	118	120	-17.2
London	154	150	154	156	163	140	133	117	116	-24.7
Surrey	115	110	109	116	127	105	109	88	84	-27.0
Kent	123	114	119	123	135	118	114	96	91	-26.0
Sussex	114	107	111	115	121	101	96	89	86	-24.6
Hampshire ..	116	108	116	122	132	110	103	93	91	-21.6
Berkshire ..	117	102	108	110	118	101	97	83	83	-29.1
Middlesex ..	130	127	130	130	146	121	118	98	93	-28.5
Hertfordshire	115	108	109	109	111	92	104	80	81	-29.6
Buckinghamshire	129	115	117	113	114	98	94	84	83	-35.7
Oxfordshire ..	125	109	116	114	113	99	87	92	79	-36.8
Northamptonshire	141	129	134	134	132	115	106	95	93	-34.0
Huntingdonshire	121	107	106	120	116	95	99	73	83	-31.4
Bedfordshire ..	146	130	131	124	128	106	118	101	93	-36.3
Cambridgeshire ..	135	120	123	124	124	107	108	88	107	-20.7
Essex	125	124	128	132	150	127	123	101	98	-21.6
Suffolk	123	112	116	121	121	111	105	99	95	-22.8
Norfolk	147	131	138	141	143	128	123	106	109	-25.9
Wiltshire ..	108	101	104	103	102	91	84	77	79	-26.9
Dorsetshire ..	107	97	96	100	103	92	91	77	78	-27.1
Devonshire ..	126	116	125	128	134	118	112	103	105	-16.7
Cornwall	145	133	142	144	137	117	101	99	105	-27.6
Somersetshire ..	119	110	110	114	115	95	89	90	83	-30.3
Gloucestershire ..	135	123	125	132	131	114	110	96	108	-20.0
Herefordshire ..	117	104	114	115	108	101	100	87	74	-36.8
Shropshire ..	124	114	120	115	114	105	98	91	100	-19.4
Staffordshire ..	155	152	160	168	176	151	144	133	134	-13.5
Worcestershire ..	135	129	139	141	141	124	116	110	104	-23.0
Warwickshire ..	152	145	154	160	178	152	152	126	127	-16.4
Leicestershire ..	169	161	168	167	161	140	142	114	121	-28.4
Rutlandshire ..	120	110	113	113	108	97	88	89	89	-25.8
Lincolnshire ..	135	127	136	141	144	131	127	114	114	-17.0
Nottinghamshire	159	154	155	156	170	153	145	146	134	-15.7
Derbyshire ..	137	131	138	144	148	133	120	119	115	-16.1
Cheshire	140	137	146	155	157	138	130	113	120	-14.3
Lancashire ..	165	161	170	177	181	161	157	138	144	-12.7
West Riding ..	158	152	160	164	165	152	143	131	135	-14.6
East Riding (with York).	156	147	152	164	168	149	140	121	129	-17.3
North Riding ..	135	132	138	144	149	140	142	127	129	-4.4
Durham	153	150	154	166	169	158	154	135	147	-3.9
Northumberland..	142	139	146	155	167	151	143	118	143	+0.7
Cumberland ..	131	120	125	128	132	127	124	125	127	-3.1
Westmorland ..	107	102	99	109	104	89	88	87	102	-4.7
Monmouthshire ..	133	132	148	149	154	142	129	126	136	+2.3
South Wales ..	129	132	147	162	163	151	141	130	145	+12.4
Glamorganshire ..	138	143	159	173	175	158	150	136	151	+9.4
Carmarthenshire	117	115	124	141	143	142	112	113	139	+18.8
Pembrokeshire ..	115	111	120	124	122	116	115	102	103	-10.4
Cardiganshire ..	99	93	100	120	119	119	116	104	114	+15.2
Brecknockshire ..	128	124	137	140	134	124	96	114	116	-9.4
Radnorshire ..	124	115	113	125	114	105	119	74	109	-12.1
North Wales ..	126	117	120	130	139	127	134	109	111	-11.9
Montgomeryshire	111	104	108	106	114	103	96	97	75	-32.4
Flintshire ..	120	106	112	120	126	101	120	104	106	-11.7
Denbighshire ..	134	123	131	139	153	136	154	113	125	-6.7
Merionethshire ..	129	120	122	141	152	130	123	127	118	-8.5
Carnarvonshire ..	132	122	118	135	138	136	144	108	115	-12.9
Anglesey	114	113	120	115	128	131	132	94	96	-15.8

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DIAGRAM VI.—DEATHS OF CHILDREN UNDER ONE YEAR OF AGE PER 1000 BIRTHS IN EACH REGISTRATION COUNTY, 1908.



Note.—The thick vertical line marks the rate of Infantile Mortality in England and Wales as a whole during the year. (120 per 1000).

In the following table the proportions of deaths, per 1000 births, from premature birth, from congenital defects, and from debility, atrophy, and inanition are shown for the years 1886-1908.

ENGLAND and WALES.—DEATHS of CHILDREN under ONE YEAR from "IMMATURETY" per 1000 BIRTHS, 1886-1908.

		Proportion of Deaths to 1000 Births of each Sex.						
		1886-1890.	1891-1895.	1896-1900.	1901-1905.	1906.	1907.	1908.
Premature Birth.	Both Sexes ...	16.1	18.4	19.6	20.2	20.4	19.8	19.9
	Males ...	17.8	20.3	21.7	22.4	22.6	21.8	22.1
	Females ...	14.4	16.4	17.5	18.1	18.1	17.8	17.6
Congenital Defects.*	Both Sexes ...	4.2	4.7	4.9	5.9	6.6	6.6	6.7
	Males ...	4.7	5.2	5.5	6.6	7.2	7.4	7.5
	Females ...	3.7	4.1	4.3	5.2	5.9	5.8	5.9
Debility, Atrophy, Inanition.	Both Sexes ...	21.7	21.5	20.5	17.9	16.1	15.0	15.0
	Males ...	23.5	23.7	22.5	19.8	17.8	17.0	16.8
	Females ...	19.7	19.4	18.4	15.8	14.3	13.0	13.1
Total due to "Immaturity."	Both Sexes ...	42.0	44.6	45.0	44.0	43.1	41.4	41.6
	Males ...	46.0	49.2	49.7	48.8	47.6	46.2	46.4
	Females ...	37.8	39.9	40.2	39.1	38.3	36.6	36.6

* Excluding Injury at Birth.

It will be noted from these figures that the total deaths from "immaturity" have shown no appreciable change during the past 20 years. Before, however, drawing deductions from the figures in the table it should be stated that the certification of the causes of infantile deaths has become more accurate in recent years, consequently the increase in the ratio of deaths from premature birth and from congenital defects may be more apparent than real. Probably many deaths that were ascribed to debility, &c. in the earlier years were in reality due to premature birth or congenital defects. Evidently, however, any transfer of this kind would not affect the total mortality from "immaturity."

It may be of interest to point out that the excess of male over female mortality from "immaturity" has steadily increased, in the period under review, from 22 per cent. in the quinquennium 1886-90 to 27 per cent. in the year 1908.

Infantile Mortality in Registration Counties.—The incidence of infantile mortality in the several Registration Counties may be seen from the figures in Table J on page xlii; from that table and the accompanying diagram it will be observed that the rates differ widely in different counties; that these differences are not merely casual is shown by their being repeated with great persistency year after year. Speaking generally, the rates are lowest in the purely agricultural counties and highest in the counties with mining, textile, and pottery industries. As will be shown later, it is in the towns of these latter counties that infantile mortality assumes its highest proportions.

Among counties with populations of more than 100,000 persons the highest and lowest proportions in the year 1908

of deaths of children under one year to 1000 births were as follows :—

Registration Counties with Highest Rates of Infantile Mortality.	Deaths of Children under 1 year to 1000 Births.	Registration Counties with Lowest Rates of Infantile Mortality.	Deaths of Children under 1 year to 1000 Births.
England and Wales 120.			
Glamorganshire	151	Surrey	84
Durham	147	Berkshire	83
Lancashire	144	Buckinghamshire	83
Northumberland	143	Somersetshire	83
Carmarthenshire	139	Hertfordshire	81
Monmouthshire	136	Oxfordshire	79
West Riding of Yorkshire...	135	Wiltshire	79
Staffordshire	134	Dorsetshire	78
Nottinghamshire	134	Herefordshire	74

Infantile Mortality in Towns.—The tables on pages xlv-xlvi give a list of the towns with the highest and lowest rates of infantile mortality recorded in the quinquennium 1904-1908. As regards the towns with high rates of infantile mortality it will be noted that nearly all of them are seats either of the pottery, textile or mining industries. Although since the beginning of this century the rates of infantile mortality have decreased in the country as a whole, the care of child life is apparently still much neglected in many of the urban areas shown in Table K. For example, in the quinquennium 1904-1908, in no fewer than ten of these towns, viz., Bilston, Burslem, Longton, Tunstall, Stalybridge, Burnley, Farnworth, Ince in Makerfield, Batley, and Aberdare, an average of about one in every five children born did not survive the first year of life.

It is too early as yet to express an opinion of the results of the Notification of Births Act which only came into operation towards the end of the year 1907, it is believed, however, that the ultimate effect of the Act will be highly beneficial. By the 30th September, 1909, the Act had been adopted by 150 authorities, viz. :—in the Administrative County of Worcester, in the City of London, in 20 metropolitan boroughs, in 46 county boroughs, in 39 municipal boroughs, and in 43 urban districts.

It should be noted that the conditions which tend to a high mortality in the first year of life operate with adverse effect during the succeeding years of life. Further, the loss of infant life must be considered in conjunction with a diminishing birth-rate; areas where the birth-rate is low and the rate of infantile mortality is excessive not only produce fewer children but lose an immoderate proportion of that smaller number of children.

Turning to the towns with low rates of infantile mortality (Table L), most of these may be generally described as residential localities, while a few are of an industrial character, e.g., Swindon and Burton-on-Trent. It is to be observed that in these urban areas a very considerable reduction in the rates of infantile mortality has taken place in recent years.

Generally speaking, the birth-rates in these towns are much below the average of the rate in the whole country, but there are some exceptions—Erith, Aldershot, Gosport and Alverstoke, Ealing, Finchley,

TABLE K.—TOWNS WITH HIGH RATES OF INFANTILE MORTALITY.

Towns.	Population Census, 1901.	Deaths under One Year of Age to 1000 Births.					Average Birth-rate, 1904-1908.	
		1904.	1905.	1906.	1907.	1908.		
England and Wales ...	32,527,843	145	128	132	118	120	129	27.0
Staffordshire—								
Bilston	24,034	224	188	179	178	165	187	37.1
Burslem	38,766	203	205	185	148	182	185	32.7
Fenton	22,742	190	188	157	165	176	175	34.9
Hanley	62,226	212	195	162	160	166	179	33.3
Longton	35,815	197	198	242	171	185	199	35.8
Tunstall	24,709	232	192	177	194	196	198	36.4
Worcestershire—								
Dudley	48,733	182	167	162	148	147	161	32.3
Oldbury	25,191	203	154	166	165	146	167	36.8
Warwickshire—								
Birmingham	522,204	197	154	168	147	144	162	29.4
Lincolnshire—								
Grimsby	63,138	186	174	180	153	139	166	30.0
Nottinghamshire—								
Nottingham	239,743	176	155	171	165	145	162	26.8
Derbyshire—								
Chesterfield	27,185	172	119	185	186	147	162	29.9
Ilkeston	25,384	180	153	180	159	151	165	37.3
Cheshire—								
Hyde	32,766	208	201	153	163	172	179	23.3
Stalybridge	27,673	206	178	207	219	218	206	23.9
Stockport	92,832	203	168	186	159	168	177	27.0
Lancashire—								
Ashton-under-Lyne ...	43,890	172	180	153	157	184	169	26.3
Burnley	97,043	229	173	212	158	200	194	27.5
Farnworth	25,925	266	228	188	154	209	209	26.6
Gorton	26,564	194	167	159	142	167	166	34.7
Hindley	23,504	190	146	163	154	162	163	30.6
Ince in Makerfield ...	21,262	222	203	182	175	176	192	36.7
Leigh	40,001	196	183	176	165	172	178	29.3
Liverpool	704,134	196	153	172	144	141	161	32.6
Manchester	606,824	187	157	167	146	151	162	29.6
Preston	112,989	185	154	199	158	153	170	27.9
Radcliffe	25,368	207	163	162	139	146	163	23.1
Swinton & Pendlebury	27,005	226	129	200	109	152	163	27.9
Widnes	28,580	171	159	189	148	135	160	36.0
Wigan	82,428	187	164	162	163	156	166	33.2
Yorkshire (W. Riding)—								
Barnsley	41,086	183	148	172	155	163	164	34.8
Batley	30,321	238	185	180	163	162	186	26.2
Dewsbury	28,060	167	188	171	150	167	169	23.0
Yorkshire (N. Riding)—								
Middlesbrough	91,302	169	173	169	158	158	165	35.4
Monmouthshire—								
Abertillery	21,945	178	174	185	140	177	171	42.1
Glamorganshire—								
Aberdare	43,365	239	199	208	133	212	198	33.4
Merthyr Tydfil	69,228	186	193	179	154	178	178	36.9
Mountain Ash	31,093	173	191	172	165	152	171	39.7
Pontypridd	32,316	162	185	156	139	170	162	35.1
Rhondda	113,735	190	200	174	162	184	182	38.4

TABLE L.—TOWNS WITH LOW RATES OF INFANTILE MORTALITY.

Towns.	Population Census, 1901.	Deaths under One Year of Age to 1000 Births.					Average Birth- rate, 1904- 1908.	
		1904.	1905.	1906.	1907.	1908.		
England and Wales ...	32,527,843	145	128	132	118	120	129	27.0
Surrey—								
Croydon ...	133,895	130	95	127	94	99	109	25.8
Guildford ...	20,639	—	65	76	72	71	71*	22.1*
Reigate ...	25,993	88	75	93	73	70	80	20.5
Richmond ...	31,672	141	86	84	89	105	101	19.1
Kent—								
Beckenham ...	26,288	128	102	95	78	76	96	22.7
Bromley ...	27,397	133	67	113	75	74	92	23.0
Dover ...	42,672	114	108	99	86	95	100	23.3
Erith ...	25,296	135	90	89	88	85	97	27.5
Tunbridge Wells ...	33,373	98	74	85	74	83	83	17.6
Sussex—								
Eastbourne ...	43,344	93	103	89	103	86	95	18.8
Hastings ...	65,528	108	113	126	79	81	101	16.7
Worthing ...	22,567	105	83	121	105	109	105	20.4
Hampshire—								
Aldershot ...	30,974	98	71	118	91	103	96	30.7
Bournemouth ...	59,762	111	83	117	83	83	95	17.2
Gosport and Alver- stoke.	28,884	107	127	125	77	108	109	28.6
Winchester ...	20,929	101	78	72	94	96	88	22.7
Middlesex—								
Ealing ...	33,031	119	103	140	93	82	107	30.2
Finchley ...	22,126	146	82	124	99	61	102	31.1
Hendon ...	22,450	141	111	102	84	89	105	27.8
Hornsey ...	72,056	87	66	85	77	62	75	18.0
Wood Green ...	34,233	126	79	104	83	86	96	30.8
Hertfordshire—								
Watford ...	29,414	100	82	97	76	83	88	25.7
Oxfordshire—								
Oxford ...	49,336	115	116	96	85	94	101	21.4
Northamptonshire—								
Peterborough ...	30,872	124	103	107	85	79	100	21.8
Essex—								
Ilford ...	41,244	134	86	111	80	80	98	28.6
Leyton ...	98,912	143	94	118	92	77	105	27.3
Wiltshire—								
Salisbury ...	20,185	—	113	103	70	92	95*	20.9*
Swindon ...	45,006	105	96	91	94	103	98	28.1
Somersetshire—								
Bath ...	49,839	110	91	119	91	83	99	19.7
Gloucestershire—								
Cheltenham ...	49,439	134	130	101	95	88	110	18.7
Herefordshire—								
Hereford ...	21,382	120	79	142	104	89	107	22.9
Staffordshire—								
Burton-on-Trent ...	50,386	118	87	117	97	111	106	24.4
Handsworth ...	52,921	134	80	119	101	87	104	23.5
Worcestershire—								
Kings Norton and Northfield.	57,122	100	89	103	103	85	96	25.8
Lancashire—								
Stretford ...	30,436	115	108	122	96	103	109	23.2

* Four years average, 1905-1908.

Hendon, Wood Green, Ilford, Leyton and Swindon, where the birth-rates are above the average. Such towns compare not unfavourably, as regards upkeep of population, with towns in which the birth-rates are high and the child mortality excessive.

Centenarians.—Among the deaths registered during the year there were 64 of reputed centenarians, 17 of whom were males and 47 females. In the preceding three years the numbers had been 58, 65, and 59, respectively.

Urban and Rural Mortality.—At page lxxxi. will be found a table showing the variations in the death-rates both in 1908 and in the quinquennium 1903-07 in the two groups of counties* selected to represent severally the urban and rural areas of England and Wales.

After correction for differences of sex and age constitution of the respective populations, the death-rate during 1908 in the urban group was equal to 16.1 per 1000, and in the rural group to 12.6 per 1000. Compared with the average rates in 1903-07, the mortality in the urban group showed a decrease of 0.8 per 1000, and that in the rural group a decrease of 0.5 per 1000.

In the year 1908 the ratio of urban to rural mortality, based on the corrected death-rates per million living, was as 1281 is to 1000, against a ratio of 1296 to 1000 in the five years immediately preceding.

Certification of Causes of Death.—Of the 520,456 deaths registered in England and Wales during the year 1908, the causes of 476,359, or 91.52 per cent., were certified by registered medical practitioners; inquests were held respecting 36,620, or 7.04 per cent.; whilst the causes of the remaining 7,477, or 1.44 per cent., were uncertified. This is again the lowest proportion of uncertified deaths hitherto recorded.

Of the 7,477 uncertified deaths, 740, or 9.9 per cent., were not reported to Coroners, as compared with 837, or 11.0 per cent., in the year 1907.

The subjoined table shows the changes in the proportion to total deaths of certified deaths, inquest cases, and uncertified deaths in the course of the eight years 1901-1908:—

Year.	Proportion per 100 Deaths.				
	Certified by Registered Medical Practitioners.	Inquest Cases.	Uncertified Deaths.		
			Total.	Reported to Coroners.	Not reported to Coroners.
1901...	91.52	6.67	1.81	1.50	0.31
1902...	91.52	6.68	1.80	1.54	0.26
1903...	91.40	6.91	1.69	1.47	0.22
1904...	91.85	6.53	1.62	1.42	0.20
1905...	91.52	6.86	1.62	1.43	0.19
1906...	91.04	6.83	1.53	1.36	0.17
1907...	91.59	6.96	1.45	1.29	0.16
1908...	91.52	7.04	1.44	1.30	0.14

It will be observed that the decline in the proportion of uncertified deaths is shown more especially in those cases which were not reported to Coroners.

The counties in each selected group are enumerated on page lxxx.

TABLE M.—CERTIFIED DEATHS, INQUEST CASES, and UNCERTIFIED DEATHS IN 1908, PROPORTIONS per 100 DEATHS in each REGISTRATION COUNTY.

COUNTY.	Certified by Registered Medical Practitioners.	Inquest Cases.	Uncertified Deaths.		
			Total.	Reported to Coroners.	Not Reported to Coroners.
England and Wales	91.52	7.04	1.44	1.30	0.14
London { North of Thames	88.52	11.43	0.05	0.04	0.01
{ South of Thames	91.20	8.63	0.17	0.16	0.01
Surrey	91.64	7.59	0.77	0.43	0.34
Kent	91.05	6.43	2.52	2.43	0.09
Sussex	92.40	7.00	0.60	0.58	0.02
Hampshire	90.23	8.71	1.06	0.92	0.14
Berkshire	91.65	5.77	2.58	2.50	0.08
Middlesex	91.47	8.04	0.49	0.42	0.07
Hertfordshire	92.92	5.64	1.44	1.35	0.09
Buckinghamshire	92.65	6.07	1.28	1.27	0.01
Oxfordshire	92.50	6.27	1.23	1.19	0.04
Northamptonshire	91.25	6.03	2.72	2.24	0.48
Huntingdonshire	91.92	6.50	1.58	1.42	0.16
Bedfordshire	92.12	5.78	2.10	1.52	0.58
Cambridgeshire	93.28	4.54	2.18	2.15	0.03
Essex	91.65	6.54	1.81	1.77	0.04
Suffolk	92.60	5.67	1.73	1.60	0.13
Norfolk	92.62	5.67	1.71	1.43	0.28
Wiltshire	92.97	6.30	0.73	0.65	0.08
Dorsetshire	92.50	5.64	1.86	1.67	0.19
Devonshire	92.22	6.92	0.86	0.80	0.06
Cornwall	92.24	6.85	0.91	0.70	0.21
Somersetshire	91.82	7.32	0.86	0.86	—
Gloucestershire	91.18	8.25	0.57	0.48	0.09
Herefordshire	91.49	5.92	2.59	2.16	0.43
Shropshire	90.42	6.79	2.79	2.61	0.18
Staffordshire	91.53	6.85	1.62	1.52	0.10
Worcestershire	92.24	5.56	2.20	2.19	0.01
Warwickshire	91.49	5.44	3.07	2.94	0.13
Leicestershire	91.25	7.39	1.36	1.07	0.29
Rutlandshire	91.44	6.16	2.40	2.40	—
Lincolnshire	92.14	5.92	1.94	1.91	0.03
Nottinghamshire	92.17	6.15	1.68	1.52	0.16
Derbyshire	90.84	6.15	3.01	2.86	0.15
Cheshire	92.29	6.98	0.73	0.62	0.11
Lancashire	92.09	6.14	1.77	1.68	0.09
West Riding of Yorkshire	91.89	6.86	1.25	1.17	0.08
East Riding of Yorkshire	90.56	8.88	0.56	0.51	0.05
North Riding of Yorkshire	92.77	6.38	0.85	0.43	0.42
Durham	91.62	5.17	3.21	2.79	0.42
Northumberland	92.07	6.53	1.40	1.30	0.10
Cumberland	92.19	4.77	3.04	2.95	0.09
Westmorland	90.88	5.52	3.60	3.60	—
Monmouthshire	92.54	6.50	0.96	0.81	0.15
South Wales	91.27	7.65	1.08	0.65	0.43
Glamorganshire	90.99	8.64	0.37	0.14	0.23
Carmarthenshire	93.11	4.97	1.92	1.44	0.48
Pembrokeshire	90.22	5.51	4.27	3.26	1.01
Cardiganshire	92.30	4.02	3.68	1.60	2.08
Brecknockshire	91.46	6.05	2.49	1.95	0.54
Radnorshire	91.97	3.61	4.42	3.62	0.80
North Wales	93.00	4.34	2.66	1.70	0.96
Montgomeryshire	92.44	4.71	2.85	2.52	0.33
Flintshire	92.98	5.00	2.02	1.92	0.10
Denbighshire	93.96	4.35	1.69	1.36	0.33
Merionethshire	94.31	3.73	1.96	1.86	0.10
Carnarvonshire	92.30	4.40	3.30	1.74	1.56
Anglesey	90.79	3.25	5.96	0.72	5.24

TABLE N.—UNCERTIFIED DEATHS REGISTERED in 1908, ARRANGED according to SEX, AGE, and ASSIGNED CAUSE of DEATH.

Assigned Cause of Death.	Total.	Whether Reported to Coroners.				AGES.												
		Reported.		Not Reported.		Under 3 months	3 months and under 1 year.	YEARS						65 and upwards.				
		Males.	Females.	Males.	Females.			1—	5—	15—	25—	45—						
Small-pox	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Measles	53	26	24	2	1	1	14	33	5	—	—	—	—	—	—	—	—	
Scarlet Fever	4	2	1	1	—	—	—	2	2	—	—	—	—	—	—	—	—	
Whooping Cough	49	21	16	3	9	5	22	21	1	—	—	—	—	—	—	—	—	
Diphtheria	19	6	9	2	2	1	—	9	9	—	—	—	—	—	—	—	—	
Enteric Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Diarrhoea	103	45	48	6	4	7	47	31	7	—	3	2	6	—	—	—	—	
Pneumonia	128	56	40	15	17	12	29	39	5	2	8	18	15	—	—	—	—	
Tuberculous Diseases, Alcoholism	179	100	55	10	14	2	8	12	15	21	74	35	12	—	—	—	—	
Cancer	38	13	20	3	2	—	—	—	—	1	5	16	16	—	—	—	—	
Premature Birth and Congenital Defects, Dentition	924	374	306	135	109	900	16	5	2	1	—	—	—	—	—	—	—	
Epilepsy	88	36	49	2	1	—	—	1	5	13	30	24	15	—	—	—	—	
Convulsions	1295	689	511	50	45	646	463	176	10	—	—	—	—	—	—	—	—	
Other Nervous Diseases, Cerebral Hæmorrhage and Apoplexy, Hemiplegia, Other Circulatory Diseases, Bronchitis	90	39	35	6	10	2	12	9	7	3	7	20	30	—	—	—	—	
Other Respiratory Diseases, Digestive Diseases, Childbirth	267	137	121	4	5	—	—	—	1	3	24	132	107	—	—	—	—	
Violence	87	42	35	4	6	6	8	15	2	—	8	20	28	—	—	—	—	
Atrophy, Debility, &c., Old Age	122	70	30	11	11	10	24	9	6	1	15	34	23	—	—	—	—	
Other stated Causes, Causes not stated	36	—	34	—	2	—	—	—	—	8	27	1	—	—	—	—	—	
Violence	60	29	22	9	—	15	6	1	2	4	7	7	18	—	—	—	—	
Atrophy, Debility, &c., Old Age	317	145	124	28	20	249	50	14	1	—	1	2	—	—	—	—	—	
Other stated Causes, Causes not stated	813	383	378	19	33	—	—	—	—	—	—	4	809	—	—	—	—	
Other stated Causes, Causes not stated	431	210	183	16	22	91	36	24	17	15	48	99	101	—	—	—	—	
Causes not stated	76	40	34	2	—	16	9	3	1	1	5	10	31	—	—	—	—	
All Causes	Total	Reported to Coroners.				907	464	235	60	64	253	697	897	—	—	—	—	—
		Not Reported to Coroners.				709	336	221	62	53	241	645	893	—	—	—	—	—
		Total				7477	1993	864	500	131	128	534	1407	1920	—	—	—	—

In six English counties—Shropshire, Derbyshire, Cumberland, Warwickshire, Durham, and Westmorland, and in six Welsh counties—Montgomeryshire, Carnarvonshire, Cardiganshire, Pembrokeshire, Radnorshire, and Anglesey, the proportions of uncertified deaths were unduly high, ranging from 2·79 to 5·96 per cent. of the total deaths, compared with 1·44 per cent. in the whole of England and Wales. In several of the 76 large towns also the percentage of uncertified deaths was excessive; it reached 3·8 in Birmingham, 4·4 in Warrington, 4·6 in South Shields, and 5·4 in Gateshead.

An analysis of the uncertified deaths shows that in the English counties the average proportion of such deaths registered without previous reference to Coroners was as low as 8 per cent., whereas in the Welsh counties the proportion was as high as 38 per cent.

Table N on page xlix shows the uncertified deaths registered in 1908, arranged according to sex, age, and assigned cause of death, distinguishing the cases reported from those not reported to Coroners.

It will be noted that about one-fourth of the uncertified cases which were referred to Coroners, and about one-half of those which were not so referred were of infants under three months of age, and that premature birth, convulsions and debility were the assigned causes of most of these deaths.

Deaths in Public Institutions.—Of the 520,456 deaths registered during the year, no fewer than 100,312 or 19·27 per cent. occurred in Workhouses and Workhouse Infirmaries, in Hospitals, or in Asylums for the Insane, the proportion during the 10 years immediately preceding having averaged 16·16 per cent.

Thus the present figures confirm those of previous reports to the effect that the proportion of deaths occurring in public Institutions, although fluctuating slightly from time to time, has a distinct tendency to increase, owing no doubt to the greater use made of such institutions by the public. The following statement shows the proportions of deaths occurring in Workhouses, in Hospitals, and in Lunatic Asylums:—

Public Institutions.	Percentage of Total Deaths.	
	Ten years, 1898-1907.	1908.
Workhouses and Workhouse Infirmaries	8·68	10·38
Hospitals	5·78	6·94
Lunatic and Idiot Asylums	1·70	1·95

The 100,312 deaths in public Institutions registered during the year were equal to a rate of 2·83 per 1,000 of the estimated population of England and Wales, against an average rate in the ten preceding years of 2·64 per 1,000. Detailed tables, showing the names and descriptions of the several institutions and the numbers of deaths occurring therein, are given on pages 229 to 280 of this Report.

OFFENCES AGAINST THE REGISTRATION ACTS.

In 1908, 22 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 place of birth in order to avoid vaccination	6
For falsifying certificate of birth or death and using same as true	4
For giving false information to the registrar when registering a birth or death	6
For making a false declaration of still-birth in respect of a child born alive, and thereby procuring burial as still-born	2
For giving false information to a registrar <i>with intent</i> to have same entered in a register book ...	1
For causing a fictitious entry to be made in a death register	1
For failing to comply with a requisition to register a birth	2

Proceedings were taken by the Public Prosecutor (at the instance of the Registrar-General) for making a false declaration on a notice of marriage to the effect that a girl aged 16 years was of full age, and the man who gave the notice was sentenced to three days' imprisonment.

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 1908 by 1,990,719, this addition raising the total of names in the indexes, which at the end of 1908 embraced a period of 71½ years, to 116,742,041.

SEARCHES AND CERTIFICATES.

Besides the certified copies of the registered births, deaths, and marriages kept in England and Wales pursuant to the Registration Acts of 1836 and 1874, 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 Fifty-eighth Report. Searches may be made in any of these registers, and certificates obtained on payment of the prescribed fees.

During the 53 weeks ended 2nd January, 1909, the total number of searches was 72,370, and of certificates issued 54,870. The total amount received in fees was 10,550*l.* 8*s.*

The following Table affords an indication of the extent to which the records in this Office have been utilized by

the public for legal evidence of births, deaths, and marriages since 1866 :—

Years.	Total Searches.	Certificates Issued.	Amount Received.
			£ s. d.
1866 (52 weeks)... ..	12,135	10,017	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)... ..	58,064	37,485	7,686 8 6
1898 (52 weeks)... ..	63,825	41,143	8,450 19 6
1899 (52 weeks)... ..	57,970	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)... ..	69,240	53,058	10,194 9 0
1908 (53 weeks)... ..	72,370	54,870	10,550 8 0

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 eighty years, 1821-1901, the population nearly doubled itself, the numbers enumerated at the end of March, 1901, amounting to 41,458,721 persons.

From that date until the middle of 1908 the number of births exceeded the number of deaths by 3,520,836; had neither emigration nor immigration occurred this surplus would have raised the population in the middle of the year 1908 to 44,979,557. In the absence of precise information as to migration, the populations of the several divisions of the Kingdom are provisionally estimated as follows :—

POPULATION ESTIMATED to the MIDDLE of the YEAR 1908.

—	Persons.	Males.	Females.
England and Wales	35,348,780	17,071,524	18,277,256
Scotland	4,826,587	2,358,258	2,468,329
Ireland	4,371,455	2,170,599	2,200,856
United Kingdom	44,546,822	21,600,381	22,946,441

Marriages.

The marriages in the United Kingdom during the year 1908 numbered 319,257, corresponding to a rate of 14·3 persons married per 1000 of the population at all ages.

This rate was 0·8 per 1000 below the corresponding rate in 1907, and 0·7 below the average rate in the ten years, 1898-1907.

—	Marriages, 1908.	Persons married to 1000 living.	
		Ten years, 1898-1907.	1908.
England and Wales	264,940	15·8	14·9
Scotland	31,583	14·2	13·1
Ireland	22,734	10·2	10·4
United Kingdom	319,257	15·0	14·3

Births.

The births registered in the United Kingdom in the year 1908 numbered 1,173,759 and were in the proportion of 26·3 per 1000 of the population at all ages.

This rate was 0·3 per 1000 above the corresponding rate in 1907; compared with the average in the ten years 1898-1907 the birth-rate in 1908 showed a decrease of 1·4 per 1000.

—	Births, 1908.	Births to 1000 living.	
		Ten years, 1898-1907.	1908.
England and Wales	940,383	28·1	26·5
Scotland	131,337	28·9	27·2
Ireland	102,039	23·2	23·3
United Kingdom	1,173,759	27·7	26·3

Deaths.

The deaths registered in the United Kingdom in the year 1908 numbered 675,186, and were in the proportion of 15·1 per 1000 of the population at all ages.

This rate was 0·3 per 1000 below the corresponding rate in 1907; compared with the average in the ten years 1898-1907 the death-rate in 1908 showed a decrease of 1·6 per 1000.

—	Deaths, 1908.	Deaths to 1000 living.	
		Ten years, 1898-1907.	1908.
England and Wales	520,456	16·4	14·7
Scotland	77,839	17·1	16·1
Ireland	76,891	17·8	17·6
United Kingdom	675,186	16·7	15·1

Infantile Mortality.

The following Table shows the proportion of deaths of Infants under one year of age to 1000 births in each division of the United Kingdom. At the time of going to press the figures for Scotland relating to the year 1908 were not available.

	Deaths under 1 year to 1000 Births.	
	1898-1907.	1908.
England and Wales	142	120
Scotland	122	110*
Ireland	100	97
United Kingdom	136	—

* These figures relate to the year 1907.

In Tables 56-59, pages 112-115, the population, marriages, births, deaths and principal causes of death are given for each of the years 1881-1908 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 1908 was 247,277, and the deaths during the year numbered 1,178, giving a death-rate of 4·8 per 1000, as compared with 5·6, 5·5, and 4·7 per 1000, respectively, in the three preceding years. The mortality in the Army abroad was 6·9 per 1000, against 8·0, 7·8, and 6·4 in the three preceding years; whilst the mortality in the Army at home was 2·6 per 1000, against 2·9, 3·1, and 3·1 (Table 46).

MORTALITY IN THE NAVY.

The average strength of the service afloat during the year 1908 was 109,210, and the deaths during the year numbered 369, being in the proportion of 3·37 per 1000 of the strength, against an average of 4·24 per 1000 in the six years immediately preceding. Of the 369 deaths in 1908, 227 were caused by disease and 142 by violence; the death-rate from disease was therefore 2·07 per 1000, and that from violence 1·30 per 1000. Of the 142 deaths by violence, 98 were due to drowning, 2 to wounds received in action, and 1 to heatstroke, while 10 were cases of suicide.

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 1908, this register was increased by the addition of 182 entries of birth and 2,987 entries of death.

Mercantile Marine.—A Return received from the Marine Department of the Board of Trade shows the number of, and the mortality among, 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 1891-1908. In the year 1907 the number employed was 246,913, of whom 25,821 were employed in sailing vessels, being 2,321 fewer than in the preceding year, and 221,092 in steam vessels, being 6,264 more than in the preceding year.

The reported deaths from all causes in sailing or steam vessels during the year ended 30th June, 1908, numbered 2,312, of which 1,313 resulted from disease, suicide, &c., 407 from wreck or casualty to ship, and 592 from accident other than wreck or casualty to ship, showing a death-rate from all causes of 9·4 per 1000 of the strength; this rate was 0·5 per 1000 below the mean rate in the previous five years. (Table 48.)

INTERNATIONAL VITAL STATISTICS.

The information given in this section of the Report is based on returns courteously furnished by the Registrars-General of Scotland and Ireland, by the several Colonial Authorities, and by the Presidents of the several Foreign Statistical Bureaux.

Since the year 1844 it has been customary to publish in these Reports a number of comparative Tables showing the population, marriages, births, and deaths for a series of years in the principal European countries. In recent Annual Reports the scope of these International Returns was extended to include particulars relating to infantile mortality, and to mortality from the principal epidemic diseases, from pulmonary tuberculosis, and from cancer. In the present Report a further attempt has been made to extend the usefulness of these Tables by publishing international returns relating to illegitimacy and by supplementing crude death rates by rates in which the sex and age distribution of the respective populations is taken into account.

Marriages.—The following Table affords the means of comparing the marriage-rates in the several countries for a series of quinquennial periods and for the three years 1906-08. Some of the disparities between the rates shown in the subjoined Table are undoubtedly due to differences in the age constitution, and to variations in the sex proportions of the populations of the several countries, perhaps also to the difference in the facilities for marriage afforded by the laws and customs of different states. It will be seen that whereas of the thirteen states which in the period 1901-1905 had a higher rate than England and Wales, only Spain and Austria failed to maintain their position in the more recent years; no fewer than five of the sixteen states in the lower part of the Table, viz., France, Tasmania, Italy, New South Wales and South Australia had in 1908 marriage rates above that recorded in England and Wales.

ANNUAL MARRIAGE-RATES per 1000 persons living, 1881-1908.

Countries (Arranged in Order of Rates in 1901-5).	Quinquennial Periods					Years.		
	1881- 1885.	1886- 1890.	1891- 1895.	1896- 1900.	1901- 1905.	1906.	1907.	1908.
Bulgaria	17.9	17.4	16.4	16.6	19.8	19.1	19.8	—
Servia	22.1	21.6	20.2	19.9	19.7	20.4	21.2	18.4
Western Australia	14.2	14.3	14.0	19.8	18.4	17.4	16.0	15.0
Russia (European)	18.0	17.1	17.9	17.8	—	—	—	—
Ontario, Province of	14.2	13.5	13.2	13.9	17.5	18.0	—	—
Hungary	20.4	17.8	18.0	17.0	17.2	17.4	19.6	18.2
Japan	—	16.6	17.0	18.1	16.3	14.6	17.7	—
New Zealand	13.6	12.0	12.2	14.2	16.3	17.0	18.0	18.0
Roumania	17.9	15.1	15.8	15.2	16.3	20.6	21.3	18.4
Belgium	13.7	14.2	15.1	16.6	16.1	16.1	16.0	—
German Empire... ..	15.4	15.8	15.9	16.8	16.1	16.3	16.3	—
Prussia	15.9	16.2	16.1	16.9	16.1	16.4	16.4	16.1
Spain	12.6	13.3	16.2	15.3	16.0	14.1	13.9	14.3
Austria	15.8	15.5	15.8	16.2	15.7	15.8	15.0	—
England and Wales... ..	15.2	14.7	15.1	16.1	15.6	15.6	15.8	14.9
France	15.0	14.4	15.0	15.1	15.3	15.6	16.0	16.1
Tasmania	16.3	13.8	11.9	13.5	15.2	15.5	15.8	15.7
Switzerland	13.7	14.1	14.5	15.5	15.0	15.6	15.6	—
The Netherlands	14.3	14.0	14.5	14.9	14.9	14.9	15.0	14.4
Italy	16.1	15.5	14.8	14.3	14.7	15.5	15.4	16.6
New South Wales	17.0	14.9	13.3	13.9	14.7	15.3	15.7	15.0
Denmark	15.4	14.0	13.9	15.0	14.3	14.9	15.3	14.8
Scotland	13.8	13.0	13.6	14.6	13.9	14.0	13.9	13.1
Victoria	14.7	16.3	12.9	13.3	13.7	14.6	15.4	14.8
South Australia	16.9	13.5	12.9	12.5	13.3	14.2	15.9	15.8
Finland	14.9	14.5	13.0	14.9	13.0	13.6	13.7	—
Norway	13.4	12.8	12.9	13.7	12.3	11.8	12.1	12.2
Queensland	17.3	16.3	12.6	12.7	12.2	13.5	15.2	14.4
Sweden	12.8	12.2	11.5	12.2	11.8	12.3	12.4	12.2
Ireland	8.7	8.7	9.5	9.9	10.4	10.3	10.3	10.4
Chili	12.6	7.4	9.2	9.3	10.3	11.4	13.0	13.0

In an earlier section of this Report dealing with the marriages recorded in England and Wales, it is stated that the variations which occur from time to time in the number of marriageable men and women in the population make it desirable, when comparing marriage-rates, to base the proportions upon the number of marriageable persons rather than upon the total population. This course is equally desirable when comparing rates in one country with those in another.

A limited number of countries have furnished returns of the numbers of marriageable persons in their populations at the three past census periods; from these data the table on page lviii has been constructed. Although it has not been possible to correct the figures for variations in the ages of bachelors, widowers, spinsters, and widows in the respective populations, nevertheless they give a fair approximation of the relative marriage-rates, in the several countries, based on the numbers of the population among whom marriages can take place.

Calculated in this way the marriage-rate in England and Wales and in the Netherlands declined by about 5 per cent. in the twenty years; in Denmark, Sweden and Scotland the decline was slightly less, but it amounted to 7 per cent. in Finland and to 10 per cent. in Norway and in Hungary. In New Zealand and in the Australian Commonwealth a serious decrease in the marriage-rate is apparent, being no

less than 16 per cent. in New South Wales, 23 per cent. in Queensland, and 35 per cent. in South Australia. On the other hand, Ireland, France and Austria each showed an increase of 5 per cent., Switzerland of 11 per cent., the German Empire of 13 per cent., and Belgium of 24 per cent.

MARRIAGE RATES.

Countries (Arranged in order of rates in 1900-2).	Persons married, per 1000 of the unmarried and widowed population aged 15 years and upwards.		
	Approximate periods.		
	1880-82.	1890-92.	1900-02.
Servia	—	118.7	119.4
Bulgaria	—	—	87.3
Hungary	80.9	73.1	73.1
Spain... ..	—	41.1	59.3
Prussia	50.5	53.7	56.5
German Empire	48.7	51.6	55.0
Belgium	40.3	41.6	50.0
Austria	46.6	44.3	49.1
Italy	48.5	—	48.8
England and Wales	51.5	49.8	48.7
France	45.4	43.9	47.7
Denmark	47.9	45.0	46.2
The Netherlands	48.6	43.7	46.2
Finland	46.6	45.5	43.3
Switzerland	38.1	39.7	42.2
Norway	46.5	40.6	41.9
Scotland	40.7	40.1	39.7
Sweden	36.6	35.6	35.3
Ireland	21.9	22.0	23.0
Australian Commonwealth—			
Western Australia	—	—	52.3
Tasmania	48.5	43.5	46.8
New South Wales	53.7	45.0	45.3
Victoria	43.4	43.6	39.6
Queensland	50.0	45.1	38.3
South Australia... ..	58.1	45.8	37.8
New Zealand	49.8	40.0	44.2

Births.—In several previous Reports attention has been drawn to the general decline in the birth-rate that has taken place in the principal European countries, and in New Zealand and the States of the Australian Commonwealth.

If the average crude birth-rates in the quinquennium 1901-05 are compared with those recorded twenty years earlier (1881-85), it will be seen from the Table on page lviii that, with few exceptions, the fall has been very marked. While the decline did not exceed 2 per cent. in Switzerland, 3 per cent. in Ireland, and 4 per cent. in Spain, it reached 14 per cent. in France and in Italy, 16 per cent. in Servia and in England and Wales, and 17 per cent. in Hungary.

Among the Australasian Colonies the decline ranged from 12 per cent. in Western Australia to 36 per cent. in South Australia.

Taking as a standard the average crude birth-rate recorded in England and Wales in the quinquennium 1901-05, viz., 28.1 per 1000,

it will be seen that twelve Continental countries had rates above, and only three (Belgium, Sweden, and France) had rates below this standard.

Since the quinquennium ending 1905 there has been a further general decline in the birth-rate throughout the European countries, the only noteworthy exceptions being Italy and Roumania, where the rates in 1908 were higher than the averages in 1901-1905, the Balkan States where the rates in 1906 and 1907 were considerably in excess of the last quinquennial average, and Ireland, where but little variation has occurred since the period 1886-1890.

ANNUAL BIRTH-RATES per 1,000 persons living, 1881-1908.

Countries (Arranged in Order of Rates in 1901-5).	Quinquennial Periods.					Years.		
	1881- 1885.	1886- 1890.	1891- 1895.	1896- 1900.	1901- 1905.	1906.	1907.	1908.
	Russia (European) ...	49.1	48.2	48.2	49.3	—	—	—
Bulgaria ...	37.2	35.9	37.5	41.0	40.6	44.0	43.6	
Roumania ...	41.8	40.9	41.0	40.2	39.4	40.5	41.7	
Jamaica ...	—	36.8	38.6	38.9	39.0	38.1	35.0	
Ceylon ...	—	30.3	31.7	37.2	38.8	35.7	32.8	
Servia ...	46.3	43.7	43.3	40.1	38.7	41.3	40.0	
Hungary ...	44.6	43.7	41.7	39.4	37.2	36.0	36.0	
Chili ...	39.1	35.5	37.0	35.0	36.1	36.6	38.6	
Austria ...	38.2	37.8	37.4	37.3	35.6	34.9	33.8	
Spain ...	36.4	36.0	35.3	34.3	35.0	33.4	32.9	
Prussia ...	37.4	37.3	37.0	36.5	34.8	33.7	33.0	
German Empire... ..	37.0	36.5	36.3	36.0	34.3	33.1	32.3	
Italy ...	38.0	37.5	36.0	34.0	32.6	31.9	31.5	
Japan ...	—	28.5	28.6	31.1	31.7	28.9	33.0	
The Netherlands ...	34.8	33.6	32.9	32.1	31.5	30.4	30.0	
Finland ...	35.5	34.5	31.8	32.6	31.3	31.4	31.3	
Western Australia ...	34.5	36.9	30.7	28.3	30.3	30.0	29.2	
Denmark ...	32.4	31.4	30.4	30.0	29.0	28.5	28.3	
Tasmania ...	35.0	34.1	32.7	28.2	29.0	29.5	29.6	
Scotland ...	33.3	31.4	30.5	30.0	28.9	27.9	27.0	
Norway ...	31.2	30.8	30.2	30.1	28.6	26.7	26.3	
England and Wales... ..	33.5	31.4	30.5	29.3	28.1	27.1	26.3	
Switzerland ...	28.6	27.5	27.7	28.5	28.1	27.4	26.8	
Belgium ...	30.7	29.3	28.9	28.9	27.7	25.7	25.3	
New South Wales ...	37.7	36.4	32.9	28.0	26.7	27.0	27.1	
Queensland ...	36.5	37.4	34.1	29.1	26.7	26.3	26.9	
New Zealand ...	36.3	31.2	27.7	25.7	26.6	27.1	27.3	
Sweden ...	29.4	28.8	27.4	26.9	26.1	25.7	25.5	
Victoria ...	30.8	32.7	30.9	26.2	25.0	25.1	25.2	
South Australia ...	38.5	34.7	32.0	27.0	24.5	23.7	23.9	
Ireland ...	23.9	22.8	23.0	23.3	23.2	23.6	23.2	
Ontario, Province of ...	22.4	22.0	19.9	20.1	21.8	23.3	—	
France ...	24.7	23.1	22.3	21.9	21.2	20.6	19.7	

Legitimate Natality.—While it is recognised that the results of calculating the birth-rate in proportion to total population are of considerable value, it is at the same time very desirable to ascertain the reasons for such wide discrepancies among the crude birth-rates in the different countries. These discrepancies are to some extent due to variations in the civil condition and in the sex and age constitution of the several populations; for example, the birth-rate of Ireland, based on the proportion of births to total population, appears among the lowest in the list of countries given above; whereas if the rate is based on the proportion of legitimate births to

the married women aged 15-45 years, it is found that in the period 1900-2, the fertility of Irish wives is only exceeded in three European countries—the Netherlands, Norway, and Prussia.

The countries possessing the requisite data were therefore asked to furnish returns of the numbers of married women aged 15-45 years in their populations, and of the numbers of legitimate births at the three past census periods; from these data the following Table has been constructed.

LEGITIMATE BIRTH-RATES.

Countries (Arranged in order of rates in 1900-02).	Proportion of Legitimate Births per 1000 Wives aged 15-45 years.			Increase (+) or Decrease (-) per cent. in Fertility during 20 years.
	Approximate periods.			
	1880-82.	1890-92.	1900-02.	
<i>European Countries.</i>				
The Netherlands ...	347.5	338.8	314.6	- 9.5
Norway ...	314.5	306.8	302.8	- 3.7
Prussia ...	312.6	307.6	290.4	- 7.1
Ireland ...	282.9	287.6	289.4	+ 2.3
German Empire ...	310.2	300.9	284.2	- 8.4
Austria ...	281.4	292.4	283.7	+ 0.8
Scotland ...	311.5	296.4	271.8	- 12.7
Italy ...	276.2	?	269.4	- 2.5
Sweden ...	293.0	280.0	269.0	- 8.2
Switzerland ...	284.1	274.0	265.9	- 6.4
Denmark ...	287.1	278.1	259.1	- 9.8
Spain ...	257.7	263.9	258.7	+ 0.4
Belgium ...	312.7	285.1	250.7	- 19.8
England and Wales ...	286.0	263.8	235.5	- 17.7
France ...	196.2	173.5	157.5	- 19.7
<i>Australian Commonwealth.</i>				
Tasmania ...	?	311.0	256.4	?
Queensland ...	329.0	320.6	252.8	- 23.2
Western Australia ...	323.9*	338.8*	246.4	- 23.9
South Australia ...	326.5	307.5	235.0	- 28.0
New South Wales ...	337.8	298.5	234.3	- 30.6
Victoria ...	299.2	297.8	226.8	- 24.2
New Zealand ...	322.1	277.5	243.2	- 24.5

* The legitimate births in Western Australia are not precisely known for these periods, but are estimated to be 95 per cent. of the total births.

In reviewing these important figures it appears that among the European countries from which it has been possible to obtain returns there were only two—Austria and Spain—in which the fertility of wives during the 20 years (1881-1901) showed a tendency to increase, and this also applies to Ireland. In all of the remaining countries a decrease in fertility took place in the period under review, ranging from 2.5 to as much as 19.8 per cent. There were two countries, Italy and Norway, in which the fall was only 2.5 and 3.7 per cent. respectively; in five others, Switzerland, Sweden, the German Empire, the Netherlands, and Denmark, the decrease ranged from 6.4 to 9.8 per cent., in Scotland the decrease was 12.7 per cent., in

England and Wales 17.7 per cent., in France 19.7 per cent., and in Belgium 19.8 per cent.

In New Zealand and in the States of the Australian Commonwealth, the decrease in legitimate natality in the period 1881-1901 ranged from 23.2 to 30.6 per cent.

It is probable that there is a common cause operating throughout these countries to account for the phenomenon of a general decline in human fertility, and apart from any decrease due to changes in the age constitution of the married women of conceptive ages, there is strong ground for the assumption that in varying degree that cause is the deliberate restriction of child-bearing on the part of the people themselves.

Illegitimate Natality.—As stated in an earlier part of this Report, illegitimacy is usually measured by the convenient method of taking the proportion of illegitimate births to total births. This is, however, a defective method, because it ignores the varying proportions of unmarried and widowed women in the population. In the following table, therefore, the illegitimate rates are stated in proportion to the number of single and widowed women at child-bearing ages.

For reasons given in the note on page xxvi respecting the difficulties of estimating during an intercensal period the numbers living in sections of the population the calculations have been limited to the last three Census periods.

During the period 1900-02, the ratio of illegitimate births per 1000 single and widowed women aged 15-45 years did not exceed 3.8 in Ireland, 6.8 in the Netherlands, 8.5 in England and Wales, and 8.9 in New Zealand, but the proportion reached 24.2 per 1000 in Denmark, 24.3 in Sweden, 27.4 in the German Empire, and 40.1 in Austria.

ILLEGITIMATE BIRTH-RATES.

Countries (Arranged in order of rates in 1900-02).	Proportion of Illegitimate Births per 1000 Unmarried and Widowed Women aged 15-45 years.			Increase (+) or Decrease (-) per cent. of Illegitimacy during 20 years.
	Approximate periods.			
	1880-82.	1890-92.	1900-02.	
Austria	43.4	42.7	40.1	- 7.6
German Empire	29.6	28.7	27.4	- 7.4
Sweden	22.6	22.0	24.3	+ 7.5
Denmark	26.9	24.5	24.2	- 10.0
Prussia	25.8	25.1	23.7	- 8.1
Italy	25.4	—	19.4	- 23.6
France	17.6	17.7	19.1	+ 8.5
Belgium	20.0	20.6	17.8	- 11.0
Norway	19.7	16.9	17.2	- 12.7
Spain	16.0	17.5	15.5	- 3.1
Scotland	21.4	17.1	13.4	- 37.4
Australian Commonwealth	14.5	15.9	13.2	- 9.0
Switzerland	10.8	10.0	9.8	- 9.3
New Zealand	13.4	9.0	8.9	- 33.6
England and Wales	14.1	10.5	8.5	- 39.7
The Netherlands	9.7	9.0	6.8	- 29.9
Ireland	4.4	3.9	3.8	- 13.6

There is probably no single explanation of the wide variations in the rates of illegitimacy, but differences of religion, of social conditions, of race, and of the marriage laws—particularly in regard to the possibility of legitimization by subsequent marriage—must all be taken into account.

Deaths.—During the last three years the death-rates were, on the whole, lower than in any of the earlier periods shown in the table. In England and Wales the rates in successive quinquennia since 1881-5 showed a continuous decrease, and this decrease continued uninterruptedly in the years 1906-08. A similar record of steady improvement has been shown in the death-rates of the German Empire, Spain, Switzerland, Belgium, and South Australia, and would have been shown in Italy also, but for the disastrous earthquake at Messina.

ANNUAL CRUDE DEATH-RATES per 1000 persons living, 1881-1908.

Countries (Arranged in Order of Rates in 1901-5).	Quinquennial Periods.					Years.		
	1881- 1885.	1886- 1890.	1891- 1895.	1896- 1900.	1901- 1905.	1906.	1907.	1908.
Russia (European)	35.4	33.2	35.8	31.9	—	—	—	—
Chili	27.8	35.2	32.6	28.8	30.0	32.9	29.6	31.6
Ceylon	—	25.1	28.3	27.0	26.7	34.3	30.1	29.4
Hungary	33.1	32.1	31.8	27.9	26.2	24.8	25.2	24.8
Spain	32.6	30.9	30.1	28.8	25.8	25.6	24.0	23.3
Roumania	26.2	28.7	31.0	27.4	25.5	24.3	26.7	27.7
Austria	30.1	28.9	27.9	25.6	24.2	22.4	22.6	—
Bulgaria	17.7	18.9	27.8	23.9	22.5	22.3	22.3	—
Jamaica	—	23.5	22.0	22.1	22.6	26.2	28.3	22.4
Servia	24.5	25.9	28.9	24.8	22.4	24.0	22.8	23.7
Italy	27.3	27.2	25.5	22.9	21.9	20.8	20.7	22.6*
Japan	—	20.6	21.1	20.7	20.9	19.8	20.9	—
German Empire	25.3	24.4	23.3	21.2	19.9	18.2	18.0	—
France	22.2	22.0	22.3	20.7	19.6	19.9	20.2	19.0
Prussia	25.4	24.0	22.8	21.0	19.6	17.9	17.8	17.9
Finland	22.2	20.0	20.5	19.0	18.6	17.5	17.9	—
Switzerland	21.3	20.4	19.8	18.1	17.7	17.0	16.8	—
Ireland	18.0	17.9	18.5	18.1	17.6	17.0	17.7	17.6
Belgium	20.6	20.2	20.1	18.1	17.0	16.4	15.7	—
Scotland	19.6	18.8	19.0	18.0	16.9	16.0	16.2	16.1
England and Wales	19.4	18.9	18.7	17.7	16.0	15.4	15.0	14.7
The Netherlands	21.4	20.5	19.6	17.2	16.0	14.8	14.6	15.3
Sweden	17.5	16.4	16.6	16.1	15.5	14.4	14.6	14.9
Denmark	18.4	18.7	18.6	16.4	14.8	13.5	14.2	14.5
Norway	17.2	17.0	16.8	15.6	14.5	13.6	14.2	14.3
Ontario, Province of	11.4	11.0	10.6	11.6	13.0	14.8	—	—
Victoria	14.7	16.1	14.0	13.7	12.7	12.4	11.7	12.5
Western Australia	17.1	16.0	16.3	15.1	12.4	11.8	11.1	10.7
Queensland	19.2	14.9	12.4	12.0	11.4	9.6	10.4	10.2
New South Wales	15.7	13.8	12.8	11.9	11.2	9.9	10.6	10.1
South Australia	14.7	12.6	12.3	12.0	10.8	10.3	9.7	9.7
Tasmania	16.0	14.9	13.3	12.4	10.8	11.2	11.2	11.7
New Zealand	10.9	9.9	10.1	9.6	9.9	9.3	10.9	9.5

* Excluding the deaths in the earthquake at Messina and Reggio the death-rate was 20.3 per 1000.

The crude death-rates given in the preceding table are useful because they present facts in a convenient form and enable a comparison to be made of the death-rates year by year, or in small groups of years.

in the same country; but, as already stated, crude death-rates should be supplemented by rates in which the sex and age distribution of the respective populations is taken into account.

This more accurate comparison is now made possible by means of Table 54 given on pages 108-109, which shows for the first time the age constitution of the principal Foreign and Colonial populations as enumerated at the last Census. A few examples extracted from that table will show at a glance the wide variations in the relative proportions of young, middle-aged, and old persons in the populations in some of the countries.

PROPORTIONS IN A MILLION PERSONS AT ALL AGES.—CENSUS 1901.

	England and Wales.	Ireland.	France.	New South Wales.	German Empire. (Census, 1900.)
Persons.					
All ages... ..	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Under 15 years ...	324,206	303,492	261,073	359,923	347,983
15-65	629,133	632,700	656,877	605,581	603,223
65 years and upwards.	46,661	63,808	82,050	34,496	48,794
Males.					
All ages... ..	483,543	493,418	491,977	524,199	492,082
Under 15 years ...	161,871	154,189	130,576	182,294	174,404
15-65	301,349	307,405	323,878	321,846	295,918
65 years and upwards.	20,323	31,824	37,523	20,059	21,760
Females.					
All ages... ..	516,457	506,582	508,023	475,801	507,918
Under 15 years ...	162,335	149,303	130,497	177,629	173,579
15-65	327,784	325,295	332,999	283,735	307,305
65 years and upwards.	26,338	31,984	44,527	14,437	27,034

In view of the wide variations in the sex and age constitution of the several populations, corrected death-rates have been calculated for the period 1900-02 for all countries that were able to furnish the requisite data.

The International Statistical Institute have recommended that the particular constitution, in respect of age, of the population of Sweden in 1890 should be taken as an arbitrary basis of comparison, and that the following five age-groups should be used for the purpose of correcting death-rates, viz.: under 1 year, 1 year and under 20, 20 years and under 40, 40 years and under 60, 60 years and upwards.

In England and Wales, owing to the tendency of persons to return their ages as some exact multiple of ten, that is as 30, 40, 50, 60, etc., it has always been deemed advisable, for the purposes of calculating rates of mortality, to make use of decennial periods arranged in such a way that the year which is a multiple of ten shall come in the middle of the period, that is to say, 25-35, 35-45, etc. It is maintained that corrected death-rates based on eleven quinquennial or decennial age groups should be of far greater value than those of the five age-groups of the Swedish standard population,

In the following calculations the population of England and Wales at the census of 1901 has been adopted as a standard and the corrected death-rates for the various countries have been calculated on the rates of mortality in the eleven age-groups specified in Tables P and Q, pp. lxiv-lxv.

It will be observed from the figures in Table O, that the death-rates of the several countries are affected by differences of sex and age constitution very diversely. For example, in four countries (viz., Switzerland, Belgium, the Netherlands, and Ireland) the crude rates for persons exceeded that recorded in England and Wales, whereas

TABLE O.—MEAN ANNUAL CRUDE and CORRECTED DEATH-RATES* per 1000 living in ENGLAND and WALES and in certain EUROPEAN COUNTRIES and BRITISH COLONIES.

COUNTRIES (arranged in order of their Corrected Death-rates—Persons).	Deaths to 1000 living.						Comparative Mortality Figures (Persons), England and Wales, taken as 1000 (Corrected Death-rates).
	Persons.		Males.		Females.		
	Cor- rected Death- rates.	Crude Death- rates.	Cor- rected Death- rates.	Crude Death- rates.	Cor- rected Death- rates.	Crude Death- rates.	
Russia (European) (1896-8) ..	28'61	32'80	29'80	34'59	27'49	31'09	1667
Spain (1900-02)	26'53	27'63	27'37	28'97	25'74	26'36	1546
Hungary (1899-01)	24'87	26'34	24'96	26'87	24'79	25'81	1449
Austria (1899-01)	23'12	24'83	23'86	25'80	22'42	23'90	1347
Bulgaria (1899-01)	20'92	23'26	20'89	23'47	20'96	23'03	1219
Italy (1900-02)	20'23	22'72	20'09	23'13	20'36	22'31	1179
Prussia (1899-01)	19'70	21'08	21'03	22'42	18'45	19'77	1148
German Empire (1901)	19'52	20'84	20'78	22'10	18'34	19'61	1138
Finland (1899-01)	19'12	20'54	19'98	21'26	18'32	19'84	1114
Scotland (1900-02)	17'61	17'91	18'56	18'50	16'73	17'36	1026
France (1900-02)	17'50	20'80	18'56	21'95	16'51	19'69	1020
England and Wales (1900-02)	17'16	17'16	18'37	18'37	16'04	16'04	1000
Switzerland (1899-01)	16'86	18'22	17'57	18'99	16'20	17'48	983
Belgium (1899-01)	16'78	18'53	17'80	19'55	15'82	17'52	978
Ireland (1900-02)	16'59	18'27	16'25	18'31	16'90	18'23	967
Western Australia (1900-02) ..	15'83	13'72	17'80	14'68	14'00	12'21	922
The Netherlands (1898-00) ..	15'40	17'32	16'03	18'06	14'81	16'60	897
Sweden (1899-01)	13'88	16'78	14'45	17'24	13'36	16'35	809
Denmark (1900-02)	13'63	15'80	14'41	16'66	12'90	14'98	794
Queensland (1900-02)	13'29	11'89	14'88	13'61	11'80	9'74	774
New South Wales (1900-02) ..	13'10	11'72	13'79	13'01	12'44	10'29	763
Victoria (1900-02)	13'08	13'12	13'99	14'80	12'22	11'43	762
South Australia (1900-02) ..	11'73	11'02	12'33	11'78	11'16	10'23	684
Tasmania (1900-02)	11'44	10'88	11'55	11'59	11'33	10'11	667
New Zealand (1900-02)	10'80	10'01	11'12	11'05	10'51	8'86	629

* The corrected death-rates are the death-rates at all ages that would have resulted from the rates prevailing at the various age groups if the sex and age constitution of the populations in the several countries had been identical with that of the population of England and Wales as enumerated at the Census of 1901.

TABLE P.—MALES:—DEATH-RATES per 1000 living at ELEVEN GROUPS of AGES in ENGLAND and WALES and in certain EUROPEAN COUNTRIES and BRITISH COLONIES.

COUNTRIES (arranged in order of their Corrected Death-rates at all Ages —Persons).	Deaths to 1000 living—MALES.											
	All Ages.*	Under 5 years.	5—	10—	15—	20—	25—	35—	45—	55—	65—	75 years and upwards.
Russia (European) (1896-8) ..	29'80	144'25	12'88	5'37	5'59	7'45	8'14	11'18	18'44	32'31	65'66	116'59
Spain (1900-02) ..	27'37	109'85	8'49	4'03	6'93	10'07	9'07	11'76	18'04	35'07	80'43	210'22
Hungary (1899-01) ..	24'96	98'40	11'13	4'90	5'98	8'55	7'61	10'78	17'80	34'00	70'69	169'05
Austria (1899-01) ..	23'86	93'95	6'88	3'52	4'89	7'47	7'85	11'10	18'68	34'54	72'53	170'53
Bulgaria (1899-01) ..	20'89	80'45	12'74	5'94	6'67	10'15	8'67	10'55	16'06	23'87	41'35	85'58
Italy (1900-02) ..	20'09	76'86	5'98	3'15	4'68	6'73	6'73	8'44	13'59	26'99	65'56	177'30
Prussia (1899-01) ..	21'03	79'84	4'94	2'69	4'19	5'74	6'13	10'38	18'32	33'28	69'47	164'11
German Empire (1901) ..	20'78	80'33	4'47	2'59	4'06	5'57	6'16	10'10	17'69	32'49	67'56	161'97
Finland (1899-01) ..	19'98	68'02	11'18	5'24	5'45	7'48	7'34	9'27	14'30	27'96	64'28	152'00
Scotland (1900-02) ..	18'56	52'13	4'34	2'82	4'64	6'14	7'55	11'68	19'50	37'95	71'61	159'22
France (1900-02) ..	18'56	51'74	4'69	3'00	5'08	8'10	8'19	11'56	17'54	31'50	69'50	183'78
England and Wales (1900-02)	18'37	58'29	4'06	2'28	3'49	4'77	6'38	10'94	18'67	34'80	70'25	158'18
Switzerland (1899-01) ..	17'57	50'62	3'80	2'39	3'90	5'75	6'58	10'40	18'83	34'30	70'79	160'83
Belgium (1899-01) ..	17'80	59'39	4'02	2'19	3'72	5'64	6'17	9'14	16'37	30'11	66'52	162'40
Ireland (1900-02) ..	16'25	39'36	3'90	2'86	4'83	7'19	8'96	10'62	15'63	29'52	63'07	169'19
Western Australia (1900-02) ..	17'80	53'81	2'47	2'00	3'66	7'24	7'54	10'93	17'82	32'03	65'07	169'16
The Netherlands (1898-00) ..	16'03	55'43	3'59	2'28	3'96	5'82	5'70	7'60	12'92	25'40	59'15	142'15
Sweden (1899-01) ..	14'45	40'30	5'62	3'52	4'96	6'93	6'91	8'28	12'42	21'95	48'98	134'95
Denmark (1900-02) ..	14'41	42'13	3'67	2'52	3'55	5'34	5'52	8'10	13'54	24'71	55'43	148'53
Queensland (1900-02) ..	14'88	31'84	2'21	2'11	5'24	8'55	8'95	10'83	16'49	29'31	61'97	132'06
New South Wales (1900-02) ..	13'79	34'23	2'18	2'02	3'46	4'76	5'62	8'86	14'71	27'86	60'82	151'02
Victoria (1900-02) ..	13'99	34'01	2'69	2'10	3'11	4'90	6'27	8'82	15'38	29'88	61'58	141'57
South Australia (1900-02) ..	12'33	32'18	2'81	1'85	2'90	4'21	5'24	7'61	11'96	24'76	54'71	122'31
Tasmania (1900-02) ..	11'55	26'50	1'71	2'34	2'66	4'11	4'23	7'36	11'27	23'32	52'52	156'07
New Zealand (1900-02) ..	11'12	25'02	2'35	1'72	2'89	3'90	4'55	6'88	11'94	22'04	51'34	137'86

* Corrected Death-rates. See Note * at foot of Table O, page Ixiii.

after correction the rates in these countries were below that in England and Wales.

For the assistance of those who desire to investigate this subject further, Tables P and Q have been prepared which exhibit the rates of mortality of males and females respectively at eleven groups of ages in the several countries.

Compared with the death-rate in England and Wales the corrected mortality ranged among the European countries from 67 per cent. above this standard in Russia to 21 per cent. below it in Denmark. In all the Australasian colonies the mortality was lower than in England and Wales, the difference ranging from 8 per cent. in Western Australia to 37 per cent. in New Zealand. The corrected death-rate is lower than the crude rate in every European country given in the Table, while among the Australasian colonies, with one exception, the rate is increased by correction.

TABLE Q.—FEMALES:—DEATH-RATES per 1000 living at ELEVEN GROUPS of AGES in ENGLAND and WALES and in certain EUROPEAN COUNTRIES and BRITISH COLONIES.

COUNTRIES (arranged in order of their Corrected Death-rates at all Ages —Persons).	Deaths to 1000 living—FEMALES.											
	All Ages.*	Under 5 years.	5—	10—	15—	20—	25—	35—	45—	55—	65—	75 years and upwards.
Russia (European) (1896-8) ..	27'49	125'05	12'61	5'48	6'04	7'74	8'81	11'10	16'07	32'54	66'52	116'88
Spain (1900-02) ..	25'74	98'29	8'70	4'60	7'31	8'70	9'38	10'60	13'99	30'02	76'36	211'06
Hungary (1899-01) ..	24'79	85'54	11'40	6'25	7'73	9'42	9'75	11'36	15'86	34'11	74'36	172'10
Austria (1899-01) ..	22'42	79'59	7'43	4'33	5'57	7'46	8'66	10'62	14'96	31'18	72'51	165'83
Bulgaria (1899-01) ..	20'96	73'19	12'31	6'60	7'58	11'04	11'53	12'61	14'18	22'12	43'75	93'80
Italy (1900-02) ..	20'36	72'93	6'55	3'76	5'43	6'92	7'77	8'87	11'24	24'13	65'72	182'17
Prussia (1899-01) ..	18'45	68'08	5'06	2'94	3'71	4'76	6'23	8'11	11'79	25'37	62'16	156'19
German Empire (1901) ..	18'34	68'07	4'58	2'75	3'72	4'86	6'43	8'24	11'73	25'13	60'60	154'67
Finland (1899-01) ..	18'32	59'44	10'97	5'93	5'95	6'69	7'37	8'78	10'74	21'54	56'07	141'87
Scotland (1900-02) ..	16'73	43'91	4'77	3'23	4'69	5'59	7'25	10'04	15'56	30'47	60'17	142'78
France (1900-02) ..	16'51	43'55	4'81	3'55	5'27	6'88	7'75	9'08	12'72	24'35	58'81	163'58
England and Wales (1900-02)	16'04	48'76	4'16	2'40	3'21	3'94	5'44	8'84	14'26	27'45	59'03	143'48
Switzerland (1899-01) ..	16'20	41'50	3'87	2'71	4'45	5'62	6'61	8'46	12'80	28'32	68'85	160'35
Belgium (1899-01) ..	15'82	50'11	4'14	2'49	4'08	5'49	6'24	7'76	11'25	22'70	54'98	149'89
Ireland (1900-02) ..	16'90	35'01	4'82	3'92	5'99	6'65	8'58	10'81	14'98	29'65	67'15	168'01
Western Australia (1900-02) ..	14'00	42'38	2'03	2'05	3'42	6'18	6'88	9'29	10'44	21'56	41'18	126'17
The Netherlands (1898-00) ..	14'81	47'01	3'59	2'52	3'71	4'42	5'86	7'82	10'29	21'69	52'22	139'31
Sweden (1899-01) ..	13'36	34'58	5'75	4'21	5'24	6'00	6'52	7'51	9'78	17'35	42'71	126'30
Denmark (1900-02) ..	12'90	34'21	3'69	3'25	4'21	4'52	5'53	7'09	10'05	18'74	46'36	133'97
Queensland (1900-02) ..	11'80	27'69	1'92	1'76	2'55	3'75	5'83	8'32	10'98	20'60	47'81	117'25
New South Wales (1900-02) ..	12'44	30'58	2'01	1'69	2'51	3'84	5'48	7'58	10'43	20'15	46'49	155'21
Victoria (1900-02) ..	12'22	29'06	2'63	1'92	2'92	4'10	6'00	8'33	11'46	21'50	44'64	122'82
South Australia (1900-02) ..	11'16	27'25	2'03	1'62	3'47	4'16	5'30	7'35	9'34	17'03	43'33	118'06
Tasmania (1900-02) ..	11'33	22'13	2'30	1'62	3'97	4'78	4'86	7'74	9'13	18'28	51'52	136'03
New Zealand (1900-02) ..	10'51	21'36	1'93	1'80	2'97	3'74	4'74	6'56	10'11	18'95	43'48	122'87

* Corrected Death-rates. See Note * at foot of Table O, page Ixiii.

With regard to the death-rates of the two sexes, it will be noted that the rate for males at all ages exceeds the rate for females in all but three countries, viz., Ireland, Italy, and Bulgaria. The excess of male mortality is not, however, evenly distributed throughout all the age groups. Among children under 5 years of age this excess is, on the whole, more marked than in succeeding age groups, and it prevails in all countries without exception. From 5 to 20 years of age the female mortality generally exceeds that among males; in the next five years, however, the male rate is again higher than that for females, except in Russia, Hungary, Bulgaria, Italy, and Tasmania. From 25 to 35 years of age the mortality of females is higher than that for males in 15 of the 24 countries shown in the Table, but from 35 years onwards the male rates are, as a rule, higher than the female rates; Russia, Hungary, Bulgaria, Ireland, and Italy are, however, prominent exceptions to this rule, especially at the higher ages.

Natural Increase.—Assuming the registration of births and deaths in the countries dealt with to be reasonably complete, the rates of natural increase of population in the several States can be compared by taking the difference between the birth- and death-rates. The countries in which the highest birth-rates obtain are not invariably those in which the highest rates of natural increase prevail, the growth of population depending upon the death-rate as well as upon the birth-rate, the two factors being to some extent inter-dependent.

The average rate of natural increase shows wide variations in the several countries.

NATURAL INCREASE.—Mean Annual rate of increase, by excess of Births over Deaths, per 1000 living, 1881-1908.

Countries (Arranged in Order of Rates in 1901-5).	Quinquennial Periods.					Years.		
	1881- 1885.	1886- 1890.	1891- 1895.	1896- 1900.	1901- 1905.	1906.	1907.	1908.
Bulgaria	19.5	17.0	9.7	17.1	18.1	21.7	21.3	—
Tasmania	19.0	19.2	19.4	15.8	18.2	18.3	18.4	19.1
Western Australia	17.4	20.9	14.4	13.2	17.9	18.2	18.1	18.2
Russia (European)	13.7	15.0	12.4	17.4	—	—	—	—
New Zealand	25.4	21.3	17.6	16.1	16.7	17.8	16.4	17.9
Servia	21.8	17.8	14.4	15.3	16.3	17.3	17.2	13.1
New South Wales	22.0	22.6	20.1	16.1	15.5	17.1	16.5	16.7
The Netherlands	13.4	13.1	13.3	14.9	15.5	15.6	15.4	14.4
Queensland	17.3	22.5	21.7	17.1	15.3	16.7	16.5	16.5
Prussia	12.0	13.3	14.2	15.5	15.2	15.8	15.2	14.9
German Empire	11.7	12.1	13.0	14.8	14.4	14.9	14.3	—
Denmark	14.0	12.7	11.8	13.6	14.2	15.0	14.1	13.8
Norway	14.0	13.8	13.4	14.5	14.1	13.1	12.1	11.9
Roumania	15.6	12.2	10.0	12.8	13.9	16.2	15.0	13.1
South Australia	23.8	22.1	19.7	15.0	13.7	13.4	14.2	15.0
Finland	13.3	14.5	11.3	13.6	12.7	13.9	13.4	—
Victoria	16.1	16.6	16.9	12.5	12.3	12.7	13.5	12.1
England & Wales	14.1	12.5	11.8	11.6	12.1	11.7	11.3	11.8
Scotland	13.7	12.6	11.5	12.0	12.0	11.9	10.8	11.1
Austria	8.1	8.9	9.5	11.7	11.4	12.5	11.2	—
Hungary	11.5	11.6	9.9	11.5	11.0	11.2	10.8	11.5
Japan	—	7.9	7.5	10.4	10.8	9.1	12.1	—
Belgium	10.1	9.1	8.8	10.8	10.7	9.3	9.6	—
Italy	10.7	10.3	10.5	11.1	10.7	11.1	10.8	10.8
Sweden	11.9	12.4	10.8	10.8	10.6	11.3	10.9	10.8
Switzerland	7.3	7.1	7.9	10.4	10.4	10.4	10.0	—
Spain	3.8	5.1	5.2	5.5	9.2	7.8	8.9	9.9
Ontario, Province of	11.0	11.0	9.3	8.5	8.8	8.5	—	—
Chili	11.3	0.3	4.4	6.2	6.1	3.7	9.0	7.7
Ireland	5.9	4.9	4.5	5.2	5.6	6.6	5.5	5.7
France	2.5	1.1	0.0	1.2	1.6	0.7	-0.5	1.2

The average annual rate in England and Wales in the quinquennium 1901-1905 was 12.1 per 1000 of the total population; taking this figure as a criterion it will be seen that in proportion to total population the natural increment was above that rate in the Australasian Colonies, in the Balkan States, in Russia, in the Netherlands, in the German Empire, in Denmark, and in Norway; while it was about equal to the English average in Scotland and below it in Austria, Hungary, Japan, Belgium, Italy, Sweden, Switzerland, Spain, and the Province of Ontario. In Ireland the rate was exceptionally low, being only 5.6 per 1000 of population. In France the average

birth-rate exceeds but slightly the average death-rate, and it may be of interest to note that in six of the past nineteen years the number of deaths exceeded the births.

Infantile Mortality.—The accompanying Table shows the relative incidence of infantile mortality in those countries that have been able to furnish returns. With few exceptions the populations in which a high rate of infantile mortality prevails are those in which a high birth-rate obtains. Austria, Hungary, Prussia, and Spain come under this category; while France appears to be a notable exception, the birth-rate being low and the infantile mortality comparatively high.

In Ireland, in Norway, in New Zealand, and in all the States of the Australian Commonwealth the rates of infantile mortality are exceptionally low. (Further remarks upon International Infantile Mortality will be found in Dr. Stevenson's letter, p. cxxi.)

INFANTILE MORTALITY.—DEATHS of children under one year to 1000 births, 1881-1908.

Countries (Arranged in Order of Rates in 1901-5).	Quinquennial Periods.					Years.		
	1881- 1885.	1886- 1890.	1891- 1895.	1896- 1900.	1901- 1905.	1906.	1907.	1908.
Chili	—	264	336	333	331	328	297	320
Russia (European)	271	264	276	261	—	—	—	—
Austria	—	—	—	226	215	—	—	—
Hungary	—	—	250	219	212	205	208	199
Prussia	207	208	205	201	190	177	168	173
Jamaica	—	170	171	175	174	197	223	175
Spain	193	—	—	—	173	173	—	—
Ceylon	—	158	169	168	171	198	186	183
Italy	—	—	185	168	168	160	155	—
Japan	—	—	147	153	154	153	151	—
Servia	157	158	172	159	149	144	147	158
Belgium	156	163	164	158	148	153	132	—
Bulgaria	—	—	140	143	148	154	—	—
France	167	166	171	159	139	143	—	—
England & Wales	139	145	151	156	138	132	118	120
Ontario, Province of	—	—	—	139*	138	162	—	—
The Netherlands	181	175	165	151	136	127	112	125
Switzerland	171	159	155	143	134	127	121	—
Finland	162	144	145	139	131	119	112	—
Western Australia	—	123	130	160	126	110	98	85
Scotland	117	121	126	129	120	115	110	—
Denmark	135	136	138	132	119	109	106	—
Ireland	94	95	102	106	98	93	92	97
New South Wales	124	115	111	113	97	75	89	76
Victoria	122	131	111	111	96	93	73	86
Queensland	137	119	103	103	94	75	77	70
Sweden	116	105	103	101	91	81	77	—
Tasmania	109	103	94	98	90	91	82	75
South Australia	—	105	99	112	87	76	66	70
Norway	99	96	98	96	81	69	67	—
New Zealand	90	84	87	80	75	62	89	68

* 4 years.

Mortality from certain Epidemic Diseases.—The accompanying tables give some indication of the incidence of measles, scarlet fever, diphtheria, whooping cough, and enteric fever in the several countries.

In comparing the rates of mortality from these diseases it must be borne in mind that methods of classification vary, and that the certification of causes of death is more complete or more accurate in some States than in others; also that differences in the age constitution of the several populations affect the comparison of the figures. In the case of measles, scarlet fever, diphtheria, and whooping cough, diseases mainly confined to childhood, it will be noted from the tables that in several instances considerable fluctuations occur in the mortality rates; doubtless this is due to cycles of greater or lesser prevalence of these disorders. Generally speaking, however, sensible reductions in the rates of mortality from these diseases have taken place in many European countries.

In regard to the death-rate from enteric fever, the figures in the Table show that in nearly all countries a gratifying diminution in the mortality from this disease has taken place; the reduction being exceptionally marked in Austria, Prussia, and Switzerland.

While the rate is still high in Spain, Italy, and Hungary, it is comparatively low in England and Wales, Scotland, the Netherlands, Prussia, Sweden, and Switzerland. Enteric fever is permanently prevalent in nearly all countries, but it is worthy of note that, according to the reports of various sanitary authorities, the decline in the mortality has generally coincided with the introduction of pure public water supplies.

MEASLES.—DEATH-RATES per 1000 persons living, 1881-1908.

Countries (Arranged in Order of Rates in 1901-5).	Quinquennial Periods.					Years.		
	1881-1885.	1886-1890.	1891-1895.	1896-1900.	1901-1905.	1906.	1907.	1908.
Spain	—	—	—	—	0.66	0.45	0.35	0.36
Hungary	—	—	—	0.43*	0.40	0.49	0.42	0.45
Belgium	0.52	0.58	0.60	0.40	0.37	0.34	0.27	—
The Netherlands	0.26	0.38	0.20	0.17	0.37	0.25	0.26	0.27
Austria	0.48	0.56	0.42	0.38	0.34	0.33	—	—
England & Wales	0.41	0.47	0.41	0.42	0.33	0.27	0.36	0.23
Scotland	0.36	0.41	0.51	0.43	0.32	0.31	0.24	—
Roumania	—	0.13	0.18	0.17	0.26	0.03	0.21	0.25
Prussia	0.42	0.42	0.27	0.26	0.25	0.24	0.18	0.19
Italy	—	0.61*	0.42	0.25	0.21	0.29	0.24	0.34
Switzerland	0.11	0.14	0.16	0.13	0.20	0.16	0.17	—
Ireland	0.18	0.20	0.17	0.18	0.16	0.09	0.13	0.20
South Australia	0.16	0.01	0.18	0.05	0.13	0.00	0.01	0.04
Sweden	0.21	0.18	0.13	0.11	0.08	0.04	0.08	—
New Zealand	0.09	0.03	0.16	0.06	0.07	0.01	0.11	0.02
Western Australia	0.82	—	0.08	0.05	0.06	0.02	0.02	0.10
Ontario, Province of	0.06	0.07	?	0.04	0.04	0.06	—	—
New South Wales	0.05	0.06	0.15	0.11	0.03	0.01	0.06	0.02
Victoria	0.08	0.03	0.12	0.14	0.03	0.01	0.03	0.02
Queensland	0.08	0.00	0.14	0.11	0.02	0.01	0.04	0.07
Tasmania... ..	—	0.00	0.06	0.07	0.01	0.02	0.01	0.02

* 4 years.

SCARLET FEVER.—DEATH-RATES per 1000 persons living, 1881-1908.

Countries (Arranged in Order of Rates in 1901-5).	Quinquennial Periods.					Years.		
	1881-1885.	1886-1890.	1891-1895.	1896-1900.	1901-1905.	1906.	1907.	1908.
Servia	—	—	—	—	0.99	1.72	1.43	1.41
Hungary	—	—	—	0.56*	0.66	0.43	0.57	0.65
Austria	0.62	0.56	0.54	0.56	0.45	0.38	—	—
Roumania	—	0.15	0.32	0.26	0.45	0.20	0.35	0.78
Prussia	0.58	0.30	0.23	0.27	0.30	0.21	0.22	0.22
Belgium	0.27	0.17	0.15	0.22	0.13	0.11	0.13	—
England & Wales	0.44	0.24	0.18	0.13	0.13	0.10	0.09	0.08
Ontario, Province of	0.22	0.08	?	0.08	0.13	0.03	—	—
Scotland	0.35	0.22	0.20	0.17	0.09	0.05	0.05	—
Sweden	0.57	0.44	0.28	0.09	0.09	0.07	0.04	—
Spain	—	—	—	—	0.06	0.07	0.12	0.11
Tasmania... ..	—	0.01	0.01	0.05	0.06	—	—	—
Italy	—	0.31*	0.20	0.11	0.05	0.08	0.09	0.10
New Zealand	0.12	0.03	0.01	0.00	0.05	0.02	0.03	0.06
Switzerland	0.09	0.09	0.07	0.02	0.05	0.04	0.04	—
Ireland	0.27	0.14	0.10	0.09	0.04	0.03	0.02	0.02
The Netherlands	0.15	0.07	0.04	0.03	0.03	0.03	0.05	0.05
New South Wales	0.11	0.08	0.08	0.04	0.03	0.03	0.02	0.03
South Australia	0.10	0.02	0.03	0.03	0.02	0.03	0.01	0.00
Victoria	0.06	0.03	0.03	0.03	0.02	0.00	0.00	0.02
Queensland	0.01	0.04	0.01	0.06	0.01	0.00	0.01	—
Western Australia	—	—	0.00	0.01	0.01	0.01	—	0.01

* 4 years.

DIPHTHERIA and CROUP.—DEATH-RATES per 1000 persons living, 1881-1908.

Countries (Arranged in Order of Rates in 1901-5).	Quinquennial Periods.					Years.		
	1881-1885.	1886-1890.	1891-1895.	1896-1900.	1901-1905.	1906.	1907.	1908.
Servia	—	—	—	—	0.66	0.52	0.41	0.32
Hungary	—	—	—	0.67*	0.47	0.35	0.35	0.45
Austria	1.46	1.34	1.22	0.80	0.43	0.33	—	—
Prussia	1.72	1.57	1.34	0.59	0.40	0.27	0.24	0.25
Sweden	0.85	0.52	0.61	0.44	0.34	0.22	0.16	—
Ontario, Province of	0.70	0.65	0.44	0.27	0.30	0.19	—	—
Spain	—	—	—	—	0.25	0.18	0.18	0.20
Belgium	0.78	0.66	0.49	0.27	0.21	0.16	0.16	—
Switzerland	0.64	0.34	0.46	0.29	0.21	0.15	0.15	—
England & Wales†	0.16	0.17	0.25	0.27	0.20	0.18	0.16	0.16
Scotland†	0.21	0.22	0.22	0.16	0.15	0.17	0.14	—
Italy	—	0.74*	0.51	0.24	0.14	0.13	0.17	0.17
Roumania	—	0.19	0.20	0.29	0.13	0.07	0.06	0.04
The Netherlands†	0.12	0.15	0.16	0.10	0.10	0.06	0.06	0.06
Victoria†	0.15	0.41	0.20	0.15	0.10	0.04	0.07	0.09
Western Australia†	0.18	0.09	0.11	0.10	0.10	0.23	0.24	0.40
Japan	0.03	0.04	0.07	0.13	0.09	0.09	0.09	—
Ireland†	0.06	0.08	0.07	0.08	0.08	0.08	0.06	0.09
New South Wales†	0.24	0.26	0.29	0.09	0.08	0.07	0.09	0.08
Queensland†	0.17	0.28	0.26	0.11	0.08	0.07	0.10	0.05
South Australia	0.57	0.50	0.40	0.11	0.07	0.04	0.04	0.03
Tasmania†	—	0.26	0.27	0.08	0.05	0.02	0.04	0.06
New Zealand†	0.20	0.18	0.17	0.08	0.04	0.04	0.06	0.04

* 4 years.

† Excluding Croup.

WHOOPIING COUGH.—DEATH-RATES per 1000 persons living, 1881-1908.

Countries (Arranged in Order of Rates in 1901-5).	Quinquennial Periods.					Years.		
	1881- 1885.	1886- 1890.	1891- 1895.	1896- 1900.	1901- 1905.	1906.	1907.	1908.
Servia	—	—	2.42*	2.27	1.96	1.52	1.79	2.08
Scotland	0.60	0.61	0.52	0.51	0.49	0.29	0.52	—
Austria	1.10	0.97	0.71	0.53	0.44	0.48	—	—
Hungary	—	—	—	0.59*	0.42	0.40	0.43	0.31
Belgium	0.68	0.63	0.55	0.48	0.38	0.35	0.32	—
Prussia	0.52	0.51	0.45	0.42	0.36	0.31	0.23	0.28
England & Wales ...	0.46	0.44	0.40	0.36	0.30	0.24	0.29	0.28
Ireland	0.30	0.28	0.26	0.27	0.24	0.21	0.18	0.22
Spain	—	—	—	—	0.23	0.24	0.17	0.24
The Netherlands ...	0.35	0.30	0.32	0.26	0.21	0.18	0.18	0.23
Italy	—	0.37*	0.26	0.23	0.20	0.18	0.18	0.16
Switzerland	0.24	0.22	0.19	0.17	0.20	0.19	0.12	—
Sweden	0.19	0.17	0.17	0.20	0.18	0.17	0.12	—
Roumania	—	0.04	0.12	0.17	0.16	0.20	0.16	0.35
Tasmania	—	0.13	0.10	0.11	0.13	0.01	0.26	0.12
New South Wales ...	0.15	0.19	0.19	0.14	0.12	0.01	0.38	0.04
South Australia ...	0.23	0.17	0.17	0.15	0.10	0.04	0.19	0.05
Queensland	0.14	0.16	0.18	0.19	0.09	0.02	0.22	0.07
Victoria	0.15	0.13	0.15	0.08	0.09	0.20	0.10	0.05
Western Australia ...	0.12	0.31	0.17	0.10	0.09	0.04	0.39	0.07
New Zealand	0.22	0.15	0.23	0.07	0.08	0.03	0.33	0.04
Ontario, Province of ...	0.10	0.09	?	0.07	0.08	0.11	—	—
Japan	—	—	—	—	0.05	0.07	0.07	—

* 4 years.

ENTERIC FEVER.—DEATH-RATES per 1000 persons living, 1881-1908.

Countries (Arranged in Order of Rates in 1901-5).	Quinquennial Periods.					Years.		
	1881- 1885.	1886- 1890.	1891- 1895.	1896- 1900.	1901- 1905.	1906.	1907.	1908.
Servia	—	—	1.53	1.13	0.68	0.16	0.13	0.13
Western Australia ...	0.39	0.28	1.50	1.74	0.57	0.49	0.47	0.28
Spain	—	—	—	—	0.44	0.42	0.35	0.32
Italy	—	0.79*	0.51	0.50	0.35	0.28	0.25	0.27
Hungary	—	—	—	0.38*	0.28	0.27	0.26	0.24
Queensland	0.96	0.53	0.24	0.31	0.25	0.17	0.16	0.19
New South Wales ...	0.51	0.45	0.24	0.30	0.22	0.18	0.12	0.19
Ontario, Province of ...	0.27	0.24	?	0.21	0.20	0.40	—	—
Austria	0.73	0.58	0.44	0.27	0.19	0.15	—	—
Belgium	0.56	0.40	0.34	0.24	0.17	0.12	0.12	—
South Australia ...	0.43	0.37	0.22	0.29	0.16	0.13	0.10	0.10
Victoria	0.52	0.61	0.27	0.29	0.16	0.13	0.07	0.14
Tasmania	—	0.58	0.30	0.30	0.15	0.20	0.21	0.20
Ireland	0.16	0.17	0.17	0.21	0.13	0.09	0.08	0.08
Roumania	—	—	0.16	0.12	0.13	0.16	0.17	0.21
England & Wales ...	0.22	0.18	0.17	0.17	0.11	0.09	0.07	0.07
Scotland	0.27	0.19	0.18	0.16	0.11	0.09	0.08	—
The Netherlands† ...	0.18	0.13	0.12	0.10	0.09	0.08	0.07	0.06
Prussia	0.47	0.25	0.18	0.13	0.09	0.06	0.06	0.05
Sweden†	0.27	0.23	0.20	0.15	0.09	0.06	0.06	—
New Zealand	0.23	0.22	0.17	0.14	0.08	0.05	0.06	0.10
Switzerland	0.29	0.16	0.11	0.08	0.06	0.05	0.05	—

* 4 years.

† Including Typhus.

‡ Including Brain Fever.

Pulmonary Tuberculosis and Cancer.—Disregarding possible variations in the methods of classification of the deaths, as well as in the sex and age constitution of the populations, it is possible to make a rough comparison among several countries, as regards the relative incidence of mortality from these two important diseases. Several States were unable to furnish complete returns of mortality from phthisis or from cancer. For example, no comparison can be instituted as regards France, Denmark, Sweden, Roumania, or Bulgaria, as the statistics of those countries are limited to towns only; again in Hungary and in Prussia the returns comprise deaths from all forms of tuberculosis, while in Italy deaths from general tuberculosis are included under pulmonary tuberculosis.

Pulmonary Tuberculosis.—The death-rate from this disease in Austria, Hungary, Servia, and Ireland is still abnormally high, and shows little or no signs of decreasing, but in Prussia, Scotland, the Netherlands, England and Wales, and Belgium a marked diminution in the rate of mortality has taken place in recent years. In proportion to the total population the death-rate from pulmonary tuberculosis in England and Wales in the quinquennium 1901-5 was 1.22 per 1000 living. It appears from the figures in the table that this rate was exceeded in seven continental countries, while in only two others were the average rates below that recorded in this country. In Hungary and in Prussia, as already stated, the returns include deaths from all forms of tuberculosis, the death-rate in those countries, however, is in excess of that from all forms of tuberculosis in England and Wales.

PULMONARY TUBERCULOSIS.—DEATH-RATES per 1000 persons living, 1881-1908.

Countries (Arranged in Order of Rates in 1901-5).	Quinquennial Periods.					Years.		
	1881- 1885.	1886- 1890.	1891- 1895.	1896- 1900.	1901- 1905.	1906.	1907.	1908.
Hungary†	—	—	—	3.64*	3.94	3.84	3.84	3.70
Austria	3.90	3.80	3.60	3.45	3.40	3.15	—	—
Servia	—	—	2.51*	2.31	2.80	2.87	2.92	3.12
Ireland	2.08	2.12	2.14	2.13	2.15	2.04	2.02	1.95
Prussia†	3.13	2.90	2.47	2.08	1.91	1.71	1.70	1.65
Switzerland	2.09	2.13	1.99	1.90	1.89	1.84	1.72	—
Spain	—	—	—	—	1.46	1.44	1.38	1.35
Japan	—	1.01	1.36	1.45	1.46	1.56	1.54	—
Scotland	2.11	1.89	1.74	1.65	1.45	1.38	1.35	—
The Netherlands ...	—	—	1.89	1.65	1.33	1.34	1.30	1.20
Ontario, Province of ...	1.25	1.16	1.14	1.41	1.29	1.31	—	—
England & Wales ...	1.83	1.64	1.46	1.32	1.22	1.15	1.14	1.12
Belgium	—	—	1.56	1.42	1.18	1.05	1.01	—
Italy†	—	1.37*	1.29	1.25	1.16	1.22	1.24	1.22
Victoria	1.41	1.45	1.33	1.19	1.12	0.99	0.96	0.95
Queensland	1.74	1.29	1.06	0.87	0.81	0.68	0.64	0.63
New South Wales ...	1.14	0.99	0.87	0.80	0.80	0.67	0.62	0.63
South Australia ...	1.06	1.07	1.01	0.89	0.80	0.82	0.76	0.89
Western Australia ...	0.87	0.75	0.67	0.73	0.73	0.82	0.78	0.72
New Zealand	0.91	0.84	0.81	0.78	0.70	0.62	0.67	0.64
Tasmania... ..	—	0.97	0.87	0.70	0.63	0.66	0.63	0.60

* 4 years.

† All forms of Tuberculosis

‡ Including General Tuberculosis.

Cancer.—In comparing the rates of mortality from cancer, it is necessary to bear in mind that the certification of causes of death is more complete or more accurate in some countries than in others, and that in most countries it has probably shown improvement in later years. Thus, in Norway only 50 per cent. of the causes of death were stated in 1881, against 85 per cent. in 1901; in the German Empire the statistics of cancer were available for ten of the principal federated states previous to 1904, while from that year statistics for 13 other smaller states are added. For Hungary it is probable that the rates are under-stated, and in Ceylon the registration of causes of death is admittedly so imperfect that very little reliance can be placed on the returns; in France, Denmark, Sweden, Roumania, and Bulgaria deaths from cancer are tabulated for the towns only, and the mortality is not, therefore, fairly comparable with that in the other States; these countries are consequently not included in the following Table.

CANCER.—DEATH-RATES PER 1000 PERSONS LIVING, 1881-1908.

Countries (Arranged in Order of rates in 1901-5).	Quinquennial Periods.					Years.		
	1881- 1885.	1886- 1890.	1891- 1895.	1896- 1900.	1901- 1905.	1906.	1907.	1908.
Switzerland	1·03	1·14	1·22	1·27	1·30	1·32	1·25	—
The Netherlands	0·60	0·70	0·81	0·92	0·97	1·01	1·02	1·03
England & Wales	0·55	0·63	0·71	0·80	0·86	0·92	0·91	0·92
Scotland	0·54	0·62	0·69	0·77	0·84	0·96	0·96	—
Austria	0·44	0·50	0·59	0·69	0·74	0·78	—	—
Victoria	0·45	0·53	0·62	0·69	0·74	0·75	0·80	0·79
Ireland	0·38	0·43	0·49	0·58	0·69	0·79	0·76	0·76
New Zealand	0·30	0·42	0·52	0·59	0·67	0·70	0·73	0·70
South Australia	0·32	0·39	0·48	0·56	0·67	0·74	0·70	0·68
Prussia	0·34	0·41	0·50	0·57	0·65	0·70	0·73	0·74
New South Wales	0·27	0·36	0·43	0·54	0·64	0·68	0·70	0·67
Belgium	—	—	—	—	0·58†	0·58	0·60	—
Queensland	0·25	0·27	0·34	0·44	0·57	0·55	0·65	0·51
Tasmania	—	0·49	0·49	0·55	0·56	0·52	0·63	0·67
Italy	—	0·43*	0·44	0·51	0·55	0·62	0·61	0·64
Ontario, Province of	0·21	0·29	?	0·44*	0·52	0·64	—	—
Spain	—	—	—	—	0·44	0·48	0·47	0·50
Western Australia	0·33	0·41	0·31	0·31	0·45	0·59	0·50	0·52
Hungary	—	—	—	0·30*	0·39	0·40	0·42	0·43
Servia	—	—	0·06*	0·08	0·10	0·11	0·13	0·13

* 4 years.

† 3 years.

Even in those cases where the compilation of statistics may be regarded as fairly trustworthy, it must be borne in mind that cancer is a disease mainly confined to adult life, and variations in the age constitution of the several populations may therefore considerably affect the crude rates stated in the Table.

Subject to the above important reservations, the general conclusion appears to be that this country occupies an unenviable position with respect to mortality from cancer; the rate in England and Wales being exceeded in only two European countries, viz., Switzerland and the Netherlands. Scotland occupies a slightly better position, and Ireland, notwithstanding its abnormal age constitution, a much better position. The mortality ascribed to this cause varies very considerably in the

several Australasian States, ranging from 0·74 per 1000 in Victoria to 0·45 per 1000 in Western Australia in the quinquennium 1901-05.

In all the countries from which returns have been received the proportionate mortality from cancer has shown a general tendency to increase in recent years.

FINAL REMARKS.

Most of the materials for the present Report were prepared under the supervision of my predecessor, Sir William Dunbar, and of the late Superintendent of Statistics, Dr. Tatham, who have only recently retired from this office. I have therefore only to draw attention to the chief points which emerge from the statistics, and to certain changes in their presentation which it is hoped to introduce in future years.

Birth-rate.—The rate in 1908 was, with the exception of the rate in 1907, the lowest on record. The trend of the birth-rate is still downwards, the rate in each of the three quarters of 1909 being over 1 per 1,000 below the *low* rates recorded in the corresponding quarters of 1908.

Death-rate.—Judging by the provisional figures for the three quarters of 1909 the death-rate will probably show but little variation from that recorded in 1908, which was the lowest rate on record.

Marriage-rate.—The provisional figures for the March and June quarters of the present year only are available; from the indications they give it is probable that the marriage-rate of 1909 will be below that recorded in 1908, which rate was exceptionally low.

Cancer.—The death-rate in 1908 from cancer was slightly above that recorded in 1907. I may refer to Dr. Stevenson's observations (p. cviii) on the cessation in recent years of the increase of this disease among women under 55 years of age.

Phthisis.—The death-rate from phthisis in 1908 was slightly below that recorded in 1907, when, as well as in 1905, it was the lowest on record.

The mortality from all the familiar epidemic diseases, as well as from pneumonia and bronchitis, was less than the quinquennial average.

Infantile mortality.—The calculation of birth-rates and of death-rates is liable to be vitiated by the want of accurate knowledge as to the numbers and the sex and age constitution of the population in intercensal years. This point has been frequently alluded to, and the dependence upon estimates of population must be emphasized as the end of an intercensal period approaches. As regards the rates of mortality among infants under one year of age, it should, however, be observed that these are not dependent upon estimates of total population or of sections of the population, but can be stated with accuracy because they are based on the recorded numbers of births and deaths of children under one year of age.

The rate of infantile mortality in England and Wales was 120 per 1,000 births in 1908. With one exception (viz., 1907, when it was 118) this was the lowest rate on record. Judging from the provisional figures for the three quarters of 1909, the rate for this year will probably be lower than either of these figures. The decline of the

rate of infantile mortality during the last ten years in this and other countries is discussed in Dr. Stevenson's letter (pp. cxxi-ii).

International statistics.—A new feature in this interesting series of tables, due to the initiation of Mr. Archer Bellingham of this Department, is the insertion for the first time of the death-rates corrected for sex and age-constitution of the populations of most European countries, and of the various Australian States. In addition to these corrected death-rates, a comparative table appears showing the constitution of the populations of the various states for which the requisite data could be obtained. This table displays the necessity and furnishes the material for the corrections made.

The preparation of these tables, while involving much labour, has suggested some interesting lines of inquiry which it is hoped to pursue further on another occasion.

A third newly introduced International Table shows illegitimate birth-rates for European Countries and Colonial States.

Proposed change in form of publication.—It remains to refer to the subject of some important changes of form which have been urged upon this Department, and which, if the administrative difficulties can be overcome, would undoubtedly much increase the practical utility of the Vital Statistics annually presented in these Reports by bringing them for the first time into touch with the local sanitary administration of the country. The creation of administrative areas for sanitary administration, referred to in some earlier paragraphs of this Report (pages vi-vii), has led to a strong demand for vital statistics relating to those areas, and to some criticism of the organisation for registration which, applying as it does to areas other than those for which the information is required, has hitherto prevented the provision of the desired statistics in full.

Proposals have from time to time been put forward that in order to remedy this defect the registration areas should be made partially or completely co-terminous with the administrative areas. The obstacles in the way of such a proceeding are, however, too serious to be overcome except by legislation, going to the length of a new Registration Act. But it does not follow that because, short of such legislation, registration statistics must continue to be collected for registration and not for administrative areas, their publication need necessarily also retain this form. In other words, the area of collection does not necessarily govern that of presentation. Provisional investigation of the question from this point of view has led to the conclusion that it may be possible at a future date to redistribute the returns (collected as before by registration areas) according to administrative areas, though it will probably be impracticable to publish separate statistics for all the smaller areas.

The presentation of the statistics in this new grouping would, however, involve a number of difficulties, some of them inseparable from any change affecting the present methods of tabulation in this Office, and others incidental to the proposed correspondence of the areas reported upon with those concerned with local sanitary administration.

Difficulties of the second class, some of them not apparent at first sight, occur because of the extreme desirability that the methods of compilation employed, both for the purposes of this Report and locally, should be identical. There would be grave disadvantages attaching to the publication of national and local statistics for the

same areas but compiled by different methods and therefore presenting avoidable discrepancies.

It would be necessary, for instance, that at least institutional deaths of persons not resident in the district in which they die should no longer be assigned in tabulation to that district, but should be assigned to the district of previous residence. This assignment, while in itself essential to the presentation of correct local rates of mortality, would tend to co-ordinate the national statistics with those compiled by Medical Officers of Health under the direction of your Board, since these officers are already called upon to make such a correction. In order to carry out this reform, however, it would be necessary to provide both for some further increase of work and for the identity of the rules to be observed by all who have to make the correction. It is hoped that by consultation with your Board such uniformity of practice might easily be secured.

In addition to the re-arrangements of recorded facts already referred to, another most important matter presents itself for consideration as one of the difficulties incidental to the correspondence of areas with those reported upon locally. This is the co-ordination of the national and local lists of causes of death and of the rules to be observed in allocating the causes of death as certified to the various headings in such lists. The lists need not indeed be identical, but the differences between them should consist only in one being more elaborate than the other.

The necessity for agreement as to classification, as well as the progress of medical science since the last revision of the present classification in 1901, will probably be found to entail some further modifications, and it is proposed to take advantage of this opportunity to approximate the English classification to the International System so far as may be found possible without destroying the valuable continuity of our records. The latter system, which is based upon the work of Dr. Farr, is in use in Canada and Australia and in many foreign countries. The advantages, for the purpose of international comparison, which would attend this course, are therefore obvious, and there is reason to believe that a great deal can be done in this direction without any serious sacrifice of continuity. An instance of this is to be found in Dr. Stevenson's treatment of diarrhoeal diseases in his letter on the causes of death; and it is hoped that this preliminary statement of what is proposed will promote expression of responsible opinion upon the various points to be decided.

It will be gathered from the above statement of the difficulties involved that the change could not be introduced without some increase of staff and expenditure, and that this Department has, therefore, not a free hand in the matter. In view, however, of the representations which have reached me and with which I have reason to believe your Board is in sympathy, I have thought it right to refer to the question, and to mention that I am carefully investigating it with a view to determining whether the practical difficulties can be surmounted without such a disproportionate increase of the cost of providing these statistics as would make it useless to put forward the proposal for sanction.

The change, I may add, could not in any case be introduced before the preparation of the Report for the year 1911 owing to the requirements of the Decennial Supplement.

I have to convey my thanks to the various Foreign and Colonial authorities for the information from which the International Vital Statistics have been compiled and to Dr. W. N. Shaw, F.R.S., for the Meteorological Report which will be found as usual at the close of the Report; and also to express my satisfaction that, for the first time for more than twenty years, this Report, owing to the assiduity of the statistical staff of the Office, is presented within the year succeeding that to which the figures relate.

I have the honour to be,
Sir,
Your obedient Servant,

BERNARD MALLET,
Registrar-General.

General Register Office
Somerset House,
December, 1909.

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ANALYSIS OF THE

CAUSES OF DEATH IN ENGLAND AND WALES.

Letter to the REGISTRAR-GENERAL

By T. H. C. STEVENSON, ESQ., M.D.

SIR,

I HAVE the honour to submit for your consideration the following remarks on English mortality in the year 1908. Amongst other details connected with registration, the incidence of general mortality, with special reference to that of the infant portion of the community, has been fully discussed by you in preceding pages of this Report. The duty which you have entrusted to me, namely, that of supplementing your statistics by an analysis of the causes that are responsible for mortality in the aggregate, has been discharged to the best of my ability in the following pages.

In the course of the accompanying remarks particulars will be found of the changes in 1908 in the mortality from the principal diseases in the official list which, since the beginning of this century, has been employed in these reports. Before going into detail I may remark that the unprecedentedly low mortality of the year under notice was probably influenced by favourable climatic conditions. This will appear from the report of Dr. W. N. Shaw, F.R.S., the high value of whose continued assistance you have already suitably acknowledged.* Much of the saving of life represented by the low death-rate of 1908 was due to the lessened mortality from diarrhoeal diseases, pneumonia, tuberculous diseases, and bronchitis, the mortality from phthisis being the lowest on record. On the other hand, influenza and cancer showed increased mortality. All the familiar epidemic diseases showed diminished mortality, the death-rates from measles and from scarlet fever being the lowest on record. From other causes the mortality did not vary widely from the average. Not only was the death-rate at all ages the lowest on record, but at each group of ages up to 55 years, and in each sex, this was also the case. Infantile mortality, calculated as a proportion of the registered births, was, however, slightly above the exceptionally low proportion recorded in 1907. For the present report, as for its predecessor, the deaths of infants have been abstracted to show the loss of life from the chief causes in each of the first four weeks, and in each month of the first year of life.

The excessive mortality of illegitimate children (Tables 38 and 39, pages 85-87) continues to form a striking feature of these returns, the mortality of illegitimate children being still about twice as heavy as that of legitimate.

In the series of tables and in the letterpress accompanying this report the attempt has been renewed to afford reliable means of comparison, both in respect of different localities and of different years, of the mortalities ascribed to those diseases which are of most

* See Remarks on the Conspicuous Meteorological Occurrences in the British Isles in 1908; by W. N. Shaw, Esq., Sc.D., F.R.S., page cxxx.

importance from a preventive point of view. A difficulty is encountered in doing so to which it is necessary yet again to draw attention. The census returns show that the proportion of the living at each age group varies according as a given locality is mainly urban or mainly rural in character; and, as the mortality from most diseases also varies with the age of the patient, it follows that crude death-rates at all ages computed without allowance for these variations are untrustworthy for comparative purposes. Accordingly, for several years past the death-rates in these reports have been reduced to a common standard; and, in many of the comparative tables in the present volume there are shown the rates that would have prevailed had the age and sex constitution of the population in the several areas been similar to that of England and Wales generally. These are the "corrected" rates frequently referred to in your reports.

Table I on page xxxix proves that the death-rates of practically all the mainly urban counties have been raised, and those of the mainly rural counties have been reduced, by correction for age and sex constitution of the population. If, for example, the mortality of the essentially urban county of Lancaster be contrasted with that of Cardigan, which is mainly rural, the death-rate of the former county will be found to have been increased by correction from 16.9 to 18.7, whilst that of the latter county has been reduced from 17.8 to 14.0 per 1000. In other words, whilst the crude rate of Lancashire is lower by 5.1 per cent. than that of Cardiganshire, the corrected rate shows an excess of 26.4 per cent. The explanation of these differences is the following, that whilst Lancashire contains an abnormally small proportion of persons at the more advanced ages when the rate of mortality is exceptionally high, Cardiganshire contains an abnormally large proportion; in the former county less than 3½ per cent. of the population exceeds the age of 65 years, whereas in the latter county the proportion amounts to nearly 9 per cent. From this it is evident that crude death-rates cannot properly be used for comparative purposes.

I have pleasure in drawing attention to the progressive improvement that has taken place in the medical attestation of cause of death, a substantial decrease being now apparent in the ill-defined causes enumerated in the official mortality tables. In the quinquennial period commencing with 1875, in which year the medical certification of cause of death was first made compulsory, the deaths of which the cause was insufficiently defined were equal to 12.0 per cent. of the total, whilst, a quarter of a century later, namely, in the quinquennial period last ended, the proportion had fallen to 9.4 per cent. (Table 21, page 34.) The fall in the proportion of uncertified deaths and the rise in that of deaths upon which inquests are held, mentioned in your report (page xlvi), have also undoubtedly resulted in increased accuracy of statement of causes of death.

You have already stated that in the year under notice the causes of 91.52 per cent. of the deaths were returned as certified by registered medical practitioners. It is certain, however, that this figure does not fully represent the proportion of cases in which medical assistance had been rendered to the sick in their *last illness*. In cases of inquest on the bodies of persons who had received medical attention during life, the cause of death is copied from the Coroner's certificate, which supersedes the medical certificate entirely; but, except in cases where an autopsy has taken place, it is seldom possible to ascertain from the Coroner's certificate whether or not medical evidence has been given, or the purport thereof, if given.

MORTALITY FROM ALL CAUSES.

As in previous Annual Reports, the causes of death of males and females at specified age groups will be found in the abstracts at pages 292 to 311 of the present volume; and in the tables on pages 22 to 63 the deaths are shown at all ages, from the same causes, for a series of 20 years. In the lower part of these tables the facts have been reduced to rates per million living of the respective sexes. At page 21 Table 20 is continued from previous reports; it shows the average mortality from certain causes in each of seven quinquennia, beginning with the year 1871. At page 64 Table 27 is likewise continued from previous reports; this table traces back the mortality from the principal epidemic diseases during a period of fifty years.

The proportion in which the more prevalent diseases contribute to the death roll is shown by the diagram opposite this page, in which the whole area of the circle represents deaths from all causes, and the various segments deaths from particular causes or groups of causes. It will be noted what a large proportion of the whole number of deaths is attributed to a few of the more important diseases, especially tuberculosis, bronchitis, pneumonia, and cancer, which together contribute almost one-third of the total mortality.

In order to show the incidence of mortality in the chief centres of industry as compared with that of the rural areas, the selection from the English and Welsh counties, first made in 1901, has been retained since that date. The counties in each selected group are enumerated at foot.*

The table on page lxxxi gives the annual rates of mortality at all ages and from all causes in the year 1908, side by side with the corresponding average rates for the quinquennium 1903-07.

In the year 1908 the deaths from all causes in England and Wales corresponded to a rate of 14.683 per 1000 living at all ages and of both sexes. This rate is the lowest on record, and is below the average rate in the five-year period ended 1907, by 5 per cent. Among males the rate was equal to 15.697 per 1000 living of that sex, and among females to 13.736 per 1000—these rates being below the quinquennial averages by 5 per cent. in each sex. The table further shows that both in the year 1908 and in the previous quinquennium the urban rates of mortality were higher than the rural, and that in

* (i) Urban Registration Counties.

Glamorgan.
Lancaster.
London.
Middlesex.
Monmouth.
Northumberland.
Nottingham.
Stafford.
Warwick.
East Riding } Yorks.
West Riding }

(ii) Rural Registration Counties.

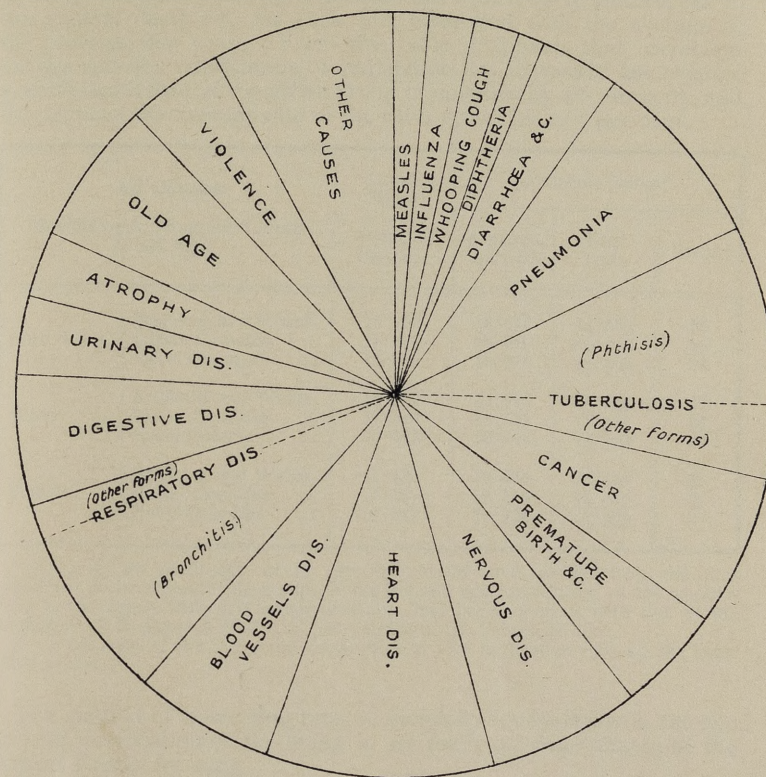
Buckingham.
Cambridge.
Cornwall.
Hereford.
Huntingdon.
Lincoln.
Norfolk.
North Wales.
Oxford.
Rutland.
Salop.
Somerset.
South Wales (less Glamorgan).
Suffolk.
Westmorland.
Wilts.

Estimated population of Urban Counties,
middle of 1908—19,178,882.

Estimated population of Rural Counties,
middle of 1908—4,387,113.

CAUSES OF DEATH.

DIAGRAM VII.—PROPORTIONS OF DEATHS FROM THE PRINCIPAL CAUSES TO TOTAL DEATHS, ENGLAND & WALES, 1908.



	PROPORTION PER 1000 DEATHS FROM ALL CAUSES.	RATE PER 1000 LIVING.
MEASLES	15.4	0.23
INFLUENZA	19.4	0.29
WHOOPING COUGH	18.9	0.28
DIPHTHERIA	10.7	0.16
DIARRHOEA & DYSENTERY	35.4	0.52
PNEUMONIA	80.3	1.18
TUBERCULOSIS (ALL FORMS)	107.8	1.58
PHthisis	(75.9)	(1.11)
CANCER	62.9	0.92
PREMATURE BIRTH & CONGENITAL DEFECTS	45.7	0.67
DISEASES OF NERVOUS SYSTEM	64.0	0.94
DISEASES OF HEART	95.9	1.41
DISEASES OF BLOOD VESSELS	60.2	0.88
DISEASES OF RESPIRATORY SYSTEM	88.7	1.30
BRONCHITIS	(74.4)	(1.09)
DISEASES OF DIGESTIVE SYSTEM	54.6	0.80
DISEASES OF URINARY SYSTEM	32.9	0.48
ATROPHY, DEBILITY	28.7	0.42
OLD AGE	63.2	0.93
VIOLENCE	38.7	0.57
OTHER CAUSES	76.6	1.12
ALL CAUSES	1000.0	14.68

both areas the rates for males were considerably above those for females. In each county group, there has been a fairly uniform fall in the general death-rate for each sex, compared with the average in the previous five years. From this table it appears that correction for age and sex constitution of population has increased the average general death-rate in the urban group of counties by 4·6 per cent., and has reduced the average rate in the rural group by 12·5 per cent.

All Causes.		Crude Rates. — Average, 1903-07.	Corrected Rates.*		
			Average, 1903-07.	Year 1908.	Ratio.†
Both Sexes	England and Wales.	15·449	15·449	14·683	95
	Urban Counties ...	16·204	16·944	16·132	95
	Rural Counties ...	14·932	13·072	12·596	96
Males	England and Wales.	16·479	16·479	15·697	95
	Urban Counties ...	17·345	18·121	17·344	96
	Rural Counties ...	15·668	13·786	13·304	97
Females	England and Wales.	14·486	14·486	13·736	95
	Urban Counties ...	15·137	15·842	14·997	95
	Rural Counties ...	14·247	12·404	11·933	96

* These are the death-rates *at all ages* that would have resulted from the rates prevailing at the separate age-groups, if the sex and age constitution of the populations in the urban and rural areas, severally, had been identical with that of the population of England & Wales, as enumerated at the Census of 1901.

† *i.e.*, the ratio of the corrected death-rates in 1908 to those in 1903-07, the latter taken as 100.

The method of correcting rates of mortality for variation in the age and sex constitution of the living is set forth on page xxxviii of the Annual Report for 1905.

The following table shows the death-rates of each sex per 1000 living at several groups of ages, the areas dealt with being those specified in the preceding table. Speaking generally the rates in 1908 show a reduction, as compared with the average, at all age groups below 55 years, the reduction being greatest among children under five years of age. The rates in the urban county group show variations with regard to the average very similar to those in the country generally, but in the rural group the general tendency to reduction ceases at 45.

The experience of 1903-07 and of 1908 confirms that of previous years in showing that in both sexes the mortality in the urban area generally exceeds that in the rural at the several stages of life. This is especially true respecting children under the age of 10 years, and adults at ages 35-65 years; the greatest difference occurring among children under five years of age. On the other hand, the rates for 1903-07 and for 1908 agree with those of recent previous years in showing excess of mortality in the rural counties among young adults of both sexes—in men at ages 20-25, and in women at ages 15-35. This feature has been strongly marked in the case of young adults dying of pulmonary tuberculosis.‡

‡ For further remarks on this point see Registrar-General's Annual Report for 1906, page lxxiv.

All Causes. Mortality at Age Groups, per Thousand Living.	Average 1903-1907.			Year 1908.			
	England and Wales.	Urban Counties.	Rural Counties.	England and Wales.	Urban Counties.	Rural Counties.	
Both Sexes	0—	45·901	52·259	33·440	40·573	46·068	30·185
	5—	3·447	3·768	2·864	3·225	3·481	2·774
	10—	2·046	2·170	1·877	1·900	2·053	1·811
	15—	2·881	2·924	2·975	2·641	2·667	2·774
	20—	3·655	3·559	4·173	3·420	3·354	3·946
	25—	5·209	5·302	5·253	4·898	4·964	4·983
	35—	8·671	9·436	7·332	8·222	8·974	6·857
	45—	14·875	16·741	11·682	14·543	16·237	11·881
	55—	28·930	32·726	23·392	28·692	32·592	23·311
	65—	86·234	90·952	82·802	87·891	94·088	83·721
Males	0—	50·087	56·796	37·045	44·537	50·485	33·785
	5—	3·397	3·738	2·823	3·201	3·460	2·788
	10—	1·988	2·127	1·819	1·862	2·035	1·669
	15—	2·979	3·074	2·903	2·748	2·832	2·654
	20—	4·004	3·859	4·478	3·743	3·631	4·243
	25—	5·674	5·737	5·597	5·384	5·485	5·137
	35—	9·503	10·299	7·923	9·139	9·955	7·451
	45—	16·862	19·020	13·054	16·386	18·326	13·363
	55—	32·890	37·373	26·291	32·966	37·897	26·806
	65—	91·479	97·299	87·082	93·498	101·269	88·127
Females	0—	41·736	47·756	29·840	36·631	41·688	26·593
	5—	3·497	3·798	2·904	3·249	3·503	2·759
	10—	2·104	2·213	1·937	1·933	2·071	1·954
	15—	2·785	2·781	3·049	2·536	2·509	2·897
	20—	3·344	3·292	3·904	3·131	3·108	3·684
	25—	4·792	4·905	4·955	4·464	4·490	4·850
	35—	7·893	8·616	6·793	7·867	8·043	6·317
	45—	13·036	14·593	10·456	12·839	14·270	10·557
	55—	25·462	28·662	20·863	24·953	27·956	20·266
	65—	82·193	86·256	79·375	83·575	88·777	80·196

MORTALITY FROM SPECIFIED CAUSES.

I.—GENERAL DISEASES.

The chief morbid conditions at present included under the head of "General Diseases" are enumerated at pages 294-301: the facts of death, but not the death-rates, being given for each sex at several groups of ages. In the tables numbered 21 to 26 the ages at death are not discriminated; but the deaths, as well as the death-rates at all ages from the several diseases in a series of years are given, for persons and for males and females separately.

Small-pox.—The deaths attributed to small-pox numbered 12, comparing with 2,464, 760, 507, 116, 21 and 10 in the years from 1902 to 1907 respectively. In addition to these it is very possible that some of the 93 deaths attributed to chicken-pox may have been really caused by the graver malady. And lastly, there were included in the registers 13 deaths under the head of "cow-pox and other effects of vaccination." It should be clearly understood that the 13 deaths referred to cow-pox and other effects of vaccination include not only the deaths which were stated by medical practitioners or by coroners to have been due to vaccination, but also those in which vaccination

appeared from the certificates to have been in any way connected with the cause of death.

In the year 1908 the sum of the deaths either certainly or possibly due to small-pox and of the deaths alleged to have been caused by means designed for its prevention was 118, corresponding to a rate of three per million of the estimated population. Concerning the vaccinal condition of the 12 deaths definitely referred to small-pox, only doubtful information appeared in the certificates. The mortality from the effects of vaccination, in proportion to children vaccinated, cannot yet be given for the year under notice; but from the Annual Report of the Medical Officer of the Local Government Board for the year 1907-08 it appears that the operation of vaccination was successfully performed on 686,992 or 73·4 per cent. of the 935,338 children whose births were returned by the vaccination officers in 1906, the latest year for which particulars are available. Deducting from the total number of births the children returned as having died unvaccinated, the report states that of the remaining 846,785 children 81·1 per cent. were registered as successfully vaccinated, showing a decline of 2·4 per cent. from the proportion in the preceding year.

The deaths of children in the same year attributed to cow-pox and other effects of vaccination numbered 29, or one in every 23,689 vaccinated.

In the interest of vital statistics it is much to be desired that when certifying a death from small-pox the medical attendant should specify the patient's condition with respect to vaccination, as by one or other of the following phrases:—

- (1) No evidence of vaccination;
- (2) Vaccinated in infancy only—number of scars;
- (3) Vaccinated only after infection by small-pox;
- (4) Stated to have been vaccinated, but no scars visible;
- (5) Re-vaccinated—date of re-vaccination, if possible.

Of the 12 deaths attributed to small-pox in the year 1908, six occurred in the West Riding of Yorkshire, three in Kent, and one each in Lincolnshire, Cheshire and Lancashire.

Measles.*—In the course of the year under notice there were registered as due to measles 8,011 deaths at all ages and of both sexes. After making the requisite allowance for increase of population, these deaths were 3,315 below the average number in the five years immediately preceding. Judged by the mortality at all ages, the death-rate from measles during 1908 was the lowest on record (see Table 27, page 64). Dealing with children under five years of age, who furnished no less than 93 per cent. of the deaths at all ages, Tables 32 to 41 (pages 74-89) show that in the year 1908 the rate of mortality was equal to 183 per 100,000 living at that age, as compared with 262, the average rate in the quinquennium immediately preceding. The mortality from measles was much higher in the town than in the country, the death-rate being equal to 223 per 100,000 children in the urban group of counties, against 92 per 100,000 in the rural group. Both the urban and rural rates were below the quinquennial averages. The disease caused a mortality among boys of 192, and

* Unfortunately, the ambiguous term "Rubeola" is still used, in some parts of the country, to denote the familiar disease measles. This practice gives rise to much uncertainty in the classification of causes of death. "Morbilli" is the only synonym for measles recognised by the Royal College of Physicians; and it would greatly conduce to accuracy in the returns if that name were invariably used where a Latin equivalent for the English name is preferred. In any event it is desirable that the use of the term "Rubeola" should be discontinued.

among girls of 175 per 100,000 of the respective sexes; and in both county groups boys suffered more severely than girls. The highest county rates among children were experienced by Glamorganshire, 302 per 100,000, Leicestershire, 322, the North Riding of Yorkshire, 348, and Carmarthenshire, 470. The mortality in Glamorganshire was slightly below the average in the preceding five years, while that in the other three counties was above the average. The deaths under one year of age numbered 1,778, and the distribution of this mortality throughout the year, as well as the mortality of each year of the first quinquennium of life, is set out in Table 32, pages 74-75. As in many previous years measles was most destructive to infants during the second year of life, the mortality for which amounted to 390 per 100,000 living. Infantile mortality from measles in the several counties is shown in Table 40, where the deaths under one year appear in terms of the total births.

Scarlet Fever.—The distinction between scarlet fever and diphtheria was first officially recognised in the Registrar-General's Report for the year 1855; and it is probable that for some years subsequently the two diseases were frequently confused in the death certificates. The deaths referred to scarlet fever in the year 1908 numbered 2,827 at all ages and of both sexes, and corresponded to a rate of 80 per million living. This rate is lower by 28 per million than the average in the five years immediately preceding, and is the lowest on record.

By reference to Table 20 on page 21, which shows the average mortality from certain diseases in quinquennial groups of years from 1871-5 onwards, it will be seen that comparing these quinquennial rates there has been an uninterrupted and very large decrease in the mortality from scarlet fever—the death-rate in 1901-05 being less than one-sixth of that in 1871-75. In the recently issued report for 1908 of the Metropolitan Asylums Board, which mainly relates to London, there appears a table showing the case-fatality among the admissions for scarlet fever in each of the years since the opening of the first hospital in 1870. If the period of 35 years last ended be divided into quinquennia, the following data may be derived from that table:—

Scarlet Fever. (Quinquennia.)	Metropolitan Asylums Board Hospitals.			County of London.
	Admissions.	Deaths.	Ratio per cent. of deaths to admissions.	Mean Annual Mortality per 1,000 living.
1874-1878 ...	3,815	484	13	0·68
1879-1883 ...	8,665	1,044	12	0·62
1884-1888 ...	15,286	1,505	10	0·27
1889-1893 ...	43,958	2,973	7	0·23
1894-1898 ...	66,089	3,107	5	0·18
1899-1903 ...	63,020	2,053	3	0·10
1904-1908 ...	88,439	2,563	3	0·11

From this table, which gives particulars concerning more than a quarter of a million cases treated in the hospitals of the Metropolitan Asylums Board since the year 1874, we find (1) that within that period the fatality among the admitted cases has been reduced from 13 per cent. to 3 per cent., and (2) that within the same period the annual mortality from scarlet fever in the entire County of London has fallen

to less than one-sixth part of its former rate. It is probable, however, that in earlier years the cases admitted were for the most part severe, with high case-fatality; whereas in recent years most of the known cases, including the milder ones, have been treated in hospital. On the whole, the evidence available would seem to be in favour of a diminution in severity of the type of disease prevalent in recent years.*

In the year 1908 the local distribution of mortality from scarlet fever in England and Wales varied widely. Table 31 on page 72 shows that among the several counties with populations exceeding 100,000, the highest crude death-rates at all ages were 105 per million in Essex and in Warwickshire, 116 in Staffordshire, 119 in Cheshire, 154 in Lancashire, and 160 in Middlesex. The above county rates have not been adjusted for deaths in public institutions, otherwise Middlesex would not have appeared as the county with the highest death-rate from scarlet fever. It has been ascertained that of the total deaths from this disease registered in Middlesex more than 45 per cent. were those of Londoners, occurring in the hospitals of the Metropolitan Asylums Board. In recent years nearly all the deaths of Londoners from this disease have occurred in public institutions, mainly, as stated above, in the hospitals of the Metropolitan Asylums Board. During the 53 weeks ended 2nd January, 1909, of the 548 deaths registered either in the county of London or in Metropolitan hospitals outside the county, not less than 93 per cent. took place in public institutions. By inclusion of deaths of Londoners in outlying institutions, the scarlet fever rate for London is raised from 98 to 112 per million.

Of the 2,827 deaths at all ages 1,616 or 57 per cent. occurred among children under the age of five years. Table 37 on page 84 shows that scarlet fever was fatal to 40 out of every 100,000 children living at this age, which is lower by 17 than the average rate in the preceding quinquennium. Table 32 on pages 74-75 shows that the mortality from scarlet fever is ordinarily much less in the first year than in any other of the first quinquennium of life; it is also less in the first half than in the second half of the first year after birth. The mortality from scarlet fever among young children is greatest in populous districts. From Tables 35 and 36, pages 80-83, we learn that whilst the death-rate from this disease at the age group 0-5 years did not exceed 15 per 100,000 in the rural counties, it was as high as 52 per 100,000 in the urban. Table 41, page 89, shows the incidence of fatal scarlet fever at this age in the several registration counties of England and Wales.

Influenza.—Ever since 1889, towards the close of which year influenza invaded our ports from the Continent, the mortality from this disease has been considerable. Previous to that year influenza had not manifested epidemic proportions since 1855, the mortality in the quinquennium ended 1889 averaging no more than three per million of the population. But in the interval subsequently elapsed the mortality attributed to this cause has

* The incidence of scarlet fever in London cannot be given for periods earlier than 1889, in which year the Infectious Diseases (Notification) Act came into force. By means, however, of the last annual report of the County Medical Officer of Health, and that of the Metropolitan Asylums Board, it may be shown that while the ratio of deaths to admissions in the Metropolitan Asylums Board hospitals fell from 4·8 per cent. in 1891-1900 to 3·1 per cent. in 1901-08, a decrease of 35 per cent., the ratio of deaths to notified cases in the County of London fell from 3·9 per cent. to 2·8 per cent., a decrease of 28 per cent.

It may be further shown that the ratio of admissions in the Metropolitan Asylums Board hospitals to the number of cases notified in the County of London rose from 58 per cent. in 1891-1900 to 85 per cent. in 1901-8.

averaged 288 annually per million living. In the year under notice there were referred to influenza 10,112 deaths, corresponding to a rate of 285 per million, which is higher than that of any other year since 1900. The mortality was again about equal for each sex, namely, 283 per million for males and 288 for females. London suffered somewhat less severely from this disease than did extra-Metropolitan England and Wales. The difference between town and country, as regards influenza mortality, was again strongly marked, although less so than in the preceding year—the crude influenza death-rate in the rural group of counties having exceeded that in the urban group by 44 per cent. Among counties containing populations exceeding 100,000 the highest rates were 399 per million in Berkshire, 417 in Buckinghamshire, 445 in Herefordshire, 538 in Shropshire, 577 in Carnarvonshire, and 610 in Denbighshire; while the lowest were 189 in Leicestershire, 191 in Durham, 204 in Northumberland, 228 in Gloucestershire and in Nottinghamshire, and 229 in the East Riding of Yorkshire.

Whooping-cough.—To this disease there were attributed 9,851 deaths at all ages, or fewer by 253 than the quinquennial average number corrected for increase of population. Of the total deaths 9,561, or 97 per cent., occurred in children under the age of five years. Among children of both sexes in England and Wales generally, whooping-cough was responsible for a mortality of 236 per 100,000 living at ages 0-5 years, a rate which is lower by 6 per 100,000 than the average rate in the previous five years. As usual the female mortality has exceeded the male, the death-rate having been 210 per 100,000 for boys and 262 for girls. The experience of the year under notice confirms that of recent previous years in showing that whooping-cough is more destructive to child life in large towns than in the country districts.* This feature is less marked, however, in 1908, the urban county rate having decreased, and the rural increased, in comparison with the quinquennial average. Table 41 on page 89 shows that among counties containing more than 100,000 inhabitants at all ages, the highest death-rates from this disease in each 100,000 children under five years were 365 in Carnarvonshire, 368 in Warwickshire, 369 in Cambridgeshire, 373 in Cumberland, 390 in Durham, 465 in Monmouthshire, and 516 in Denbighshire. All these rates were above the respective quinquennial averages—the rates in Carnarvonshire and Cambridgeshire being more than double the average rate for those counties. Table 32 shows that this disease continues to make exceptional havoc among infants from the second to the twelfth month after birth. After the close of the second year the disease becomes far less destructive to child life.

Diphtheria.—The mortality attributed to diphtheria in the death certificates at the present day probably represents more accurately than in former times the actual mortality caused by the disease in this country. Nevertheless, it is still, doubtless, true that a considerable proportion of the deaths ascribed to "tonsillitis," to "ulcerated throat," or to "catarrhal" or "membranous" laryngitis are really due to diphtheria, and as it is probable that the error is less frequently made of wrongly ascribing to diphtheria deaths not really due to the disease, it follows that the mortality is still somewhat understated in the tables. In the year under notice the deaths referred to diphtheria

* Infantile mortality from whooping-cough was, however, higher in the rural than in the urban group of counties during 1908. (See p. cxxvii.)

(exclusive of croup not definitely stated to be membranous) numbered 5,569, and were fewer by 475 than the average number in the preceding five years corrected for increase of population. In this aggregate of 5,569 deaths there are included some that had originally been ascribed to membranous laryngitis, but the diphtheritic nature of which has since been affirmed by the several medical attendants. The tables still contain 31 deaths under the head of membranous laryngitis, some of them probably due to diphtheria.

Diphtheria and Croup.—In the two tables next following the mortality from diphtheria is taken together with that from "croup" to represent as nearly as may be the total sacrifice of life to the disease under consideration; but, in order to afford facilities for further study, the deaths from both diseases are separately shown in the tables on pages 21 to 63. It has frequently been remarked in these reports that the age incidence of fatal diphtheria, in recent years, is nearly the same as that of croup. In the year under notice the deaths referred to "croup" numbered 320, or less than half the number so referred in the year 1901. These deaths, added to those classed to diphtheria, corresponded to a rate of 166 per million living at all ages, as against 183 per million, the average rate in the previous quinquennium.

Diphtheria and Croup. Mortality per Million Living at all Ages.		Crude Rates. — Average, 1903-07.	Corrected Rates.*		
			Average, 1903-07.	Year 1908.	Ratio.†
Both Sexes	England and Wales ...	183	183	166	91
	Urban Counties ...	195	194	167	86
	Rural Counties ...	156	158	146	92
Males	England and Wales ...	186	186	169	91
	Urban Counties ...	198	197	172	87
	Rural Counties ...	159	161	143	89
Females	England and Wales ...	181	181	163	90
	Urban Counties ...	192	190	162	85
	Rural Counties ...	152	155	149	96

* See note to table on page lxxxii.

† i.e., the ratio of the corrected death-rates in 1908 to those in 1903-07, the latter taken as 100.

Diphtheria. (Quinquennia.)	Metropolitan Asylums Board Hospitals.			County of London.
	Admissions.	Deaths.	Ratio per cent. of deaths to admissions.	Mean Annual Mortality per 1000 living.
1889-1893 ...	7,833	2,436	31	0·44
1894-1898 ...	24,048	4,781	20	0·52
1899-1903 ...	35,763	4,262	12	0·30
1904-1908 ...	25,027	2,312	9	0·15

The preceding table, condensed from a more extended table in the last report of the Metropolitan Asylums Board, shows the decline in case-fatality among patients admitted to hospital for diphtheria and in the general London mortality from that disease in the four quinquennia that have elapsed since 1889.

From this, and the corresponding table on page lxxxiv, it appears that, as in the case of scarlet fever, there has been a very considerable decline in the ratio of diphtheria deaths to admissions, and also in the general London mortality from the disease—the former being lower by 71 per cent. and the latter by 66 per cent. in 1904-08 than in 1889-93.*

Diphtheria and Croup.	Average 1903-1907.			Year 1908.			
	Mortality at Age Groups, per Million Living.	England and Wales.	Urban Counties.	Rural Counties.	England and Wales.	Urban Counties.	Rural Counties.
Both Sexes	0—	982	1,106	698	825	903	555
	5—	526	507	539	533	484	548
	10—	85	71	119	91	70	145
	15—	17	13	27	17	14	37
	20—	10	8	16	9	7	19
	25—	8	8	11	7	6	11
	35—	7	7	11	6	6	4
	45—	6	6	9	5	4	5
	55—	7	7	8	6	7	9
	65—	7	7	6	5	4	7
	Males	0—	1,000	1,125	747	843	933
5—		481	470	492	495	449	495
10—		80	68	106	93	76	127
15—		17	14	25	17	14	37
20—		12	9	15	8	9	23
25—		7	7	8	7	4	7
35—		7	6	12	5	4	8
45—		5	4	8	3	1	5
55—		5	5	4	7	8	7
65—		7	7	6	6	6	7
Females		0—	963	1,086	648	806	873
	5—	571	543	585	570	518	602
	10—	90	75	131	89	64	163
	15—	17	13	30	17	13	38
	20—	9	8	16	9	6	16
	25—	9	8	13	8	7	15
	35—	7	8	10	6	8	—
	45—	7	7	9	7	7	5
	55—	9	9	11	5	5	12
	65—	7	6	6	4	2	6

As regards the local incidence of fatal diphtheria and croup, it will be seen from the table on page lxxxvii that, speaking generally, the urban rate exceeds the rural, but that the excess in the year 1908

* With respect to the antitoxin treatment of diphtheria, the report of the Metropolitan Asylums Board for 1908 shows that, during that year, of 202 cases treated on the first day only 6 deaths occurred, equivalent to a rate of 3 per cent., whereas, of 1,076 cases treated on the second day 6·5 per cent. died; of 1,182 cases treated on the third day 10·6 per cent.; of 822 cases treated on the fourth day 12·9 per cent.; and of 1,249 cases treated on the fifth day or later 14·8 per cent. (See Metropolitan Asylums Board Report, 1908, Table IX., p. 248.)

was less than in the quinquennium 1903-07; diphtheria mortality having declined faster in the town than in the country. From the table on page lxxxviii it will further appear that the rural rate exceeded the urban at most ages above five years, but that for the first five years of life the urban mortality was so greatly in excess of the rural as more than to neutralise the rural excess at higher ages. Analysis of the mortality from diphtheria and croup in the first two quinquennia of life shows that since 1901 the rates at ages 5-10 years in the urban counties have changed very differently from those in the rural counties. In both areas the death-rate in the first five years of life has declined (with some fluctuations) until in 1908 it was about half of what it had been in 1901. The diminution in urban mortality has been almost as great in the second five years of life also; but as regards rural areas, the mortality at this age-group has shown comparatively little decline. The following table shows the death-rates in both areas for each group of ages in the years 1901-8:—

DIPHTHERIA and CROUP.—DEATH-RATES per MILLION CHILDREN LIVING at AGES 0-5 and 5-10 YEARS in the selected URBAN and RURAL COUNTIES.

—		1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
<i>Males.</i>									
Age	{ Urban Counties	1973	1635	1300	1165	1032	1114	1022	933
	{ Rural Counties	1103	933	746	733	851	738	669	560
0-5 years.	{ Urban Counties	793	655	509	487	427	508	421	449
	{ Rural Counties	587	526	402	497	594	466	502	495
<i>Females.</i>									
Age	{ Urban Counties	1910	1589	1185	1150	1053	1076	973	873
	{ Rural Counties	1021	855	729	622	715	674	504	550
0-5 years.	{ Urban Counties	940	808	594	594	475	551	506	518
	{ Rural Counties	669	689	504	467	598	701	656	602
5-10 years.	{ Urban Counties	940	808	594	594	475	551	506	518
	{ Rural Counties	669	689	504	467	598	701	656	602

Table R., page xc, shows that among registration counties with populations exceeding 100,000, there were in the year under notice 20 in which the rates of mortality from diphtheria and croup among children under ten years were above the average for England and Wales: of these, 15 had experienced in the previous five years also a mortality above the average for that period. In the year under notice the registration counties with the highest rates of mortality at this age were the North Riding of Yorkshire, where the rate was equal to 1,244 per million living, Bedfordshire 973, Cambridgeshire 856, Surrey 833, Derbyshire 826, and Hampshire 815.

As had been the case in several preceding years, the high death-rate from diphtheria in the North Riding of Yorkshire last year was due to excessive mortality in the contiguous districts of Guisborough and Middlesbrough. The excessive mortality of Bedfordshire occurred mainly in the registration districts of Bedford, Biggleswade, and Amptill, which form the northern part of the county. In Cambridgeshire, nearly one-third of the deaths from diphtheria occurred in the small district of Whittlesey, which suffered severely from this disease during the first half of the year. In Surrey

somewhat high mortality occurred in the districts of Croydon and Kingston. From figures furnished by the local registrars it appears that the death-rate from this cause was 243 per million living at all ages in the Borough of Croydon and 299 per million in the Borough of Kingston on Thames. In Derbyshire the mortality was heavy in the districts of Shardlow, Derby, Belper, and Chesterfield, which form the eastern part of the county. According to the local registrars' figures the death-rate during the year was 278 per million in the Borough of Derby and 320 per million in the Borough of Chesterfield. In Hampshire the mortality was heavy in the Borough of Portsmouth and in the districts of Ringwood and Alton.

TABLE R.—ENGLAND & WALES.—DIPHTHERIA and CROUP. DEATH-RATES per MILLION LIVING among CHILDREN under 10 YEARS OF AGE.

Registration Counties.	Average, 1903-7.	Year, 1908.	Registration Counties.	Average, 1903-7.	Year, 1908.
Flintshire* ...	794	1482	Buckinghamshire ...	815	664
Radnorshire* ...	573	1470	Glamorganshire ...	953	664
North Riding of Yorkshire.	1098	1244	Pembrokeshire* ...	536	651
Bedfordshire ...	686	973	Dorsetshire ...	677	646
Cambridgeshire ...	525	856	Lincolnshire ...	881	636
Surrey ...	624	833	Cheshire ...	784	629
Derbyshire ...	787	826	Oxfordshire ...	420	624
Hampshire ...	960	815	Norfolk ...	667	599
Middlesex ...	801	809	Worcestershire ...	355	594
Lancashire ...	900	800	Nottinghamshire ...	751	593
Cumberland... ..	533	787	Hertfordshire ...	408	592
Essex... ..	850	767	Devonshire ...	500	572
Durham ...	909	767	West Riding of Yorkshire.	790	571
Warwickshire ...	833	757	Kent ...	552	556
Denbighshire ...	776	745	Leicestershire ...	549	485
Staffordshire ...	824	732	Merionethshire* ...	1165	441
Brecknockshire* ...	1293	732	Shropshire ...	517	427
Gloucestershire ...	788	715	Suffolk ...	413	417
Berkshire ...	828	709	Wiltshire ...	614	396
Carmarthenshire ...	850	706	Cornwall ...	347	390
Herefordshire ...	676	700	Sussex ...	467	381
East Riding of Yorkshire.	1073	694	Westmorland* ...	213	381
Monmouthshire ...	872	691	Cardiganshire* ...	572	376
England and Wales	761	683	Northamptonshire ...	367	355
Carnarvonshire ...	407	681	Somersetshire ...	622	354
Northumberland ...	893	677	Huntingdonshire* ...	407	311
London ...	689	674	Montgomeryshire* ...	295	298
			Rutlandshire* ...	430	242
			Anglesey* ...	724	133

* The Counties marked with an asterisk contained, at the last Census, populations of fewer than 100,000 at all ages.

In several preceding reports mention has been made of an area of excessive diphtheria mortality in the counties of Monmouth, Glamorgan, Carmarthen, and Brecknock, which changes somewhat in constitution from year to year. A further reduction of mortality occurred in this area generally in 1908, but in some districts the rates were still considerably above the rate in England and Wales.

The following table, which is compiled from figures furnished by the local registrars, gives a list of the towns with populations exceeding 20,000 at the last census whose death-rates from diphtheria

during 1908, were above 250 per million living at all ages. The corresponding death-rate in England and Wales was 157 per million.

DIPHTHERIA: TOWNS with HIGH RATES of MORTALITY from DIPHTHERIA: 1908.

Towns.	Crude Death-rate per Million Living.	Towns.	Crude Death-rate per Million Living.
Surrey—		Nottinghamshire—	
Kingston on Thames	299	Mansfield	583
Kent—		Derbyshire—	
Canterbury	264	Chesterfield	320
Erith	263	Derby	278
Ramsgate	265	Cheshire—	
Sussex—		Macclesfield... ..	265
Eastbourne	260	Lancashire—	
Middlesex—		Hindley	369
Edmonton	396	Leigh	425
Enfield	603	Salford	506
Essex—		West Riding of Yorkshire—	
Barking Town	443	Brighouse	440
East Ham	454	Todmorden	303
Dorsetshire—		North Riding of Yorkshire—	
Poole... ..	308	Middlesbrough	314
Devonshire—		Cumberland—	
Torquay	357	Workington... ..	332
Staffordshire—		Monmouthshire—	
Fenton	294	Ebbw Vale	293
Tunstall	552	Glamorganshire—	
West Bromwich	282	Aberdare	295
Wolverhampton	305	Pontypridd	262
Worcestershire—			
Kings Norton	288		
Lincolnshire—			
Lincoln	293		

Of the 5,889 deaths at all ages from diphtheria and croup, 3,340 or 57 per cent. occurred within the first five years of life. These deaths correspond to a rate of 82 per 100,000 children living at that age, a rate which is below the average in the previous quinquennium by 16 per 100,000 (Table 37, page 84). Table 41, page 89, shows the distribution of these deaths in the several counties of England and Wales. In the year 1908, as in recent previous years, the mortality steadily increased from birth to the fourth year of age (Table 32, pages 74-75).

Cerebro-Spinal Fever.—To this disease there were ascribed in the year under notice 116 deaths, many of which were eventually referred to this heading as the result of medical enquiry respecting deaths originally certified as from cerebro-spinal meningitis. In the five years last ended the deaths classed to cerebro-spinal fever have averaged 111 annually.

Enteric (Typhoid) Fever.—In the course of the year 1908 the deaths of 2,651 persons at all ages and of both sexes were ascribed to enteric fever. These deaths correspond to a rate of 75 per million persons living, which, with the exception of the rate in 1907, is the lowest on record and is 13 per million below the average for the quinquennium immediately preceding. Among males the death-rate was equal to

94 per million of that sex, and among females to 56 per million.* See table, page xciii. During the 40 years which have elapsed since the disease was first differentiated in these reports enteric fever mortality has fallen to less than a fifth of its former amount, namely, from a rate of 390 per million in 1869 to 75 per million in 1908.

Enteric Fever. (Quinquennia.)	Metropolitan Asylums Board Hospitals.			County of London.
	Admissions.	Deaths.	Ratio per cent. of deaths to admissions.	Mean Annual Mortality per 1,000 living.
1874-1878	1,878	379	20	0·25
1879-1883	2,049	381	19	0·23
1884-1888	1,937	314	16	0·17
1889-1893	2,517	415	16	0·13
1894-1898	3,328	578	17	0·13
1899-1903	6,779	1,023	15	0·13
1904-1908	3,084	457	15	0·05

In the preceding table, which is condensed from a more extended table in the last report of the Metropolitan Asylums Board, the ratio of deaths to admissions on account of enteric fever and the general London mortality from that disease are given for the same period, 1874-1908.

As is the case with many other diseases, the mortality from enteric fever varies according as a given area contains a large or a small proportion of urban inhabitants. In the table on the following page, which is continued from previous reports, the death-rates of both sexes in 1908 are compared with the respective averages in the preceding quinquennium. The changes of mortality in recent years are there shown, and the rates in the urban group of counties are distinguished from those in the rural group. Taking both sexes together urban mortality from enteric fever in 1903-7 exceeded rural mortality by 46 per cent. Among males the excess was 55 per cent., whilst among females it amounted to only 35 per cent. In this table, which shows the mortality per million living at all ages, correction has been made for age and sex differences of the population.

From the table it would appear that in the year 1908 both urban and rural areas shared almost equally in the saving of life that is represented by the fall in the death-rate. In the urban areas the decrease has been greater among females than among males; in the rural it was shared equally by each sex.

From Table 31 on pages 72-73 it appears that among registration counties with populations exceeding 100,000, the highest crude death-rates† from enteric fever were 146 in Durham, 136 in Norfolk, 133 in Cumberland, 131 in Monmouthshire, 125 in Lancashire, and 105

* Since the year 1868 enteric fever has been distinguished from typhus, and from other indefinite forms of continued fever, the latter being now aggregated under the name "pyrexia (origin uncertain)," in the Registrar-General's tables. In the latest revision of their nomenclature of diseases the Royal College of Physicians direct that the names febricula and simple continued fever should no longer be used.

† These county rates are not corrected for differences of age constitution, but the table on page xciii shows that in the case of enteric fever, correction does not greatly modify the death-rates.

in the West Riding of Yorkshire. Compared with the respective decennial averages, Durham, Monmouthshire, Lancashire, and the West Riding of Yorkshire show decreases ranging from 17 to 38 per cent. Norfolk shows an increase of 14 per cent., and Cumberland one of 82 per cent.

Enteric Fever. Mortality per Million Living at all Ages.	Crude Rates. — Average 1903-7.	Corrected Rates.*		
		Average, 1903-7.	Year 1908.	Ratio.†
Both Sexes... {	England & Wales ...	88	75	85
	Urban Counties ...	101	84	85
	Rural Counties ...	66	56	82
Males ... {	England & Wales ...	106	94	89
	Urban Counties ...	121	106	89
	Rural Counties ...	75	63	82
Females ... {	England & Wales ...	72	56	78
	Urban Counties ...	82	63	78
	Rural Counties ...	58	49	82

* See note to table on page lxxxi.

† *i.e.*, the ratio of the corrected death-rates in 1908 to those in 1903-07, the latter taken as 100.

In the county of Durham mortality was excessive in the districts of Sedgfield, Auckland, Lanchester, Easington, Houghton-le-Spring, and Chester-le-Street. The greater part of this county is included in the northern area of high enteric fever mortality referred to below. The high rate in Norfolk was due to excessive mortality in the City of Norwich, and that in Cumberland to an epidemic in the Borough of Workington. In Lancashire several districts still showed high rates, while in the West Riding of Yorkshire the contiguous districts of Pontefract, Hemsworth, Barnsley, and Rotherham experienced a mortality greatly in excess of that in the remainder of the county.

In the northern area of high enteric fever mortality, which is mainly situated in the county of Durham,* and of which mention has been made in several previous reports, the mean death-rate from enteric fever was 187 per million, against an average rate of 169 per million in the previous five years. In the districts of Auckland, Easington, and Houghton-le-Spring the rates in 1908 exceeded 300 per million.

The following table, which is compiled from figures furnished by the local registrars, gives a list of the towns with populations exceeding 20,000 at the last Census whose death-rates from enteric fever during 1908 were above 200 per million living at all ages. The corresponding death-rate in England and Wales was 75 per million:—

* The registration districts now comprising this area are as follows:—Middlesbrough in the North Riding of Yorkshire; Stockton, Sedgfield, Auckland, Lanchester, Durham, Easington, Houghton-le-Spring, Chester-le-Street, Sunderland, and South Shields in the county of Durham; and Castle Ward and Morpeth in Northumberland.

ENTERIC FEVER.—TOWNS with HIGH RATES of MORTALITY from ENTERIC FEVER: 1908.

Towns.	Crude Death-rate per million living.	Towns.	Crude Death-rate per million living.
Suffolk—		Lancashire— <i>cont.</i>	
Lowestoft	458	Swinton and Pendlebury.	224
Norfolk—		Wigan	296
Norwich	288	West Riding of Yorkshire—	
Staffordshire—		Barnsley	350
Hanley	231	Dewsbury	222
Tipton	220	Rotherham	262
Tunstall	257	Cumberland—	
Derbyshire—		Workington... ..	1,180
Glossop	237	Monmouthshire—	
Lancashire—		Ebbw Vale	251
Ince in Makerfield ...	305		
Preston	209		
Radcliffe	231		

In the following table the sex and age incidence of the mortality from enteric fever in recent years is shown for England and Wales and for the urban and rural groups of countries:—

Enteric Fever.	Average 1903-1907.			Year 1908.			
	Mortality at Age-Groups, per Million Living.	England and Wales.	Urban Counties.	Rural Counties.	England and Wales.	Urban Counties.	Rural Counties.
Both Sexes	0—	28	33	20	24	26	19
	5—	54	64	34	37	45	29
	10—	72	83	58	55	69	43
	15—	109	117	92	81	87	70
	20—	126	132	118	104	102	99
	25—	133	149	93	123	135	88
	35—	113	133	82	109	127	63
	45—	90	104	67	73	88	46
55—	65	75	56	59	70	35	
65—	32	38	28	22	31	26	
Males	0—	29	34	19	27	29	17
	5—	49	61	24	40	48	34
	10—	69	78	59	54	67	25
	15—	126	135	104	99	112	78
	20—	165	171	133	136	142	64
	25—	176	197	112	166	182	114
	35—	143	167	103	138	159	97
	45—	109	126	87	98	117	62
55—	80	94	59	81	90	54	
65—	37	43	37	36	51	44	
Females	0—	28	32	20	21	24	21
	5—	58	67	45	35	41	25
	10—	76	87	57	56	71	60
	15—	92	99	80	63	62	61
	20—	92	97	105	76	66	129
	25—	94	105	77	84	92	66
	35—	86	101	63	81	97	33
	45—	71	83	50	51	62	32
55—	52	57	54	40	52	18	
65—	29	34	20	12	17	12	

From this table it appears that both in the year 1908 and in the previous quinquennium the male rates of mortality from enteric fever exceeded the female rates at all periods of life above the age of 15 years. As in 1907 the highest mortality was met with between the ages of 25 and 35 years.

Diarrhœal Diseases.—This term has been used in two senses in previous reports. The narrower significance applied to deaths at all ages and included only—

- (1) Diarrhœa due to food;
- (2) Infective Enteritis;
- (3) Diarrhœa not stated to be infective (including Gastro-intestinal Catarrh); and
- (4) Dysentery, including dysenteric diarrhœa (*see* Table 21, page 22).

The wider significance, applying to deaths of children under 5 years of age (Tables 32-41, pages 74-89) included, in addition to the above causes of death, which in these tables were grouped under the headings "Gastro-intestinal Catarrh" and "Diarrhœa (other forms),"

- (5) Enteritis;
- (6) Gastro-enteritis; and
- (7) Gastritis and Gastric Catarrh.

It was shown in last year's report that very many deaths which would formerly have been attributed to diarrhœa are now certified as due to enteritis or gastro-enteritis. These diseases must therefore be considered conjointly for the purpose of comparison with past records.

The deaths from these various causes are distinguished for all ages in Tables 21-26, pages 22-63, and in the tables on pages 294-405, and for children under 5 years in Tables 32-38 on pages 74-85. As these figures for separate causes are available in the abstracts for comparison with the records of previous years, it is possible to modify the grouping adopted for discussion under the present heading without sacrificing the continuity of our records. This grouping has accordingly been modified with the following objects:— (1) to attach to the term "diarrhœal diseases" the same significance in whatever portion of the report it occurs, (2) to include under it all diseases of diarrhœal type and no others, and (3) to make the returns comparable with those of countries using the International Classification of causes of death. This classification includes under the heading "diarrhœa and enteritis" all the causes of death hitherto included under "diarrhœal diseases" in Tables 32-41, except dysentery, "cholera nostras" (classed in the above tables to "diarrhœa (other forms)," and "gastritis, gastric catarrh."

The deaths certified as due to "cholera nostras" cannot be stated for 1908, but the term, which is not recognised in the "Nomenclature of Diseases" by the Royal College of Physicians, is not very commonly used in this country, and the deaths so certified almost certainly represent merely severe cases of infective enteritis. These deaths must therefore be retained in the group of diarrhœal diseases, but for purposes of international comparison their number will be stated in future years.

Reference to pages 294 and 295 will show that the deaths ascribed to dysentery (246) are mainly those of adults. They are presumably therefore of a different nature from the deaths now included under the heading "diarrhœal diseases," all of which occur chiefly amongst

infants. There is good ground accordingly for following the International Classification in excluding these deaths, but their separate statement will continue to admit of comparison with previous years.

The deaths from gastritis (3,463) resemble those from dysentery in not being mainly deaths of infants. Gastritis is not classified with diarrhoea in the Nomenclature of the Royal College of Physicians or the International Classification, and there appears to be no sufficient reason for retaining these deaths in the group of diarrhoeal diseases in Tables 32-41. After consultation with the Medical Officer of the Local Government Board, which issues a similar table of infantile diseases for the use of Medical Officers of Health, this heading has accordingly been removed from the group of diarrhoeal diseases in these tables, but as its separate statement is retained no loss of continuity is involved.

The term "diarrhoeal diseases" accordingly, whether applying to young children or to persons of all ages, corresponds to the previous group of diarrhoeal diseases in young children, less dysentery and "gastritis, gastric catarrh"; and to the previous group of diarrhoeal diseases at all ages, less dysentery but plus enteritis and gastro-enteritis.

The deaths for 1908 from diarrhoeal diseases so defined numbered 26,135 for all ages, of which 18,721 occurred during the first year, and 23,508 during the first five years of life. All the diseases now included under this heading cause more deaths under one year of age than at all higher ages combined.

To obtain the deaths for diarrhoeal diseases at all ages as previously given it is necessary to add to the total of 26,135, 246 deaths from dysentery, and to deduct from it 4,444 deaths from enteritis and 3,495 deaths from gastro-enteritis, thus obtaining the number of 18,442 deaths, which is comparable with those returned in previous reports. The deaths of children under five years from diarrhoeal diseases, as stated in previous reports, are obtained from 23,508, the number as now stated, by adding 29 deaths from dysentery, and 1,949 deaths from gastritis and gastric catarrh at this age.

The 26,135 deaths at all ages are 3,927 below the corrected annual average in the previous quinquennium.

Nine-tenths of these deaths occurred among children under five years of age. The following table shows the mortality per 1000 children living at this age:—

		England and Wales.	Urban Counties.	Rural Counties.
Both Sexes	{ 1908	5·80	7·30	2·48
	{ 1903-07	6·61	8·41	3·37
Males	{ 1908	6·34	7·91	2·71
	{ 1903-07	7·19	9·09	3·72
Females	{ 1908	5·28	6·70	2·25
	{ 1903-07	6·04	7·72	3·02

From this table it will be seen that in the year 1908, as compared with the quinquennium 1903-7, the diarrhoeal mortality of children under five years declined by 13 per cent. in the urban area, and by 26 per cent. in the rural, as compared with 12 per cent. in England and Wales. It will also be seen that the mortality during 1908 in the urban group of counties was nearly three times as great as that in the

rural group. Table 41, page 89, shows that among counties with populations above 100,000 the lowest death-rates from diarrhoeal diseases were recorded in Dorsetshire, Wiltshire, Cambridgeshire, Northamptonshire, and Hertfordshire, where the rates ranged from 1·29 to 1·71 per 1000 living. The highest death-rates were in Durham, Glamorganshire, Lancashire, the North Riding of Yorkshire, and the East Riding of Yorkshire, the rates ranging from 8·54 to 9·09 per 1000.

Rabies (Hydrophobia).—Not a single death from this disease has been reported either in the year 1908 or in any of the five years immediately preceding. In the course of the last ten years only two deaths from hydrophobia have been reported in England and Wales, and these were registered in the year 1902. In the closing ten years of the nineteenth century the deaths from this disease averaged seven annually.

Pyæmia, Septicæmia, Septic Intoxication.—The deaths of 84 males and 60 females were referred to pyæmia, and the deaths of 251 males and 165 females to septicæmia, in the year under notice, the deaths of females from puerperal affections of this nature being excluded from the present list. The parts of the body medically certified as invaded by infective processes are given in the supplementary tables on pages 312 and 313.

Before the commencement of the present century the deaths from pyæmia were included with those from septicæmia in the returns of the Registrar-General. The death-rate from these diseases does not vary greatly from year to year.

Puerperal Pyæmia, Septicæmia, Septic Intoxication.—Either to one or another of the conditions here specified or else to the indefinite affection "puerperal fever" there were referred 1,395 deaths in the year 1908, the deaths thus returned in the previous year having numbered 1,465. The term puerperal fever has been removed from the nomenclature of the Royal College of Physicians, and the College direct that pyæmia, septicæmia, or septic intoxication occurring in puerperal women should be described as puerperal pyæmia, puerperal septicæmia, and puerperal septic intoxication respectively. The number of deaths certified as from "puerperal fever" last year was 190, and reference to Table 25 (p. 52) shows that the deaths thus indefinitely certified are gradually decreasing year by year. Of the deaths referred to puerperal septic affections, 171 were further complicated; the complicating cause was stated to be scarlet fever in 5 cases, influenza in 8, pneumonia in 69, tuberculous disease in 6, inflammation of the brain in 5, diseases of the heart in 14, embolism or thrombosis in 24, pleurisy in 4, and kidney disease in 10 cases. In addition to the above, there occurred in connection with pregnancy or childbirth 3,126 other deaths, 1,966 from diseases and accidents specially connected with these processes, and 1,160 from other diseases. Particulars relating to these deaths are given in Table S on page xcvi and also on page 309. Further remarks on mortality in connection with the puerperal state will be found at page cxx.

Pneumonia.—In the year under notice the deaths returned as from one or another of the forms of pneumonia numbered 41,779, namely, 23,671 males and 18,108 females. Of these deaths 4,818 were referred to lobar pneumonia, 19,034 to broncho-pneumonia, and 4 to epidemic pneumonia, whilst 17,923 were assigned to "pneumonia," without further qualification; in the case of the deaths of 311 males and 195 females the condition was stated to be septic.

TABLE S.—DEATHS OF WOMEN IN ENGLAND & WALES, IN 1908, DEFINITELY RETURNED AS EITHER CAUSED BY OR ASSOCIATED WITH PREGNANCY OR CHILDBEARING.*

Cause of Death.	All Ages.	Ages.				
		15—	20—	25—	35—	45 and upwards.
Total	4521	115	674	2163	1503	66
Measles	3	—	—	1	2	—
Scarlet Fever	12	—	3	7	2	—
Influenza	69	1	11	26	30	1
Whooping Cough	1	—	—	1	—	—
Diphtheria	3	—	2	—	1	—
Enteric Fever	13	—	2	6	4	1
Diarrhoea	5	—	1	1	3	—
Syphilis	4	—	—	3	1	—
Gonorrhoea	1	—	1	—	—	—
PUERPERAL SEPTIC DISEASES† (1395) :—						
Puerperal Septicæmia	1030	34	196	503	287	10
Puerperal Pyæmia	92	2	17	40	31	2
Phlegmasia Alba Dolens	83	2	10	37	33	1
Puerperal Fever	190	8	45	87	48	2
Infective Endocarditis	4	—	—	2	—	—
Lobar Pneumonia	65	1	6	35	21	2
Broncho-Pneumonia	28	2	—	12	14	—
Pneumonia (not defined)	166	5§	30	67	59	5
Tuberculous Phthisis	65	—	10	42	13	—
Phthisis (not otherwise defined)	47	1	7	24	15	—
Tuberculous Meningitis	2	—	—	2	—	—
Tuberculous Peritonitis	8	—	1	7	—	—
Other Tuberculous Diseases	11	—	2	6	3	—
Alcoholism	3	—	—	1	2	—
Rheumatic Fever, Rheumatism of Heart	17	—	2	9	6	—
Malignant Disease	10	—	2	6	2	—
Hæmophilia	1	—	—	—	—	—
Anæmia	26	—	6	8	12	—
Diabetes Mellitus	3	—	—	1	1	1
Meningitis, Inflammation of Brain	7	—	2	4	1	—
Chorea	2	1	—	1	—	—
Epilepsy	12	—	4	4	4	—
Other Diseases of Nervous System	7	—	1	4	2	—
Valvular Disease, Endocarditis	102	1	14	46	41	—
Pericarditis	2	—	—	2	—	—
Dilatation of Heart	5	—	—	1	4	—
Fatty Degeneration of Heart	10	—	1	3	6	—
Other Diseases of Heart	84	1	2	39	40	2
Apoplexy, Hemiplegia	14	—	—	8	6	—
Laryngitis	1	—	—	1	—	—
Bronchitis	20	—	1	6	12	1
Emphysema, Asthma	4	—	1	1	2	—
Pleurisy	9	—	1	6	2	—
Other Diseases of Respiratory System	3	—	—	2	1	—
Gastric Ulcer	7	—	1	6	—	—
Other Diseases of Stomach	6	—	1	3	1	1
Enteritis, Gastro-Enteritis, Ulcer Intestines	9	—	1	6	2	—
Appendicitis	9	—	2	2	5	—
Intestinal Obstruction	7	—	—	6	1	—
Diseases of Liver	8	—	—	3	5	—
Diseases of Thyroid Body	5	—	—	1	4	—
Acute Nephritis	103	2	18	56	24	3
Chronic Bright's Disease	110	2	8	50	47	3
Other Urinary Diseases	7	—	2	4	1	—
Ovarian Tumour	6	—	1	4	1	—
Uterine Tumour and other Diseases of Uterus	18	—	—	6	12	—
DISEASES AND ACCIDENTS OF PREGNANCY AND CHILDBIRTH† (1966) :—						
Abortion, Miscarriage	83	—	4	42	36	1
Puerperal Mania	57	1	10	30	16	—
Puerperal Convulsions	426	31	106	199	88	2
Placenta Prævia, Flooding	560	7	50	227	262	14
Other Accidents of Pregnancy and Childbirth	840	13	87	447	279	14
Violence	3	—	—	2	1	—
Other Causes	13	—	1	7	5	—

* These deaths are included under the several headings in the general abstracts and tables of causes of death. The headings are shown in the same order as in the general abstracts.
 † Of the deaths attributed to puerperal septic diseases, 171 were further complicated with other diseases.
 ‡ Of the deaths classed to diseases and accidents of pregnancy and childbirth, a secondary cause mentioned in 382 cases.
 § The age of deceased in one of these cases was 14 years.

The deaths from pneumonia of all forms were equal to a rate of 1,179 per million of the population at all ages, 1,383 per million among males, and 988 per million among females. This will be seen by the following table which has been continued from previous reports :—

Pneumonia.	Crude Rates.	Corrected Rates.*		
		Mortality per Million Living at all Ages.	Average 1903-07.	Year 1908.	Ratio.†
Both Sexes	1,271	1,271	1,179	93
{ England & Wales ...	1,468	1,499	1,399	93
{ Urban Counties ...	922	865	785	91
{ Rural Counties ...				
Males	1,481	1,481	1,383	93
{ England & Wales ...	1,710	1,745	1,641	94
{ Urban Counties ...	1,068	1,004	905	90
{ Rural Counties ...				
Females	1,075	1,075	988	92
{ England & Wales ...	1,241	1,268	1,173	93
{ Urban Counties ...	786	735	672	91
{ Rural Counties ...				

* See note to table on page lxxxi.
 † i.e., the ratio of the corrected death-rates in 1908 to those in 1903-07, the latter taken as 100.

Compared with the average in the quinquennium 1903-7 the mortality from pneumonia in 1908 showed a marked decrease.

The following table shows that the mortality from the principal types of pneumonia varies considerably according to age. From this table we see that in 1908, as in previous years, the mortality from lobar or croupous pneumonia was greatest at the later ages, and from broncho-pneumonia in the first few years and at the end of life :—

Pneumonia.	Males.			Females.		
	All forms.	Lobar Pneumonia.	Broncho-Pneumonia.	All forms.	Lobar Pneumonia.	Broncho-Pneumonia.
Mortality at Age-groups, per Million Living, 1908.						
All Ages	1,383	177	600	988	98	478
0-5 years	5,524	205	4,003	4,414	149	3,206
5-10 "	280	32	115	263	28	108
10-15 "	114	19	23	113	17	27
15-20 "	228	55	19	142	27	22
20-25 "	314	80	26	177	46	18
25-35 "	497	137	41	280	66	37
35-45 "	908	231	94	469	103	68
45-55 "	1,433	357	197	745	135	164
55-65 "	2,378	476	431	1,334	228	332
65 years and upwards	4,302	596	1,136	3,459	383	1,089

Tuberculosis.

To tuberculous affections in the aggregate there were assigned in the year under notice 56,080 deaths, or fewer by 3,455 than the average number in the previous five years, corrected for increase of population. Tuberculosis was responsible for 10.8 per cent. of the mortality from all causes, and for a death-rate of 1,583 per million living, at all ages and of both sexes.* The accompanying chart, which is continued from the previous report, and which relates to tuberculous mortality for a long series of years, is designed to show the incidence of male and female mortality (a) from all forms of tuberculosis (indicated by the entire shaded portion) and (b) from phthisis (indicated by darker shading). The death-rates are stated in terms of a million living of each sex, and are rendered comparable by calculation on the age and sex constitution of the population at the census of 1901. The chart shows that throughout the last 40 years there has been a steady decrease in the mortality from tuberculous diseases in the aggregate, and that the decrease has been greatest in females. Among counties containing populations above 100,000 the highest uncorrected death-rates from tuberculosis last year were in London, 1,806 per million living, in Lancashire 1,848, in Northumberland 1,947, in Carnarvonshire 2,025, and in Carmarthenshire 2,323.

Phthisis (including tuberculous laryngitis).—In the year under notice tuberculous phthisis accounted for the deaths of 20,192 persons, and “phthisis” not otherwise defined, for the deaths of 19,307 persons, at all ages and of both sexes. Together these deaths were equal to 70 per cent. of the total deaths from tuberculosis, and to a rate of 1,115 per million of the population. This rate is the lowest on record, as were those also of 1905 and 1907. It is 5 per cent. below the average for the five years 1903-7.

Phthisis.	Crude Rates.	Corrected Rates.*			
		Mortality per Million Living at all Ages.	Average, 1903-07.	Year 1908.	Ratio.†
Both Sexes	England & Wales ...	1,173	1,173	1,115	95
	Urban Counties ...	1,258	1,253	1,189	95
	Rural Counties ...	1,081	1,114	1,105	99
Males	England & Wales ...	1,385	1,385	1,310	95
	Urban Counties ...	1,526	1,521	1,448	95
	Rural Counties ...	1,182	1,217	1,202	99
Females	England & Wales ...	975	975	931	95
	Urban Counties ...	1,007	1,002	946	94
	Rural Counties ...	987	1,017	1,013	100

* See note to table on page lxxxi.

† *i.e.*, the ratio of the corrected death-rates in 1908 to those in 1903-07, the latter taken as 100.

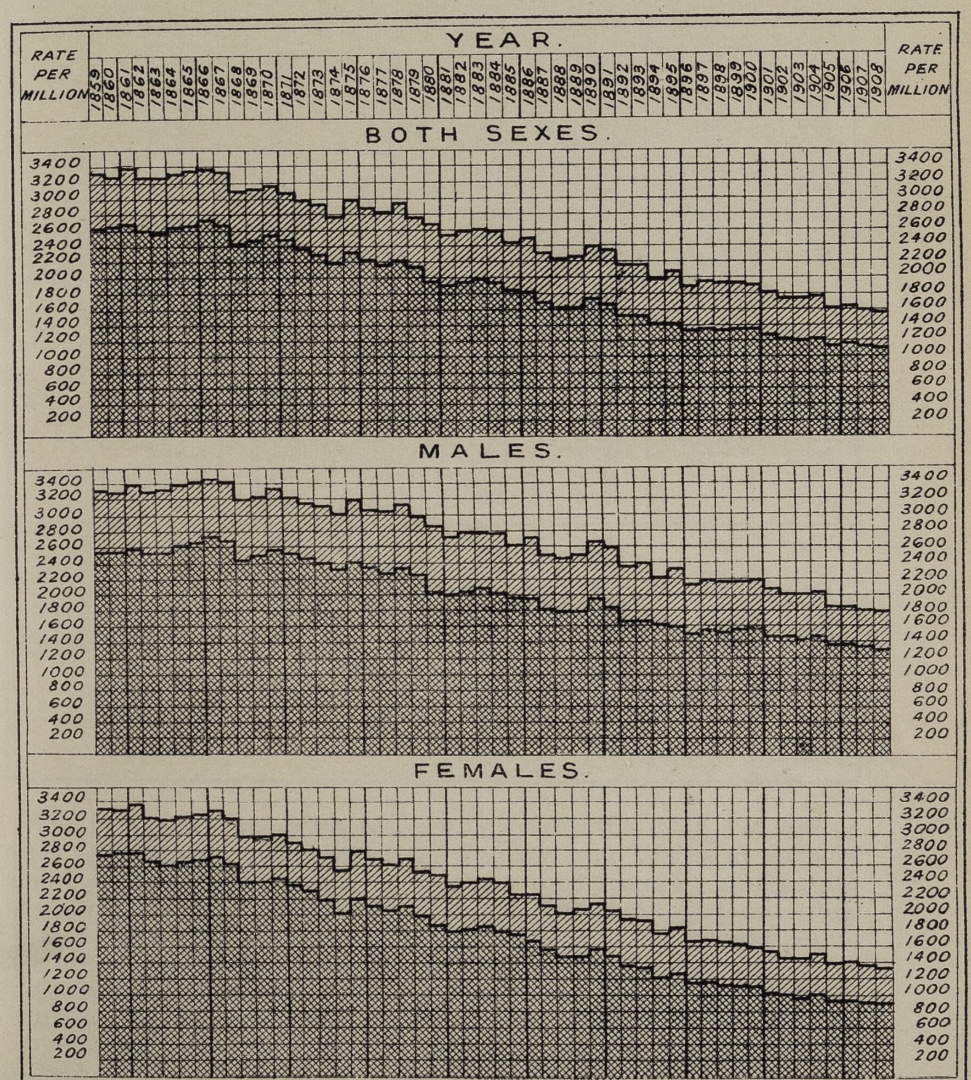
In proportion to the living, the victims of phthisis are now only half as numerous as they were half a century ago. Between the

* In the decennium 1851-60 the deaths from tuberculosis were in the proportion of 15.6 per cent. of the deaths from all causes, and corresponded to a rate of 3,457 per million of the mean population.

TUBERCULOSIS.

DIAGRAM VIII.—DEATH-RATES PER MILLION LIVING, CORRECTED FOR VARIATIONS OF SEX AND AGE CONSTITUTION (a) FROM ALL FORMS OF TUBERCULOSIS, (b) FROM PHTHISIS; ENGLAND & WALES, 1859-1908.

(NOTE.—THE DARKER SHADING REFERS TO PHTHISIS.)



Note: The death-rates throughout the entire period are based upon the sex and age constitution of the population as enumerated in 1901.

decennium 1851-60 and the period 1901-8 there has been a fall of 70 per cent. in the mortality from this disease among persons of both sexes below the age of 25 years. From that age onward the fall has been considerably less marked, and has been more pronounced in females than in males.

Phthisis.	Average, 1903-1907.			Year, 1908.			
	Mortality at Age-groups, per Million Living.	England and Wales.	Urban Counties.	Rural Counties.	England and Wales.	Urban Counties.	Rural Counties.
Both Sexes	0-	333	397	241	296	357	217
	5-	166	183	126	154	174	163
	10-	277	280	290	267	275	300
	15-	852	832	967	805	768	969
	20-	1,325	1,216	1,725	1,256	1,174	1,635
	25-	1,741	1,706	1,944	1,676	1,625	1,925
	35-	2,093	2,303	1,733	1,954	2,152	1,673
	45-	2,133	2,514	1,538	1,987	2,326	1,554
	55-	1,739	2,007	1,346	1,718	2,044	1,357
65-	949	1,103	734	963	1,208	835	
Males	0-	359	432	245	319	410	205
	5-	138	154	102	127	143	134
	10-	163	173	150	164	187	161
	15-	743	745	773	690	701	676
	20-	1,472	1,347	1,843	1,367	1,246	1,858
	25-	2,022	1,986	2,192	1,918	1,883	2,114
	35-	2,573	2,883	2,032	2,442	2,735	1,964
	45-	2,945	3,544	1,973	2,681	3,237	2,000
	55-	2,498	3,073	1,746	2,511	3,109	1,830
65-	1,316	1,724	897	1,338	1,798	1,061	
Females	0-	308	363	238	273	304	229
	5-	194	211	150	182	204	192
	10-	391	385	432	369	362	441
	15-	959	915	1,166	918	832	1,270
	20-	1,194	1,099	1,621	1,158	1,109	1,438
	25-	1,488	1,451	1,728	1,459	1,391	1,761
	35-	1,643	1,752	1,461	1,498	1,599	1,407
	45-	1,382	1,544	1,148	1,345	1,468	1,156
	55-	1,075	1,188	998	1,024	1,113	945
65-	666	748	604	674	771	654	

The two tables immediately preceding show the male and female rates of mortality from phthisis in England and Wales, at all ages and at several groups of ages, in the year 1908; and, for comparison therewith, the average rates in the quinquennium 1903-07; they further show the distribution of phthisis mortality, at the same age-groups, in the selected urban and rural counties respectively.

From the first of these tables it may be seen that in 1903-07 the corrected urban death-rate at all ages was higher than the rural by 25 per cent. among males, but lower by 1 per cent. among females. When, however, examination is made of the mortality at the several ages the second table shows this to be higher in the rural area than in the urban among males at ages 15-35, and among females at ages 10-35; whilst, at all other ages, the reverse holds true.

This table also shows that, as compared with the average in the previous quinquennium, there has been a general fall in England and Wales as a whole in phthisis mortality of each sex at age-groups below

55 years; but that above this age in males, and above 65 years in females there has been a slight increase. Generally speaking, similar variations are shown in the urban group of counties. In the rural group, however, the reduction is confined to a much smaller number of age-groups. Both in the county groups and in the country generally, the greatest proportional fall in mortality under this head appears to have occurred among children under five years of age. The greatest saving of life, however, can be shown (assuming present estimates of population to be correct) to have occurred at ages 35-45 years.

Phthisis. 1904-1908.	Corrected Death-rates per million.		
	Persons.	Males.	Females.
England and Wales	1,156	1,362	963
Cardiganshire	2,270	2,419	2,130
Merionethshire	1,576	1,699	1,461
Car-mar-thenshire	1,574	1,473	1,668
Car-mar-vonshire	1,553	1,618	1,491
Pembrokeshire	1,413	1,443	1,385
London	1,386	1,808	992
Northumberland	1,363	1,488	1,246
Anglesey	1,335	1,190	1,472
Lancashire	1,323	1,602	1,061
Cornwall	1,277	1,642	936
Montgomeryshire	1,240	1,352	1,135
Hampshire	1,218	1,493	961
Warwickshire	1,192	1,560	848
Durham	1,180	1,201	1,159
Suffolk	1,177	1,263	1,096

In Tables 29, 30 and 31, the crude rates of mortality from phthisis in 1908 are shown in the several registration counties of England and Wales. On examination, however, it is clear that in some counties the numbers of the living, and therefore the deaths, in a single year are insufficient to furnish reliable rates of mortality for comparative purposes. This remark is particularly in point with respect to the counties of Huntingdon, Rutland, and Westmorland in England, and to the counties of Brecknock, Radnor, and Anglesey in Wales. For the foregoing reason comparison of phthisis mortality in single years was formerly limited to counties with populations exceeding 100,000; but this plan leaves out of account several counties in which the mortality from phthisis is exceptionally high. In view, therefore, of the increased interest recently shown in the local incidence of this disease, examination has been made of the phthisis mortality in all the registration counties in the quinquennium ended 1908, the rates so obtained being sufficiently stable, even in the case of the counties named, for presentation. In the above table a list is given of all those English and Welsh counties where the mortality from phthisis is in excess of the mean for the country generally. These rates are corrected for age differences of the several populations, but not for deaths in public institutions. In all cases correction of this kind is obviously desirable, but it has hitherto been found to be impracticable. Hampshire, for example, is a case in point. This county contains a considerable number of hospitals for the treatment of tuberculosis, and the majority of the deaths in

these hospitals are those of persons who had previously resided outside the county.

From this table it appears that of the fifteen counties suffering the highest mortality from phthisis, not fewer than seven are Welsh; and that among these Cardiganshire experienced a death-rate which is nearly double the average for England and Wales.

Tuberculous Meningitis.—Under this head, or else under that of acute hydrocephalus, there were returned last year 5,868 deaths at all ages—being fewer by 549 than the average number in the previous five years, after allowance 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 in the mortality from meningeal tuberculosis.

A considerable proportion of the deaths originally certified as from hydrocephalus are found on inquiry to be due to tubercle; and in all such cases the statistical records of this office are corrected accordingly. In certifying deaths from hydrocephalus it would conduce to greater accuracy of classification in these reports if, in all cases believed to be due to tuberculous infection, the term "tuberculous meningitis" were substituted for the former indefinite term.

The Tables on pages 298-299 illustrate the fact that tuberculous meningitis is, for the most part, a disease of early life. Of the deaths at all ages registered last year not fewer than 3,934, or 67 per cent. occurred within the first five years of life—a number corresponding to a rate of 97 per 100,000 living at that age. The deaths under one year were equal to 147 in every 100,000 infants born, 52 of which occurred in the first six months, and 95 in the last six months of that period.

The following table shows the mortality from tuberculous meningitis and tuberculous peritonitis since the year 1847, before which there are no data available for comparison:—

TUBERCULOUS MENINGITIS and TUBERCULOUS PERITONITIS.—DEATH-RATES per 100,000 among CHILDREN under 5 years of age.

Quinquennia.	Tuberculous Meningitis.			Tuberculous Peritonitis.		
	Boys.	Girls.	Both Sexes.	Boys.	Girls.	Both Sexes.
1847-1848 (2 years) ...	308	238	273	171	145	158
1849-1853	313	234	273	166	141	153
1854-1858	286	214	250	182	158	170
1859-1863	276	194	235	174	149	162
1864-1868	256	186	221	207	179	193
1869-1873	229	164	197	207	176	192
1874-1878	226	156	191	225	191	208
1879-1883	196	137	166	216	177	196
1884-1888	168	123	145	198	159	179
1889-1893	160	119	139	190	155	173
1894-1898	146	117	131	154	123	139
1899-1903	124	106	115	132	104	118
1904-1908	111	95	103	96	77	87

Note.—The figures for tuberculous meningitis are not strictly comparable throughout. Previous to 1881 deaths from chronic hydrocephalus were classed to tuberculous meningitis.

The continuous decline in the mortality attributed to tuberculous meningitis is striking, but the footnote to the table suggests caution in comparing the figures prior to the period 1884-1888 with those for this and subsequent periods. Still, however much of the reduction about the year 1881 was due to the change in classification then introduced, the uninterrupted declines in mortality shown in the earlier and in the later portions of the table lose none of their significance. It may be noticed, also, that although the mortality of males from this disease still exceeds that of females, the excess is much less now than formerly.

As in each of the last three reports the mortality from this disease has been abstracted for particular areas (Tables 35 and 36): and from these tables as well as from a table in Part I. of the Supplement to the 65th Annual Report, p. xcvi., it appears that tuberculous meningitis is generally more destructive to young children in the town than in the country. In the selected urban counties the mortality of children under five years of age was equal in 1908 to a rate of 113; and, in the rural counties to a rate of 58 per 100,000 living at this age.

Tuberculous Peritonitis (including Tabes Mesenterica).—Under this head there were returned last year 4,777 deaths at all ages, or fewer by 615 than the corrected average number in the preceding five years. Of this total 3,783 were definitely ascribed to tuberculous peritonitis, the remaining 994 being indefinitely assigned to tabes mesenterica.* Not less than 67 per cent. of the deaths at all ages were those of children under five years. Among 100,000 boys living at this age the deaths were 88 in number; whilst among the same number of girls living the deaths numbered 71. The deaths of infants of both sexes at ages under one year were in the proportion of 183 per 100,000 births, and of these 101 occurred within the first six months, and 82 within the second six months after birth.†

The table on page ciii displays a continuous decline in the mortality ascribed to tuberculous peritonitis or tabes mesenterica from the period 1879-1883 onwards, which since 1893 has become remarkably rapid. This fact is the more remarkable in contrast with the tendency to increase up to about 1878. The incidence upon the two sexes of mortality from this cause has remained approximately constant throughout the whole period.

From tables 35 and 36 it will be seen that as in previous years the mortality from tuberculous peritonitis (in common with tuberculous meningitis) is far higher in the town than in the country. In the year 1908 the death-rate from this disease among children under five years of age was 91 per 100,000 living in the urban counties, and 47 in the rural counties.

Other Tuberculous Diseases.—In the year under notice the deaths at all ages returned under this head were 5,936 in number, and corresponded to a rate of 168 per million living, which is slightly below the average rate in the preceding five years (see Table 22). This total consists of 4,231 deaths from general tuberculosis, and of 1,705 deaths from scrofula and the local tuberculous affections, such as lupus and tuberculous diseases of the bones and joints, not dealt with in the preceding sections. Of the 5,936 deaths at all ages from "other tuberculous diseases" 2,112 were those of children under five years of age (see pages 298 and 299).

* In the year 1901 more than half of the deaths under this head were thus indefinitely returned.

† See pages 74-75 under "Infantile Mortality."

The diseases included in this section cause more deaths amongst males than females. The mortality from these diseases differs from that of the other specified forms of this infection, inasmuch as it has shown no marked tendency to decrease in recent years. There has been a slight increase since 1901 in the mortality ascribed to tuberculosis of the bones, joints, &c.; the mortality from lupus has remained stationary, that from general tuberculosis has shown a slight decrease, while that ascribed to scrofula has almost disappeared (see Table 22, page 25).

Alcoholism and Cirrhosis of Liver.—Under the heading "Alcoholism, delirium tremens," the deaths of 1,937 persons, 1,112 males and 825 females, were returned in the year under notice; of this total a few had been originally certified as from hæmatemesis, hæmoptysis, peritonitis, mania, paralysis, or some other indefinite cause, the true nature of the fatal malady having been ascertained subsequently in each case by correspondence with the medical attendant. Among males the deaths at all ages were equal to a rate of 65 per million, and among females to a rate of 45 per million, both of which rates are below the average in recent previous years. Nine-tenths of the deaths directly ascribed to alcoholism occur within the main working period of life, i.e., at ages from 25 to 65 years.

Mortality per Million Living at ages 25 years and upwards.	Males.			Females.		
	Alcoholism.	Cirrhosis of the Liver.*	Both Diseases	Alcoholism.	Cirrhosis of the Liver.*	Both Diseases.
1896-1900	227	331	558	137	237	374
1901	236	317	553	163	231	394
1902	220	304	524	132	209	341
1903	192	287	479	127	202	329
1904	179	285	464	111	204	315
1905	165	276	441	105	211	316
1906	168	268	436	107	197	304
1907	166	259	425	98	205	303
1908	137	254	391	92	177	269
Ratio per cent. of Mortality in 1908 to that in 1896-1900.	60	77	70	67	75	72

* Deaths stated to be caused by alcoholic cirrhosis of the liver are classed under alcoholism.

It has been frequently stated in these reports that the deaths actually assigned to alcoholism or to delirium tremens form an imperfect measure of the mortality caused by alcoholic intemperance, and that the best available indication is probably furnished by the combined mortality from alcoholism and cirrhosis of the liver. Almost the whole of the deaths returned under these two headings occur among persons aged 25 years and upwards; accordingly, in the table above the deaths of persons above 25 years of age are given in proportion to the number living at those ages.

The mortality ascribed to alcoholism and cirrhosis of the liver, which had been increasing for many years, and especially in the years

1896-1900, reached its highest point in the last year of that quinquennium. In the year 1900 the death-rate from these causes among males at the ages specified reached 623 per million, and among females 449 per million. Since that year, however, there has been a steady decline in the mortality ascribed to these causes—the rate in 1908 being below the mean rate in 1896-1900 by 30 per cent. in the case of males, and by 28 per cent. in the case of females. As a result of medical inquiry by this office the mortality from alcoholism in the years 1900 and 1901 was materially increased by the transference of deaths that had originally been certified as from neuritis. But this addition does not fully account for the excessive mortality in the first-named year.

Rheumatic Fever* (Acute and Sub-acute Rheumatism).—In the year under notice the deaths of 871 males and 934 females were referred to this disease, these deaths corresponding to a rate of 51 per million in each sex. According to the experience of the last eight years, the age of maximum mortality from this disease is from 10 to 15 years in each sex. At ages from 5 to 25 the mortality of females exceeds that of males; at other ages, with one slight exception, the converse is the case. The average death-rates per million living at specified ages among males and females in the years 1901-8 are shown by the following table:—

Rheumatic Fever.							Average, 1901-08.	
							Males.	Females.
Mortality at Age-groups, per Million Living.								
All ages	...	...	...	...	...	...	60	58
0—	...	...	...	...	...	...	19	17
5—	...	...	...	...	...	...	61	69
10—	...	...	...	...	...	...	83	95
15—	...	...	...	...	...	...	76	78
20—	...	...	...	...	...	...	50	53
25—	...	...	...	...	...	...	58	48
35—	...	...	...	...	...	...	69	57
45—	...	...	...	...	...	...	69	65
55—	...	...	...	...	...	...	64	57
65—	...	...	...	...	...	...	61	54
75 and upwards	...	...	...	...	...	...	41	42

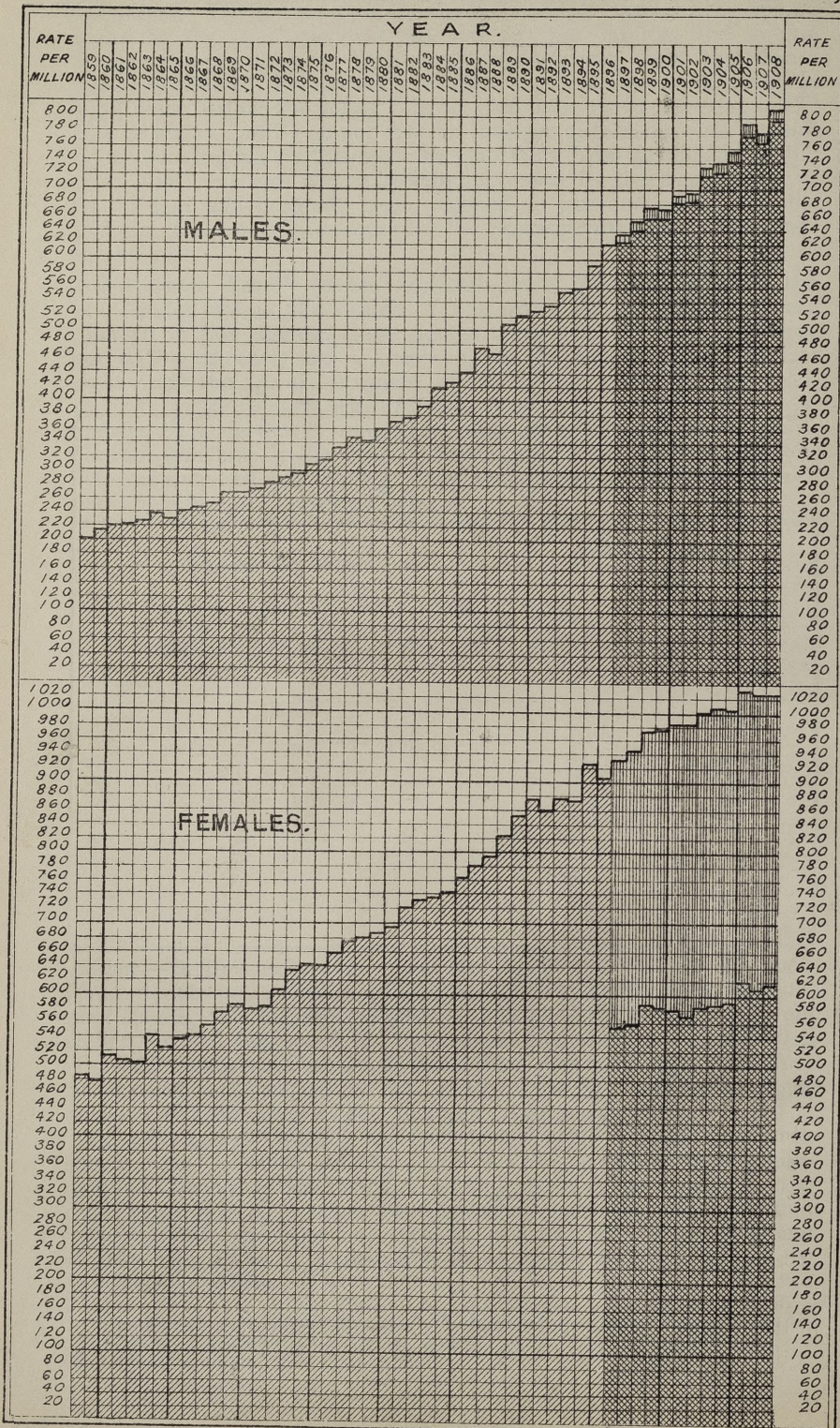
Gout.—In the reports for 1904 and 1905, and for reasons there given, doubts were expressed whether the actual incidence of fatal gout among the English population can be regarded as accurately shown by the registered mortality from that disease. In the year now under notice the deaths of males from gout were 333 in number at all ages, and the deaths of females were 83, showing a slight decrease in both sexes on the numbers of the previous year.

In your Annual Report for 1905 (page xcix.) a table was given showing the mortality actually attributed to this disease in two quinquennial periods a quarter of a century apart. The figures for the eight years 1901-8 confirm the statement previously made, that in both sexes the mortality from gout is now less than it formerly was at most ages above 35 years—this being mainly a disease of middle, or of advanced life.

* Previous to 1901 rheumatic fever had been classed together with rheumatism of the heart; consequently the present mortality from rheumatic fever alone cannot be compared with that of earlier periods.

CANCER.

DIAGRAM IX-DEATH-RATES FROM CANCER PER MILLION LIVING, CORRECTED FOR VARIATIONS OF AGE CONSTITUTION; ENGLAND & WALES, 1859-1908. (NOTE - THE PORTION SHADED VERTICALLY REPRESENTS THE MORTALITY ASCRIBED TO CANCER OF THE GENERATIVE AND MAMMARY SYSTEMS DURING THE YEARS 1897-1908.)



Note: The death-rates throughout the entire period are based upon the age constitution of the population as enumerated in 1901.

Malignant Disease.

The deaths ascribed to cancer or malignant disease during 1908 numbered 32,717, and exceeded by 1,104 the annual average in the previous quinquennium, corrected for estimated increase of population. The mortality amongst males was 813 per million living, or 4 per cent. more than that of 1907, while that of females remained practically unchanged at 1,027 per million living. This tendency to greater increase in the male than in the female mortality is also shown for the years 1903-1908 in the subjoined table, but the diagram facing this page, which displays graphically the cancer mortality of the past half century (corrected for changes in the constitution of the population), shows that in the first portion of this period the increase in the female mortality was greater than that in the male. This was the case up to about the year 1891, since when the increase amongst males has been almost twice that for the other sex. During the present century the male mortality has increased by 141 per million living at all ages and the female by only 49 per million.

Cancer.	Crude Rates. Average, 1903-07.	Corrected Rates.*		
		Average, 1903-07.	Year 1908.	Ratio.†
Mortality per Million Living at all Ages.				
Both Sexes { England and Wales ...	892	892	923	103
Urban Counties ...	852	931	969	104
Rural Counties ...	1,043	827	861	104
Males ... { England and Wales ...	761	761	813	107
Urban Counties ...	725	801	863	108
Rural Counties ...	905	703	751	107
Females ... { England and Wales ...	1,014	1,014	1,027	101
Urban Counties ...	970	1,053	1,067	101
Rural Counties ...	1,172	942	965	102

* See note to table on page lxxxi.

† *i.e.*, the ratio of the corrected death-rates in 1908 to those in 1903-7, the latter taken as 100.

Uncorrected or crude rates of mortality are especially misleading in the case of cancer, because the incidence of the disease is almost exclusively upon persons of or above middle age. The deaths at ages above 35 amount to 96 per cent. of the whole, and for this reason it has been the practice in previous reports to present corrected death-rates for these ages only. The corresponding restriction of the table of mortality at different ages on p. six to the same period of life has proved inconvenient to Medical Officers of Health and others desirous of calculating local corrected cancer death-rates, and the statement of a death-rate for a particular period of life, *e.g.*, 35 onwards, conveys less to the mind of most readers than the more familiar rate for all ages. Moreover, corrected death-rates for persons aged 35 and upwards are not, whereas those for the whole of life are, comparable with the corrected death-rates for other diseases, and with those for cancer itself embodied in the diagram facing this page. These reasons have led to an assimilation in this year's report of the method of correcting cancer mortality-rates to that employed in the case of other diseases. The deaths under 35, being relatively

few, affect the corrected rates but slightly, but the alteration must result in some slight though immaterial increase of accuracy in correction.

The table showing crude and corrected death-rates for England and Wales as a whole and for certain selected urban and rural counties* indicates cancer to be more destructive in the town than in the country, although the crude rates in the first column would seem to show the reverse. It must be borne in mind, however, that the figures upon which this table is based are uncorrected for deaths in institutions. A considerable number of cancer patients die in hospitals, situated mainly in large towns, and drawing their patients from rural as well as urban counties. The death-rates for urban counties may be slightly overstated and those for rural correspondingly understated on this account. When the changes foreshadowed by you on page lxxiv of this report can be carried out, it will be possible not only to eliminate this source of error, but to institute a much more accurate comparison of urban and rural mortalities by compiling deaths separately for all urban and for all rural districts.

The table on page six shows the mortality from malignant disease at each age-period. It further shows that as compared with the preceding quinquennium the mortality for males increased in 1908 at every age at which cancer is an important cause of death, while the mortality for women up to age 55 showed a decline. A similar slight fall in female mortality under 55 was noted in last year's report. The increase of recorded cancer mortality amongst women aged 35-45 practically ceased about 1879, when the rate was 856 per million living at that age as against 863 in 1908. The same may be said for the age-group 45-55 since the year 1891, when the mortality was 2,348 per million living as against 2,398 in 1908. In each case a tendency to decrease may be noted during the present century. The mortality curve of the age-group 55-65 is still on the ascendant, but its rate of increase has slackened to such an extent from 1900 on as to suggest that possibly this group also may repeat the experience of the earlier ages. For the groups 65-75 and 75 onwards there is as yet no evidence of any slackening in the increase of mortality attributed to cancer. In the male sex, with its much more rapid increase of cancer mortality, the only age-group over 35 showing as yet any evidence of a falling off in the rate of mortality increase is that aged 35-45, the increase for which, though still continuing, displays a very perceptible slackening during the present century.

Tables T. and U. show, for males and females respectively, the frequency with which death results from cancer of the various parts of the body. It is well known that mortality from cancer is greater among women than among men, but this is accounted for by the enormously greater frequency with which the female generative and mammary organs are affected than are those of men, as shown for the years 1897 onwards by the vertically shaded portions of the diagram facing page cvii. In the eight year period ending with 1908 the recorded deaths of males from malignant disease, other than that of the generative and mammary organs, were equal to a rate of 738 per million, whilst the deaths of females with the same reservation did not exceed 597 per million. In the same period there died of malignant disease in England and Wales 240,481 persons, of whom 98,701 were males and 141,780 were females. In Tables V. and W.

* For the composition of these urban and rural county groups, see page lxxx.

Cancer.	Average 1903-1907.			Year 1908.			
	Mortality at Age Groups, per Million Living.	England and Wales.	Urban Counties.	Rural Counties.	England and Wales.	Urban Counties.	Rural Counties.
Both Sexes	0—	31	34	25	28	29	31
	5—	16	18	14	16	18	17
	10—	16	17	16	15	15	6
	15—	30	35	26	28	32	28
	20—	43	44	43	50	52	63
	25—	144	154	128	131	142	135
	35—	665	714	575	659	713	602
	45—	2,013	2,174	1,766	2,066	2,203	1,804
	55—	4,273	4,502	3,910	4,360	4,715	3,955
	65—	6,949	7,094	6,786	7,464	7,557	7,412
75—	7,973	7,731	7,960	8,474	8,470	8,029	
Males	0—	34	40	27	32	34	33
	5—	18	22	14	18	23	13
	10—	17	20	15	18	18	4
	15—	31	39	25	31	38	37
	20—	50	48	51	55	68	35
	25—	111	118	115	117	122	103
	35—	429	460	374	440	483	423
	45—	1,595	1,780	1,318	1,707	1,841	1,536
	55—	4,018	4,276	3,652	4,197	4,584	3,878
	65—	6,900	7,031	6,797	7,608	7,928	7,051
75—	7,860	7,693	7,854	8,461	8,303	8,172	
Females	0—	27	29	24	24	23	29
	5—	13	15	13	14	14	21
	10—	15	15	16	12	11	9
	15—	28	31	27	24	26	19
	20—	35	40	36	46	38	88
	25—	173	188	139	144	160	162
	35—	886	956	758	863	932	764
	45—	2,399	2,545	2,166	2,398	2,545	2,044
	55—	4,497	4,699	4,135	4,503	4,830	4,021
	65—	6,988	7,142	6,776	7,350	7,271	7,711
75—	8,053	7,756	8,040	8,484	8,480	7,921	

these numbers have been reduced proportionally to 10,000 total deaths from cancer, among males and females respectively. The numbers in these tables must not be taken as indicating the relative frequency of cancer of any particular organ in one sex as compared with the other sex.* They nevertheless supply a ready means of determining, for males and females separately, the frequency with which certain parts of the body are invaded. Table V. may be read thus—according to the experience of 1901-8, of 10,000 males dying of cancer 2,144 suffered from cancer of the stomach, of which number 38 were under 35 years of age, 147 from 35-45, &c. Table W. may be read similarly—thus, in the eight years previously specified, of 10,000 females dying of cancer 2219 suffered from cancer of the uterus, of whom 92 were under 35 years old, 392 from 35 to 45, 637 from 45 to 55, &c. The deaths under 35 are so few that in these two tables they have been placed together in one group.

Among males the organ most frequently invaded is the stomach, which is the seat of disease in 21 per cent. of the fatal cases; the

* This information can readily be derived from these tables or from tables T. and U. by a simple calculation in either case.

TABLE T.—ENGLAND and WALES.—DEATHS from MALIGNANT

MALES.

Part of the Body Affected.*	All Ages.	Ages									
		Under 1 Year.	1—	2—	3—	4—	Total under 5 Years.	5—	10—	15—	
TOTAL	98,701	105	101	122	117	94	539	256	237	394	
Skin of—											
Face	1,864	1	2	1	1	2	7	1	—	8	
Lip	1,564	—	1	—	—	—	1	—	—	—	
Nose	179	—	—	—	—	—	—	1	3	5	
Scalp	90	—	2	1	—	—	3	1	—	1	
Ear	201	2	—	1	2	—	5	1	1	1	
Stomach	21,159	1	—	—	1	—	2	1	2	4	
Intestines	7,710	3	2	2	2	2	11	6	4	14	
Rectum	10,110	—	2	—	—	—	2	—	4	13	
Breast	184	—	—	—	—	—	—	—	—	1	
Œsophagus	6,351	—	—	—	—	—	—	—	1	1	
Liver and Gall Bladder	12,463	8	5	8	13	3	37	19	13	18	
Pancreas	1,816	1	1	—	1	—	3	—	1	3	
Bladder and Urethra	3,058	—	—	1	7	1	9	7	2	2	
Pharynx, Throat	2,206	2	—	—	—	2	4	5	12	15	
Larynx and Trachea	1,924	1	—	—	1	—	2	1	1	—	
Thyroid	180	—	—	—	—	1	1	1	1	1	
Tongue	5,433	—	—	—	—	—	—	—	—	1	
Mouth	1,763	—	1	1	2	1	5	—	1	3	
Prostate	1,249	—	—	—	—	—	—	1	—	2	
Peritoneum	839	4	3	3	4	4	18	4	4	7	
Pleura	75	—	—	—	—	—	—	—	2	—	
Brain	864	3	4	6	12	13	38	44	38	43	
Spinal Cord... ..	55	1	—	1	—	—	2	—	1	1	
Heart and Pericardium	10	—	—	—	—	—	—	—	—	—	
Globe of Eye, Orbit	301	3	3	25	17	10	58	23	7	5	
Axilla	126	—	—	1	—	1	2	3	—	—	
Groin	204	—	—	—	—	—	—	—	—	1	
Lymphatic Glands... ..	204	2	—	1	—	2	5	4	5	2	
Shoulder	167	—	—	—	1	1	2	5	5	6	
Arm, Leg	1,348	6	6	2	3	2	19	12	27	77	
Hip	71	—	—	—	—	—	—	—	1	6	
Skull	129	—	3	4	4	2	13	10	4	2	
Rib, Sternum	160	—	—	—	—	—	—	4	4	7	
Spinal Column	256	—	2	—	1	—	3	2	2	10	
Jaw	2,885	5	5	2	4	3	19	13	10	13	
Buttock	25	1	—	—	—	—	1	—	—	1	
Pelvic Bones	531	3	5	1	1	1	11	12	9	18	
Kidney and Supra-Renals	1,067	26	37	39	18	23	143	29	11	6	
Testes and Penis	1,492	2	—	2	2	1	7	3	2	14	
Parotid Gland	302	2	—	—	1	1	4	2	1	—	
Lung... ..	1,275	2	—	3	3	1	9	6	7	16	
Mediastinum	1,016	—	1	1	2	1	5	7	9	21	
Mesentery	217	3	—	—	1	1	5	4	2	2	
Lymphatic Glands of Neck	2,835	7	2	1	2	5	17	11	17	15	
Spleen	201	1	4	2	—	—	7	2	1	3	
Abdomen	1,299	3	7	3	8	5	26	3	5	10	
Thorax	278	3	1	—	—	3	7	3	3	7	
Part not stated	965	9	2	10	3	2	26	5	14	8	

* The arrangement of this column has been fixed in consultation

DISEASE, 1901-1908, CLASSIFIED according to AGE, and PART AFFECTED.

MALES.

Part of the Body Affected.*	at Death.								TOTAL.
	20—	25—	35—	45—	55—	65—	75—	85 and upwards.	
TOTAL	611	2,250	6,851	18,420	29,979	27,342	10,726	1,096	
Skin of—									
Face	5	20	105	229	379	523	468	119	
Lip	1	4	47	135	342	492	434	108	
Nose	2	6	6	25	37	48	38	8	
Scalp	—	6	4	10	23	18	19	3	
Ear	2	4	6	18	22	51	72	20	
Stomach	25	339	1,450	3,974	6,691	6,370	2,162	139	
Intestines	33	204	533	1,274	2,227	2,383	956	65	
Rectum	61	230	585	1,676	3,144	3,074	1,207	114	
Breast	1	3	8	35	50	55	27	4	
Œsophagus	1	29	339	1,459	2,324	1,666	496	35	
Liver and Gall Bladder	31	176	729	2,093	4,003	3,776	1,431	137	
Pancreas	11	51	192	376	579	457	135	8	
Bladder and Urethra	2	25	139	450	864	1,076	430	52	
Pharynx, Throat	12	38	149	508	769	526	159	9	
Larynx and Trachea	2	10	118	491	695	471	123	10	
Thyroid	2	1	17	41	57	44	14	—	
Tongue	2	30	383	1,409	1,866	1,272	439	31	
Mouth	6	11	106	359	558	508	181	25	
Prostate	2	2	16	89	353	527	234	23	
Peritoneum	14	52	77	159	236	189	73	6	
Pleura	1	7	10	10	20	18	7	—	
Brain	57	138	162	164	125	50	4	1	
Spinal Cord	5	5	9	14	8	8	2	—	
Heart and Pericardium	—	2	—	5	2	1	—	—	
Globe of Eye, Orbit	2	10	16	26	41	63	40	10	
Axilla	—	10	12	10	26	36	24	3	
Groin	3	15	28	49	55	32	17	4	
Lymphatic Glands	8	11	25	35	50	42	16	1	
Shoulder	10	14	17	23	35	30	16	4	
Arm, Leg	75	96	104	158	262	270	208	40	
Hip	3	7	9	11	12	12	9	1	
Skull	14	7	11	16	22	21	8	1	
Rib, Sternum	8	12	17	32	35	29	11	1	
Spinal Column	9	21	20	52	75	50	11	1	
Jaw	11	34	198	642	893	724	306	22	
Buttock	—	4	1	2	6	7	3	—	
Pelvic Bones	19	46	64	78	120	114	38	2	
Kidney and Supra-Renals	14	42	104	195	263	192	66	2	
Testes and Penis	34	150	218	286	285	291	178	24	
Parotid Gland	4	8	21	57	80	87	35	3	
Lung	39	87	184	311	343	215	52	6	
Mediastinum	19	78	131	247	270	184	43	2	
Mesentery	8	8	25	46	44	52	20	1	
Lymphatic Glands of Neck	25	63	222	667	909	606	258	25	
Spleen	1	13	18	35	59	47	14	1	
Abdomen	13	55	99	216	360	371	132	9	
Thorax	2	18	30	58	86	47	15	2	
Part not stated	12	48	87	165	274	217	95	14	

with Dr. Bashford, Director of the Imperial Cancer Research Fund.

TABLE U.—ENGLAND and WALES.—DEATHS from MALIGNANT

FEMALES.

Part of the Body Affected.*	All Ages.	Ages										
		Under 1 Year.	1—	2—	3—	4—	Total under 5 Years.	5—	10—	15—		
TOTAL	141,780	74	85	94	95	75	423	187	209	362		
Skin of—												
Face	1,265	1	—	1	2	1	5	2	4	2		
Lip	124	1	—	—	—	—	2	—	—	—		
Nose	157	—	—	—	—	—	—	1	—	—		
Scalp... ..	133	—	—	1	—	1	2	—	1	—		
Ear	71	—	—	—	—	—	—	—	—	—		
Stomach	20,096	—	—	—	—	1	1	—	1	2		
Intestines	10,528	—	—	—	—	—	—	2	4	14		
Rectum	8,437	—	1	—	—	—	1	—	—	18		
Uterus	31,462	—	4	—	—	—	4	—	2	9		
Breast	23,688	1	—	—	—	—	1	—	1	3		
Oesophagus	2,119	—	—	—	—	—	—	—	—	—		
Liver and Gall Bladder	18,995	9	4	7	7	9	36	10	6	13		
Pancreas	1,682	—	—	1	—	—	1	1	2	1		
Bladder and Urethra	1,317	—	—	—	2	—	2	1	—	—		
Pharynx, Throat	645	—	—	—	—	—	—	5	6	6		
Larynx and Trachea	635	—	—	—	—	—	—	1	—	2		
Thyroid	456	1	—	1	—	—	2	—	—	3		
Tongue	687	1	—	—	—	—	1	—	—	—		
Mouth	310	—	—	—	1	1	2	2	2	6		
Peritoneum	2,158	2	3	1	2	2	10	2	5	7		
Pleura	76	—	—	1	—	—	1	—	—	1		
Brain	646	2	4	5	6	9	26	30	23	31		
Spinal Cord	45	—	1	—	—	—	1	1	—	1		
Pericardium	1	—	—	—	—	—	—	—	—	—		
Globe of Eye, Orbit	288	6	6	12	20	8	52	10	6	2		
Axilla	195	—	—	—	—	—	—	—	—	1		
Groin	169	—	—	—	—	—	—	1	—	—		
Lymphatic Glands	154	—	1	—	—	1	2	3	6	1		
Shoulder	130	—	—	—	1	1	2	2	6	4		
Arm, Leg	1,361	8	2	2	1	6	19	19	38	59		
Hip	58	—	—	—	—	—	—	—	2	2		
Skull	101	2	1	3	3	1	10	2	2	5		
Rib, Sternum	123	—	—	—	1	—	1	1	4	2		
Spinal Column	203	3	1	1	2	—	7	—	2	6		
Jaw	1,048	—	3	1	4	1	9	5	10	8		
Buttock	33	—	—	3	—	—	3	—	—	3		
Pelvic Bones	917	4	4	3	1	—	12	4	10	22		
Ovary	2,785	—	2	2	—	1	5	7	7	35		
Kidney and Supra-Renals	1,109	16	39	31	27	25	138	37	8	8		
Parotid Gland	160	1	—	—	—	—	2	2	1	4		
Lung	998	1	1	—	3	1	6	7	14	18		
Mediastinum	624	—	—	—	—	—	—	2	4	8		
Mesentery	322	—	1	1	—	—	2	3	1	3		
Lymphatic Glands of Neck	860	7	1	2	2	—	12	7	14	23		
Spleen	220	—	—	1	2	—	3	2	—	2		
Abdomen	2,536	1	1	9	4	2	17	6	5	11		
Thorax	302	—	1	1	1	1	4	1	2	3		
Part not stated	1,351	7	3	4	3	2	19	8	10	13		

* The arrangement of this column has been fixed in consultation

DISEASE in 1901-1908, CLASSIFIED according to AGE, and PART AFFECTED.

FEMALES.

at Death.	Ages								Part of the Body Affected.*
	20—	25—	35—	45—	55—	65—	75—	85 and upwards.	
	505	3,963	15,237	30,290	38,698	34,667	15,215	2,024	TOTAL.
3	13	45	122	194	352	397	126	126	Skin of—
—	1	2	9	17	38	44	11	11	Face.
4	3	2	12	24	54	48	9	9	Lip.
—	3	5	17	27	38	30	10	10	Nose.
—	3	9	20	13	13	10	3	3	Scalp.
14	307	1,343	3,502	5,963	6,230	2,497	236	236	Ear.
29	226	664	1,713	2,967	3,258	1,486	165	165	Stomach.
39	255	691	1,475	2,378	2,365	1,091	124	124	Intestines.
45	1,242	5,562	9,029	8,387	5,234	1,752	196	196	Rectum.
17	495	2,945	5,831	6,095	5,013	2,731	556	556	Uterus.
2	103	250	408	513	563	256	24	24	Breast.
20	207	1,073	3,235	5,924	5,863	2,382	226	226	Oesophagus.
4	41	120	312	546	474	165	15	15	Liver and Gall Bladder.
—	16	83	176	349	437	222	31	31	Pancreas.
8	33	99	130	159	125	71	3	3	Bladder and Urethra.
—	49	118	141	160	121	38	5	5	Pharynx, Throat.
4	18	48	88	125	113	48	7	7	Larynx and Trachea.
3	48	75	109	151	189	101	10	10	Thyroid.
2	12	29	45	78	91	35	6	6	Tongue.
6	68	185	439	636	568	214	18	18	Mouth.
1	3	7	20	21	15	6	1	1	Peritoneum.
43	83	137	127	97	39	10	—	—	Pleura.
1	2	11	12	7	9	—	—	—	Brain.
—	—	—	—	—	1	—	—	—	Spinal Cord.
—	4	14	35	52	54	43	16	16	Pericardium.
—	3	15	24	44	59	42	7	7	Globe of Eye, Orbit.
2	8	19	33	37	35	28	6	6	Axilla.
4	9	18	33	31	35	10	2	2	Groin.
3	10	15	18	31	27	10	2	2	Lymphatic Glands.
36	77	88	160	252	310	234	69	69	Shoulder.
8	5	6	11	10	11	3	—	—	Arm, Leg.
3	9	8	16	20	16	8	2	2	Hip.
8	11	11	24	24	24	11	2	2	Skull.
3	15	32	38	51	34	14	1	1	Rib, Sternum.
15	34	86	179	274	260	150	18	18	Spinal Column.
2	2	2	2	6	7	6	—	—	Jaw.
29	49	131	197	207	188	59	9	9	Buttock.
38	185	491	835	707	372	96	7	7	Pelvic Bones.
9	40	93	204	263	217	83	9	9	Ovary.
3	8	14	25	33	39	25	4	4	Kidney and Supra-Renals.
24	50	143	264	261	167	41	3	3	Parotid Gland.
16	40	75	129	168	134	46	2	2	Lung.
4	9	28	56	83	94	35	4	4	Mediastinum.
19	51	62	143	193	199	123	14	14	Mesentery.
2	3	29	38	67	62	11	1	1	Lymphatic Glands of Neck.
12	45	161	479	657	770	340	33	33	Spleen.
3	12	26	60	87	63	32	9	9	Abdomen.
17	53	167	315	309	287	131	22	22	Thorax.
									Part not Stated.

with Dr. Bashford, Director of the Imperial Cancer Research Fund.

TABLE V.—ENGLAND and WALES.—MALES.—PROPORTION in 10,000 DEATHS from CANCER, of DEATHS at several AGES from CANCER of specified ORGANS or PARTS of the BODY.

(Based on a total of 98,701 deaths of MALES from Cancer in the eight years 1901-8.)

Part of Body Affected.	All Ages.	Ages at Death.						
		0-35	35-	45-	55-	65-	75-	85 and up-wards.
TOTAL	10,000	436	696	1,870	3,037	2,767	1,085	109
Skin of—								
Face	188	4	11	23	38	53	47	12
Lip	159	1	5	14	34	50	44	11
Nose	19	2	1	2	4	5	4	1
Scalp... ..	8	1	0	1	2	2	2	0
Ear	20	1	1	2	2	5	7	2
Stomach	2,144	38	147	403	678	645	219	14
Intestines	781	27	54	129	226	241	97	7
Rectum	1,024	31	59	170	319	311	122	12
Breast	19	1	1	4	5	5	3	0
Esophagus	643	3	34	148	235	169	50	4
Liver and Gall Bladder	1,264	30	74	212	405	384	145	14
Pancreas	184	7	19	38	59	46	14	1
Bladder and Urethra ...	310	5	14	46	87	109	44	5
Pharynx, Throat	223	9	15	51	78	53	16	1
Larynx and Trachea ...	195	2	12	50	70	48	12	1
Thyroid	18	1	2	4	6	4	1	—
Tongue	550	3	39	143	189	129	44	3
Mouth	179	3	11	36	57	51	18	3
Prostate	127	1	2	9	36	53	24	2
Peritoneum	85	10	8	16	24	19	7	1
Pleura	8	1	1	1	2	2	1	—
Brain	87	36	16	17	13	5	0	0
Spinal Cord	5	1	1	1	1	1	0	—
Heart and Pericardium	1	0	—	1	0	—	—	—
Globe of Eye, Orbit ...	30	10	2	3	4	6	4	1
Axilla	13	2	1	1	3	4	2	0
Groin	21	2	3	5	6	3	2	0
Lymphatic Glands	21	4	2	4	5	4	2	0
Shoulder	17	4	2	2	4	3	2	0
Arm, Leg	137	31	11	16	27	27	21	4
Hip	7	2	1	1	1	1	1	0
Skull	13	5	1	2	2	2	1	0
Rib, Sternum	17	4	2	3	4	3	1	0
Spinal Column	26	5	2	5	8	5	1	0
Jaw	292	10	20	65	91	73	31	2
Buttock	3	1	0	0	1	1	0	—
Pelvic Bones	54	12	6	8	12	12	4	0
Kidney and Supra-Renals	108	25	11	20	26	19	7	0
Testes and Penis	150	21	22	29	29	29	18	2
Parotid Gland	31	2	2	6	8	9	4	0
Lung	129	17	19	32	34	21	5	1
Mediastinum	102	14	13	25	27	19	4	0
Mesentery	22	3	3	5	4	5	2	0
Lymphatic Glands of Neck.	287	15	22	68	92	61	26	3
Spleen	21	3	2	4	6	5	1	0
Abdomen	131	11	10	22	36	38	13	1
Thorax	29	4	3	6	9	5	2	0
Part not stated	98	11	9	17	28	22	10	1

TABLE W.—ENGLAND and WALES.—FEMALES.—PROPORTION in 10,000 DEATHS from CANCER, of DEATHS at several AGES from CANCER of specified ORGANS or PARTS of the BODY.

(Based on a total of 141,780 deaths of FEMALES from Cancer in the eight years 1901-8.)

Part of Body Affected.	All Ages.	Ages at Death.						
		0-35	35-	45-	55-	65-	75-	85 and up-wards.
TOTAL	10,000	398	1,075	2,136	2,731	2,445	1,073	142
Skin of—								
Face	89	2	3	9	14	25	27	9
Lip	9	0	0	1	1	3	3	1
Nose	12	1	0	1	2	4	3	1
Scalp... ..	9	0	0	1	2	3	2	1
Ear	5	0	1	1	1	1	1	0
Stomach	1,417	23	95	247	421	439	175	17
Intestines	743	19	47	121	209	230	105	12
Rectum	595	22	49	104	168	166	77	9
Uterus	2,219	92	392	637	591	369	124	14
Breast	1,671	36	208	411	430	354	193	39
Esophagus	150	7	18	29	36	40	18	2
Liver and Gall Bladder	1,340	21	76	228	417	414	168	16
Pancreas	119	4	8	22	39	33	12	1
Bladder and Urethra ...	93	1	6	12	25	31	16	2
Pharynx, Throat	45	4	7	9	11	9	5	0
Larynx and Trachea ...	45	4	8	10	11	9	3	0
Thyroid	32	2	3	6	9	8	3	1
Tongue	49	4	5	8	11	13	7	1
Mouth	21	2	2	3	6	6	2	0
Peritoneum	152	7	13	31	45	40	15	1
Pleura	5	0	1	1	2	1	0	0
Brain	47	17	10	9	7	3	1	—
Spinal Cord	3	0	1	1	0	1	—	—
Pericardium	0	—	—	—	—	0	—	—
Globe of Eye, Orbit ...	20	5	1	2	4	4	3	1
Axilla	13	0	1	2	3	4	3	0
Groin	12	1	2	2	3	2	2	0
Lymphatic Glands	10	2	1	2	2	2	1	0
Shoulder	9	2	1	1	2	2	1	0
Arm, Leg	96	17	6	11	18	22	17	5
Hip	4	1	0	1	1	1	0	—
Skull	7	2	1	1	1	1	1	0
Rib, Sternum	10	2	1	2	2	2	1	0
Spinal Column	14	2	2	3	4	2	1	0
Jaw	74	6	6	13	19	18	11	1
Buttock	2	1	0	0	0	1	0	—
Pelvic Bones	65	9	9	14	15	13	4	1
Ovary	196	20	35	59	49	26	7	0
Kidney and Supra-Renals	79	17	7	14	19	15	6	1
Parotid Gland	11	1	1	2	2	3	2	0
Lung	70	8	10	19	18	12	3	0
Mediastinum	43	5	5	9	12	9	3	0
Mesentery	23	2	2	4	6	7	2	0
Lymphatic Glands of Neck.	61	9	4	10	14	14	9	1
Spleen	16	1	2	3	5	4	1	0
Abdomen	179	7	11	34	46	55	24	2
Thorax	21	2	2	4	6	4	2	1
Part not stated	95	8	12	22	22	20	9	2

liver and gall bladder are invaded in nearly 13 per cent. of the whole, the rectum in 10 per cent., and the intestines in 8 per cent. Taken together the parts here specified are attacked in more than half of the fatal cases. Among *females* the generative and mammary organs are affected in more than two-fifths of the total cases, while a further two-fifths are contributed by affections of the stomach, liver, intestines, and rectum taken together.

Diabetes Mellitus was the certified cause of death in 3,610 instances in the year under notice—this number being in excess of the quinquennial average by 322. Of the total deaths from this disease, not less than 73 per cent. occurred at ages above 45 years. From a table published in the Annual Report for 1905, it appears that in recent years there has been an increase in the loss of life from this disease, which has been greatest among women; and that in both sexes the increase has been mainly at ages beyond mid-life.

II.—DISEASES OF PARTICULAR ORGANS.

In the year 1908 about two-fifths of the deaths from all causes were referred to diseases of particular organs. In previous reports it has been remarked that while a general decline has occurred in the mortality from certain inflammatory disorders dealt with in this section, there has been a general increase in the mortality from others. This tendency is again illustrated by the figures now available. Restricting the survey to the twenty years covered by Table 22, it will be seen that from 1889 to 1908, the mortality attributed to meningitis, bronchitis, laryngitis, pleurisy and peritonitis taken together has fallen 45 per cent., while that attributed to otitis, endocarditis, acute and chronic nephritis, enteritis, gastro-enteritis, and appendicitis taken together has risen 52 per cent. To some extent these variations in mortality are apparent merely, and are the result of improved medical certification.

In the year under notice, as in several preceding years, a large number of letters of inquiry was addressed by Dr. Tatham to medical attendants respecting deaths that had been vaguely referred, in the original certificates, to one or another of the diseases above specified. From the answers to inquiries issued concerning deaths originally certified as from inflammation of the brain, larynx, or peritoneum, many deaths have been classed to puerperal sepsis, tuberculosis, diphtheria, malignant disease, cerebro-spinal fever or other definite headings. Of the deaths originally returned unsatisfactorily, the majority were, on the authority of the medical certifiers, transferred to appropriate headings in the tables.

Epilepsy.—The fall in the mortality from epilepsy recorded in several recent Reports still continues. In the year under notice there were registered as due to this disease 2,686 deaths, equal to a rate of 76 per million living, as against a mean rate of 115 per million in the ten years ending with 1880. In relation to this decrease it is desirable to note that many deaths which would formerly have been assigned to convulsions, without reference to the cause of that symptom, are now certified as from epilepsy.

Convulsions.—Attached to this heading, in the official Nomenclature of Diseases, is the following instruction—"this term being 'the name of a symptom, should be used only when more precise

"information is wanting. When the cause is known, the return 'should be made under the head of that cause.'"* Notwithstanding that the Royal College of Physicians have issued similar instructions in their revisions of the last thirty years, convulsions still appears to cause the death of one in every 11 children dying under the age of one year. In the year 1908 not fewer than 11,504 deaths at all ages were referred to this symptom, 10,108 of which were those of infants under the age of one year. The details of child mortality from convulsions will be found in the Tables at pages 74-85.

Diseases of the Heart.—In the year under notice diseases of the heart are reported to have caused the deaths of 49,891 persons, namely, 23,918 males and 25,973 females. Full information concerning these deaths, their age and sex distribution, together with the several conditions included in this group, will be found in the abstracts on pages 302 and 303. Tables 21 and 22 indicate that valvular disease, including endocarditis, has been in recent years the most frequent of all the definite forms of this malady. The fact that the mortality from valvular affections and also from angina pectoris, dilatation, and fatty degeneration of the heart is apparently increasing from year to year must be considered in relation to the associated fact that the death-rate from indefinite forms of heart disease is decreasing.

According to the experience of the last eight years the mortality from valvular disease of the heart has been greater in the female than the male sex up to the age of 55 years, whilst after that age the reverse has been the case. During the first twenty years of life the mortality increases gradually, and from the 35th year onward very rapidly.

Diseases of the Blood Vessels.—To one or other of the conditions included under this head there were referred last year 31,336 deaths, 15,114 being those of males and 16,222 of females. By far the greater part of the deaths under this heading are referred to cerebral hæmorrhage or to its symptoms apoplexy or hemiplegia. On the average of the last eight years the deaths at all ages from cerebral hæmorrhage (together with apoplexy and hemiplegia) correspond to a rate of 666 per million for males, and of 760 per million for females. The mortality from this cause is low until after the age of puberty, but at ages above 35 years it accounts for the deaths of 2,088 in a million men, and of 2,287 in a million women. In the 20 years intervening between the 35th and the 55th year women fall victims to this disease in greater proportion than do men, whilst at ages above 55 years the mortality is higher among men. Since the year 1900 diseases of the blood vessels have been distinguished from other diseases of the circulatory system; but in previous years cerebral hæmorrhage, apoplexy, and hemiplegia were included among diseases of the nervous system. The recorded mortality from cerebral hæmorrhage has decreased substantially in recent years; but it is important to note that many deaths from this condition which are now properly attributed to Bright's disease or some equally definite cause, would in years gone by have been certified as from apoplexy or hemiplegia simply, without further remark. (Table 21, page 28.)

* "Nomenclature of Diseases," by the Royal College of Physicians of London, third revision, page 31.

The time honoured term "paralysis" still frequently appears in medical certificates, without mention of the lesion causing that symptom. In certifying deaths of this nature brain paralysis should invariably be distinguished from paraplegia, and a description of the lesion should be substituted, if possible, for such terms as hemiplegia and apoplexy. In cases where cerebral hæmorrhage occurs in association with disease of the kidney, the heart, or other important organ, the fact should be stated in the certificate. The septic nature of a certain portion of the deaths from diseases of the blood vessels is now recognized in the medical certificates (*see* supplementary tables, pages 312-313).

Laryngitis.—In the year under notice 997 deaths at all ages were referred to laryngitis, membranous laryngitis, not ascertained upon inquiry to be diphtheritic, being responsible for 31 of these deaths*.

Table 22 shows that in proportion to population the deaths referred to "laryngitis" are at the present time fewer than they were 20 years ago. But it must not be inferred that the mortality from laryngitis is correspondingly less now than it was formerly, as improved diagnosis, particularly in the case of diphtheria, may not unlikely account for a part of the decrease. It has been pointed out in previous reports that the age distribution of laryngitis corresponds somewhat closely to that of diphtheria and "croup," and this was the case in the year 1908, when about two-thirds of the deaths from laryngitis were those of children under the age of five years.

Bronchitis.—Among the several conditions now included under the head of "diseases of the respiratory system" bronchitis claims every year the largest number of victims,† the deaths last year numbering 38,702, and being equal to a crude rate of 1,092 per million living, without distinction of age or of sex. The recorded death-rate from this disease has fallen considerably in the course of the last 20 years, the average death-rate in the last five years having been lower than in the first five years of that period, by more than 48 per cent. (Table 22). Relatively to the numbers living at all ages, bronchitis affects both sexes almost equally, the rates last year being 1,102 per million for males and 1,083 per million for females (Tables 24 and 26). At ages under five years boys suffer more severely than girls, the rates at that age being 325 and 268, respectively, per 100,000 living of each sex (Tables 33 and 34, pages 76-79). Except at ages 5 to 15, and above 75 years, the mortality of males from bronchitis is higher than that of females.

Pleurisy.—The deaths classed under this heading numbered 1,242 last year, and were 104 below the average number in the preceding five years, corrected for increase of population. The mortality from this disease still continues to be higher among males than among females; the crude death-rate at all ages in the last eight years having averaged 47 and 33 per million living of the respective sexes. The tuberculous nature of some fatal pleurisies is now coming to be generally recognized, and in all cases where pleurisy is authoritatively referred to this infection the death is classified accordingly. The

* The Royal College of Physicians, in their recently issued nomenclature of diseases, recognize two chief forms of "simple laryngitis"; (a) catarrhal, and (b) membranous. But they attach to the form last-mentioned the warning that cases of diphtheria should not be returned under that heading.

† According to the returns the mortality from pneumonia has, in the last seven years, been greater than that from bronchitis; but pneumonia, being regarded as an infection, is now included among general diseases.

statistics of the last eight years show that the mortality from pleurisy is greater at ages below five years than at any other age up to about the forty-fifth year; after which age it increases rapidly in both sexes. In the year under notice there were registered 414 fatal cases of pleurisy, of which the infective nature was recognized by the medical attendants. (*See* supplementary tables, pages 312-313.)

Gastric Ulcer.—The number of deaths from gastric ulcer varies little from year to year. In the year 1908 the deaths so returned amounted to 1,713, against 1,745 and 1,775, respectively, in the two years immediately preceding. Some of the deaths now classed to gastric ulcer had originally been certified as from peritonitis or some other indefinite cause, but were transferred to this heading after correspondence with the medical attendants.

In the eight years ended 1908 the death-rate at all ages from gastric ulcer averaged 36 per million for males, and 64 per million for females, but the difference between the rates for the two sexes has been diminishing throughout the period. In the Annual Report for 1906 attention was drawn to the remarkable age incidence of this disease, a feature common throughout the eight years referred to. Until the approach of puberty the disease seldom appears in the registers as a cause of death. Among women seven-tenths of the deaths occurred at ages from 15 to 45 years, whilst among men at the same ages the proportion was only four-tenths. Women experienced the highest mortality from gastric ulcer at ages from 20 to 25, when it accounted for the deaths of 116 in each million living at that age, or more than six times the rate experienced by men at the same time of life. At all ages after the forty-fifth year the male death-rate exceeded the female, the mortality attaining its maximum among men at ages above 65 years.

Appendicitis.—In the year under notice 2,136 deaths were referred to appendicitis or to perityphlitis. This total includes several deaths which were added as a result of medical inquiry respecting deaths originally referred to peritonitis, but the more precise nature of which has been subsequently stated by the several medical attendants. Since the year 1901, in which year for the first time appendicitis appeared in our tables as a separate cause of death, this disease has accounted for 14,540 deaths, and for an average annual death-rate of 65 per million among males, and of 43 per million among females. The disease appears to attack persons at all ages; but, disregarding the ages above 75 years, when the rates are of doubtful value, the period of highest mortality in both sexes appears to be from the tenth year to the twentieth. At all stages of life except the most advanced the mortality is greater amongst males.

Peritonitis.—Under this heading 713 deaths are classed, and of these the infective nature has been medically attested in 50 instances (*see* supplementary tables, pages 312-313). The deaths attributed to peritonitis would have been considerably more numerous but for inquiries addressed to medical practitioners respecting the cause of this condition. In all cases where peritonitis is known to depend on hernial or other obstruction, on ulceration of the stomach or intestines, on appendicitis, metritis, or other definite cause, the death is referred to that cause, and not to peritonitis. Fortunately the precision of certification in these cases is increasing.

The deaths ultimately referred to peritonitis in the year under notice were equal to a rate of 20 per million living, or less than a third of the rate recorded even so recently as the year 1899.

The mortality in each sex was also 20 per million. It may be presumed that in recent years many of the deaths which ten years ago would have been ascribed to peritonitis are now referred to appendicitis, enteritis, intestinal ulceration, or some other definite disease.

Diseases of the liver.—To these diseases in the aggregate there were ascribed in the year under notice 5,565 deaths, corresponding to a rate of 157 per million living at all ages and of both sexes. Tables 24 and 26 show that at the present time among both men and women the mortality ascribed to liver diseases is much lower than it was twenty years ago. In the year 1880, for example, the rates were 317 per million living among males, and 289 among females; whereas in the year under present notice they were only 164 and 151 respectively.

The greater part of the mortality now ascribed to liver disease results from cirrhosis, which on account of its association with alcoholism is treated under that section (page cv).

Tables T and U give the sex and age distribution of the 31,458 deaths referred to malignant disease of the liver in the eight years 1901-8. The sex and age distribution of deaths from non-malignant liver diseases is shown in the abstracts on pages 306 and 307.

Acute Nephritis, Chronic Nephritis or Bright's Disease.—These conditions together account for the greater part of the mortality from diseases of the urinary system. In the year under notice 13,760 deaths were referred to this heading—a number corresponding to a rate of 388 per million living, without distinction of age or of sex.

The age incidence of mortality from these forms of disease was shown in tabular form in the Annual Report for 1907, and the remarks then made are still applicable.

Tumours and other Diseases of the Ovaries and Uterus.—Among affections of the female generative organs there were returned last year 968 deaths from non-malignant diseases of the ovaries or of the uterus. In the aggregate these deaths corresponded to a rate of 54 per million females living at all ages, the quinquennial average rate being 62 per million.

Diseases and Accidents of Pregnancy and Childbirth.—From pages xcvi and 297 it will be seen that in addition to 1,395 deaths from puerperal sepsis 1,966 deaths were attributed to other diseases and accidents of pregnancy and childbirth; particulars of the age distribution of these deaths will be found in Table S. on page xcvi. Of this total, 83 deaths were assigned to abortion or miscarriage, 57 to puerperal mania, 426 to puerperal convulsions, 560 to placenta prævia or flooding, and 840 to other accidents of pregnancy and childbirth. In 242 out of the 840 deaths last-mentioned the cause was precisely stated: this was ectopic gestation in 92 instances, ruptured uterus in 25, inversion of that organ in 3, deformed pelvis in 34, adherent placenta in 31, conditions necessitating Cæsarian section in 12, and mal-presentation in 6 instances. Of these 1,966 deaths, 382 were returned as due to a combination of causes,* the complicating cause being embolism or thrombosis in 221 instances, other diseases of the circulatory system in 55, kidney disease in 38, and bronchitis or pleurisy

* These complicating causes do not appear in Table S, the deaths having been classed to other diseases and accidents of pregnancy and childbirth.

in 17. The deaths now dealt with together with those from the puerperal septic diseases enumerated on page 297 numbered 3,361 and were equal to a rate of 3.57 per 1000 births. In the ten years immediately preceding the average proportion had been 4.31 per 1000. Table S. on page xcvi gives particulars of the 4,521 deaths from all causes whatever, either dependent on or associated with the puerperal state. By calculating the mortality on this number it is raised from 3.57 to 4.81 per 1000 births.* That table shows that of the deaths there enumerated 4,454 occurred at ages between 15 and 45 years. If then, the method be adopted of computing these deaths on the estimated number of women living within the same limits of age the mortality will be equal to 503 per million, or 26 per million less than that in the year 1907. In this connection it is necessary to intimate that in all cases in which parturition or miscarriage is known to have occurred within one month before the death of a patient, the fact should be noted by the certifying practitioner.

III.—INFANTILE MORTALITY.

Before attempting any analysis of the features of infantile mortality during 1908, it may be well briefly to review the tendencies displayed in regard to it by this and other European countries during recent years. It will be convenient to commence our survey with the year 1881, as this is the first year included in Tables 56-89, pages 112-145.†

During the greater part of this period of 28 years there has been no fall in the rate of infantile mortality in England and Wales, and reference to Table 27, page 64, shows that this statement holds good as far back as the commencement of registration. From 1881 to 1899 the rate was slightly on the ascendant, but since the latter year this rise has been more than compensated for by a considerable fall—a feature, as will be seen, common to the experience of most other European countries during the same period. It is difficult to avoid connecting this satisfactory tendency with the quickening of the public conscience upon the subject of late years, but it would be premature to assume that the improvement will necessarily be maintained, though there is much reason to hope so.

The rates for Ireland and Scotland also display a slight improvement during the last ten years. This however is much less marked than in the case of England and Wales; and since, as in the case of the latter country, there had been a gradual slight rise in the Irish and Scotch infantile mortalities till then, those countries display no fall during the period under review taken as a whole. The excess of the English over the Scotch rate has therefore been diminished, while that of the Scotch over the Irish has remained very constant.

Amongst continental countries displaying the same feature of a fall during the past 8-10 years, but not before, may be mentioned Prussia, Denmark, and Norway. The Prussian mortality, high throughout, was fairly uniform till 1900, since when it has fallen to not quite the

* It has previously been explained that this method of calculating these deaths in terms of birth is imperfect, because in England the data are lacking concerning the number of still births, as well as concerning the number of twin, and of multiple births.

† Certain differences in international practice with regard to registration of births and deaths, which have some effect upon the rates of infantile mortality returned, are neglected as not affecting the fluctuations of these rates here dealt with.

same extent as that of England and Wales since 1899. The Danish rate, which was formerly considerably above the Scotch, is now about equal to it, and the Norwegian, formerly almost identical with the Irish, has since 1897 been decidedly below it. The Swedish mortality has fallen slightly throughout the whole period, but at an increasing rate since 1899.

In the case of France the change came somewhat earlier. Its mortality may be said to be uniform up to 1895, since when a considerable fall has occurred. In this connection it may be noted that owing to the low birth-rate in France the recent development of measures preventive of infantile mortality commenced in that country somewhat earlier than in England. (The organization of schemes for encouraging natural and improving artificial feeding is especially referred to.) The French mortality, which in the earlier portion of the period under review was considerably above the English, has of recent years been almost as low as that of this country.

In contrast to all of the above, three of the countries with complete records in the Tables show a large and more or less continuous decline throughout the whole period. These are the Netherlands, Switzerland, and Finland, the mortalities for which fell from average rates for 1881-85 of 181, 171, and 162 respectively, to 112, 121, and 112 in 1907 (see Table on page lxvii).^{*} In contrast with the Netherlands, the mortality of Belgium has been very steadily maintained, though it shows slightly the prevailing tendency to drop during the present century.

To summarise the above statements, the whole period since 1881 may be divided into two portions, approximately 1881-1898, and from 1899 onwards.

During the earlier period the infantile mortality of five out of the twelve countries dealt with—Prussia, Norway, Denmark, Belgium, and France (to 1895 only in the case of France)—remained about stationary. That of four others, the Netherlands, Switzerland, Finland, and Sweden, fell, considerably in the case of the first three. The mortality of three countries only, namely, England and Wales, Scotland, and Ireland, rose somewhat during the first period.

The second period is characterised by a fall in each of the twelve countries. This is considerable in the cases of England and Wales, France, the Netherlands, Norway, Prussia, and Denmark, and less marked in those of Ireland, Scotland, Finland, Belgium, Switzerland, and Sweden. None of the twelve countries shows greater progress during this period than England and Wales. The slight increase in the English mortality of 1908 as compared with that of 1907 is also shown, and to a larger extent, by those of the other countries for which returns are to hand.

Excluding diarrhoeal deaths, however, the infantile mortality of 1908 in this country is lower than that of 1907, so that if, as seems probable, the excess of diarrhoeal mortality in 1908 over 1907 was due to seasonal influences, the record of the year under review may be regarded as the more favourable of the two.

Table 37, page 84, contrasts the infantile mortality of 1908 with the average for the five preceding years, and permits an analysis of the fall of 8 per cent. shown. The fall becomes much more pronounced

^{*} An instance of a still more rapid fall is afforded by the New York returns (old city area) which indicate a diminution in infantile mortality of about 38 per cent. between the years 1891 and 1907. (The deaths per 1000 population under one year of age fell from 242 to 151 during these years.)

as the first year of life progresses, the reduction for the first three months being only 4 per cent., for the period 3-6 months 9 per cent., and for the second half of the year 14 per cent. The same figures apply to the urban group of counties and almost the same to the rural group considered separately, but as the urban mortality rates are much higher (see page cxxvi) the actual urban falls are correspondingly greater.

Nearly all the important causes of death contributed to the decline, particularly diarrhoeal diseases and convulsions. In the case of both these the proportional reduction was greatest at the highest, and least at the lowest age period shown. Tuberculous and respiratory diseases also show a considerable reduction, but tubercle forms an exception to the general rule that the percentage reduction increases with age. This may be due, however, to transference to other causes of some of the deaths of young infants formerly diagnosed as due to tubercle. The large group of wasting diseases finds its victims almost entirely amongst young infants, and shows but a slight reduction in 1908. The transference noted in previous reports of deaths formerly attributed to atrophy, &c., to other headings in this group is continued, if this probable explanation of the decrease in the one case and increase in the other may be accepted. The reduction under the head of infectious disease is almost entirely due to lessened mortality from measles.

It will be noted that even apart from diarrhoea, the deaths from which depend so largely upon seasonal influence, there was a general and substantial reduction in the mortality of the older infants, but the fact that more than half of the total deaths occurred during the first three months of life, for which the reduction of mortality is slight, suggests that the excess of deaths of young infants may be found to form at once the most important and the most difficult portion of the problem of infantile mortality. The difficulty may be largely due to the fact that these deaths, being chiefly dependent on adverse ante-natal conditions, demand preventive measures which are less easy to apply than those appropriate in the case of older infants.

The contrast of male with female infantile mortality is also interesting and important. This is shown for the principal causes of death in the tables on page cxxiv.

It will be seen that in 1908 the mortality of male infants was 24 per cent. above that of females, and that all the principal causes of death except whooping-cough displayed the same feature, and on the whole, to a very uniform extent. Both the rule and the exception are familiar features of infantile mortality. It will be seen also that the excess in the mortality of males decreases as the first year of life advances,^{*} and this applies in the main to most of the principal separate causes of death as well as to deaths from all causes. As the chief excess of male mortality occurs at the period for which the reduction in infantile mortality is least, it follows that the effect of this reduction, if the process is maintained, will be to increase the excess of male over female deaths in the first year of life, and so of females in the general population.

If a single explanation be sought for the increasing reduction in infantile mortality as a whole, and the diminishing excess of male infantile mortality, as age advances, it may perhaps be found in the supposition of a lesser initial viability amongst males. This would

^{*} This decrease is but slightly diminished if the mortality rates at 3-6 and 6-12 months be calculated in proportion not to births but to survivors at those ages.

INFANTILE MORTALITY.—ENGLAND AND WALES, 1908.—MORTALITY OF MALE and FEMALE INFANTS.

Cause of Death.	Under 3 Months.			3 to 6 Months.			6 to 12 Months.			Under 1 Year.		
	Proportion per 1000 Births.		Ratio.*	Proportion per 1000 Births.		Ratio.*	Proportion per 1000 Births.		Ratio.*	Proportion per 1000 Births.		Ratio.*
	Males.	Fe-males.		Males.	Fe-males.		Males.	Fe-males.		Males.	Fe-males.	
All Causes	72'86	55'70	131	25'69	21'48	120	34'38	30'32	113	132'93	107'50	124
Whooping-cough ..	0'95	1'16	82	1'20	1'28	94	2'52	2'98	85	4'67	5'42	86
Diarrhoeal Diseases ..	6'42	4'61	139	7'50	6'48	116	7'76	6'98	111	21'68	18'07	120
Premature Birth ..	21'79	17'31	126	0'24	0'22	109†	0'03	0'04	75†	22'06	17'57	126
Congenital Defects ..	6'73	5'20	129	0'42	0'43	98	0'35	0'29	121	7'50	5'92	127
Atrophy, Debility, Marasmus, Tuberculous Diseases..	12'49	9'27	135	2'76	2'36	117	1'54	1'45	106	16'79	13'08	128
Convulsions	8'16	5'85	139	2'36	2'01	117	1'70	1'37	124	12'22	9'23	132
Bronchitis and Pneumonia.	6'92	5'27	131	5'60	4'36	128	10'24	8'32	123	22'76	17'95	127

* i.e., the ratio of Male to Female mortality, the latter being taken as 100.
 † These rates are of little or no significance owing to the paucity of the data upon which they are founded.

account for the greater excess of their deaths soon after birth, the period when as yet, owing as we may surmise to the influence of ante-natal conditions upon initial viability, least success has been met with in preventing the wastage of infant life. This lesser viability would seem to display itself quite as much in smaller resistance to such diseases as diarrhoea and bronchitis as in a greater mortality from causes more directly dependent upon ante-natal conditions, such as premature birth, &c.

INFANTILE MORTALITY.—ENGLAND AND WALES, 1908.—MORTALITY OF LEGITIMATE and ILLEGITIMATE INFANTS.—ALL CAUSES.

Age.	England and Wales.			Urban Counties.			Rural Counties.		
	All Infants.	Legitimate.	Illegitimate.	All Infants.	Legitimate.	Illegitimate.	All Infants.	Legitimate.	Illegitimate.
Under 1 year ..	120'43	115'75	233'09	131'16	126'25	255'69	100'60	96'50	175'52
Under 3 months ..	64'43	61'78	128'25	67'69	64'96	136'88	59'51	56'75	109'74
3-6 months ..	23'62	22'49	50'83	26'52	25'31	56'91	17'40	16'51	34'08
6-12 months ..	32'38	31'48	54'01	36'95	35'98	61'90	23'69	23'24	31'70

MORTALITY OF INFANTS under ONE YEAR of AGE, 1908.

		PROPORTION OF DEATHS TO 1,000 BIRTHS.						
		All Causes.	Common Infectious Diseases.	Diarrhoeal Diseases.	Wasting Diseases.	Tuberculous Diseases.	Miscellaneous Diseases.	
							Bronchitis and Pneumonia.	Other Causes.
BOTH SEXES.								
England and Wales.	All Infants ..	120'43	7'41	19'90	42'37	4'65	20'40	25'70
	Legitimate ..	115'75	7'37	18'98	40'55	4'48	19'92	24'45
	Illegitimate ..	233'09	8'52	42'21	86'38	8'61	31'82	55'55
Urban Counties	All Infants ..	131'16	7'88	24'24	43'46	5'20	22'47	27'91
	Legitimate ..	126'25	7'85	23'09	41'56	5'02	21'98	26'75
	Illegitimate ..	255'69	8'79	53'55	91'90	9'67	34'74	57'04
Rural Counties	All Infants ..	100'60	7'29	9'23	40'50	3'30	16'00	24'28
	Legitimate ..	96'50	7'28	8'91	38'88	3'19	15'51	22'73
	Illegitimate ..	175'52	7'33	14'84	70'17	5'31	25'10	52'77
MALES.								
England and Wales.	All Male Infants ..	132'93	7'16	21'68	47'29	5'17	22'76	28'87
	Legitimate ..	127'92	7'10	20'78	45'27	5'00	22'27	27'50
	Illegitimate ..	253'88	8'94	43'52	96'19	9'24	34'74	61'25
Urban Counties	All Male Infants ..	144'25	7'55	26'21	48'48	5'78	25'05	31'18
	Legitimate ..	138'88	7'50	25'07	46'30	5'58	24'53	29'90
	Illegitimate ..	281'26	8'87	55'49	104'06	10'83	38'32	63'69
Rural Counties	All Male Infants ..	113'19	7'04	9'93	46'09	3'89	18'21	28'03
	Legitimate ..	108'65	6'98	9'55	44'47	3'83	17'74	26'08
	Illegitimate ..	196'75	8'30	16'97	75'81	5'05	26'71	63'91
FEMALES.								
England and Wales.	All Female Infants ..	107'50	7'65	18'07	37'29	4'10	17'95	22'44
	Legitimate ..	103'15	7'65	17'11	35'67	3'93	17'50	21'29
	Illegitimate ..	211'72	8'10	40'85	76'30	7'94	28'81	49'72
Urban Counties	All Female Infants ..	117'62	8'22	22'19	38'29	4'61	19'79	24'52
	Legitimate ..	113'18	8'20	21'03	36'66	4'46	19'34	23'49
	Illegitimate ..	229'49	8'69	51'55	79'43	8'49	31'07	50'26
Rural Counties	All Female Infants ..	87'52	7'53	8'47	34'69	2'69	13'70	20'44
	Legitimate ..	83'89	7'59	8'25	33'07	2'53	13'16	19'29
	Illegitimate ..	153'65	6'32	12'65	64'36	5'58	23'44	41'30

Tables 38 and 39, as well as the summary table here inserted, compare the mortality of legitimate and illegitimate infants. The excess of mortality amongst the illegitimate has increased from 94 per cent. in 1907 to 101 per cent. in 1908. This excess was in both years more marked in the urban than in the rural group of counties, in the first than in the second six months of life, and in the female sex, but the difference between the sexes was comparatively slight, and not nearly sufficient to counterbalance the greater mortality natural to male infants. The excess of illegitimate mortality is greatest from diarrhoeal and wasting diseases, and least from the group of common infectious diseases, the first-named cause being that upon which neglect would probably have most influence, and the last that upon which it would have least.

The mortality of infants in urban and rural areas is compared in Tables 35, 36, 38, and 39, as well as in the subjoined summary table. These show a considerable excess of urban mortality at most age periods, but much more in the later than the earlier part of the first year of life. For the first month of life, when over one-third of the total infantile mortality occurs, the urban excess is only six per cent.

INFANTILE MORTALITY IN URBAN and RURAL COUNTY GROUPS, 1908.

Cause of Death.	Under 3 Months.			3 to 6 Months.			6 to 12 Months.			Under 1 Year.		
	Proportion to 1000 Births.		Ratio.*	Proportion to 1000 Births.		Ratio.*	Proportion to 1000 Births.		Ratio.*	Proportion to 1000 Births.		Ratio.*
	Urban.	Rural.		Urban.	Rural.		Urban.	Rural.		Urban.	Rural.	
All Causes	67'69	59'51	114	26'52	17'40	152	36'95	23'69	156	131'16	100'60	130
Whooping-cough ..	0'98	1'37	72	1'24	1'42	87	2'80	3'10	90	5'02	5'89	85
Diarrhoeal Diseases ..	6'66	3'02	221	8'43	3'21	263	9'15	3'00	305	24'24	9'23	263
Premature Birth ..	19'82	19'05	104	0'25	0'14	179†	0'02	0'03	67†	20'09	19'22	105
Congenital Defects ..	6'18	5'24	118	0'44	0'37	119	0'31	0'40	78	6'93	6'01	115
Atrophy, Debility, Marasmus, Tuberculous Diseases ..	11'07	11'47	97	2'79	2'16	129	1'70	1'02	167	15'56	14'65	106
Convulsions	0'75	0'48	156	1'63	0'98	166	2'82	1'84	153	5'20	3'30	158
Bronchitis and Pneumonia.	7'64	6'98	109	2'30	2'28	101	1'60	1'82	88	11'54	11'08	104
	6'48	5'30	122	5'51	3'69	149	10'48	7'01	150	22'47	16'00	140

* *i.e.*, the ratio of Urban to Rural mortality, the latter being taken as 100.

† These rates are of little or no significance owing to the paucity of the data upon which they are founded.

It will be noted that both the excess of urban infantile mortality and the recent diminution in infantile mortality as a whole present the common feature of increase with increasing age of the children concerned, while the excess of male over female mortality follows the inverse rule. The explanation already suggested, namely, the greater influence of lack of initial viability upon the mortality of very young than of older infants, will probably account for this feature in regard to urban and rural mortality also. It must be supposed that it is the more preventable deaths caused rather by a bad environment than by a bad start in life at birth which occur in the town but not

in the country, so that it is only natural that the urban excess should increase with age. As the conditions of infant life in towns are improved they will become more and more approximated to those at present obtaining in the country districts and so the mortality at the later age periods may be expected to continue the fall at present in progress.

In view of the small excess of urban mortality under three months, both from all causes and especially from that group of causes which accounts for most of the deaths at this age, *i.e.* "wasting diseases," (including premature birth, congenital defects, atrophy &c., and other less important causes of death) we can scarcely hope that methods of combating infantile mortality by improving the environment of the infant after birth can effect any very rapid or striking reduction in mortality at this age. It is evident that the factors which lead to the birth of non-viable children, *e.g.*, those causing incomplete gestation, operated during 1908 to almost as great an extent in the rural as in the urban counties; and it seems likely that notable diminution of the mortality of very young infants, whether in country or town, will only be attained by successful attack upon these influences.

The summary table provides an interesting comparison of urban and rural mortalities from particular diseases. The rural excess from whooping-cough* is curious and compares with the excess of female mortality from this disease. One would expect town infants to be more exposed to infection. The great excess in deaths of urban children from diarrhoea probably marks the item on the list affording most hope of early reduction, as the small excess from wasting diseases that affording least.† Respiratory and tuberculous diseases also seem likely to decrease as the conditions of urban life improve. The term "convulsions" is so loosely used that it would be unsafe to attach any great significance to the apparent approximation of urban to rural mortality under this head.

ILL-DEFINED OR NOT SPECIFIED CAUSES OF DEATH.

In the year 1908 the deaths of 49,219 persons or 9'5 per cent. of the total deaths were attributed to causes that did not admit of precise classification.

* Years of urban and rural excess are about equal in number, but see page lxxxvi.

† This opinion, though in harmony with the views of various recent investigators of the subject, may seem to conflict with that expressed in the Annual Report for 1875, page xliv. The causes of infantile deaths which are inseparable from bad nursing and feeding, are there stated to be diarrhoea, convulsions, and atrophy. The selection was based upon a comparison of death-rates in London and in seven factory towns, which showed that the excess of mortality of the latter over that of London was greatest from the three causes named. Repetition, however, of this comparison for the year 1907 shows that, though the statement was true at the time, this was owing to loose use of the terms "convulsions" and "atrophy." The death-rate attributed to convulsions is now only one-third of what it was then, while that attributed to atrophy has fallen by 50 per cent. in the seven factory towns, and to a less extent in London. From comparison of the figures for 1903-7 with those for 1881-1885 in the case of the country as a whole it is seen that the fall in atrophy mortality has been proportionately much greater in the later portions of the first year of life. Evidently the "atrophy" dealt with by Dr. Farr, especially in the seven towns, included many deaths amongst older infants which would now be more precisely attributed to the cause, often of a preventable nature, occasioning the atrophy. Atrophy seems now in the main to represent immaturity at birth, but so far as the term is still applied to the results of post-natal influences continued reduction may be looked for.

As in previous years inquiries have been sent to medical practitioners asking for further information respecting deaths certified as due to some indefinite condition. The number of cases thus dealt with was about 5,000.

The inquiries chiefly related to certificates of peritonitis, tumours of various organs, septicæmia, pyæmia, hydrocephalus, cerebro-spinal meningitis, paralysis, convulsions, and eclampsia.

The additional information obtained led to the transference of many of the deaths to more definite headings.

Inquiries were also sent relating to deaths described as due to carcinoma, sarcoma, or cancer, in which no mention was made of the organ or part affected, and as a result this information was supplied in the majority of these cases.

VIOLENCE.

The deaths caused by different forms of accident or negligence are enumerated in the abstracts on pages 310 and 311, and also in the special Tables relating to violent deaths on pages 449 to 467. These tables show that 16,024 deaths were referred to this heading during the year 1908, corresponding to a rate of 452 per million living. Among males the deaths numbered 11,008, and were equal to a rate of 642 per million; the deaths of females numbered 5,016, and were equal to 274 per million. Of the 11,008 deaths of males from accident, 2,131 were stated to be caused by vehicles and horses, 2,063 by drowning, 1,392 by falls, 1,147 by accidents in mines, quarries, and excavations, and 1,067 by burns, scalds, and explosions. Of the deaths of females due to accident, 1,583 were caused by burns, scalds, and explosions, and 1,238 by falls. It will be seen that, as in previous years, the deaths of males exceeded those of females under every heading except that of "burns." The deaths caused by "vehicles other than railway" numbered 1,711, being 1,399 males and 312 females. The different kinds of vehicles are shown on pages 452-3 and 462-3, together with the number of deaths caused by each. The coroners' certificates do not in all cases fully describe the vehicles, but simply state that death was caused by "tramcar," "omnibus," "wagon, &c." In the absence of definite information these deaths have been separately abstracted under the heading "others" or "not defined." The tables show that 421 deaths were caused by vehicles (other than railway) propelled by mechanical power, 696 deaths were caused by horse-drawn vehicles, and 594 were caused by vehicles not thus defined.

The deaths from violence (apart from those attributed to homicide) of infants under the age of one month numbered 717, *viz.*, 381 males, and 336 females. Of the 717 deaths, the number attributed to suffocation in bed was 447, to other forms of suffocation 56, and to neglect 184. The number of infants at this age returned as "found drowned" was 16.

In the case of 15,633 out of the 16,024 deaths stated to be due to accident or negligence, coroners' inquests were held; the causes of 331 deaths were certified by medical practitioners, and in 60 cases the causes remained uncertified; 9 of these were not reported to the coroner.

The deaths at all ages of 2,844 men and 934 women were attributed to suicide, details of which will be found on pages 468 and 469.

Of the 311 deaths by homicide, 152 were of males and 159 of females. The Tables on pages 470 to 473 show that 187 of these were returned by coroners' juries as murder, and 124 as manslaughter (of which 6 were returned as justifiable homicide). The 311 deaths due to homicide include 53 of infants under one month, 49 of which were described as murder and 4 as manslaughter.

There were 12 executions (all males) during the year, the numbers in the preceding three years having been 17, 8 and 10 respectively.

I am, Sir,

Your obedient Servant,

T. H. C. STEVENSON.

BERNARD MALLET, ESQ.,

Registrar-General.

METEOROLOGY OF THE YEAR 1908.

REMARKS ON THE CONSPICUOUS METEOROLOGICAL OCCURRENCES
IN THE BRITISH ISLES IN 1908.

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

Various official reports, daily, weekly and monthly returns, and the notes of numerous rainfall observers have been utilised in preparing the following summary of the most prominent meteorological features of the year 1908:—

1. *Gales*.—The worst storm of the year occurred between February 21st and 24th, during the progress of a very deep cyclonic disturbance which passed from the more northern portion of the Atlantic round by Shetland and down the North Sea to Germany. The wind, at first South-Westerly, afterwards North-Westerly to Northerly, increased to the force of a gale over practically the whole of the British Isles, attaining its greatest violence along the exposed western and northern coasts on the 22nd, when there were numerous records of a "whole gale" (force 10) in Scotland, Ireland and western England; a "storm" (force 11) at Wick, in Caithness, and at Rockabill, the Codling Bank, and the Scarweather, in the western Channels; and a "hurricane" (force 12) at Tarbet Ness, Pentland Skerries, Dunnet Head, Sule Skerry, Kirkwall (H.M.S. *Monarch*), and at Cape Wrath. In many localities the gale was maintained for 60 hours or longer, on the Donegal coast for about 84 hours. Great damage was occasioned on land but comparatively little at sea. The other gales of the year, even those which affected a great part of the Kingdom, were severe only in a few isolated situations. A tornado-like storm, felt over a very limited area, swept across the Thames Valley, near Hampton Court, late in the evening of June 1st; and on the afternoon of the 4th a similar one visited north Hertfordshire. Both disturbances occasioned considerable destruction of property. Towards the close of November and December, there were very rough days in some parts of the country, but, speaking generally, the second half of the year, and especially the autumnal portion, was unusually quiet. The anemometrical records from 25 stations disclose the following instances of wind velocities of 50 or more miles in an hour:—

January 7th–8th, Scilly, 55; 28th, 53; 31st, Deerness, 51.
February 22nd, Kingstown, 51, Southport, 52, Fleetwood, 55,
Deerness, 59; 25th, Roche's Point, 50.
March 5th–6th, Plymouth, 51, Roche's Point, 52, Scilly, 54,
Pendennis (Falmouth), 55; 8th, Pendennis, 54; 30th, 50.
August 26th–27th, Pendennis, 55; 31st, Plymouth, 50,
Pendennis, 58.
September 1st, Scilly and Pendennis, 56.
November 22nd–23rd, Scilly, 51, Holyhead, 52, Southport, 54,
Fleetwood, 56.
December 28th–29th, Deerness, 56; 30th, 54.

In gusts the highest velocities were 79 miles at Aberdeen on January 6th, 81 at Holyhead and Southport on February 22nd, 84 at Scilly on February 28th–29th. (For more detailed records, see Appendix III. of the Weekly Weather Report.)

2. *Rainfall*.—In the north-west of England and the north of Ireland there was an excess of precipitation, but in the other districts nearly all stations returned a deficiency. Blacksod Point had an excess of 8.4 ins., Rothesay 7.5 ins., Holyhead 6.4 ins., and Pottaloch 5.7 ins.; but many places lost more than 5 ins.—Jersey 9 ins., Glencarron and Killarney 9.2 ins., Balmoral 9.8 ins., Newquay 10.5 ins., Shaftsbury 10.8 ins., Roche's Point, 11.3 ins., and Villa Carey (Guernsey) 12.7 ins. The largest totals among the returns communicated to the Office were 80 ins. at Glencarron, 76.3 ins. at Fort William, 74 ins. at Laudale, 57.3 ins. at Blacksod Point, 57 ins. at Pottaloch, 55.7 ins. at Rothesay, 52.6 ins. at Stornoway, and 50.4 ins. at Valencia. Totals below 20 ins. were all at stations situated in the eastern half of England, the figures ranging down to 18 ins. at Shoeburyness and Skegness, 17.6 ins. at Cambridge and Clacton-on-Sea, and 16.5 ins. at Spurn Head. The frequency of measureable precipitation varied greatly, from 285 days at Foynes and Stornoway, 281 at Balta Sound, 270 at Cahir, and 265 at Blacksod Point to 146 at Portsmouth and Worthing, 144 in the Forest of Dean (at 900 feet), 137 at Brighton, 133 at Tottenham, 127 at Southend, and only 114 in the Forest of Dean (at 200 feet). Falls of an inch or more in a day were not numerous in any season. Those exceeding 2 inches were, on January 7th, 2.1 ins. at Heathfield (Sussex); 15th, 2.1 ins. at Caragh Lake (Kerry); 16th, 2.2 ins. at the same place; April 25th, 2.2 ins. (melted snow) at Salisbury, and 2.5 ins. (melted snow) at Bucklebury (Berks); June 3rd, 2.8 ins. at Cheadle; 13th, 2.2 ins. at Kirkby Lonsdale; July 16th, 2 ins. at Arlington and Llandoverly; August 20th, 2.1 ins. at Kingstown, and 2.2 ins. at Bray; 31st, 2.3 ins. at Abersychan; September 8th, 3.6 ins. at Ardross Castle; 9th, 2.2 ins. at Sandside (Orkney); 11th, 3.2 ins. at Canterbury (southern suburb); 16th, 2.1 ins. at Graythwaite; October 21st, 4 ins. at Weymouth; December 15th, 2.1 ins. at Pembroke, and 28th, 2.1 ins. at Bray. A few very heavy falls in short periods were registered—On May 3rd, 0.24 in. in 7 minutes at Camden Square, London; June 1st, 0.27 in. in from 2 to 3 minutes at Kew; July 4th, 0.29 in. in 8 minutes at the same place; July 13th, 2.7 ins. reported to have fallen in 3½ hours, at Herne Bay; August 22nd, 0.16 in. in 3 minutes, at Epsom; 27th, 0.45 in. in 5 minutes, at Raunds (Northamptonshire); September 11th, 1.5 in. in about 20 minutes, at Canterbury; 24th, 0.38 in. in 6 minutes at Epsom; October 21st, 4 ins. in 5 hours, at Weymouth, and 6.5 ins. in 5 hours, on Portland Breakwater.

3. *Snowstorms*.—In the earlier months considerable falls of snow were much more frequent than in several previous years. On various occasions in January, February and March, many districts received 2 ins. or more of snow, 8 ins. at Heathfield (Sussex) on January 8th, 11 ins. at Ardross Castle in the three days February 27th to 29th, and a heavy fall at Salisbury on March 3rd yielded 1.3 in. of water. The worst storm of the year, however, occurred nearer Midsummer than Midwinter. Slight snow fell in many localities in the first half of April, but after a very fine interval of a few days leading up to Easter, the weather assumed a most wintry aspect. From the 19th to the 27th snow fell daily in many places, heavily on the 23rd and 24th, culminating in an exceptional storm on the 25th. While the whole Kingdom was affected, the heaviest part of the storm was over southern England,

the greatest depth of snow reported, 30 ins. being at Bucklebury, and nearly as much appears to have fallen at Salisbury. The fall seems to have exceeded a foot in the surrounding counties, down to the Isle of Wight. Subsequently until after Christmas Day there was an almost entire absence of records of falls of snow, or even sleet, but in the night of December 26th the conditions changed, and during the four days 27th to 30th snow fell in nearly every part of Britain, in sufficient quantity to cause considerable inconvenience, mainly owing to drifts caused by the accompanying high winds. Here and there the records indicate an accumulation of a foot or more of snow in the four days, but generally the undrifted depth seems to have been less than six inches.

4. *Thunderstorms*.—Electrical disturbances were neither so frequent nor so violent as in most years. There were only a few scattered instances of thunderstorms in the first four months, the worst one accompanying the gale of February 22nd, but during May they were fairly numerous, more so than in any other month of the year. It was, however, a notable feature that as a rule they yielded no great falls of rain or hail, although in some cases the storms were described as severe. In the opening days of June the greater part of England was visited by storms, while Ireland and Scotland were scarcely affected. Locally, more particularly in the Midlands, the outbursts were very severe, and on the 3rd produced a great fall of rain at Cheadle, Staffs. The visitations of the remainder of the year presented no unusual features other than the purely local deluging rain and hail at Canterbury on September 11th, and in the neighbourhood of Weymouth on October 21st.

5. *Drougths*.—Fairly long spells of dry, rainless weather were rather more frequent than usual. From the end of January to the middle of February no rain fell in the Forest of Dean neighbourhood, and in various parts of England only a slight shower was experienced during the period. During the first three weeks of April the weather generally was dry, and in many places there were 12 or more rainless days, ranging upwards to 17 days at Dursley (Glos.) and Stockbridge (Hants.), while at Worcester Lodge, Forest of Dean, 0.02 ins. of rain fell once in 20 days. The second half of May was rather dry in many parts of southern and eastern England, the dry weather being maintained through June, during which month many stations had rain on less than 10 days, on 3 days only at Brighton, Totland Bay, Bournemouth, Weymouth and Portland Bill. From the middle of June to the end of the first week of July many places had no rain on 19 successive days, Parkstone (Dorset) 20 days, and Totland Bay 22 days. After a week's interval the longest drought of the year set in. Between July 17th and August 19th many places had 15 or more successive rainless days, ranging up to 30 at Parkstone, 32 at Southampton, Totland Bay, Weymouth, Portland Bill and Guernsey, 33 at Tonbridge, and 34 at Dursley. October was a month of exceptionally small rainfall, more especially in Scotland, where it was from 2 ins. to more than 7 ins. less than the average, and in many parts of the Kingdom the precipitation was more frequently in the form of dew, but there was no actual drought. Several districts in England had rainless weather during the first 10 days of November.

6. *Temperature*.—The *highest* temperatures of the year, those of 80° and upwards, occurred in each of the six months, May to October. The earliest record of 80° was at Leeds, on May 27th, a maximum of 81° being registered at Carlisle on the following day. This warm spell continued into the early days of June, 85° being reached at

Southampton, Barnet and Whitby on the 4th. Another warm period set in towards the end of the month, with maxima of 85° and upwards, 87° at Carlisle on June 28th, and at Clifton and Camden Town, London, on July 3rd, and 91°, the year's highest value, at Dumfries on July 2nd. The last week of July and the first week of August had many high records, 84° at Epsom on July 30th, and at Cullompton and Raunds on August 3rd, and on the same day 88° at Maidenhead. September 18th to 20th was very warm in many localities, with maxima from 75° to 79°, but on the 29th a more remarkable increase of warmth occurred, 80° to 82° being registered at various stations on the next two days, while on October 1st a maximum of 84 occurred at Whitby, and 83° at the same place on each of the next three days. In the early and late months there were no exceptionally high records in the many and prolonged mild periods experienced. On the other hand there were occasions when the afternoon temperatures were very low, below the freezing point at a number of stations in the opening days of January, not exceeding 27° at Bettws-y-Coed and Woburn, 28° at Glasgow, Newton Rigg and Reading. More striking than these were the low maxima of Easter week, there being numerous instances below 40°, with 35° as far south as Oxford and Reading, 34° at Birmingham and Rugby, while Deerness did not pass above 30° on April 22nd. Even on the shores of the English Channel the day readings were unusually low, Totland Bay having 13 days, and Guernsey 11 days with maximum values below 50°, the latter having 43° on the 24th, and the former on the 25th. There were many low maxima during May; along the south coast between the 4th and the 15th most of the afternoon readings were from 51° to 54°. The lowest maxima occurred on December 29th and 30th, 25° and under at a number of places in England, 22° at the more inland stations.

The *lowest* night temperatures were experienced on December 30th, when there were very numerous minima below 20°, a considerable number of places in England falling below 10°, to 1° at Woburn, 0° at Maidenhead, and -1° at Liphook (Hants). In the first half of January there were a number of minima below 15°, as low as 10° at Balmoral, West Linton, Rauceby and Raunds. On April 24th and 25th the minima were unprecedentedly low for the season, several records being below 20°, down to 10° at Balmoral, and 0° at Garforth. Again on November 10th values below 20° were recorded by several observers, 10° at Wokingham. During the very warm spell at the end of September, and beginning of October there were a number of night minima of 60° and upwards, 64° at Leith, and 65° at Rhyl on September 30th.

The range of temperature for the year amounted to 88° at Maidenhead, 82° at Epsom, 81° at Marlborough and Raunds, 80° at Woburn, and 75° and upwards at several other stations in the inland parts of England and at Dumfries, while it was only 45° at Falmouth, 44° at Castlebay and Roche's Point, 43° at Balta Sound, 42° at Deerness and Sumburgh Head, and 41° at Scilly, this last-mentioned station being the only one in the Kingdom which did not register a frost in the shade, temperature not descending below 33°.

7. *Bright Sunshine*.—The records of bright sunshine were in excess of the normal generally over the south-eastern, north-western, and south-western districts of England, most of the stations in the other districts receiving less than usual. Westminster had 220 hours more than the average, this favourable result being distributed over eleven months of the year, July alone returning a slight reduction on the normal. Llandudno had an excess of 235 hours, Bournemouth and

Ventnor 210 hours, Tunbridge Wells 209 hours, Blackpool 206 hours, Woolacombe 196 hours, Brighton 194 hours, and Eastbourne 193 hours. On the other hand Stornoway returns a deficiency of 141 hours, Newcastle-on-Tyne 139 hours, Valencia 126 hours, and Deerness 118 hours. The largest aggregates were 2,001 hours (45 per cent. of the possible duration) at Jersey, 1,994 hours (45 per cent.) at Totland Bay, 1,992 hours (45 per cent.) at Worthing, 1,976 hours (45 per cent.) at Villa Carey (Guernsey), 1,959 hours (44 per cent.) at Bognor, 1,949 hours (44 per cent.) at Portsmouth, 1,933 hours (44 per cent.) at Bournemouth, Ventnor and Brooklyn (Guernsey), 1,932 hours (44 per cent.) at Eastbourne, and 1,925 hours (44 per cent.) at Brighton. There were five stations at which the year's totals were less than 1,000 hours. Manchester City 991 hours (22 per cent.), Fort Augustus 975 hours (22 per cent.), Balta Sound 965 hours (22 per cent.), Newcastle-on-Tyne 927 hours (21 per cent.), and Hull 895 hours (20 per cent.).

8. *Fog*.—One of the most marked features of the year was the almost entire absence of any great fogs over the land. During the second half of January there was a good deal of fog, sometimes dense and lasting, in the main over the inland districts of England, but after that very little was reported until after the middle of September, when autumnal morning fogs of moderate density became rather frequent. They formed a striking accompaniment of the spell of very hot weather at the end of the month and in the early days of October, at times very thick in some localities. With the passing of the heat the fog frequency diminished, and from the middle of October to the close of the year the atmosphere over the country generally was remarkably free from fog.

There were very numerous well-defined periods of fog of more or less density on our coasts. From January 14th to 25th the weather along the shores of England was very foggy, Ireland and Scotland being but slightly affected. Nearly all sections of our coasts were visited during the first half of February. This spell was followed by a long period of clearer conditions, and it was not until April 27th that fog descended on nearly all coasts, thick in many places, and lasting until May 9th. There was again much fog from May 26th to June 4th, from June 22nd to July 8th, and from July 19th to August 4th, very dense on the English Channel round July 24th. For six weeks, down to September 16th, there were very few reports of fog. Then followed foggy spells from September 17th to October 20th, October 29th to November 7th, November 29th to December 7th, and the 14th to the 21st.

9. *Barometer*.—The mean distribution of atmospheric pressure for the whole year was in very close agreement with the normal, the values over the country generally being about 0.05 in. above the average. In the absence of any areas of excessively high or of low pressure the extreme range of the barometer was appreciably less than it was during the previous year. Readings above 30.5 ins. were uncommon, but in the first week of February there were many instances above 30.7 ins., the highest values for the year being registered on the 6th, in Ireland, Blacksod Point, reporting 30.81 ins., Roche's Point 30.84 ins., and Valencia 30.86 ins. Over northern Scotland the maximum readings were attained on April 16th, 30.64 ins. at Aberdeen, Nairn and Wick, and 30.65 ins. at Stornoway. Pressures below 29 ins., were not numerous, neither Scilly nor Valencia descending to this level throughout the year. February, the month in which the highest pressure occurred, was also the month having the lowest pressure, the

barometer failing to 28.17 ins. at Sumburgh Head late in the evening of the 22nd, when Stornoway went down to 28.4 ins. On March 9th Wick reported a reading of 28.5 ins. No other values as low as these were observed during the year. At Sumburgh Head the range for the year was 2.44 ins., at Stornoway 2.25 ins., and generally over the north of Scotland and of Ireland it exceeded 2 ins. The smallest range was 1.4 in. at Scilly.

Unusually rapid oscillations of pressure were less frequent than in previous years. On February 14th, at Stornoway, the barometer fell 0.08 in. in one hour, and rose 0.19 in. in one hour. During the great storm of February 22nd, Stornoway had a fall of 0.1 in. in an hour, Aspatria and Castlebay 0.26 in. in two hours, the latter station 0.57 in. in 5 hours, and H.M.S. *Monarch* at Kirkwall, 0.5 in. in 5 hours. On March 30th Leith had a fall of 0.04 in. in 20 minutes.

10. *Floods*.—As the result of the melting of the snow of the end of February and beginning of March great floods were experienced in Cumberland on March 8th, while the rapid thawing of the heavy snow which fell round April 25th resulted in disastrous floods in the Thames Valley. Heavy rains in the last week of March caused heavy floods in Northamptonshire and neighbouring counties.

11. *Aurora Borealis*.—Aurora was observed in each month from January to April, and September to December, mainly at northern stations. Only occasionally was the phenomenon reported as bright. No severe magnetic storm was experienced.

12. *Illuminated Night Sky*.—At the end of June and the beginning of July there was a very remarkable illumination of the northern sky for about two hours before and after midnight, when it was possible to read small print without the aid of artificial light. The phenomenon was witnessed over practically the whole of Europe.

In continuation of the remarks given in previous annual reports the following notes refer exclusively to the stations the results from which are included in the tables already printed in the Quarterly Returns.

The highest temperatures of the air were at Camden Square and Clifton, 87°; Shrewsbury, 86°; and at Norwood, Coventry, Bath, Cheltenham, Southampton, and Bettws-y-Coed, 85°.

The lowest temperatures were at Buxton, 4°; Cambridge, 7°; and at Nottingham and Oxford, 9°.

The heaviest falls of rain at any of the stations were at Stonyhurst, 48.3 ins.; Bettws-y-Coed, 47.4 ins.; and at Llangammarch Wells, 44.4 ins.

The least falls of rain were at Spurn Head, 16.5 ins.; Cambridge and Clacton, 17.6 ins.; and at Cromer, 18.5 ins.

The greatest number of days of rain were at Cromer, 226; Cockle Park (Morpeth), 221; and at Stonyhurst and Bettws-y-Coed, 219.

The least number of days of rain were at Tottenham, 133; Brighton, 137; and at Portsmouth, 146.

The highest temperatures in the sun were at Bath and the Royal Observatory, Greenwich, 147°; Bath, 146°; and at Bath, Bettws-y-Coed, and Portsmouth, 145°.

The lowest temperatures on the grass were at Buxton 1°; the Royal Observatory, Greenwich 2°; and at Birmingham, Southampton, and Southport, 5°.

The greatest number of days of temperature on the grass at 30° or below were at Cockle Park (Morpeth), 141; at Berkhamsted, 122; and at Birmingham, Cambridge, and Hillington, 110.