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STATISTICS
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SEVENTY-SECOND

ANNUAL REPORT

OF THE

REGISTRAR-GENERAL

OF

BIRTHS, DEATHS, AND MARRIAGES

IN ENGLAND AND WALES.

(1909.)

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.

(1909.)

SIR,

I HAVE the honour to submit to you my Report on the estimated population, and on the marriages, births, and deaths registered in England and Wales during the year 1909.

From returns furnished by the registrars acting throughout the country, the provisional numbers of marriages, births, and deaths for the year 1909 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, 1910.

The present Report also relates to the year 1909, but the statistics have been compiled from the registers deposited in this office and they have been analysed in far greater detail than was possible in the Annual Summary.

The present Report differs somewhat in form from its immediate predecessors. It will be observed that the Report on Marriages, Births and Deaths, signed by the Registrar-General, and the Letter on the Causes of Death signed by the Superintendent of Statistics, hitherto separate, are now combined in a single document signed by the latter officer. The new arrangement will enable the statistics to be treated as a whole and in a clearer and more consecutive manner than before, and it will, in particular, obviate the overlapping and repetition in the portion of the Report relating to deaths which was unavoidable under the old plan. In addition to this improvement in the arrangement of the subject-matter, I may draw attention to some special features of this Report, such as the extended use of diagrams, and the sections relating to Pneumonia and Bronchitis, and especially that relating to Cancer.

Before passing to the subject of changes to be introduced in future years, I have to summarize the chief points which emerge from the statistics of the year 1909.

Birth-rate.—The rate in 1909 was the lowest on record up to that date. The trend of the birth-rate is still downwards, the provisional rate for 1910 being yet lower, viz., 24·8 per 1000.

Death-rate.—The death-rate in 1909 was the lowest recorded up to that date. The provisional rate for 1910 is, however, no less than 1·1 per 1000 lower.

Marriage-rate.—The rate in 1909 was the lowest recorded since 1888. The provisional figures for the March, June and September quarters of 1910 only are available; from the indications they give it is probable that the marriage-rate of 1910 will show little variation from that of 1909.

Cancer.—The death-rate in 1909 from cancer was the highest on record, showing an increase of as much as 29 per million living upon the rate in the preceding year, the highest recorded till then.

Tuberculosis.—The death-rates in 1909 both from tuberculosis as a whole and from phthisis were the lowest on record.

Whooping-cough, Enteric Fever, Diphtheria.—The death-rates in 1909 from whooping-cough and enteric fever were the lowest on record, while that attributed to diphtheria was the lowest since 1881. From Dr. Stevenson's observations it will be seen that it is probable that the true mortality from diphtheria was lower than that of any previous year for which there are records available.

Measles.—The death-rate in 1909 was somewhat above the recent average, though considerably below the average rate experienced in the last twenty years of the last century.

Infantile mortality.—The rate of infantile mortality in England and Wales was 109 per 1000 births in 1909. This is by far the lowest on record, and it may be noted that this figure is free from the possibility of error introduced into other mortality calculations by uncertainty as to the exact population at a date so remote from the last census. The provisional figures show that the rate for 1910 will be lower still.

In my last Annual Report (Cd. 4961 of 1909, page lxxiv.) I drew attention to certain changes which, in my opinion, were needed in the presentation of the vital statistics of this Department, and mentioned some of the obstacles which then appeared to stand in the way of reform. I have now the satisfaction of reporting that, with the able and energetic assistance of Dr. Stevenson, and in consultation with your Board and with the other authorities concerned, all administrative difficulties have been overcome and arrangements have been made which will enable the proposed improvements to be adopted for the first year of the new decennium and therefore to be incorporated for the first time in the Annual Report for the year 1911.

The most serious criticisms which have in recent years been brought against Government statistics in this country have related to the want of co-ordination between those published by the different departments which largely impairs their practical utility. From this defect the vital statistics issued by the General Register Office are by no means free, prepared as they now are for areas unrelated to the local areas for sanitary administration, and based on a list of causes of death not in general use outside the Department. My main object, therefore, in the changes which have now been decided upon and which I will proceed to describe, has been to secure coordination between these statistics and those of other departments and other countries, and so to render them of greater use both to those engaged in Public Health Administration and to scientific inquirers generally.

The changes now being made may be grouped under three headings :—

1. The first and most important change, involving as it has been found to do the two which follow, will be the substitution of Local

Government Administrative areas for Registration areas in the Annual Report.

The statistics must, so long as the present Registration Act continues in force, continue to be collected by registration areas, but the returns will be rearranged in this office by administrative areas. For many years past a partial attempt has been made to meet the point in the Annual Summary (issued earlier in the year) which gives partially corrected figures for some of the more important administrative areas of the country. By the proposed change in the Annual Report we shall therefore come into line, not only with the Annual Summary, but also with the statistics furnished by the local sanitary authorities to the Local Government Board and dealt with by them.

2. The next change will be the substitution of the recently revised International List of Causes of Death for that at present in use in this office. When it was determined to publish mortality statistics on an extended scale for administrative areas, it became necessary to consider how to avoid the anomaly of the use of a different classification of causes of death in these reports from that in use by the local sanitary authorities concerned. The solution of this difficulty has been found in the adoption, by all concerned in the matter, of the proposal contained in the following letter which I addressed on the 20th October last to the President of the Royal College of Physicians :—

> "I beg to inform you that from the commencement of the year 1911 onwards I propose to adopt the International List of Causes of Death in the various publications issued by this office in place of that hitherto in use.
>
> "This decision, which was foreshadowed in my Annual Report for 1908 (page lxxv.), has been arrived at after consultation with the Medical Officer of the Local Government Board and with representatives of the Scottish and Irish General Register Offices. Ample precautions will be taken in the scheme of publication to provide for complete comparability of the new records with those published in the present form, so that the continuity of the records concerned will be unimpaired.
>
> "The change of classification will greatly facilitate international mortality comparisons, and there is, moreover, every reason to anticipate that it will for the first time render possible complete comparability between the tables compiled in this office and those issued by local authorities."

The acceptance of this proposal will bring the publications of the General Register Office, of the Local Government Board, and of the local sanitary authorities into line, not only with one another, but also with those of the principal Colonies and of most foreign countries both in North and South America and on the Continent of Europe, in which the International List is already in use. I may add that copies of the International List as now adopted have been forwarded to the Colonial Office for distribution to the various authorities concerned throughout the Empire.

3. The remaining change to be introduced is a system of "distribution" of births and deaths which has hitherto been absent from the Annual Reports, although it has been partially carried out in the weekly and quarterly returns, and in the Annual Summary, on statistics furnished by the local registrars which, however, cannot be verified in this office. The change to administrative areas in the Annual Report will make it necessary to introduce "distribution" also into this Report, because it will deal with the areas of the local sanitary

authorities who already make this correction to a certain extent in the tables they compile.

In order to ascertain the net death-rate of any particular district it is necessary to exclude all deaths of persons dying in the district but resident in other parts of England or Wales, and to include all deaths of residents in the district which have occurred elsewhere. The importance of the correction may, perhaps, be best illustrated by such a case as that of a small rural district containing a large County Asylum, the deaths occurring annually in which may outnumber several times those properly belonging to the district. If, therefore, distribution is required, uniformity in the rules which govern it is essential. It has now accordingly been arranged that all transferable deaths (as well as births occurring in Workhouses and Lying-in Hospitals) shall be referred, both in the Tables published by me and in those recommended by the Local Government Board for the use of Medical Officers of Health, to the district to which they properly belong. The necessary information will be collected by this Office which will furnish it to the Local Authorities. I am glad, in this connexion, to acknowledge the readiness with which County Medical Officers of Health have promised their invaluable co-operation in effecting the necessary distribution within their own Counties.

The changes thus enumerated will throw so much additional work upon the statistical branch of this Department that they could hardly, for financial and other reasons, have been practicable without some modification of existing statistical methods. It has therefore been decided to introduce the use of cards in tabulating the returns of deaths. The need for re-arrangement of these returns in order to publish them under administrative areas has made the use of a card system necessary. Fortunately, objection to it on the score of expense has been simultaneously removed by the adaptation to the requirements of vital statistics of the system of electrical sorting and counting of cards for the purposes of the approaching Census.

The adoption of this system will, it is believed, greatly increase the scope and flexibility of our statistics, and afford facilities for the elaboration of the special inquiries which are from time to time found necessary within the Office or which are called for by investigators outside. It will be possible in future to afford, at nominal expense, information of which the cost under the old system would have been prohibitive.

In conclusion 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 of the year 1909.

I have the honour to be,
Sir,
Your obedient Servant,
BERNARD MALLET,
Registrar-General.

General Register Office,
Somerset House,
January, 1911.

REVIEW

OF THE

VITAL STATISTICS OF THE YEAR 1909.

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 the intercensal populations of such areas must therefore 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 very serious error when so large an area as the whole country is dealt with. The case is very different, however, when the estimates of the population of the various areas in the country are dealt with, for in many instances it is obvious that the rate of increase (or decrease) in the previous intercensal period has been widely departed from since 1901. The most reliable estimates of the population of local areas should be those made in the light of local information bearing upon the subject, *e.g.*, number of occupied houses as shown by the rate-books, and number of persons per occupied house so shown at the time of the last census (not number of persons per inhabited house as shown in the Census Report, which is not necessarily quite the same).

In this Office, however, it is impossible to frame estimates in accordance with such local information, both because it could not always be obtained in satisfactory form, and because, if obtainable, the estimates so framed would not sum up, as is necessary for the purposes of this Report, to that made for the country as a whole.

For these reasons it is necessary here to use estimates of the population of local areas which are (1) calculated upon information available for all areas alike, (2) calculated upon a uniform basis for all areas, and (3) calculated in such a manner that the sum of the estimates for the parts equals the estimate for the whole. The method employed is as follows:—

1. The populations of the whole country and of its various constituent portions are calculated on the assumption of a rate of increase in arithmetical progression equal in each

---

* 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 47, page 94.)

case to that obtaining in the previous intercensal period. The sum of the populations so calculated for parts of the country equals that for the whole.

2. The population of the whole country is re-calculated on the assumption of a rate of increase in geometrical progression equal to that obtaining in the preceding intercensal period.
3. The relation between the arithmetical and geometrical results so obtained for the whole country is expressed by the factor resulting from the division of the geometrical progression estimate by the arithmetical.
4. The estimates for portions of the country, based upon the assumption of continued increase in arithmetical progression, are multiplied by the above factor. The sum of the results equals the estimate for the whole country by geometrical progression obtained in stage 2.

The above method, which has been followed since the publication of the results of the 1901 census, is open to objection, particularly in the case of areas with a decreasing population. It is therefore proposed to substitute for it, after the results of the 1911 census have become available, the method devised by Mr. A. C. Waters, I.S.O., Chief Clerk in this Office, and described in the Annual Report for 1907, pages cxxxii–cxxxiv.

At the present interval from last census, however, any estimates of populations, whatever the method employed, must be very untrustworthy. This more especially applies at the present time to estimates of the population of the city areas, which have been greatly affected since 1901 by improved methods of transit. It is probable that the coming census will show in many cases that the previous rate of increase has by no means been maintained in the more thickly populated portions of urban centres, but that the rate of increase has been accelerated in their outlying portions. The effect of these changes upon the population of towns as such will depend, of course, upon the extent to which their official areas represent the actual areas of residence of the population connected with each.

The only remedy for the present uncertainties as to population, which seriously prejudice our vital statistics, lies in a more frequent enumeration of the people.

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 1909 the number of births exceeded the number of deaths by 3,334,495. Had neither emigration nor immigration occurred this surplus would have raised the population in the middle of the year to 35,862,338. 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 1909 amounted to 35,756,615 persons, of whom 17,265,780 were males and 18,490,835 were females.

Marriages.

The marriages in England and Wales during the year 1909 numbered 260,544, corresponding to a rate of 14·6 persons married per 1000 of the population at all ages. This rate was 0·3 per 1000

below the corresponding rate in 1908 and 1·1 below the average rate in the ten years 1899–1908.

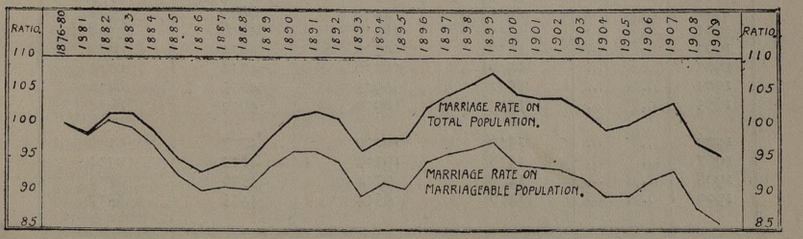
Complete statistics of the marriages recorded in England and Wales are available only from 1st July, 1837, on which date the Births, Deaths, and Marriages Registration Acts of 1836 came into operation. The proportion to the total population of persons married during the 72 years (1838–1909) ranged between 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 view, however, 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. The influence of recent changes in the constitution of the population upon the marriage rate is shown by the fact 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, and the corresponding proportion of spinsters from 361 to 395, while on the other hand the proportion of widowed persons steadily decreased throughout the period.

Before deductions are drawn from the several calculations in the following pages, it should be pointed out that the changes in the rate of marriage in years since the last census must be regarded as approximate only, because all the estimates of population on which the proportions are based become less and less reliable as the interval since the census increases. It should also be noted that in the earlier years dealt with the age at marriage was unstated in a comparatively high proportion of cases.

Table I. shows for each of the years 1876–1909 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 and from Diagram I. that the marriage rate based upon the total population does not show adequately the real decline that has taken place in the marriage rate.

Diagram I.—England and Wales.—Marriage-rates, 1881–1909. Ratio per cent. of the Rate in each Year to the Mean Rate in 1876–80.



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 15 of the 29 years (1881–1909), whereas those based on the numbers of marriageable persons in the population were, with one exception, below the standard.

TABLE I.—ENGLAND AND WALES.—MARRIAGE RATES, 1876–1909.

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
1909	14·6	95·4	44·5	85·7

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

TABLE II.—ANNUAL MARRIAGE RATES in each REGISTRATION COUNTY, 1870–1909.

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 1909.
	Census periods.				Five-year period.	Year.		
	1870–72.	1880–82.	1890–92.	1900–02.	1903–07.	1908.	1909.	
England and Wales ..	57·2	51·5	49·8	48·7	47·4	45·6	44·5	−22·2
London	60·9	56·2	52·3	50·3	48·3	44·8	44·5	−26·9
Surrey	38·3	39·2	37·0	38·0	38·9	36·7	35·4	− 7·6
Kent	46·1	46·0	42·4	43·5	40·4	37·5	36·3	−21·3
Sussex	44·5	42·3	38·4	39·0	37·5	35·2	35·6	−20·0
Hampshire	48·9	48·0	44·7	44·5	45·5	44·4	43·6	−10·8
Berkshire	47·0	43·4	43·7	43·2	43·5	42·1	40·2	−14·5
Middlesex	34·8	38·0	37·8	42·5	44·4	41·9	42·1	+21·0
Hertfordshire ..	41·0	37·2	38·0	39·3	40·5	41·8	39·5	− 3·7
Buckinghamshire ..	47·7	45·7	44·5	47·1	44·7	42·9	44·3	− 7·1
Oxfordshire	46·6	41·4	41·7	41·6	43·6	45·6	46·7	+ 0·2
Northamptonshire ..	58·0	53·0	53·6	49·4	46·4	45·1	44·0	−24·1
Huntingdonshire ..	52·1	44·8	44·7	46·0	46·9	46·0	43·7	−16·1
Bedfordshire	52·3	48·0	43·2	43·8	44·5	46·4	45·1	−13·8
Cambridgeshire.. ..	52·0	41·8	45·3	46·3	44·8	43·7	47·6	− 8·5
Essex	45·9	46·2	48·4	49·3	47·7	45·1	45·4	− 1·1
Suffolk	51·8	50·2	46·9	47·0	44·5	43·8	46·1	−11·0
Norfolk	52·3	50·2	45·9	45·5	45·2	46·5	44·7	−14·5
Wiltshire..	47·4	44·5	44·8	45·0	46·9	45·1	43·4	− 8·4
Dorsetshire	45·6	42·7	43·1	41·5	42·9	38·1	39·7	−12·9
Devonshire	50·6	46·7	45·7	43·4	44·4	44·2	42·9	−15·2
Cornwall..	44·6	38·7	39·8	38·4	39·7	42·4	41·0	− 8·1
Somersetshire	45·6	42·2	43·1	40·7	41·3	41·2	41·1	− 9·9
Gloucestershire ..	58·1	50·9	49·2	47·2	45·6	44·1	41·7	−28·2
Herefordshire	38·6	35·4	38·3	38·6	37·7	37·8	37·9	− 1·8
Shropshire	44·9	37·9	40·2	42·0	39·2	37·9	36·3	−19·2
Staffordshire	71·6	60·0	58·7	55·9	52·9	49·5	47·5	−33·7
Worcestershire	56·2	47·5	47·0	46·1	44·1	41·2	40·0	−28·8
Warwickshire	62·9	53·2	56·4	54·7	53·2	51·2	48·5	−22·9
Leicestershire	61·8	55·1	53·4	51·6	49·6	47·9	45·8	−25·9
Rutlandshire	43·1	37·0	38·3	37·2	36·1	42·3	40·0	− 7·2
Lincolnshire	53·1	47·9	49·9	50·6	51·4	50·5	51·6	− 2·8
Nottinghamshire ..	68·1	64·8	58·4	58·1	55·7	55·8	54·0	−20·7
Derbyshire	60·0	51·2	54·3	53·5	51·2	49·9	47·8	−20·3
Cheshire	54·7	46·8	45·5	43·8	43·7	42·5	40·9	−25·2
Lancashire	66·1	56·8	52·8	50·3	49·2	47·0	45·1	−31·8
West Riding	66·1	55·2	54·1	52·0	49·7	48·0	46·5	−29·7
East Riding	63·8	54·9	53·7	50·4	48·7	48·6	46·9	−26·5
North Riding	50·7	49·7	45·9	47·4	47·3	48·1	44·1	−13·0
Durham	70·9	62·9	57·6	58·9	56·2	53·7	52·9	−25·4
Northumberland ..	64·4	54·1	52·9	51·1	48·6	47·0	44·1	−31·5
Cumberland	47·6	45·7	42·6	43·7	43·3	42·3	42·0	−11·8
Westmorland	44·7	39·2	37·7	36·4	36·6	40·1	36·9	−17·4
Monmouthshire ..	64·4	55·6	57·5	55·6	56·3	58·7	56·0	−13·0
Glamorganshire ..	67·6	60·3	63·3	59·2	56·4	58·3	56·5	−16·4
Carmarthenshire ..	53·0	45·6	45·4	46·4	46·6	49·3	50·5	− 4·7
Pembrokeshire	47·0	41·6	42·8	42·8	43·9	42·1	45·5	− 3·2
Cardiganshire	38·1	31·7	31·3	30·9	30·1	30·0	30·9	−18·9
Brecknockshire	50·5	44·1	47·1	52·3	46·9	44·5	43·8	−13·3
Radnorshire	43·3	38·1	34·6	40·1	29·3	26·0	20·4	−52·9
Montgomeryshire ..	41·6	33·3	37·7	37·2	37·9	36·9	34·0	−18·3
Flintshire	38·3	36·0	42·1	37·2	36·2	38·5	38·1	− 0·5
Denbighshire	45·7	42·0	46·8	43·9	41·3	39·7	38·7	−15·3
Merionethshire	44·8	37·6	36·1	38·6	34·3	30·7	29·1	−35·0
Carnarvonshire	44·0	41·3	39·5	39·0	36·8	32·9	31·2	−29·1
Anglesey	37·9	36·6	36·1	38·5	35·6	35·4	29·8	−21·4

* See remarks, page xi.

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 1909, when compared with the rate of 1876–80, shows a fall of 17·4 per cent.

Marriages in Counties.—Table II. on page xiii. 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 years 1908 and 1909. The rates are based on the proportions of persons married to the unmarried and widowed population aged 15 years and upwards. No correction has been made for differences in the age constitution of this population.

Among registration counties with populations exceeding 100,000 persons the highest and lowest marriage rates in the year 1909, in proportion to the marriageable section of the population, were as follows :—

TABLE III.

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 ... 44·5.			
Glamorganshire	56·5	Herefordshire	37·9
Monmouthshire	56·0	Shropshire	36·3
Nottinghamshire ...	54·0	Kent	36·3
Durham	52·9	Sussex	35·6
Lincolnshire	51·6	Surrey	35·4
Carmarthenshire ...	50·5	Carnarvonshire	31·2

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

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 probably over-stated by the table, which is not corrected for changes in age-constitution since 1901, and therefore makes no allowance for the fact, that owing to the decrease since that date in the mortality of young adults (*see* Tables 15 and 16) the average age of the widowed has probably increased. 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.

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

TABLE IV.—ENGLAND AND WALES.—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
1909	50·4	85·9	36·7	69·4	48·8	82·7	11·7	75·5

* 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, in the same manner as is described in reference to death-rates in the footnote on page xxxvii.

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 re-marriages shows an almost continuous decrease.

TABLE V.—ENGLAND AND WALES.—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
1909	915	85	939	61	884	31	55	30

The Divorced.—The numbers of persons divorced annually have been increasing for many years, and were more numerous in 1909 than in any previous year. The marriages of persons described as divorced have also steadily increased, and in the year 1909 were the highest on record.

TABLE VI.—ENGLAND AND WALES.—AVERAGE ANNUAL **Number** OF PERSONS DIVORCED, AND OF DIVORCED PERSONS WHO RE-MARRIED, 1876–1909.

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 widowers.
1876–80 ...	554	104	56	48	42	12	2	31	15
1881–85 ...	671	128	68	60	53	12	3	42	15
1886–90 ...	707	169	80	89	65	11	4	65	20
1891–95 ...	744	214	110	104	89	15	6	75	23
1896–1900 ...	980	345	172	173	138	24	10	126	37
1901–05 ...	1126	509	262	247	205	38	19	181	47
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	276	63	26	267	50
1909... ...	1480	737	383	354	287	61	35	260	59

TABLE VII.—ENGLAND AND WALES.—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.
		Bachelors.					
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
		Widowers.†					
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
		Spinsters.					
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
		Widows.†					
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 IV.

† 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 the single of both sexes relate to age-periods at which their numbers are comparatively large, while the higher rates for the widowed relate to age-periods at which their numbers are comparatively small.

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 1909 the proportion had risen to about 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.—When civil registration commenced the ages of both parties were stated in only about six per cent. of marriages. Since then this proportion has gradually risen to 99·24 per cent. in the case of husbands and 99·17 in that of wives married during 1909. Unstated ages are more frequent in re-marriages than in first marriages and most frequent of all in re-marriages of widowers.

For the purposes of Table VII. the marriages in which the ages were not stated have been distributed to the various ages in the proportions shown in the stated cases, as, although it is probable that the proportion of unstated ages is higher in the later age-groups, there is no means of estimating to what extent this may be the case. 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.

The table shows that while the marriage rates for widowers in each age-group have steadily declined, those for bachelors have generally

TABLE VIII.—ENGLAND AND WALES.—AGE-CONSTITUTION of BACHELORS and SPINSTERS who MARRIED, reduced to 1,000 MARRIAGES at ALL AGES, 1886–1909.

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.	
						Bachelors.								
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
1909 ..	1000	0	3	12	29	362	373	136	48	18	8	3	2	6
						Spinsters.								
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	2	9
1908 ..	1000	5	21	48	75	419	282	88	31	12	6	3	2	8
1909 ..	1000	5	21	47	72	414	289	90	31	13	6	3	2	7

increased at ages above 25, below which age there is a large decrease. The rates for women, whether single or widowed, have declined in all age-groups except 25–35. The increase at this period of life clearly shows the effect of the modern tendency towards postponement of marriage.

Tables VIII. and IX. show the proportions by age of bachelors, spinsters, widowers, and widows who married during the period 1886–1909.

TABLE IX.—ENGLAND AND WALES.—AGE-CONSTITUTION of WIDOWERS and WIDOWS who MARRIED, reduced to 1,000 MARRIAGES at ALL AGES, 1886–1909.

Period.	All Ages.	Minors.	Full Age.										Age not Stated.
			21–	25–	30–	35–	40–	45–	50–	55–	60–	65– and upwards.	
						Widowers.							
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	
1909 ..	1000	0	9	59	119	154	149	143	119	91	64	37	27	
						Widows.							
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
1909 ..	1000	1	22	101	175	195	162	126	84	55	29	15	7	28

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 Table X that since that period the ratio of such marriages to total marriages has declined continuously.*

In the year 1909, 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 Table XI.

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

* 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 VII.

TABLE X.

—	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
1909	39·8	136·7

TABLE XI.

Registration Counties.	Highest proportions of minors per 1000 Marriages.	Registration Counties.	Lowest proportions of minors per 1000 Marriages.
	Husbands.		
	England and Wales, 40.		
Nottinghamshire	70	Hampshire	25
Bedfordshire	64	Devonshire	25
Staffordshire	59	Herefordshire	25
Leicestershire	58	Kent	24
Durham	57	Surrey	23
Monmouthshire	53	Berkshire	23
Warwickshire	52	Shropshire	22
West Riding of Yorkshire	52	Denbigshire	19
		Carnarvonshire	18
	Wives.		
	England and Wales, 137.		
Durham	229	Shropshire	94
Monmouthshire	207	Surrey	92
Nottinghamshire	206	Berkshire	92
Glamorganshire	189	Oxfordshire	90
Derbyshire	186	Denbighshire	90
East Riding of Yorkshire	174	Herefordshire	89
Northumberland	172	Carnarvonshire	52
North Riding of Yorkshire	172		

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 must be borne in mind that it forms only a very imperfect measure of changes in the age at which marriage takes place.

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

Tables XII. and XIII. shows that the mean age at marriage has steadily increased during the whole period both for bachelors and for spinsters, and a similar tendency, with slight fluctuations, is noticeable in the case of widowers. In the case of widows the mean age has shown a progressive increase since 1902.

TABLE XII.—ENGLAND AND WALES.—MEAN AGES at MARRIAGE 1896-1909 (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
1909 ...	28·88	27·29	45·93	27·02	35·00	43·23	50·85

TABLE XIII.—ENGLAND AND WALES.—MEAN AGES at MARRIAGE 1896–1909 (recorded ages).—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 ...	26·49	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
1909 ...	26·69	25·73	41·27	25·22	36·71	33·85	45·98

The following comparison for the year 1909 between the mean age at marriage in London and the rest of England and Wales, may be of interest.

TABLE XIV.

In marriages of—	Husbands.		Wives.	
	England and Wales, less London.	London.	England and Wales, less London.	London.
Bachelors	27·18	27·98	25·55	26·02
Widowers	45·80	46·73	38·27	37·49
Spinsters	27·85	28·65	25·68	26·04
Widows	42·82	42·69	41·38	40·69
Bachelors with spinsters	26·91	27·64	25·17	25·56
Bachelors with widows	34·79	36·05	36·62	37·15
Widowers with spinsters	43·01	44·49	33·91	33·55
Widowers with widows	50·80	51·15	46·10	45·22
In all marriages	28·76	29·57	26·63	26·99

NOTE.—The table is to be read as follows :—The mean age of all the bachelors who married was 27·98 years in London, and 27·18 in the rest of the country ; the mean age of their wives being 26·02 and 25·55 years respectively. The mean age of all the spinsters who married was 26·04 years in London, and 25·68 in the rest of the country : the mean age of their husbands being 28·65 and 27·85 years respectively.

Signature in Marriage Register.—In the year 1909 the proportion of those who at the time of marriage were unable to sign their names in the register was 1·1 per cent. in the case of bridegrooms and 1·3 in the case of brides.

TABLE XV.—ENGLAND AND WALES—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
1909	1·1	1·3	0·3	3	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. From that date the proportion of illiterate persons of each sex has steadily declined, and was reduced to one-third of the earlier figure by the period at which the results of the Education Act of 1870 could first affect the registers to any considerable extent.

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).

The case of London is exceptional. In the year 1909 the proportion of bridegrooms who could not sign their names in the marriage register was 1·0 per cent., and of brides 1·4 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 0·4 out of every 100 men, and 0·6 out of every 100 women who married.

Buildings in which Marriages may be Solemnized.—At the end of the year 1909 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	15,770
All other Religious Denominations	15,534
Total	31,304

The increase upon the numbers at the end of the previous year was : Established Church 55, other religious denominations 260.

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, 1909, and the number of buildings registered for the solemnization of marriages appear in the following table :—

TABLE XVI.

Denomination.	Buildings certified to the Registrar-General as Meeting places for Religious Worship.	Buildings registered for the Solemnization of Marriages.*
Roman Catholics	1,348	1,298
Wesleyan Methodists	7,385	3,562
Congregationalists	3,193	2,852
Baptists	2,971	2,550
Primitive Methodists	4,188	1,579
United Methodist Church†	1,936	1,135
Calvinistic Methodists	1,173	858
Presbyterians	436	435
Unitarians	178	195
New Jerusalem Church...	49	53
Catholic Apostolic Church	71	49
Countess of Huntingdon's Connexion ...	44	42
Salvation Army	1,232	37
Society of Friends	415	—‡
Jews	197	—‡
All others	2,592	889

* 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 1909 the number of such buildings which had been brought under the operation of the Act, and so remained, was 2,832 out of the total of 15,534 ; the numbers of these buildings and the denominations to which they belonged, were as follows :—

1,291	Wesleyan Methodists.
462	Congregationalists.
321	Primitive Methodists.
275	Baptists.
259	United Methodist Church.
70	Calvinistic Methodists.
154	Other Denominations, and Unsectarian.
2,832	Total.

These 2,832 registered buildings were distributed among 482 of the registration districts. In the remaining 152 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.

TABLE XVII.

Period.	Of 1000 Marriages.					
	With Religious Ceremonial.					Civil Marriages in Superintendent Registrars' Offices.
	Anglican.	Non-conformist.	Roman Catholic.	Jewish.	Total.	
1851–55	842	62	48	1·7	954	46
1856–60	820	71	46	1·8	939	61
1861–65	788	85	47	1·8	922	78
1866–70	769	96	43	1·8	910	90
1871–75	752	103	41	2·3	898	102
1876–80	727	113	42	2·4	884	116
1881–85	711	114	44	2·7	872	128
1886–90	702	116	42	3·8	864	136
1891–95	692	118	41	4·9	856	144
1896–1900	681	123	40	5·9	850	150
1901–05	650	131	41	7·3	829	171
1906	631	131	42	8·3	812	188
1907	624	132	42	7·2	805	195
1908	616	132	41	6·6	796	204
1909	614	132	42	6·8	795	205

Almost four-fifths of the marriages contracted in England and Wales during 1909 were solemnized with religious ceremonial. This proportion has been steadily decreasing since 1851 in favour of the growing tendency to resort to superintendent registrars' offices for purely civil marriage, and was smaller in 1909 than in any previous year. The proportion of Established Church marriages is the lowest on record, and those of civil and Nonconformist marriages the highest, but the bulk of the population still prefers marriage according to the rites of the Church of England.

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.

TABLE XVIII.

—	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
1909	100	0·02	4·61	94·26	0·97	0·14

These figures show that speaking generally while the proportion of marriages by Licence and by Superintendent Registrar's Certificate has steadily declined, the proportion of marriages by Banns has steadily increased.

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 and the proportions of marriages before registrars (including marriages of Roman Catholics, but not those of Quakers) have been as follows :—

TABLE XIX.—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 ...	154	11	1905 ...	141	32
1900 ...	146	22	1906 ...	139	33
1901 ...	145	24	1907 ...	138	35
1902 ...	142	26	1908 ...	136	37
1903 ...	143	28	1909 ...	134	40
1904 ...	142	30			

Of the 1760 Jewish marriages contracted in the year 1909 in England and Wales, 1296, or 74 per cent. were registered in London, 147, or 8 per cent. in the city of Manchester, and 92, or 5 per cent. in the city of Leeds. Of the Jewish marriages in London, no fewer than 1053 or 81 per cent. were registered in a

group of three registration districts—London City, Whitechapel, and Mile End Old Town.

Table 11 gives particulars as to the forms under which marriages have been contracted in the various counties during 1909.

Births.

The births registered in the year 1909 numbered 914,472 ; of these 876,963 were legitimate, and 37,509 were illegitimate.

In proportion to the total population of both sexes and all ages, the total births were equal to a rate of 25·6 per 1,000 living ; this rate was 0·9 per 1,000 less than that recorded in 1908, and was no less than 2·2 per 1,000 below the average of the low rates in the ten years 1899–1908.

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

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

The following statement shows the changes in these proportions and in the age constitution of the married female population at the four past Censuses :—

Table XX.—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 Marriage-able 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

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

Birth-rates, however, are often studied for the sake of the light they throw upon the fertility of communities, and for this purpose also the crude birth-rate is the form of statement ordinarily employed ; in fact, none other is as a rule available. But as the fertility of potential mothers is only one of the several factors mentioned

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

Table XXI.—England and Wales.—Birth-rates, 1876–1909.

Period.	(a.) Birth-rate calculated on Total Population at All Ages.		(b.) Birth-rate calculated on the Female Population aged 15-45 years.		(c.) Legitimate Birth-rate calculated on the Married Female Population aged 15-45 years.		(d.) 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
1909 ...	25·6	72·5	102·3	66·7	209·4	70·7	7·9	54·9

Note.—In the absence of precise information as to the changes in the number and constitution of the population from year to year, the estimates of total population at all ages are calculated by geometrical progression, on the assumption that the rate of increase in each intercensal period was maintained regularly throughout the period ; the estimates for the several sections of the population are based on the further assumption that the proportion which each section bore to the total population changed uniformly during each intercensal period, 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.

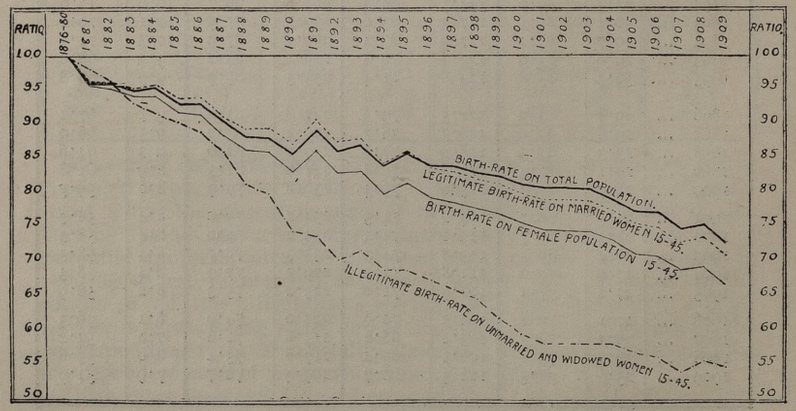
above as governing the rate of reproduction in a community, it follows that the crude birth-rate is an imperfect measure of the community's fertility, *i.e.*, of its rate of reproduction in proportion to opportunity for reproduction. Fertility may be regarded as a force, and reproduction as the outcome of that force modified in its results by the various circumstances which govern its action. If it is desired to measure the result of the operation of the force the crude birth-rate must be used; but if the force itself is to be studied correction must be made for the modification of its results by the variations in opportunity for its action, in precisely the same way as the tendency to death is measured by the corrected death-rate, not by the crude death-rate, which represents the result of the action of this tendency upon a population of a certain age and sex constitution.

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

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

These calculations have also been illustrated in the accompanying diagram, which affords a ready means of gauging the fall in the birth-rate 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 the Table with reference to the trustworthiness of the figures for inter-censal years.

DIAGRAM II.—ENGLAND AND WALES.—BIRTH-RATES, 1881–1909. RATIO per cent. of the RATE in each YEAR to the MEAN RATE in 1876–80.



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 27½ 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 33 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 29 per cent.

Put in another way, if the fertility of married women in proportion to their numbers had been as high in 1909 as in 1876–80 the legitimate births would have numbered 1,240,649 instead of the 876,963 actually recorded, giving a legitimate birth-rate of 34·70, or 10·18 in excess of that recorded.

But if the population in 1909 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 1909 population, assuming it to be constituted as in 1901, is sufficient to account for a *rise* of 1·03 in the legitimate birth-rate.

The fall in the legitimate birth-rate since 1876–80 is 9·15, therefore this net fall must be made up of a potential rise of 1·03 due to increased proportion of wives aged 15–45, and a fall of 10·18 due to diminished fertility of wives from whatever cause.

The fall due to decrease of illegitimacy is 0·63, making up the total fall of 9·78. The fall in the illegitimate rate is compounded similarly to that in the legitimate rate of a potential rise due to (1) increased proportion of unmarried and widowed women aged 15 to 45 years, and a fall due to (2) their diminished fertility. Had the latter remained as in 1876–80, 68,253 births would have resulted, giving an illegitimate birth-rate of 1·91, or 0·86 more than that actually recorded. This figure then represents the effect of (2), so the difference between it and 0·63, 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 :—

TABLE XXII.

	Birth-rate.		
	Total.	Legitimate.	Illegitimate.
Potential effect of increased proportion of *women* aged 15–45 in the population.	+ 2·97	+ 2·83	+ 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	− 11·04	− 10·18	− 0·86
Recorded fall 1876–80 to 1909	− 9·78	− 9·15	− 0·63

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.

TABLE XXIII.—ANNUAL FERTILITY RATES OF MARRIED WOMEN in each REGISTRATION COUNTY, 1870–1909.

Registration Counties.	Legitimate Births per 1000 Married Women aged 15–45 years.*							Decrease per cent. in each County between the period 1870-72 and 1909.
	Census periods.				Five-year period.	Years.		
	1870–72.	1880–82.	1890-92.	1900-02.	1903–07.	1908.	1909.	
England and Wales..	292·5	286·0	263·8	235·5	224·5	217·6	209·4	28·4
London	269·9	272·6	250·4	227·8	213·3	198·2	191·3	29·1
Surrey	285·1	284·3	244·4	208·2	214·7	213·1	204·9	28·1
Kent	288·8	287·6	255·6	221·2	208·9	193·7	186·6	35·4
Sussex	284·6	279·2	235·9	203·3	190·5	180·3	171·9	39·6
Hampshire	272·9	273·9	243·3	211·6	208·6	204·7	199·2	27·0
Berkshire	294·5	290·0	257·6	219·0	212·5	205·6	199·0	32·4
Middlesex	288·0	293·6	252·3	224·1	229·0	219·8	211·7	26·5
Hertfordshire ..	300·0	291·7	264·0	224·8	222·8	221·4	216·6	27·8
Buckinghamshire ..	299·5	291·9	270·4	230·4	223·8	214·6	205·4	31·4
Oxfordshire	295·7	294·7	271·1	228·0	220·8	228·9	219·0	25·9
Northamptonshire ..	297·5	290·6	265·8	222·0	191·6	175·5	168·3	43·4
Huntingdonshire ..	302·3	274·9	262·5	236·0	234·2	229·0	232·1	23·2
Bedfordshire	296·0	283·1	256·8	219·1	207·2	219·3	201·6	31·9
Cambridgeshire ..	294·3	276·6	255·0	223·9	216·6	210·5	211·9	28·0
Essex	293·7	300·4	270·0	238·5	221·8	204·6	194·4	33·8
Suffolk	290·2	293·6	269·5	236·5	226·4	218·3	210·7	27·4
Norfolk	273·1	279·3	257·2	229·5	217·5	210·7	204·4	25·2
Wiltshire	297·9	291·6	261·3	225·1	226·5	221·1	213·4	28·4
Dorsetshire	288·8	286·8	254·7	219·2	218·3	206·5	202·6	29·9
Devonshire	284·5	284·5	252·2	208·4	200·9	192·7	190·7	33·0
Cornwall	294·0	287·7	262·0	219·6	201·1	204·0	196·2	33·3
Somersetshire ..	293·0	292·0	267·6	221·0	215·3	206·1	198·6	32·2
Gloucestershire ..	285·7	281·5	259·3	224·6	214·1	195·5	190·2	33·4
Herefordshire ..	285·6	279·2	272·3	235·0	227·0	219·1	215·0	24·7
Shropshire	302·7	286·8	275·3	257·0	248·0	236·9	231·8	23·4
Staffordshire	320·2	311·1	298·7	270·1	251·1	241·5	229·4	28·4
Worcestershire ..	296·6	288·3	268·2	239·0	219·9	207·6	197·7	33·4
Warwickshire ..	291·5	287·3	264·5	243·2	232·3	226·6	216·3	25·8
Leicestershire ..	300·6	295·0	268·4	232·7	211·3	196·9	187·3	37·7
Rutlandshire	295·9	297·9	258·5	227·5	217·6	210·6	239·5	19·1
Lincolnshire	293·4	284·1	255·3	228·3	224·5	232·9	224·3	23·6
Nottinghamshire ..	285·6	287·8	260·5	242·9	236·8	240·0	234·8	17·8
Derbyshire	296·6	293·2	270·8	243·9	229·0	233·9	217·2	26·8
Cheshire	292·8	286·0	266·9	230·8	221·2	214·0	207·7	29·1
Lancashire	297·1	285·0	264·3	233·7	221·6	216·5	207·1	30·3
West Riding	293·0	272·7	249·3	223·0	207·3	201·4	191·8	34·5
East Riding	281·9	274·9	258·1	238·7	222·8	218·4	212·1	24·8
North Riding ..	313·6	304·2	274·5	260·4	257·0	266·0	248·9	20·6
Durham	324·1	307·9	299·7	282·7	269·5	271·2	257·0	20·7
Northumberland ..	313·0	300·1	290·0	266·8	255·8	251·2	239·1	23·6
Cumberland	311·8	309·7	288·6	256·5	248·7	241·1	233·5	25·1
Westmorland ..	305·9	300·2	267·4	218·9	207·6	186·7	190·1	37·9
Monmouthshire ..	304·1	298·7	304·6	283·5	287·2	301·6	294·8	3·1
South Wales:—								
Glamorganshire ..	313·1	303·4	303·5	274·0	264·0	266·2	268·7	14·2
Carmarthenshire ..	344·1	321·7	309·4	274·9	283·7	290·6	295·4	14·2
Pembrokeshire ..	319·6	320·4	291·9	253·8	254·1	235·1	242·9	24·0
Cardiganshire ..	315·2	296·4	277·3	245·4	238·0	218·7	228·5	27·5
Brecknockshire ..	310·6	296·4	292·1	272·9	269·2	257·9	248·3	20·1
Radnorshire ..	308·6	302·5	282·6	264·2	223·7	184·8	188·7	38·9
North Wales:—								
Montgomeryshire ..	308·7	292·5	273·2	253·0	244·6	230·2	224·5	27·3
Flintshire	310·4	284·0	285·7	246·4	272·5	281·4	273·5	11·9
Denbighshire ..	301·2	289·6	282·8	265·3	251·0	236·9	230·5	23·5
Merionethshire ..	311·0	287·2	255·5	247·7	224·1	188·5	180·2	42·1
Carnarvonshire ..	289·9	271·8	237·2	226·7	209·8	186·2	176·3	39·2
Anglesey	277·2	275·1	240·7	224·2	221·6	198·9	208·8	24·7

* *See* note to Table XXI.

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 age constitution of the population in 1909 has 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 occurred between 1876-80 and 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 cxii.)

Rates of Fertility among Married Women in Counties.—Table XXIII., on page xxx, 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 middle of the year 1909 is estimated at 4,186,981, and the children born alive to these women numbered 876,963, so that 209·4 living children were born to every 1000 married women at these ages. 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 1909 were as follows :—

TABLE XXIV.

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, 209·4.		
Carmarthenshire ...	295·4	Northamptonshire ...	168·3
Monmouthshire ...	294·8	Sussex	171·9
Glamorganshire ...	268·7	Carnarvonshire ...	176·3
Durham	257·0	Kent	186·6
North Riding of Yorkshire.	248·9	Leicestershire ...	187·3

It will be noted that the fertility rates are highest in the mining and lowest in the agricultural counties, but these disparities are in a considerable measure due to differences in the age constitution of the married female population in the several counties.

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 low proportions of young wives, the fertility rates are comparatively high. (See Table E, page xxviii of the Annual Report for 1907.)

Birth-rates and age distribution of married women in Urban and Rural Districts.—From Tables XXIII. and XXIV. 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 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 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.

TABLE XXV.—LEGITIMATE BIRTH-RATES and AGE CONSTITUTION of MARRIED FEMALE POPULATION 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	396
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.

The greater fertility in rural districts would be still more marked if the age constitution in the two areas were identical. 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 1909 the births of males in England and Wales numbered 466,463 and the births of females 448,009; the male births were therefore to the female births in the proportion of 1041 to 1000. The proportions in successive groups of years 1838–1905 are shown in Table 4, page 6; since the commencement of birth registration the ratios have 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:—

TABLE XXVI.

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, 1038.			
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
		Wiltshire	1031
Monmouthshire ...	1048	Oxfordshire ...	1032
Suffolk	1048	West Riding of Yorkshire.	1032

Illegitimate Births.—The births registered during the year 1909 included 37,509 of illegitimate children.

Illegitimacy is usually stated in the form of the proportion of illegitimate births either to total births or to total population. The first method of statement is objectionable as expressing one variable (the rate of illegitimacy) in terms of another (the total birth-rate). A four per cent. rate of illegitimacy for instance in a district where the total birth-rate is 30 implies more illegitimacy than a five per cent. rate where the total birth-rate is 20. The second method of statement yields a crude illegitimate birth-rate corresponding to the crude total birth-rate, and the remarks on p. xxvi as to the latter apply to it.

In order to study the fertility of unmarried women we may 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 such sections of the population as the number of unmarried and widowed females are, as already pointed out, specially liable to error (see note to Table xxi).

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

TABLE XXVII.—ENGLAND AND WALES.—ILLEGITIMATE BIRTH-RATES, 1876–1909.

Period.	In proportion to total Births.		In proportion to total Population.		In proportion to the Unmarried and Widowed Female population aged 15–45 years.	
	Rate per 1000.	Compared with rate in 1876–80 taken as 100.	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	1·7	100·0	14·4	100·0
1881–1885 ...	48·0	101·1	1·6	94·1	13·5	93·8
1886–1890 ...	46·3	97·5	1·5	88·2	11·8	81·9
1891–1895 ...	42·4	89·3	1·3	76·5	10·1	70·1
1896–1900 ...	41·0	86·3	1·2	70·6	9·2	63·9
1901–1905 ...	39·5	83·2	1·1	64·7	8·4	58·3
1876... ...	46·8	98·5	1·7	100·0	14·6	101·4
1877... ...	47·5	100·0	1·7	100·0	14·6	101·4
1878... ...	47·2	99·4	1·7	100·0	14·4	100·0
1879... ...	47·9	100·8	1·7	100·0	14·2	98·6
1880... ...	48·3	101·7	1·6	94·1	14·1	97·9
1881... ...	48·8	102·7	1·7	100·0	14·1	97·9
1882... ...	48·5	102·1	1·6	94·1	13·8	95·8
1883... ...	47·9	100·8	1·6	94·1	13·4	93·1
1884... ...	47·1	99·2	1·6	94·1	13·2	91·7
1885... ...	47·9	100·8	1·6	94·1	13·0	90·3
1886... ...	47·4	99·8	1·6	94·1	12·8	88·9
1887... ...	47·5	100·0	1·5	88·2	12·4	86·1
1888... ...	46·3	97·5	1·4	82·4	11·7	81·3
1889... ...	45·9	96·6	1·4	82·4	11·5	79·9
1890... ...	44·2	93·1	1·3	76·5	10·7	74·3
1891... ...	42·4	89·3	1·3	76·5	10·6	73·6
1892... ...	41·9	88·2	1·3	76·5	10·1	70·1
1893... ...	42·5	89·5	1·3	76·5	10·3	71·5
1894... ...	43·1	90·7	1·3	76·5	9·9	68·8
1895... ...	42·1	88·6	1·3	76·5	9·9	68·8
1896... ...	42·3	89·1	1·3	76·5	9·7	67·4
1897... ...	41·7	87·8	1·2	70·6	9·5	66·0
1898... ...	41·5	87·4	1·2	70·6	9·3	64·6
1899... ...	40·0	84·2	1·2	70·6	8·9	61·8
1900... ...	39·7	83·6	1·1	64·7	8·6	59·7
1901... ...	38·9	81·9	1·1	64·7	8·4	58·3
1902... ...	39·0	82·1	1·1	64·7	8·4	58·3
1903... ...	39·3	82·7	1·1	64·7	8·4	58·3
1904... ...	39·9	84·0	1·1	64·7	8·4	58·3
1905... ...	40·2	84·6	1·1	64·7	8·2	56·9
1906... ...	40·0	84·2	1·1	64·7	8·1	56·3
1907... ...	39·4	82·9	1·0	58·8	7·8	54·2
1908... ...	39·9	84·0	1·1	64·7	8·0	55·6
1909... ...	41·0	86·3	1·0	58·8	7·9	54·9

Comparing the proportion of illegitimate births in England and Wales in the year 1909 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 only about 14 per cent. The crude

TABLE XXVIII.—ANNUAL ILLEGITIMATE BIRTH-RATES in each REGISTRATION COUNTY, 1870–1909.

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 1909.
	Census periods.				Five-year period.	Years.		
	1870–72.	1880–82.	1890–92.	1900–02.	1903–07.	1908.	1909.	
England and Wales..	17·0	14·1	10·5	8·5	8·2	8·0	7·9	53·5
London	10·3	9·8	8·1	6·9	6·8	6·7	6·4	37·9
Surrey	9·5	8·5	6·6	5·9	5·7	5·5	5·8	38·9
Kent	14·7	12·1	9·3	7·5	7·5	7·1	6·8	53·7
Sussex	13·7	11·5	8·7	7·2	6·7	6·7	6·3	54·0
Hampshire	13·6	11·8	8·5	7·3	7·0	6·8	6·8	50·0
Berkshire	16·8	13·4	10·3	8·7	8·4	9·2	8·0	52·4
Middlesex	9·4	9·4	6·5	5·9	5·9	5·4	5·3	43·6
Hertfordshire.. ..	18·4	15·3	10·4	7·0	7·2	6·3	7·0	62·0
Buckinghamshire ..	19·0	16·5	12·6	9·1	8·6	7·5	7·8	58·9
Oxfordshire	19·0	15·4	10·4	9·0	9·1	10·1	9·0	52·6
Northamptonshire ..	18·7	15·9	11·7	9·1	8·6	8·0	7·9	57·8
Huntingdonshire ..	19·8	14·0	12·9	10·9	9·7	11·3	12·5	36·9
Bedfordshire	21·1	18·0	11·2	8·4	8·2	7·6	7·6	64·0
Cambridgeshire ..	19·3	15·6	12·4	9·6	10·1	9·9	11·1	42·5
Essex	16·2	12·7	9·1	7·3	6·9	6·8	6·7	58·6
Suffolk..	22·0	17·8	14·0	12·0	12·0	11·8	12·1	45·0
Norfolk	27·3	22·6	16·7	13·4	13·1	12·3	13·0	52·4
Wiltshire	17·1	14·7	10·3	9·2	8·8	8·6	8·2	52·0
Dorsetshire	14·2	13·1	9·6	7·2	7·2	7·4	6·4	54·9
Devonshire	14·0	10·6	8·1	6·7	6·5	6·5	6·4	54·3
Cornwall	16·5	14·8	11·2	8·6	7·9	7·7	7·1	57·0
Somersetshire.. ..	13·3	11·3	7·4	6·0	5·8	6·0	5·3	60·2
Gloucestershire ..	12·9	11·6	8·2	6·3	6·2	5·7	6·0	53·5
Herefordshire.. ..	21·4	19·0	13·4	11·2	11·2	10·7	10·6	50·5
Shropshire	28·2	21·8	16·6	12·8	13·0	11·4	11·4	59·6
Staffordshire	24·6	19·4	14·5	11·2	11·0	10·1	10·4	57·7
Worcestershire ..	16·3	13·7	9·2	7·2	6·7	6·7	6·4	60·7
Warwickshire ..	14·9	13·2	9·7	7·6	7·2	6·8	6·5	56·4
Leicestershire ..	19·9	16·1	11·4	8·6	7·7	6·9	7·3	63·3
Rutlandshire	18·1	12·7	7·9	7·2	8·2	9·1	5·2	71·3
Lincolnshire	22·3	18·5	14·2	12·2	12·2	12·2	13·3	40·4
Nottinghamshire ..	24·5	21·7	15·4	12·7	12·3	12·3	12·4	49·4
Derbyshire	22·5	17·7	12·8	10·0	9·9	9·2	9·2	59·1
Cheshire	17·5	14·2	10·3	7·7	7·2	6·7	6·8	61·1
Lancashire	16·2	13·6	10·2	7·9	7·6	7·3	7·2	55·6
West Riding	20·4	16·1	11·4	9·4	8·9	8·6	8·4	58·8
East Riding	23·0	18·2	14·3	12·2	11·6	12·1	11·8	48·7
North Riding.. ..	27·7	20·2	15·4	12·1	11·3	11·9	11·8	57·4
Durham	24·0	18·0	13·8	11·1	11·1	11·9	11·7	51·3
Northumberland ..	21·1	17·9	12·4	10·2	9·9	10·1	10·2	51·7
Cumberland	29·2	23·9	18·6	12·3	12·0	12·3	12·0	58·9
Westmorland.. ..	21·9	17·9	13·1	8·6	8·7	8·3	7·6	65·3
Monmouthshire ..	18·6	15·9	11·3	10·2	9·2	9·2	10·0	46·2
South Wales :—								
Glamorganshire ..	17·7	13·5	10·3	8·5	8·9	8·8	9·2	48·0
Carmarthenshire ..	18·2	13·9	9·4	7·7	8·2	7·0	8·4	53·8
Pembrokeshire ..	21·6	15·9	12·4	8·9	9·9	10·0	9·1	57·9
Cardiganshire ..	16·0	14·8	11·8	8·9	7·4	8·3	7·2	55·0
Brecknockshire ..	19·9	18·0	12·5	10·1	9·0	6·6	8·6	56·8
Radnorshire ..	41·8	33·2	20·1	14·4	11·9	10·0	7·2	82·8
North Wales :—								
Montgomeryshire..	29·5	24·3	16·7	13·1	12·9	11·3	13·2	55·3
Flintshire	18·7	18·4	13·1	9·7	11·3	10·6	11·9	36·4
Denbighshire ..	21·1	17·6	13·4	12·3	11·7	10·9	11·1	47·4
Merionethshire ..	24·4	19·5	16·4	13·5	13·2	12·5	12·3	49·6
Carnarvonshire ..	18·3	13·9	12·7	10·3	9·7	8·9	10·0	45·4
Anglesey	19·7	16·7	15·7	16·1	14·2	14·3	16·5	16·2

* See note to Table XXI.

illegitimate birth-rate however, based on the total population, showed during the same period a decline of 41 per cent., while the rate based on the numbers of unmarried and widowed women of conceptive ages fell by 45 per cent. The last-quoted figure represents most nearly the decrease of illegitimate fertility since 1876–80.

In the section of this report dealing with International Statistics, a table will be found (page cxiii) 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 in 1900–1902 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.—Table XXVIII. exhibits the rates of illegitimate fertility in the several counties at different periods. It will be noticed that, speaking generally, the rates in certain counties remain consistently high throughout, as in the four northern counties, East Anglia (except Essex, which is largely London) and North Wales. These counties, on the whole, contain few large towns.

Natural Increase.—The natural increase, or excess of crude birth-rate over crude death-rate, is seen from Table XXIX. to have fallen from 14·56 per 1000 living in the quinquennium 1876–80 to 11·08, the lowest figure on record, in the year 1909. Should the birth-rate continue to decrease it is to be feared that the diminution in natural increase may become accelerated, as the comparatively low death-rates now attained offer less scope than formerly for compensation in this direction.

TABLE XXIX.

——	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
1909	25·57	14·49	11·08

DEATHS.

The deaths of 518,003 persons were registered in England and Wales during the year 1909; 265,203 of these persons being males and 252,800 females.

These deaths correspond to a rate of 14·5 per 1000 of the estimated population, or 0·2 per 1000 below that for the year 1908, which was the lowest recorded up to that time. Compared with the average

in the ten years 1899–1908, the death-rate in 1909 shows a decrease of 1·6 per 1000.

It is not improbable that favourable climatic conditions—especially the very cool summer—may have contributed to a considerable extent to the production of this unprecedentedly low mortality. A description of these conditions is contained in Dr. Shaw's report upon the Meteorology of the year.

During the nine years of the present century, the death-rate, with slight fluctuations, fell from 16·9 per 1000 in 1901 to 14·5 per 1000 in 1909. In six of these nine years, viz., 1902, 1903, 1905, 1907, 1908 and 1909, the rate has been successively the lowest recorded up to the year in question. This remarkable record is in accordance with the general experience of European countries. (See page cxiii.)

Looking back over the mortality statistics since the commencement of death registration in 1838, 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 reached its highest recorded point for both sexes in the quinquennium 1846–50, when it stood at 22·4 per 1000 persons living. From that time it fell gradually and intermittently till 1891–95, when it stood at 18·5, but since then the fall has been steadier and much more rapid, the total decline since recorded being almost exactly equal to that exhibited during the preceding 45 years. The death-rate in 1909 was 65 per cent. only of that recorded in the later "forties."

It will be observed that the passing of the Public Health Act in 1875 was followed by a considerable decline in the two succeeding quinquennia; but that this improvement was arrested during the two succeeding periods, only to be renewed, however, with increased vigour, from the period 1896–1900 onwards.†

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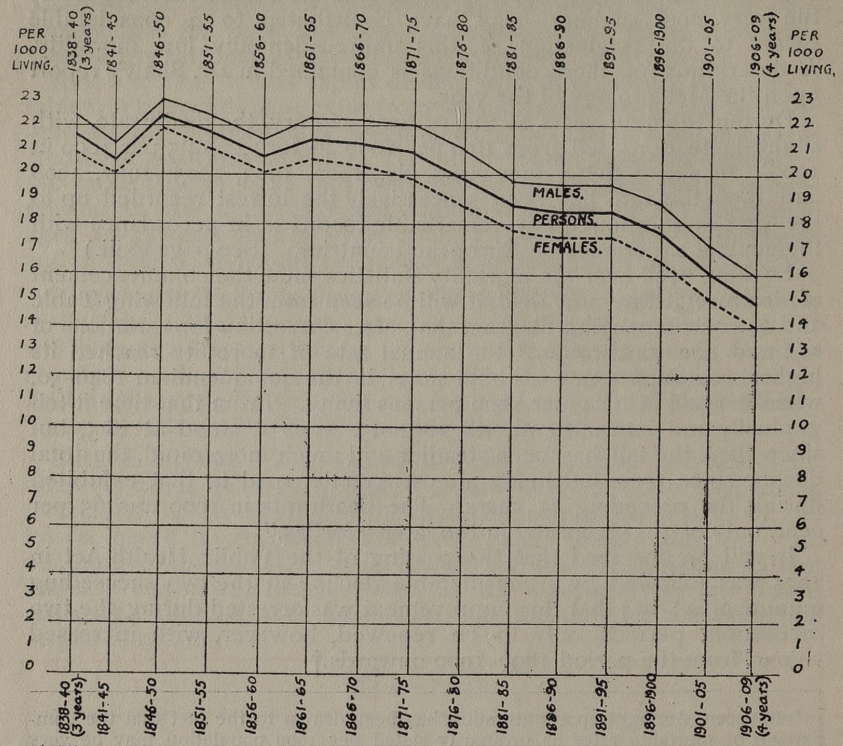
* In recent Annual Reports attention has been drawn to the fact that the comparison of mortality rates as ordinarily stated per 1000 population may be very fallacious. The census returns show that the proportion of persons living at each age-group varies considerably in different localities and at different periods in the same locality. As the mortality both from all causes and from individual diseases varies greatly with age, and to a less degree with sex, it follows that crude death-rates at all ages, computed without allowance for these variations, are untrustworthy for the purpose of comparing the records of different localities or of the same locality at considerable intervals of time. For several years past, therefore, the death-rates in these Reports have been reduced to a common standard, showing the rates which would have obtained had the age and sex constitution of the populations in question been similar to that of England and Wales in 1901. In the Annual Report for 1905 (pp. xxxviii–xxxix) a full description was given of two methods used in this office for applying to crude death-rates the correction for differences of age and sex constitution: (1) the "direct" method (when the death-rates at the several age-groups are known) used in the Annual Reports; and (2) the "indirect" method (when the death-rates at the several age-groups are not known) used in the Annual Summaries. (See also page li.)

† The small-pox epidemic of 1871–72 appreciably increased the mortality for the years 1871–75, and if the small-pox mortality (see Table 29) be deducted from the calculation, the fall in mortality of the years 1871–75 was about equal to that of 1876–80. Similarly the elimination of mortality due directly or indirectly to influenza lowers the death-rate for the years 1891–95 by an amount which may be very roughly estimated at about 0·7 or more per 1000 living, deducting which the decline of the mortality curve from 1886–90 to 1891–95 would be greater than that from 1891–5 to 1896–1900.

DIAGRAM III.—ENGLAND AND WALES.—CORRECTED DEATH-RATES from ALL CAUSES in QUINQUENNIA, 1838–1909.*



* The death-rates throughout the entire period are based upon the sex and age constitution of the population as enumerated in 1901. For method of correction, *see* page xxxvii.

TABLE XXX.—ENGLAND AND WALES.—ANNUAL RATE of MORTALITY per 1000 LIVING, corrected for SEX and AGE CONSTITUTION, 1838–1909.

(The figures in this table differ somewhat from those in Table 4, the latter table relating to crude death-rates.)

Period.	Persons.	Males.	Females.	Ratio, Male to Female.*	Period.	Persons.	Males.	Females.	Ratio, Male to Female.*
1838–40 ...	21·6	22·4	20·9	107	1876–80 ...	19·8	21·0	18·7	112
1841–45 ...	20·6	21·3	20·1	106	1881–85 ...	18·7	19·7	17·8	111
1846–50 ...	22·4	23·1	21·9	105	1886–90 ...	18·5	19·6	17·5	112
1851–55 ...	21·7	22·4	21·0	107	1891–95 ...	18·5	19·6	17·5	112
1856–60 ...	20·7	21·4	20·1	106	1896–1900...	17·6	18·8	16·5	114
1861–65 ...	21·4	22·3	20·6	108	1901–05 ...	16·0	17·1	15·0	114
1866–70 ...	21·2	22·2	20·3	109	1906–09 ...	14·9	15·9	14·0	114
1871–75 ...	20·9	22·0	19·8	111	1909 only ...	14·5	15·4	13·7	112

* *i.e.*, the ratio of the male to the female mortality, the latter taken as 100.

Mortality of each Sex.—Diagram III. shows that the excess of male over female mortality gradually increased up to about the period 1871–75, since when it has remained approximately constant, the

absolute difference between the male and female death-rates in Table XXX. being as a rule slightly over 2 per 1000 population. The increase in the proportional excess of male mortality has, of course, been greater than that in the actual excess, owing to the fall in both rates which has occurred. Prior to 1861 the percentage excess of the male over the female corrected death-rate was about 6 per cent. (Table XXX.), whereas since 1895 it has been as much as 14 per cent. Since 1838–40 the death-rate of females has shown a decline of 34·4 per cent., as against 31·3 per cent. only in that of males. It is interesting to note that the greater decline in the mortality of females from phthisis more than accounts for the whole of this excess in the decline of female mortality from all causes.

Table XXXI. sets forth the causes of death which mainly account for the difference in mortality between the sexes. It shows that the excess of mortality of males in infancy (see page xlvii), and from phthisis, pneumonia and violence, accounts for the great bulk of the excess in the mortality in the male sex. The mortality of infants from pneumonia, tubercle, and other causes specified in the table is necessarily excluded from the figure inserted for infantile deaths, the excess in infantile mortality from all causes accounting for 53 per cent. of the total excess among males. The influence of alcohol is probably under-stated in the table. For instance, much of the excess of male mortality from pneumonia may be due to this cause, though the fact does not appear in the certificates.

TABLE XXXI.—ANALYSIS by CAUSES of DEATH of the EXCESS of MALE over FEMALE MORTALITY, 1909.

——	Male mortality. (1)	Female mortality. (2)	Excess or deficiency of (1) compared with (2). (3)	Per-centage of total male excess. (4)
Phthisis	1·270	·903	+ ·367	21·7
Other forms of Tuberculosis ...	·479	·407	+ ·072	4·3
Pneumonia (all forms)	1·490	1·102	+ ·388	23·0
Alcoholism and Cirrhosis of Liver...	·177	·116	+ ·061	3·6
Cancer (excluding generative and mammary organs).	·812	·646	+ ·166	9·8
Violence	·766	·320	+ ·446	26·4
Infantile deaths not included above	2·742	1·983	+ ·759	45·0
Causes of death not particularised in this table.	7·610	7·587	+ ·023	1·3
Total	15·346	13·064	+ 2·282	135·1
Diseases incident to Pregnancy and Child-bearing.	—	·183	— ·183	10·8
Cancer (generative and mammary)	·014	·425	— ·411	24·3
All Causes	15·360	13·672	+ 1·688	100·0

Had it not been for the female mortality from child-bearing and from cancer of the generative organs, which is shared by males either not at all or to a very slight extent, the excess of male over female mortality would have been 35·1 per cent. greater than it actually was.

Mortality at Different Ages.—Table XXXII. analyses the fall in mortality at all ages recorded above, showing how the different age-groups in each sex have contributed to the total result and in what proportions the total change shown against each group has been distributed over the intervening decades. It might be represented by a series of curves in which the mortalities of the various age-groups, all starting together at a fixed point—100 per cent. of their mortality at the commencement of the period—would diverge fanwise in accordance with the varying degrees of reduction (or increase) since experienced.

TABLE XXXII.—ENGLAND AND WALES.—Ratio of the DEATH-RATES at TWELVE GROUPS of AGES to those recorded for the Period 1838–40.*

Ages.	1841–1850.	1851–1860.	1861–1870.	1871–1880.	1881–1890.	1891–1900.	1901–1909.	1909.
Males.								
All Ages ...	99·1	97·8	99·6	96·0	87·9	85·7	74·1	68·8
Under 5 years...	98·1	99·7	101·2	94·2	84·8	86·4	68·6	55·5
5—	94·8	87·6	84·5	69·1	54·6	44·3	36·1	33·0
10—	96·2	92·5	84·9	69·8	56·6	45·3	37·7	35·8
15—	97·3	91·8	84·9	72·6	58·9	52·1	41·1	38·4
20—	100·0	92·6	89·5	77·9	60·0	53·7	43·2	38·9
25—	97·1	94·1	97·1	91·2	76·5	66·7	55 9	52·0
35—	100·0	96·9	104·7	107·0	96·1	89·1	75·2	70·5
45— ...	100·0	98·9	106·0	110·4	106·6	103·8	94·0	91·8
55—	99·1	96·3	103·1	108·7	108·1	108·7	102·8	102·2
65—	102·6	99·2	102·0	105·9	107·1	107·0	104·6	111·7
75—	103·0	101·9	102·2	104·7	101·8	101·5	95·8	98·5
85—	102·0	100·7	102·9	106·9	99·9	93·7	97·1	105·0
Females.								
All Ages ...	100·5	98·6	97·6	92·3	84·2	81·3	69·4	65·6
Under 5 years...	97·9	100·5	102·1	93·4	83·2	84·6	66·3	53·2
5—	94·7	89·4	83·0	66·0	56·4	46·8	38·3	35·1
10—	93·1	87·9	77·6	63·8	53·4	44·8	36·2	34·5
15—	95·2	89·2	79·5	66·3	53·0	44·6	33·7	31·3
20—	100·0	93·4	87·9	74·7	60·4	49·5	37·4	34·1
25—	102·9	96·1	94·2	83·5	71·8	59·2	46·6	42·7
35—	101·6	96·1	95·3	91·3	83·5	75·6	62·2	58·3
45—	101·3	96·2	98·7	98·7	95·6	93·0	83·5	82·3
55—	101·1	96·1	99·3	102·1	101·4	101·1	91·1	91·5
65—	106·5	102·4	103·1	106·5	105·4	105·9	100·2	107·2
75—	104·5	103·5	103·8	104·2	100·5	100·5	95·1	99·9
85—	105·4	103·8	102·4	106·5	97·3	93·9	98·7	107·8

* For the actual death-rates upon which the figures in this table are based, see Tables 15–17.

In studying this table it should be borne in mind that the estimates of population at various ages since 1900 are liable to revision as the result of the approaching Census. This will certainly affect the later portion of the table to some extent but not in all probability sufficiently to modify its character very materially.

The facts set forth in this table are perhaps so familiar that their remarkable nature attracts less attention than it might otherwise be

expected to receive. Whilst the mortality amongst boys aged 5–10 and girls aged 15–20 is less than one-third now of what it was seventy years ago, that of men over 55 and of women over 65 years of age has actually increased, according to the records.

A certain proportion of this apparent failure of the mortality of the elderly to decline concurrently with the advent of those improved health conditions which have had such an enormous influence upon the mortality at lower ages may not improbably be due to greater overstatement of age by the elderly in the earlier than in the later periods. It is stated in the Report on the Census of 1901 (page 56) that "The ages of old people are probably still on the whole overstated, both in the death registers and in the census returns; but they were overstated to a much greater extent from 30 to 60 years ago." Reasons are given in that Report for believing that the effect of such overstatement, if approximately equal in death registers and census returns, is to lower the recorded mortalities at the higher age-groups. These mortalities accordingly were probably more understated in former years than at the present time. Consideration of the mortalities at ages 75 and over recorded for Russia and Bulgaria in Tables lxxxviii and lxxxix confirms this conclusion, as it suggests that in those countries at all events the effect of overstatement of the age of old people is to reduce their recorded mortality.

A general tendency to decline may be noticed in the mortalities of these higher age-groups during the present decade. This is common to both sexes and is more pronounced than at any previous period.

It is interesting to note that the mortality of children under five years of age, which during the nineteenth century had declined less than that of any other of the age-groups of children or young adults, and in the last decade of the century showed an actual increase in both sexes, has during the present century declined more than that of any other group.

While the present is the era of greatest decline in the mortality of the youngest group of children, that of their immediate elders (5–15) declined most so far back as the "seventies" of last century, while for adolescents and young adults up to age 25 the "eighties" were the period of greatest decline. All the above statements apply to both sexes—a fact which evidences the striking uniformity of the diminution of mortality in the two sexes, as already illustrated by Diagram III. Not only does the fall in the mortality of the two sexes vary in the same manner from period to period when all ages are considered together, but individual age-groups keep pace with the corresponding groups of the opposite sex with surprising accuracy. Up to age 55 there is only one age-group, 25–35, of which the greatest decline in mortality is not shown by both sexes in the same decennial period. From 35 to 55 the greatest improvement has occurred, as in the case of the youngest children, during the decade now closing. The question suggests itself whether any relationship exists between these spurts in the amount of improvement shown by the various age-groups of the two sexes, occurring as they do simultaneously for each sex but at widely different periods in different age-groups, and changes in the environment having a selective influence upon different ages but a uniform influence upon the two sexes.

Table XXXIII., however, which might be represented by a series of logarithmic curves corresponding to the curves of arithmetical ratios which would represent Table XXXII., shows that when the comparison is made, not between the proportions of the total decline

which occurred at different periods, but between the declines in each decade as compared with the position in the previous decade, the current period shows the most rapid improvement at almost every age. The chief exception is at age 5–10, where the period of maximum improvement in the male sex was the "eighties" and in the female the "seventies." There are only six out of the twelve age-periods which do not show for males a more rapid fall in mortality during the current decade than in any previous one, and only two for females, although nine years only can as yet be brought into the comparison.

TABLE XXXIII.—ENGLAND AND WALES.—Ratio per cent. of the MORTALITIES in SEX and AGE-GROUPS, to those in the same groups in the immediately preceding period.

Ages.	1841–1850.*	1851–1860.	1861–1870.	1871–1880.	1881–1890.	1891–1900.	1901–1909.	1909.*
Males.								
All Ages ...	99	99	102	96	92	97	86	93
0—	98	102	102	93	90	102	79	81
5—	95	92	96	82	79	81	81	91
10—	96	96	92	82	81	80	83	95
15—	97	94	93	85	81	88	79	93
20—	100	93	97	87	77	89	80	90
25—	97	97	103	94	84	87	84	93
35—	100	97	108	102	90	93	84	94
45—	100	99	107	104	97	97	90	98
55—	99	97	107	105	99	101	95	99
65—	103	97	103	104	101	100	98	107
75—	103	99	100	102	97	100	94	103
85 years and upwards.	102	99	102	104	93	94	104	108
Females.								
All Ages ...	100	98	99	95	91	97	85	94
0—	98	103	102	92	89	102	78	80
5—	95	94	93	79	85	83	82	92
10—	93	94	88	82	84	84	81	95
15—	95	94	89	83	80	84	76	93
20—	100	93	94	85	81	82	76	91
25—	103	93	98	89	86	82	79	92
35—	102	95	99	96	91	91	82	94
45—	101	95	103	100	97	97	90	98
55—	101	95	103	103	99	100	90	100
65—	106	96	101	103	99	100	95	107
75—	105	99	100	100	96	100	95	105
85 years and upwards.	105	98	99	104	91	97	105	109

* The rates in 1841–50 are compared with those in the three years 1838–40, and those in 1909 with 1901–9.

The similarity between the records for the two sexes is less complete when this form of comparison is employed, but is still sufficiently striking, as is well shown by comparing the changes for the single year 1909.

The year 1909, compared with the average for the years 1901–09, shows by far the greatest fall in mortality at age 0–5, and an appreciable increase in mortality at ages 65 and upwards.

Infantile Mortality.—Of the 518,003 deaths registered during the year in England and Wales, 99,430, or 19 per cent., were those of infants under one year of age, corresponding to a mortality rate of 109 per 1000 births. This rate was 29 per 1000 births, or 21 per cent., below the average in the ten years 1899–1908; and was 9 per 1000 births, or 8 per cent., below the lowest rate previously recorded, that for the year 1907.

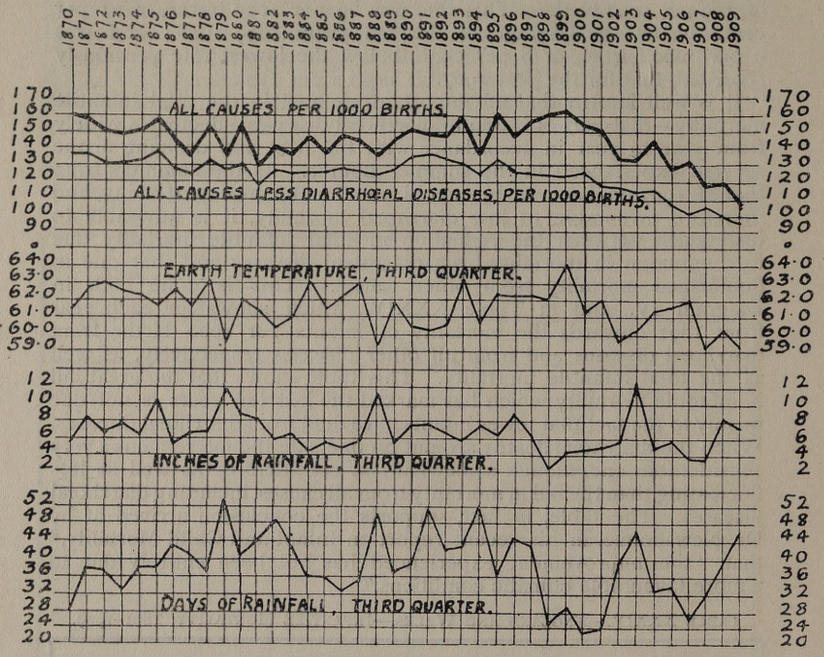
It is well known that an important element in the total infantile mortality—that part of it due to diarrhœal diseases—fluctuates widely from year to year in accordance with the heat and drought, or the reverse, experienced in the summer months. As the summers from that of 1907 on have all been cold and for the most part rainy, and therefore favourable to low diarrhœal mortality, it is advisable to distinguish between the reduction in total infantile mortality due to diminution in mortality from diarrhœal diseases and that due to diminished mortality from other causes. This is done both in Diagram IV., and in Table XXXIV., which shows for each year from 1891 onwards the mortality of infants per 1000 births from diarrhœal diseases and from all other diseases respectively, as well as the total infantile mortality. This table shows that the great fall in infantile mortality which has marked the last ten years is not due mainly to the fact that fewer infants have died from diarrhœal diseases. When the diarrhœal deaths are put on one side the fall remains a very considerable one, though somewhat less considerable as well as less fluctuating than the fall in mortality from all causes, including diarrhœal diseases. The table, in fact, supports the conclusion arrived at by Dr. Newsholme, in his recent report on Infant and Child Mortality,* that "the improvement experienced has not been entirely due to "more favourable climatic conditions."

TABLE XXXIV.—ENGLAND AND WALES.—INFANTILE MORTALITY, 1891–1909.

Year.	Deaths under one year of age per 1000 births.		
	Total.	Diarrhœal Diseases.	Total less Diarrhœal Diseases.
1891	149	13	136
1892	148	15	133
1893	159	28	131
1894	137	12	125
1895	161	28	133
1896	148	21	127
1897	156	31	125
1898	160	36	124
1899	163	40	123
1900	154	28	126
1901	151	32	119
1902	133	15	118
1903	132	18	114
1904	145	30	115
1905	128	21	107
1906	132	31	101
1907	118	12	106
1908	120	20	100
1909	109	13	96

* Thirty-ninth Annual Report of the Local Government Board, 1909–10. Supplement to the Report of the Board's Medical Officer, containing a Report by the Medical Officer on Infant and Child Mortality.

DIAGRAM IV.—ENGLAND AND WALES.—INFANTILE MORTALITY both from ALL CAUSES and from ALL CAUSES other than DIARRHŒAL DISEASES, and METEOROLOGY, 1870–1909.



It will be seen from Table XXXIV. also that real progress may be masked by unfavourable climatic conditions resulting in high diarrhœal mortality, as in 1906, and that conversely apparent improvement may have to be discounted as being entirely due to a diminution in diarrhœal deaths probably attributable to climatic conditions. Fortunately the improvement recorded for 1909 survives the application of this test, since the rate is the lowest on record whether diarrhœal deaths be included or not, but with diarrhœal diseases eliminated the degree of improvement is less, and it is noteworthy that the improvement in non-diarrhœal mortality upon 1906 is only 5 per 1000 births as against 23 per 1000 when diarrhœal deaths also are reckoned.

It will be seen also that although the diminution in mortality from all causes has been fairly steady since 1899, yet, when diarrhœal deaths are eliminated, the improvement up to 1904 is found to have been comparatively slight, though very considerable since that year. It is impossible to avoid associating this decline with the simultaneous increase of effort to reduce infant mortality.

If the records for a long series of years are examined it will be noticed that the fluctuations in infantile mortality are most marked in the third quarter of the year, when epidemic diarrhœa most influences the death-rate. A notable rise in the rate of mortality in the third quarter corresponds with high summer temperature,

especially if accompanied by deficient rainfall, and a preponderant share in bringing about the exceptionally low diarrhœal mortality of 13 per 1000 births in 1909 must be attributed to the unusually cold and wet summer experienced.

Previously to 1909 there had been only four years since 1869 with a mean earth temperature at Greenwich in the third quarter below 60°, namely, 1879, 1888, 1902, and 1907. The temperature and rainfall (at Greenwich) for the five years, and their total and diarrhœal infantile mortalities, compare as follows :—

TABLE XXXV.

—	Third Quarter.			Year.		
	Earth Temperature at depth of 3 ft. 2 ins.	Rainfall.	Days with Rainfall.	Infantile Mortality.		
				All Causes.	Diarrhœal Diseases.	All Causes less Diarrhœal Diseases.
	°	Ins.				
1879	59·4	11·7	53	135	8	127
1888	59·3	11·2	50	136	11	125
1902	59·6	5·7	39	133	15	118
1907	59·2	3·5	32	118	12	106
1909	59·2	7·4	46	109	13	96
Average since 1869	61·5	6·7	38	144	20	124

This statement clearly shows that in previous years with similar summers to that of 1909, the diarrhœal mortality has been almost as low if not lower, but that in these years the infant mortality from causes other than diarrhœal diseases was never nearly so low as in 1909. The decline then must be regarded as largely due to causes other than the recurrence of summers unfavourable to the development of fatal diarrhœa. (See also Diagram IV.)

Table 39 contrasts the mortality of 1909 with the average for the five preceding years, and Table XXXVI. presents an analysis of the fall of 16 per cent. shown.

TABLE XXXVI.—INFANTILE MORTALITY.—ENGLAND AND WALES, 1909.—Percentage reduction as compared with 1904–08.

Cause of Death.	Under 3 Months.	3–6 Months.	6–12 Months.	Under 1 Year.
All Causes	10	24	20	16
Common Infectious Diseases ...	28	26	9	14
Diarrhœal Diseases	36	46	49	45
Developmental and Wasting Diseases	4	10	2	4
Tuberculous Diseases	28	24	18	21
Convulsions	16	18	18	17
Bronchitis and Pneumonia	13	12	8	10

The mortalities in each portion of the first year of life were the lowest on record. That for the first three months, 60·12, is 10 per cent. lower than the average for the five preceding years, while the corresponding fall at ages 3–6 months is no less than 24 per cent., and at 6–12 months 20 per cent., the resultant mortalities being respectively 19·20 and 29·41 per 1000 births. The improvement shown in the second three months of life especially is remarkable. If these rates are compared with those of ten years ago, *i.e.*, the year 1899, we find falls of 22, 46 and 41 per cent. respectively, for the three age-periods, so that the mortality at 3–6 months of age is little more than half what it was only ten years ago.

All the important causes of death except measles and congenital defects contributed to the decline shown in Table 39. The greatest fall was that from diarrhœal diseases, 45 per cent., and next to it tuberculous diseases, 21 per cent., convulsions, 17 per cent., common infectious diseases as a whole, 14 per cent., and the principal respiratory diseases (bronchitis and pneumonia), 10 per cent. The large group of developmental and wasting diseases, which find their victims almost entirely amongst young infants, shows the small reduction of 4 per cent. only. This accounts for the comparative smallness of the reduction from all causes at this age, as from most other causes, except diarrhœal diseases, the reduction at 0–3 months compares not unfavourably with those at the later periods. The deaths from developmental and wasting diseases formed 61 per cent. of all deaths at this age, so it is evident that without a substantial improvement under this head comparatively little reduction can be looked for in the mortality at this period, which is so much the most important of the three, as contributing more than half the total mortality.

Even here, however, some grounds for hoping that real progress is being made are afforded by Table XXXVII., which compares the mortalities from these diseases both separately and in the aggregate

TABLE XXXVII.—ENGLAND and WALES.—DEATHS of CHILDREN under ONE YEAR of AGE from DEVELOPMENTAL and WASTING DISEASES per 1000 BIRTHS, 1886–1909.

		Proportion of Deaths to 1000 Births of each Sex.							
		1886–1890.	1891–1895.	1896–1900.	1901–1905.	1906.	1907.	1908.	1909.
Premature Birth.	Both Sexes	16·1	18·4	19·6	20·2	20·4	19·8	19·9	19·9
	Males ...	17·8	20·3	21·7	22·4	22·6	21·8	22·1	21·9
	Females...	14·4	16·4	17·5	18·1	18·1	17·8	17·6	17·9
Congenital Defects.*	Both Sexes	4·2	4·7	4·9	5·9	6·6	6·6	6·7	6·6
	Males ...	4·7	5·2	5·5	6·6	7·2	7·4	7·5	7·2
	Females...	3·7	4·1	4·3	5·2	5·9	5·8	5·9	5·9
Atrophy, Debility, Marasmus.	Both Sexes	21·7	21·5	20·5	17·9	16·1	15·0	15·0	14·4
	Males ...	23·5	23·7	22·5	19·8	17·8	17·0	16·8	16·1
	Females...	19·7	19·4	18·4	15·8	14·3	13·0	13·1	12·8
Total: Developmental and Wasting Diseases.	Both Sexes	42·0	44·6	45·0	44·0	43·1	41·4	41·6	40·9
	Males ...	46·0	49·2	49·7	48·8	47·6	46·2	46·4	45·2
	Females...	37·8	39·9	40·2	39·1	38·3	36·6	36·6	36·6

* Excluding Injury at Birth.

since the year 1885. It will be seen that the total mortality under these headings reached its maximum for both sexes in the period 1896–1900 and has since then declined to the extent of 9 per cent. in each sex. It may be mentioned also that, as pointed out by Dr. Newsholme in his recent report upon infantile mortality, it is very possible that the real decline somewhat exceeds this figure, owing to decrease in the practice of omitting to register births of living premature children, which have been in many instances reported as still-births (see the Annual Report for 1909 of the Medical Officer of Health for Leeds for remarks on this subject).

The decrease in recorded mortality from the indefinite heading atrophy, debility, marasmus, and increase in that from premature birth and congenital defects suggest that deaths formerly attributed to the less, are now frequently attributed to the more definite headings, and that it is safer, at all events when considering the records of the earlier years, to study the mortality from this group of causes as a whole than to attempt its analysis.

TABLE XXXVIII.—INFANTILE MORTALITY.—ENGLAND AND WALES, 1909.—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.			Proportion per 1000 Births.			Proportion per 1000 Births.			Proportion per 1000 Births.		
	Males.	Females.	Ratio.*	Males.	Females.	Ratio.*	Males.	Females.	Ratio.*	Males.	Females.	Ratio.*
All Causes	67·48	52·49	129	21·10	17·21	123	31·53	27·18	116	120·11	96·88	124
Whooping-cough ..	0·72	0·76	95	0·78	0·85	92	1·81	2·20	82	3·31	3·81	87
Diarrhœal Diseases ..	4·47	3·26	137	4·69	3·69	127	4·88	4·25	115	14·04	11·20	125
Premature Birth ..	21·66	17·64	123	0·17	0·19	89†	0·05	0·03	167†	21·88	17·86	123
Congenital Defects ..	6·39	5·18	123	0·44	0·44	100	0·40	0·31	129	7·23	5·93	122
Atrophy, Debility, Marasmus.	12·03	9·00	134	2·50	2·29	109	1·54	1·46	105	16·07	12·75	126
Tuberculous Diseases..	0·71	0·46	154	1·33	1·04	128	2·50	1·94	129	4·54	3·44	132
Convulsions	7·45	5·40	138	2·18	1·75	125	1·66	1·31	127	11·29	8·46	133
Bronchitis and Pneumonia.	5·78	4·32	134	5·16	3·91	132	10·31	8·54	121	21·25	16·77	127

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

Table XXXVIII. contrasts the mortality of male with that of female infants, and shows that as in 1908 the mortality of males was 24 per cent. above that of females, and that all the principal causes of death except whooping-cough display the same feature, and on the whole to a very uniform extent. The excess of mortality amongst males from premature birth is almost exactly the same, 23 per cent. The difference in the case of these deaths cannot well be attributed to greater difficulty in the births of males, as premature births are easy. Neither, assuming equal care for both sexes, can the difference depend upon the post-natal environment. It seems necessary therefore to attribute the difference to pre-natal influence in the case

of these deaths, and if this hypothesis is true for them it may explain most of the difference in mortality of the sexes from other causes as well, though doubtless the greater difficulty in the birth of males has its effect. Table XXXVIII. shows that the excess of male mortality from most causes lessens with advancing age, a fact which supports the view that pre-natal influence in the main determines the greater mortality of male infants, or in other words that the initial viability of males is on the whole less than that of females.

That this should be the case might well be anticipated from our knowledge of the effect of environment upon determination of sex in the lower animals. If highly fed tadpoles, for the time normally hermaphrodite, grow into female frogs in the great majority of cases, whereas the adults resulting from normally fed tadpoles are almost equally divided in sex; and if aphides in the specially favourable surroundings of a hothouse cease altogether to produce males, whereas under less advantageous surroundings males are produced in plenty, it can readily be understood that the initial viability of male frogs and aphides must be less on average than that of females, since "favourable nutritive conditions tend to produce females, and unfavourable conditions males."* If we assume that this law holds good of the human species also, we shall not be at a loss to explain the heavier mortality of males in early infancy.

TABLE XXXIX.—INFANTILE MORTALITY.—ENGLAND AND WALES, 1909.—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 ..	108·73	104·35	211·18	117·59	112·91	233·70	93·66	90·04	157·18
Under 3 months ..	60·12	57·61	119·37	62·26	59·63	127·64	57·49	54·97	101·74
3–6 months	19·20	18·17	43·00	21·55	20·46	48·78	15·55	14·98	25·56
6–12 months	29·41	28·57	48·81	33·78	32·82	57·28	20·62	20·09	29·88

Tables 40 and 41 and Table XXXIX. above compare the mortality of legitimate and illegitimate infants, showing an excess for the latter of no less than 102 per cent. As in the three preceding years this excess was 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. The excess is greatest in the case of the diarrhœal group of diseases.

The mortality of infants in the urban and the rural groups of counties is compared in Tables 37, 38, 40, and 41, as well as in the following summary table :—

* Geddes and Thomson, "Evolution of Sex."
† See page liii.

TABLE XL.—INFANTILE MORTALITY in URBAN and RURAL COUNTY GROUPS, 1909.

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	62·26	57·49	108	21·55	15·55	139	33·78	20·62	164	117·59	93·66	126
Whooping-cough ..	0·66	0·76	87	0·87	0·94	93	2·24	1·50	149	3·77	3·20	118
Diarrhœal Diseases ..	4·37	2·93	149	5·06	2·50	202	5·53	2·40	230	14·96	7·83	191
Premature Birth ..	19·98	19·01	105	0·17	0·23	74†	0·03	0·06	50†	20·18	19·30	105
Congenital Defects ..	5·98	5·54	108	0·45	0·42	107	0·37	0·40	93	6·80	6·36	107
Atrophy, Debility, Marasmus.	10·40	11·77	88	2·63	2·13	123	1·69	1·16	146	14·72	15·06	98
Tuberculous Diseases ..	0·63	0·42	150	1·33	0·96	139	2·47	1·61	153	4·43	2·99	148
Convulsions	6·80	6·54	104	2·08	2·07	100	1·55	1·65	94	10·43	10·26	102
Bronchitis and Pneumonia.	5·41	4·24	128	5·15	3·32	155	10·89	6·62	165	21·45	14·18	151

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

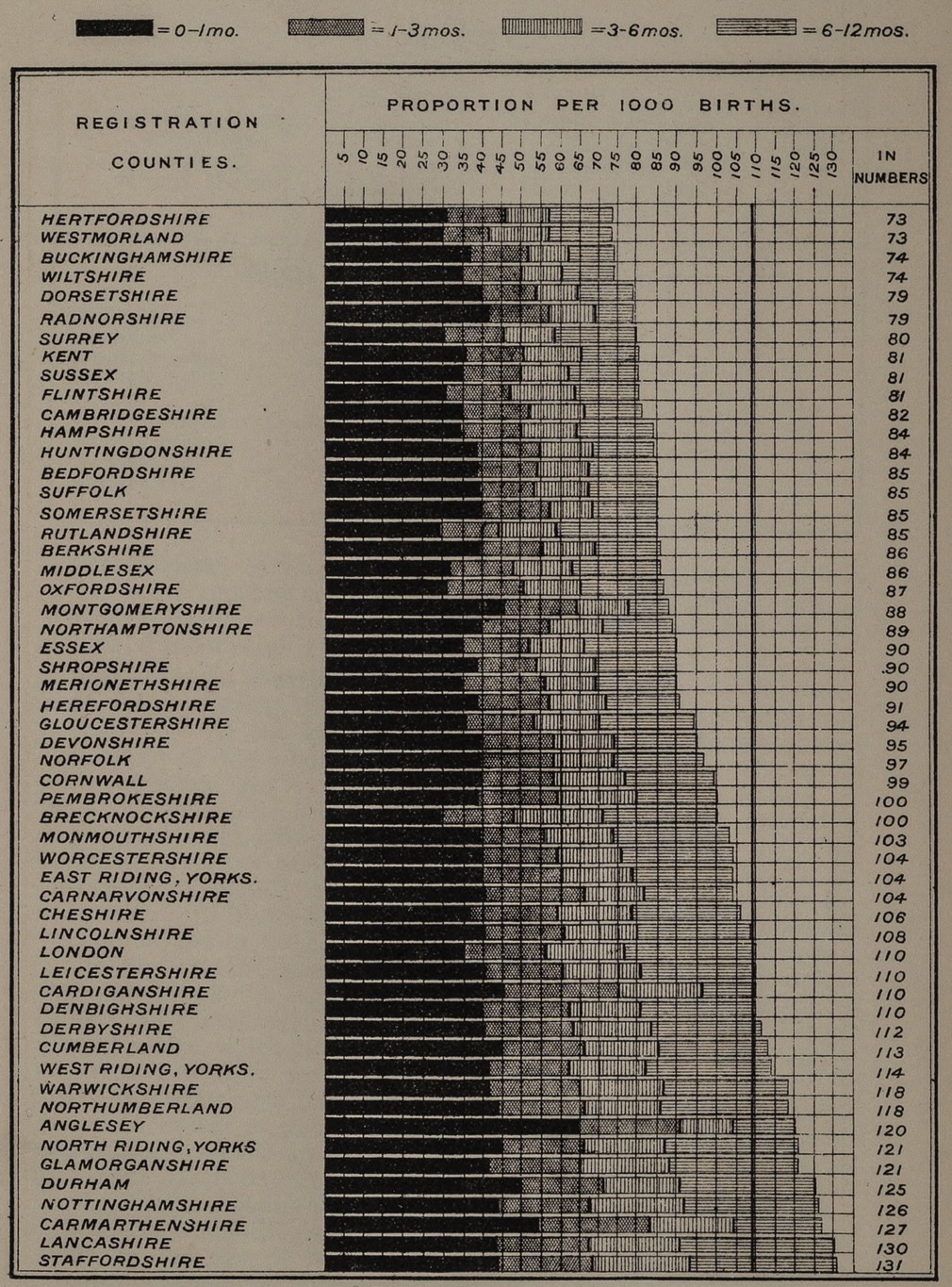
These show considerable excess of urban mortality, and great increase of this excess as age advances. For the first month of life, during which over one third of the total infant mortality occurs, the urban excess is less than 4 per cent. It would seem that at birth the urban infant is almost or quite as healthy as the rural, but that the adverse post-natal influences of town life soon diminish its relative chances of survival. This is well shown in Diagram V. from which it may be seen that the differences in mortality during the first month of life between counties of high and low infantile mortality are very much less than at higher ages.

Infantile Mortality in Registration Counties.—The incidence of infantile mortality in the several Registration Counties may be seen from the figures in Table XLI.; from that table and the accompanying diagram it will be observed that the rates differ widely in different counties, and 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. The diagram shows that the excess in the latter as compared with the former increases progressively throughout the first year of life.

TABLE XLI.—INFANTILE MORTALITY RATES in each REGISTRATION COUNTY in QUINQUENNIAL PERIODS 1876–1905, and in the YEARS 1906, 1907, 1908, and 1909.

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 1909.
	Quinquennial Periods.						Years.				
	1876–1880.	1881–1885.	1886–1890.	1891–1895.	1896–1900.	1901–1905.	1906.	1907.	1908.	1909.	
England and Wales	145	139	145	151	156	138	132	118	120	109	−24·8
England, excluding Monmouthshire.	146	139	145	150	156	137	132	117	119	108	−26·0
Wales, including Monmouthshire.	129	128	141	153	157	145	137	125	137	113	−12·4
London	154	150	154	156	163	140	133	117	116	110	−28·6
Surrey	115	110	109	116	127	105	109	88	84	80	−30·4
Kent	123	114	119	123	135	118	114	96	91	81	−34·1
Sussex	114	107	111	115	121	101	96	89	86	81	−28·9
Hampshire ..	116	108	116	122	132	110	103	93	91	84	−27·6
Berkshire	117	102	108	110	118	101	97	83	83	86	−26·5
Middlesex	130	127	130	130	146	121	118	98	93	86	−33·8
Hertfordshire ..	115	108	109	109	111	92	104	80	81	73	−36·5
Buckinghamshire	129	115	117	113	114	98	94	84	83	74	−42·6
Oxfordshire ..	125	109	116	114	113	99	87	92	79	87	−30·4
Northamptonshire	141	129	134	134	132	115	106	95	93	89	−36·9
Huntingdonshire	121	107	106	120	116	95	99	73	83	84	−30·6
Bedfordshire ..	146	130	131	124	128	106	118	101	93	85	−41·8
Cambridgeshire ..	135	120	123	124	124	107	108	88	107	82	−39·3
Essex	125	124	128	132	150	127	123	101	98	90	−28·0
Suffolk	123	112	116	121	121	111	105	99	95	85	−30·9
Norfolk	147	131	138	141	143	128	123	106	109	97	−34·0
Wiltshire	108	101	104	103	102	91	84	77	79	74	−31·5
Dorsetshire ..	107	97	96	100	103	92	91	77	78	79	−26·2
Devonshire ..	126	116	125	128	134	118	112	103	105	95	−24·6
Cornwall	145	133	142	144	137	117	101	99	105	99	−31·7
Somersetshire ..	119	110	110	114	115	95	89	90	83	85	−28·6
Gloucestershire ..	135	123	125	132	131	114	110	96	108	94	−30·4
Herefordshire ..	117	104	114	115	108	101	100	87	74	91	−22·2
Shropshire	124	114	120	115	114	105	98	91	100	90	−27·4
Staffordshire ..	155	152	160	168	176	151	144	133	134	131	−15·5
Worcestershire ..	135	129	139	141	141	124	116	110	104	104	−23·0
Warwickshire ..	152	145	154	160	178	152	152	126	127	118	−22·4
Leicestershire ..	169	161	168	167	161	140	142	114	121	110	−34·9
Rutlandshire ..	120	110	113	113	108	97	88	89	89	85	−29·2
Lincolnshire ..	135	127	136	141	144	131	127	114	112	108	−20·0
Nottinghamshire	159	154	155	156	170	153	145	146	134	126	−20·8
Derbyshire ..	137	131	138	144	148	133	120	119	115	112	−18·2
Cheshire	140	137	146	155	157	138	130	113	120	106	−24·3
Lancashire ..	165	161	170	177	181	161	157	138	144	130	−21·2
West Riding ..	158	152	160	164	165	152	143	131	135	114	−27·8
East Riding (with York).	156	147	152	164	168	149	140	121	129	104	−33·3
North Riding ..	135	132	138	144	149	140	142	127	129	121	−10·4
Durham	153	150	154	166	169	158	154	135	147	125	−18·3
Northumberland ..	142	139	146	155	167	151	143	118	143	118	−16·9
Cumberland ..	131	120	125	128	132	127	124	125	127	113	−13·7
Westmorland ..	107	102	99	109	104	89	88	87	102	73	−31·8
Monmouthshire ..	133	132	148	149	154	142	129	126	136	103	−22·6
Glamorganshire ..	138	143	159	173	175	158	150	136	151	121	−12·3
Carmarthenshire ..	117	115	124	141	143	142	112	113	139	127	+ 8·5
Pembrokeshire ..	115	111	120	124	122	116	115	102	103	100	−13·0
Cardiganshire ..	99	93	100	120	119	119	116	104	114	110	+11·1
Brecknockshire ..	128	124	137	140	134	124	96	114	116	100	−21·9
Radnorshire ..	124	115	113	125	114	105	119	74	109	79	−36·3
Montgomeryshire	111	104	108	106	114	103	96	97	75	88	−20·7
Flintshire	120	106	112	120	126	101	120	104	106	81	−32·5
Denbighshire ..	134	123	131	139	153	136	154	113	125	110	−17·9
Merionethshire ..	129	120	122	141	152	130	123	127	118	90	−30·2
Carnarvonshire ..	132	122	118	135	138	136	144	108	115	104	−21·2
Anglesey	114	113	120	115	128	131	132	94	96	120	+ 5·3

DIAGRAM V.– INFANTILE MORTALITY IN EACH REGISTRATION COUNTY OF ENGLAND & WALES, 1909.



NOTE:–THE THICK VERTICAL LINE MARKS THE PROPORTION OF DEATHS UNDER ONE YEAR OF AGE TO 1000 BIRTHS IN ENGLAND AND WALES AS A WHOLE.

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Among counties with populations of more than 100,000 persons the highest and lowest proportions in the year 1909 of deaths of children under one year to 1000 births were as follows :—

TABLE XLII.

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 ... ... 109.			
Staffordshire	131	Hampshire	84
Lancashire	130	Cambridgeshire	82
Carmarthenshire	127	Kent	81
Nottinghamshire	126	Sussex	81
Durham	125	Surrey	80
North Riding of Yorkshire	121	Dorsetshire	79
Glamorganshire	121	Buckinghamshire	74
Warwickshire	118	Wiltshire	74
Northumberland	118	Hertfordshire	73

Centenarians.—Among the deaths registered during the year there were 61 of reputed centenarians, 16 of whom were males and 45 females. In the preceding three years the numbers had been 65, 59, and 64, respectively.

Death-rates in Counties.—In Table XLIII. the crude death-rate of each county during the year 1909 is compared with its death-rate as corrected on the basis of the sex and age constitution of the population of the whole country as enumerated at the last census. This correction has increased the crude death-rate in 14 counties, all of a predominantly urban character, with an aggregate estimated population of 22,976,833, and has diminished the crude rate in 41 counties, largely or mainly rural in type of population, and with an aggregate population of only 12,779,782. Table XLIII. may be compared with Table XLV. upon this point. The greatest increase, 1·9 per 1000, is in the case of Lancashire, and the greatest decrease, 3·7, in that of Cardiganshire. Contrasting these extreme examples, the mortality of the essentially urban county of Lancashire is found to have been increased by correction from 16·6 to 18·5, whilst that of Cardiganshire, which is mainly rural, has been reduced from 18·0 to 14·3 per 1000. In other words, whilst the crude rate of Lancashire is lower by 7·8 per cent. than that of Cardiganshire, the corrected rate shows an excess of 29·4 per cent. The explanation is that whilst Lancashire contains an abnormally small proportion of persons at the more advanced ages, at which the rate of mortality is high, Cardiganshire contains an abnormally large proportion of old people ; in the former county less than 3½ per cent. of the population in 1901 exceeded the age of 65 years, whereas in the latter county the proportion amounted to nearly 9 per cent. From this it is evident that crude death-rates in counties cannot properly be used for comparative purposes.*

* See footnote, page xxxvii.

TABLE XLIII.—ENGLAND and WALES: COMPARISON of CRUDE and CORRECTED DEATH-RATES in REGISTRATION COUNTIES, 1909.

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

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

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

TABLE XLIV.

Registration Counties.	Highest Corrected Death-rates.	Registration Counties.	Lowest Corrected Death-rates.
Lancashire	18·5	Kent	11·4
Glamorganshire	17·0	Suffolk	11·2
Staffordshire	16·2	Dorsetshire	11·2
Durham	16·2	Westmorland	11·2
Northumberland	15·9	Buckinghamshire ...	11·0
Carmarthenshire	15·9	Wiltshire	11·0
West Riding of Yorkshire	15·8	Huntingdonshire... ...	10·8
Warwickshire	15·7	Radnorshire	9·4

In addition to Table XLI. which deals with infantile mortality, Tables 18 to 21 give the death-rates at various age-groups for males and females separately in each of the registration counties of England and Wales. Tables 18 and 19, showing the age and sex mortality in the several counties during the quinquennium immediately preceding the year under review, are inserted in this Report for the first time.

They afford in some respects an improved means of comparison, but it should be borne in mind with regard to all tables of this description that, at a period so remote from the last census, the estimated populations upon which the rates are based must be somewhat unreliable.

Mortality in Urban and Rural Districts.—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.*

Table XLV. states the annual rates of mortality at all ages and from all causes in the year 1909, side by side with the corresponding average rates for the quinquennium, 1904–08, for these two groups of counties. It shows that both in the year 1909 and in the previous quinquennium the urban rates of mortality were higher than the

* (i) *Urban Registration Counties.*

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

Estimated population of Urban Counties, middle of 1909—19,414,388.

(ii) *Rural Registration Counties.*

Buckingham.
Cambridge.
Cornwall.
Hereford.
Huntingdon.
Lincoln.
Norfolk.
Oxford.
Rutland.
Salop.
Somerset.
Suffolk.
Welsh Division (less Monmouth and Glamorgan).
Westmorland.
Wilts.

Estimated population of Rural Counties. middle of 1909—4,403,139.

rural, and that in 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 (*see* page li) has increased the average general death-rate in the urban group of counties by 4·7 per cent., and has reduced the average rate in the rural group by 12·7 per cent., thus greatly augmenting the urban excess.

TABLE XLV.

All Causes. Mortality per Thousand Living at All Ages.		Crude Rates. Average 1904-08.	Crude Rates. Year 1909.	Corrected Rates.* Average 1904-08.	Corrected Rates.* Year 1909.	Ratio.†
Both Sexes	England and Wales.	15·298	14·487	15·298	14·487	95
	Urban Counties ...	16·010	15·075	16·768	15·904	95
	Rural Counties ...	14·901	14·371	13·013	12·400	95
Males ...	England and Wales.	16·314	15·360	16·314	15·360	94
	Urban Counties ...	17·144	16·066	17·940	16·934	94
	Rural Counties ...	15·633	14·997	13·719	13·008	95
Females ...	England and Wales.	14·349	13·672	14·349	13·672	95
	Urban Counties ...	14·948	14·149	15·670	14·940	95
	Rural Counties ...	14·220	13·789	12·351	11·831	96

* *See* footnote, p. xxxvii.

† *i.e.*, the ratio of the corrected death-rates in 1909 to those in 1904–08, the latter taken as 100.

Table XLVI. 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 1909 show a reduction, as compared with the average for the previous five years, at all age-groups below 55 years, the reduction being greatest among children under five years of age. The rates at different ages in both county groups show variations from the previous average very similar to those in the country generally.

The experience of 1904–08 and of 1909 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, both actual and proportional, occurring among children under five years of age. On the other hand, the rates for 1904–08 and for 1909 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* page lxxiii of this Report and page lxxiv of the Annual Report for 1906.

TABLE XLVI.

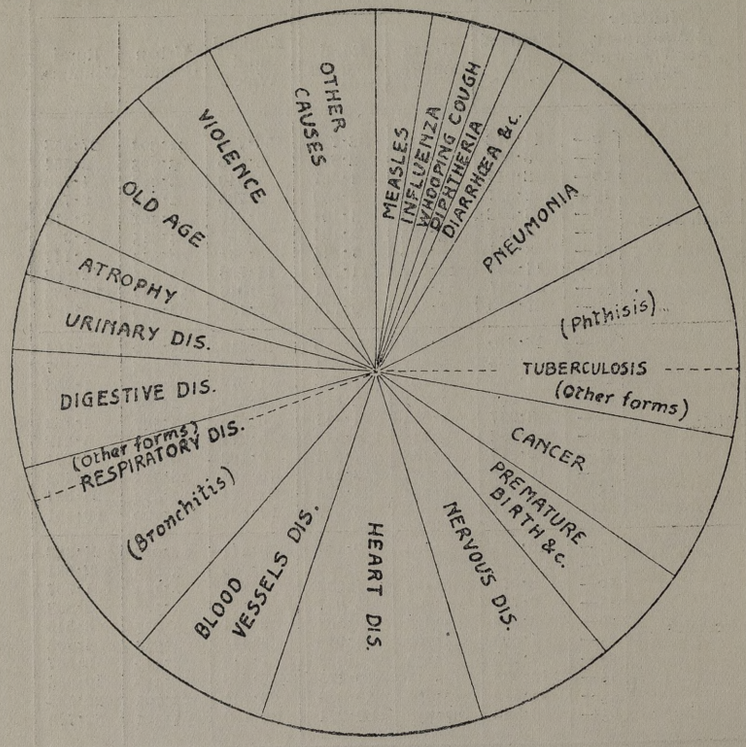
All Causes. Mortality at Age-groups, per Thousand Living.		Average 1904–1908. England and Wales.	Average 1904–1908. Urban Counties.	Average 1904–1908. Rural Counties.	Year 1909. England and Wales.	Year 1909. Urban Counties.	Year 1909. Rural Counties.
Both Sexes	0—	44·542	50·634	32·705	36·780	41·902	27·553
	5—	3·397	3·688	2·851	3·275	3·603	2·564
	10—	2·017	2·145	1·857	1·940	2·092	1·780
	15—	2·827	2·858	2·950	2·706	2·743	2·753
	20—	3·592	3·504	4·104	3·349	3·301	3·816
	25—	5·114	5·183	5·194	4·837	4·915	4·988
	35—	8·551	9·288	7·244	8·231	8·934	7·147
	45—	14·805	16·604	11·760	14·738	16·565	12·063
	55—	29·041	32·853	23·521	29·046	32·842	22·933
	65—	87·390	92·546	83·716	92·138	98·329	86·187
Males ...	0—	48·640	55·098	36·255	40·340	45·820	30·794
	5—	3·353	3·657	2·834	3·225	3·508	2·497
	10—	1·963	2·104	1·783	1·877	2·010	1·753
	15—	2·931	3·023	2·866	2·829	2·907	2·675
	20—	3·937	3·804	4·411	3·658	3·597	4·122
	25—	5·582	5·639	5·478	5·271	5·311	5·212
	35—	9·414	10·188	7·854	9·102	9·792	7·784
	45—	16·758	18·823	13·197	16·664	18·825	13·436
	55 —	33·063	37·639	26·536	32·824	37·472	25·631
	65—	92·644	99·019	88·040	97·281	105·100	90·451
Females ...	0—	40·465	46·204	29·161	33·241	38·017	24·322
	5—	3·440	3·719	2·869	3·325	3·696	2·631
	10—	2·071	2·185	1·933	2·003	2·174	1·807
	15—	2·725	2·700	3·037	2·585	2·586	2·833
	20—	3·283	3·237	3·833	3·074	3·037	3·545
	25—	4·695	4·768	4·948	4·447	4·554	4·793
	35—	7·745	8·433	6·688	7·418	8·119	6·567
	45—	12·998	14·513	10·475	12·958	14·436	10·836
	55—	25·519	28·669	20·893	25·741	28·795	20·583
	65—	83·343	87·756	80·254	88·180	93·321	82·778

CAUSES OF DEATH.

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 294 to 313 of the present volume ; and in the tables on pages 24 to 65 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. On page 23 Table 22 is continued from previous reports ; it shows the average mortality from certain causes in each of seven quinquennia, beginning with the year 1871. On page 66 Table 29 is likewise continued from previous reports ; this table traces back the mortality from the principal epidemic diseases during a period of 50 years.

The proportions in which the more prevalent diseases contribute to the death roll are shown by Diagram VI., 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, pneumonia, bronchitis, and cancer, which together contribute more than one-third of the total mortality.

DIAGRAM VI.—ENGLAND AND WALES.—PROPORTIONS of DEATHS from the PRINCIPAL CAUSES to TOTAL DEATHS, 1909.



	Proportion per 1000 deaths from All Causes.	Rate per 1000 living.
Measles	24·4	0·35
Influenza	17·4	0·25
Whooping-cough	13·9	0·20
Diphtheria	10·1	0·15
Diarrhœa and Dysentery	19·9	0·29
Pneumonia	89·0	1·29
Tuberculosis (all forms)	105·1	1·52
Phthisis	(74·6)	(1·08)
Cancer	65·7	0·95
Premature Birth and Congenital Defects	44·7	0·65
Diseases of Nervous System	62·2	0·90
Diseases of Heart	98·3	1·42
Diseases of Blood Vessels	62·9	0·91
Diseases of Respiratory System	94·1	1·36
Bronchitis	(78·8)	(1·14)
Diseases of Digestive System	52·2	0·76
Diseases of Urinary System	33·9	0·49
Atrophy, Debility	27·0	0·39
Old Age	65·6	0·95
Violence	37·0	0·53
Other Causes	76·6	1·13
All Causes	1000·0	14·49

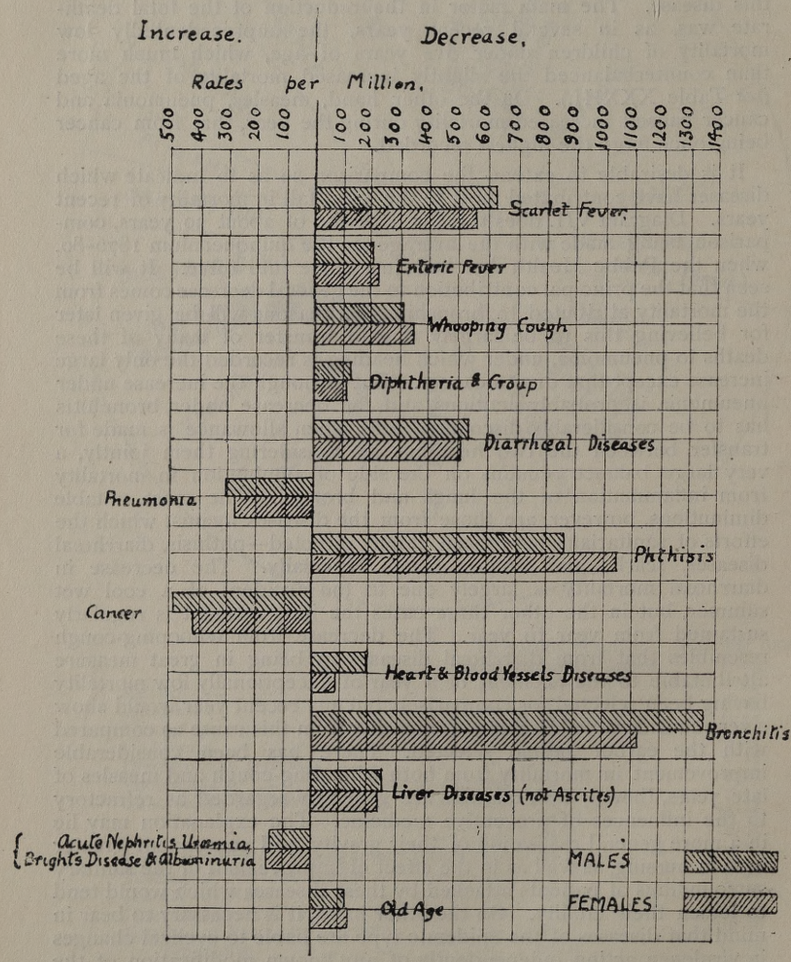
It has already been mentioned that the death-rate from all causes was lower during 1909 than in any previous year. The same remark holds good of the death-rates from tuberculosis of all forms, pulmonary tuberculosis, enteric fever, whooping-cough, and from both diarrhœa as stated in Table 29 and the diarrhœal diseases in general as defined on page lxvii. The mortality from diphtheria was the lowest experienced since 1881, and was the lowest on record if the deaths ascribed to diphtheria and croup are considered conjointly as representing most nearly the true mortality due to this disease. The main factor in the reduction of the total death-rate was, as in several recent years, the unprecedentedly low mortality of children under five years of age, which much more than counterbalanced the slightly increased mortality of the aged (*see* Table XXXIII.). On the other hand, measles, pneumonia and cancer caused increased mortality during the year, that from cancer being once more the highest recorded.

It is desirable to extend the comparison so as to indicate which diseases have contributed most to the great fall in mortality of recent years. Diagram VII. does this for a period of about 30 years, comparison being made with the average for the quinquennium 1876–80, when the Public Health Act had just come into force. It will be seen that the principal contribution to the general decrease comes from the mortality attributed to bronchitis, but reasons will be given later for believing this to be largely due to transfer of many of these deaths to pneumonia, under which heading is recorded the only large increase except that due to cancer. But although the increase under pneumonia is probably fictitious, and the decrease under bronchitis has to be considerably discounted, still, when allowance is made for transfer between the two headings by considering them jointly, a very large balance remains on the side of diminution in mortality from inflammation of the lungs and bronchi. The most notable diminutions, however, are those from the diseases against which the efforts of sanitarians have been chiefly directed—phthisis, diarrhœal diseases, scarlet and enteric fevers especially. The decrease in diarrhœal mortality is largely due to the accident of a cool wet summer, but in the other three cases the improvement is regularly sustained from year to year. The decrease from whooping-cough resembles that from diarrhœal diseases in being in great measure attributable to the accident of a year of exceptionally low mortality having been selected for comparison, but any recent year would show a very considerable lessening of mortality from this cause as compared with the earlier period selected. There has been considerable improvement in mortality from both whooping-cough and measles of late years, though both diseases are generally regarded as refractory to the influences of preventive medicine. The explanation may lie in a more general realisation of their gravity, and consequent greater care in nursing, as well as in the effect of improvement of the sanitary surroundings of patients attacked by these diseases which would tend to lessen their fatality. On the other hand, it is necessary to bear in mind that diseases of the epidemic type are liable to cyclical changes in virulence acting independently of any known modification of the conditions affecting their spread and course.

Cancer stands out as the one cause of death accounting for a really important and significant increase of mortality, as the increases shown as due to pneumonia and kidney disease are readily explicable by changes in the practice of certification. How far improvement in

diagnosis and certification accounts for the cancer increase it is difficult to say. Doubtless it does so to a very large extent, but in the section on cancer facts will be mentioned which seem to point to the reality of increase in the case, at all events, of certain organs.

DIAGRAM VII.—ENGLAND AND WALES.—CAUSES of DEATH showing the greatest INCREASE or DECREASE in 1909, as compared with 1876–80.



GENERAL DISEASES.

Small-pox.—The deaths attributed to small-pox numbered 21, comparing with 2,464, 760, 507, 116, 21, 10, and 12 in the years from 1902 to 1908 respectively. Nine of the 21 deaths occurred in Gloucestershire, four in Kent, two each in Somersetshire, the East Riding of Yorkshire and Glamorganshire, and one each in Devonshire and Cheshire. Of the nine deaths in Gloucestershire, seven belonged to the City of Bristol, and of the four deaths in Kent, two belonged to London. Eleven deaths have been tabulated under the heading cow-pox and other effects of vaccination; but these 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.

Measles.—The death-rate at all ages from measles, which in 1908 was the lowest on record, 226 per million, increased in 1909 to 353. Reference to Table 29 will show that the alternation of years of high and low mortality is somewhat characteristic of measles, though, on the whole, the death-rate attributed to this disease has been considerably lower since the commencement of the present century than in previous years.

Dealing with children under five years of age, who furnished no less than 92 per cent. of the deaths at all ages, Table 39 shows that the mortality, 2·85 per 1000 living at that age, was somewhat above the average for the preceding quinquennium. The urban rate, 3·64 (Table 37), was above, but that in the rural group of counties, 1·00 (Table 38), was below the quinquennial average. It may be assumed that the contrast in mortality between the purely urban and the purely rural areas is still more remarkable. The highest county rates among children were experienced by Worcestershire, 4·58 per 1000, Staffordshire 5·26, and Warwickshire 5·40. In all these counties the mortality was above the average in the preceding quinquennium, the rates in Worcestershire and Warwickshire being more than twice the average. The deaths under one year of age numbered 2,674, 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 34. As in many previous years, measles was most destructive to infants during the second year of life, the mortality for which amounted to 6·23 per 1000 living. Infantile mortality from measles in the several counties is shown in Table 42, where the deaths under one year appear in terms of the total births.

Scarlet Fever.—The deaths referred to scarlet fever in the year 1909 numbered 3,215 at all ages and of both sexes, and corresponded to a rate of 90 per million living. This rate is 10 per million above the rate in the preceding year, which was the lowest on record, but is 9 per million below the average in the five years immediately preceding.

Table 22 shows 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 1909 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 :—

TABLE XLVII.

Scarlet Fever. (Quinquennia.)	Metropolitan Asylums Board Hospitals.			County of London.
	Admissions.	Deaths.	Fatality. (Ratio per cent. of deaths to admissions.)	Mean Annual Mortality per 1000 living.
1875–1879 ...	4,480	606	13·5	0·67
1880–1884 ...	9,041	1,067	11·8	0·55
1885–1889 ...	17,959	1,637	9·1	0·24
1890–1894 ...	51,038	3,324	6·5	0·24
1895–1899 ...	67,781	2,743	4·0	0·16
1900–1904 ...	60,885	2,064	3·4	0·10
1905–1909 ...	92,668	2,570	2·8	0·11

Although the mortality and the hospital fatality in London have declined to the striking and very similar extents shown, so that the decline in mortality would seem from the table to be due principally to that in fatality, it should be borne in mind that in earlier years the cases admitted were for the most part severe, with high fatality ; whereas in recent years most of the known cases, including the milder ones, have been treated in hospital. It will be noticed, however, that in the latest quinquennium the decline in mortality has been arrested though that in fatality amongst hospital cases has continued.

The local distribution of mortality from scarlet fever varies widely. Table 33 shows that among the several counties with populations exceeding 100,000, the highest crude death-rates at all ages in 1909 were 162 per million in Cheshire, 167 in Dorsetshire, and 194 in Lancashire. The county rates in this table have not been adjusted for deaths in public institutions, otherwise the death-rate in Middlesex would be comparatively low and that in London would be raised from 72 to 79 per million.

The deaths among children under five years of age amounted to 59 per cent. of the total, and yielded a mortality of 0·59 per 1,000 living at this age in the urban counties, as against only 0·21 in the rural (Tables 37 and 38). The mortality was greatest in the fourth year of life (Table 34). Table 43 shows the incidence of fatal scarlet fever upon children under five years of age in the several registration counties of England and Wales.

Influenza.—From 1890, the year in which influenza reappeared as a serious factor in English mortality, onwards, the death-rate has averaged 286 annually per million living. It was 251 per million in 1909, and was, as usual, about equal for each sex, namely 249 per million for males and 254 for females. The previously noted excess in influenza mortality of the rural as compared with the urban counties is again observable, the crude death-rate in the former group being 39 per cent. above that in the latter. Among counties containing populations exceeding 100,000, the highest rates were 524 per million in Sussex and 651 in Buckinghamshire ; while the lowest were 125 in Northumberland, 162 in Durham, and 163 in the East Riding of Yorkshire.

Whooping-cough.—The death-rate from whooping-cough at all ages was 201 per million and was much the lowest on record, the nearest approach to this figure in previous years having been 241 in 1906.

About 97 per cent. of the total deaths occurred among children under the age of five years. The mortality per 1,000 children of this age was 1·70, or no less than 0·71 below the average of the previous five years. As usual, the mortality amongst females has exceeded that amongst males, the death-rate having been 1·50 for boys and 1·90 for girls ; and the mortality in the urban group of counties has been considerably greater than that in the rural, though the relative excess is not nearly so great as in the cases of measles and scarlet fever. Table 43 shows that among counties containing more than 100,000 inhabitants at all ages, the highest death-rates from this disease in each 1,000 children under five years of age were 2·44 in Glamorganshire, 2·74 in Staffordshire, and 4·22 in the North Riding of Yorkshire. The rate in Glamorganshire was below the quinquennial average, while those for Staffordshire and the North Riding of Yorkshire were above. In the last-named county the mortality was nearly double the average. Table 34 shows that this disease is especially destructive to children in the first two years of life.

Diphtheria and Croup.—Although it may be taken for granted that the deaths now certified as due to diphtheria represent the true mortality from the disease much more accurately than in earlier years, when the means of diagnosis was less perfect, still it is probable that even now the mortality is somewhat understated, and that many of the deaths ascribed to croup, as well as some of those ascribed to tonsillitis, laryngitis, ulcerated throat, &c., are really caused by diphtheria. For this reason it is advisable to study the mortality ascribed to diphtheria and croup conjointly, as representing more accurately than any other figure the total sacrifice of life from diphtheria. The age incidence of croup is much the same as that of diphtheria, and the deaths ascribed to it in 1909, 241 in number, were less than one-third of the number so referred as recently as 1901.

The death-rate from diphtheria and croup in 1909 is the lowest recorded since 1855, when diphtheria was first shown separately from scarlet fever in the tables, and in this connexion it must be borne in mind that the effect of increasing accuracy in diagnosis is to minimize the fall in mortality. If the mortalities from "diphtheria" only are compared, as in Table 29, that for 1909 is by no means the lowest, though we have to go back to 1881 to find a lower, but when the croup deaths are added the advantage of the earlier year disappears.

Tables XLVIII. and XLIX. show in detail the diminution in mortality from diphtheria and croup in 1909 as compared with the preceding quinquennium.

Table XLVIII. shows that the urban death-rate from diphtheria and croup at present somewhat exceeds the rural, but that this excess is less in 1909 than in the preceding quinquennium owing to more rapid decline of mortality in the urban than in the rural counties.

From Table XLIX. it further appears 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.

In both the urban and the rural counties the mortality in the first five years of life has approximately been halved since 1901, but while in the urban group the diminution is almost as great for children aged 5–10, the rural counties show little decline at this age.

TABLE XLVIII.

Diphtheria and Croup. Mortality per Million Living at all Ages.		Crude Rates. Average 1904–08.	Crude Rates. Year 1909.	Corrected Rates.* Average 1904–08.	Corrected Rates.* Year 1909.	Ratio.†
Both Sexes	England and Wales	178	153	178	153	86
	Urban Counties ...	185	159	184	158	86
	Rural Counties ...	154	136	157	138	88
Males ...	England and Wales	180	154	180	154	86
	Urban Counties ...	188	160	187	159	85
	Rural Counties ...	158	127	160	128	80
Females ...	England and Wales	175	153	175	153	87
	Urban Counties ...	182	158	181	156	86
	Rural Counties ...	151	144	155	146	94

* See footnote, page xxxvii.

† *i.e.*, the ratio of the corrected death-rates in 1909 to those in 1904–08, the latter taken as 100.

TABLE XLIX.

Diphtheria and Croup. Mortality at Age-groups, per Million Living.		Average 1904–1908. England and Wales.	Urban Counties.	Rural Counties.	Year 1909. England and Wales.	Urban Counties.	Rural Counties.
Both Sexes	0—	932	1,038	661	775	883	509
	5—	527	494	558	487	433	563
	10—	84	69	122	74	63	119
	15—	17	13	30	17	9	32
	20—	10	8	17	6	5	5
	25—	8	7	10	7	6	8
	35—	7	7	11	5	5	10
	45—	6	5	9	3	3	5
	55—	7	7	8	3	6	—
	65—	6	6	5	6	7	3
Males ...	0—	947	1,052	710	801	904	526
	5—	486	458	511	432	394	436
	10—	82	70	105	68	55	114
	15—	17	13	29	15	6	23
	20—	11	9	18	4	2	—
	25—	7	6	6	6	5	7
	35—	7	6	13	5	3	16
	45—	5	3	9	3	2	5
	55—	6	6	5	3	6	—
	65—	7	8	6	4	6	7
Females ...	0—	918	1,024	613	750	861	492
	5—	568	529	605	541	471	689
	10—	87	68	138	80	70	124
	15—	16	12	30	19	11	42
	20—	9	7	17	8	7	10
	25—	8	8	14	7	6	9
	35—	7	8	9	6	8	4
	45—	7	7	9	4	3	5
	55—	8	7	11	3	5	—
	65—	5	5	4	7	7	—

TABLE L.

Diphtheria. (Quinquennia.)	Metropolitan Asylums Board Hospitals. Admissions.	Deaths.	Fatality. (Ratiopercent. of deaths to admissions.)	County of London. Mean Annual Mortality per 1000 living.
1890–1894	10,777	3,196	29·7	0·49
1895–1899	29,058	4,928	17·0	0·49
1900–1904	31,774	3,549	11·2	0·24
1905–1909	24,943	2,278	9·1	0·14

Table L., condensed from a more extended table in the last report of the Metropolitan Asylums Board, shows the alteration 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. As in the case of scarlet fever (Table XLVII.), there has been a very great decline in the ratio of diphtheria deaths to admissions, and also in the general London mortality from the disease—both being about 70 per cent. lower in 1905–09 than in 1890–94, *i.e.*, less than one-third of the earlier figure.

It is pointed out in the Annual Report of the Metropolitan Asylums Board for 1909 (page 152) that the London mortality from diphtheria reached a maximum (0·76 per 1000) in 1893, since when the rate has fallen, "and this fall has been coincident with the introduction and "increasing use of the antitoxic serum treatment of diphtheria."

Of the 5476 deaths at all ages from diphtheria and croup, 3168, or 58 per cent., occurred within the first five years of life. These deaths correspond to a rate of 0·78 per 1000 children living at that age, or 0·15 per 1000 below the average in the previous quinquennium (Table 39). In the year 1909, as in recent previous years, the mortality steadily increased from birth to the fourth year of age (Table 34). Table 43 shows the distribution of these deaths in the several counties of England and Wales. Among counties containing more than 100,000 inhabitants at all ages, the highest death-rates in each 1000 children were 1·01 in the East Riding of Yorkshire, 1·03 in Lancashire and in the North Riding of Yorkshire, 1·04 in Monmouthshire, and 1·54 in Carmarthenshire.

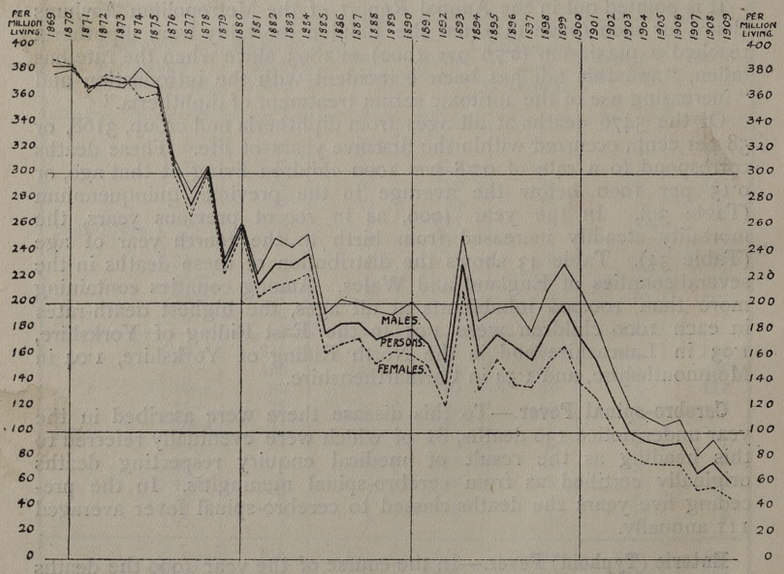
Cerebro-spinal Fever.—To this disease there were ascribed in the year under notice 130 deaths, 81 of which were eventually referred to this heading as the result of medical enquiry respecting deaths originally certified as from cerebro-spinal meningitis. In the preceding five years the deaths classed to cerebro-spinal fever averaged 111 annually.

Enteric (Typhoid) Fever.—In the course of the year 1909 the deaths of 2142 persons at all ages and of both sexes were ascribed to enteric fever. These deaths correspond to a rate of 60 per million persons living, which is the lowest on record, and is 23 per million below the average for the quinquennium immediately preceding. Among males the death-rate was equal to 74 per million, and among females to 47 per million (Table LII.). During the 41 years which have elapsed since the disease was first differentiated in these reports enteric fever

mortality has fallen to less than a sixth of its former amount, namely, from a rate of 390 per million in 1869 to 60 per million in 1909 (Table 29).

The progress of this great decline can be traced in Diagram VIII. It will be seen that the statistical history of enteric fever mortality can be divided into three main periods, two of decline, from 1869 to 1885 inclusive, and from 1900 to the present date, and one showing no decline, from 1886 to 1899. The first period, however, may be subdivided into two portions, that prior to and including 1875, the date of the Public Health Act, which shows very slight decline, and that from 1876 to 1885 inclusive, which shows a sudden and relatively enormous reduction in the mortality. The decline in the ten years following the passage of the Public Health Act was from 371 to 175 per million persons living, a reduction equal to 196 deaths annually per million living, or 53 per cent. of the earlier total. The fourteen years of arrested decline which followed increased the death-rate slightly, from 175 to 198 per million persons, though it may be noted that this increase was almost wholly confined to males. The second period of ten years decline has reduced the mortality by 138 per million persons, from 198 to 60 per million, a reduction of no less than 70 per cent.

DIAGRAM VIII.—ENGLAND AND WALES.—ENTERIC FEVER. CORRECTED DEATH-RATES at ALL AGES, 1869–1909.*



* The death-rates throughout the entire period are based upon the sex and age constitution of the population as enumerated in 1901. For method of correction, *see* page xxxvii.

The arrest in the decline of mortality from enteric fever during the last years of the nineteenth century may be compared with that shown in Diagram III. to have occurred at about the same time in mortality from all causes. It will be seen also from comparison with Diagram IV.

that the same period was one of increasing infantile mortality, and that the present period of decline in mortality from enteric fever corresponds precisely with the similar period of recent improvement in regard to infantile mortality, both commencing with the year 1900.

While, however, the experience of this country in regard to infantile mortality has been paralleled by that of most other European countries, in that considerable declines in them also have dated from about the same year, there is no such parallelism in the case of enteric fever. Continuous decline in mortality has been the prevailing rule in the more progressive countries of Europe, and the interruption in the line of descent during the last fifteen years or so of the last century finds no place in the curves of their mortality. It is, on the other hand, well marked in the Scottish curve, though the cessation of decline was not absolute (Table XCVII.), while in Ireland the mortality actually increased up to the period 1895–1900, since when the fall has been greater than in either England or Scotland.

Diagram VIII. also shows the changes which have taken place in the sex incidence of enteric fever mortality. Prior to 1881 the mortality of both sexes was about equal, but since then that of males has been uniformly and, at times, very much higher. The maximum of actual excess is shown by the diagram to have been reached about the year 1900, when the relative excess was 51 per cent. In 1909, however, the relative excess was 57 per cent., and in 1908 as high as 68 per cent. This alteration in the sex incidence of enteric fever may be compared with the like change which has occurred in regard to tuberculosis. (*See* page lxxii.)

In Table LI., 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, 1875–1909. This table shows that the diminished mortality is due in the main to diminished prevalence rather than diminished fatality of the disease.

TABLE LI.

Enteric Fever. (Quinquennia.)	Metropolitan Asylums Board Hospitals.			County of London.
	Admissions.	Deaths.	Fatality. (Ratio per cent. of deaths to admissions.)	Mean Annual Mortality per 1,000 living.
1875–1879	1,828	390	21·3	0·24
1880–1884	2,157	405	18·8	0·23
1885–1889	1,734	257	14·8	0·15
1890–1894	2,761	470	17·0	0·13
1895–1899	4,329	722	16·7	0·14
1900–1904	5,994	898	15·0	0·11
1905–1909	2,665	387	14·5	0·04

As is the case with many other diseases, the mortality from enteric fever is partly determined by the density of the population. In Table LII. urban and rural mortalities are contrasted for each sex and those for 1909 compared with the average of the preceding quinquennium.

TABLE LII.

Enteric Fever. Mortality per Million Living at all Ages.		Crude Rates. Average 1904–08.	Crude Rates. Year 1909.	Corrected Rates.* Average 1904–08.	Corrected Rates.* Year 1909.	Ratio.†
Both Sexes	England & Wales ...	83	60	83	60	72
	Urban Counties ...	94	70	93	69	74
	Rural Counties ...	64	43	67	44	66
Males ...	England & Wales ...	101	74	101	74	73
	Urban Counties ...	114	88	112	86	77
	Rural Counties ...	74	47	77	48	62
Females ...	England & Wales ...	67	47	67	47	70
	Urban Counties ...	75	53	75	53	71
	Rural Counties ...	55	39	57	41	72

* See footnote, p. xxxvii.

† *i.e.*, the ratio of the corrected death-rates in 1909 to those in 1904–08, the latter taken as 100.

Taking both sexes together the mortality in the urban group of counties in 1904–08 exceeded that in the rural by 39 per cent. Among males the excess was 45 per cent., whilst among females it amounted to only 32 per cent.

From Table 33 it appears that among registration counties with populations exceeding 100,000, the highest crude death-rates‡ from enteric fever were 121 per million in Carnarvonshire, 112 in Lancashire, and 108 in Carmarthenshire.

Compared with the respective decennial averages, Lancashire and Carmarthenshire showed considerable decreases and Carnarvonshire an increase. In all these counties the mortality in 1909 was more or less general, and was not in the main determined by any particular local outbreak.

In Table LIII. 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 counties.

From this table it appears that both in the year 1909 and in the previous quinquennium the male rates of mortality from enteric fever considerably exceeded the female rates at all periods of life above the age of 15 years. As in several previous years the highest mortality was met with between the ages of 25 and 35 years. In each age-group the urban rates usually greatly exceed the rural rates, the chief exception being among young women aged 20–25 years.

‡ In the case of enteric fever, correction does not greatly modify the death-rates.

TABLE LIII.

Enteric Fever. Mortality at Age-groups, per Million Living.		Average 1904–1908. England and Wales.	Average 1904–1908. Urban Counties.	Average 1904–1908. Rural Counties.	Year 1909. England and Wales.	Year 1909. Urban Counties.	Year 1909. Rural Counties
Both Sexes	0—	27	31	18	18	21	17
	5—	48	56	31	38	48	33
	10—	68	79	55	42	56	19
	15—	101	106	88	73	80	56
	20—	117	120	117	76	76	74
	25—	127	139	95	95	102	70
	35—	108	127	78	84	103	38
	45—	86	101	65	60	76	44
	55—	61	70	53	52	66	44
	65—	30	35	28	19	19	33
Males ...	0—	28	32	17	20	23	21
	5—	46	54	25	36	48	25
	10—	65	74	54	42	55	25
	15—	120	126	101	83	96	50
	20—	152	156	128	101	103	76
	25—	169	185	115	121	132	76
	35—	137	158	102	113	140	56
	45—	107	125	83	82	106	51
	55—	77	89	63	62	87	47
	65—	37	46	39	21	19	44
Females ...	0—	26	30	19	15	19	12
	5—	49	58	37	40	47	42
	10—	71	83	56	41	57	13
	15—	84	87	74	62	65	61
	20—	86	89	108	54	51	72
	25—	89	98	77	71	74	66
	35—	82	97	56	57	68	22
	45—	67	78	48	40	48	37
	55—	48	53	44	43	47	41
	65—	24	27	20	18	19	24

Diarrhœal Diseases.—This term includes the following headings of the extended list of causes of death (Tables 23–28 and pages 296–313 &c.):

(1) Diarrhœa due to food;
(2) Infective Enteritis, Epidemic Diarrhœa;
(3) Diarrhœa not otherwise defined (including Gastro-intestinal Catarrh);
(4) Ulceration of intestines;
(5) Enteritis;
(6) Gastro-enteritis.

It corresponds to the "diarrhœa and enteritis" of the International List of Causes of Death.*

* For an account of the changes made in the grouping of these diseases *see* Annual Report, 1908, pages xcv–xcvi. In addition to the alterations there described it has been found necessary to include deaths from intestinal ulceration under the heading diarrhœal diseases.

The number of deaths at all ages ascribed to these causes during 1909 was 17,468, equal to a rate of 490 per million living, or 376 per million below the average rate in the preceding quinquennium.

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

TABLE LIV.—MORTALITY from DIARRHŒAL DISEASES among CHILDREN aged 0–5 years.

—		England and Wales.	Urban Counties.	Rural Counties.
Both Sexes	1909	3·51	4·30	2·02
	1904–08 ...	6·64	8·13	3·10
Males ...	1909	3·92	4·79	2·31
	1904–08 ...	7·21	8·80	3·41
Females ...	1909	3·11	3·80	1·72
	1904–08 ...	6·06	7·46	2·79

From this table it will be seen that in the year 1909, as compared with the quinquennium 1904–08, the diarrhœal mortality of children under five years declined by 47 per cent. in England and Wales as a whole. In the urban area (page liii) the decline was also 47 per cent. against 35 per cent. in the rural area. The same table shows that the child mortality during 1909 in the urban group of counties was more than twice as great as that in the rural group. Table 43 shows that among counties with populations above 100,000 the lowest death rates from diarrhœal diseases were 1·19 per 1,000 children living in Hertfordshire and 1·25 in Wiltshire. The highest death rates were 5·08 in Glamorganshire and 5·34 in Nottinghamshire.

Rabies (Hydrophobia).—Not a single death from this disease has been reported either in the year 1909 or in any of the six years immediately preceding. In the course of the last eleven 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 81 males and 40 females were referred to pyæmia, and the deaths of 210 males and 159 females to septicæmia, in the year under notice ; the deaths of females from puerperal affections of this nature being excluded from this heading. The parts of the body medically certified as invaded by infective processes are given in the supplementary tables on pages 314 and 315. 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 Fever.—The deaths referred to one or other of the definite headings comprised under this term (*i.e.*, puerperal septicæmia and septic intoxication, puerperal pyæmia, and phlegmasia alba dolens) numbered 1239. In addition to these 190 deaths were indefinitely certified as due to "Puerperal Fever" (variety unspecified), a term

no longer recognised by the Royal College of Physicians as adequate for the description of the cause of any individual death. The total number, 1429, is 34 in excess of that so returned in 1908. The number of deaths certified as due to "puerperal fever" (190) is the same as in 1908, but compares with 478 so recently as 1901. It is much to be hoped that this satisfactory improvement in certification will continue.

Of the 1429 deaths referred to puerperal septic affections 208 were further complicated ; the complicating cause was stated to be scarlet fever in 4 cases, influenza in 10, infective endocarditis in 6, pneumonia in 79, tuberculous disease in 8, inflammation of the brain in 3, diseases of the heart in 5, cerebral hæmorrhage in 7, embolism or thrombosis in 39, bronchitis in 7, pleurisy in 6, liver disease in 3, and kidney disease in 11 cases. In addition to the 1429 mentioned above there occurred in connexion with pregnancy or childbirth 3171 other deaths, of which particulars are given in Tables LXIX. and LXX.

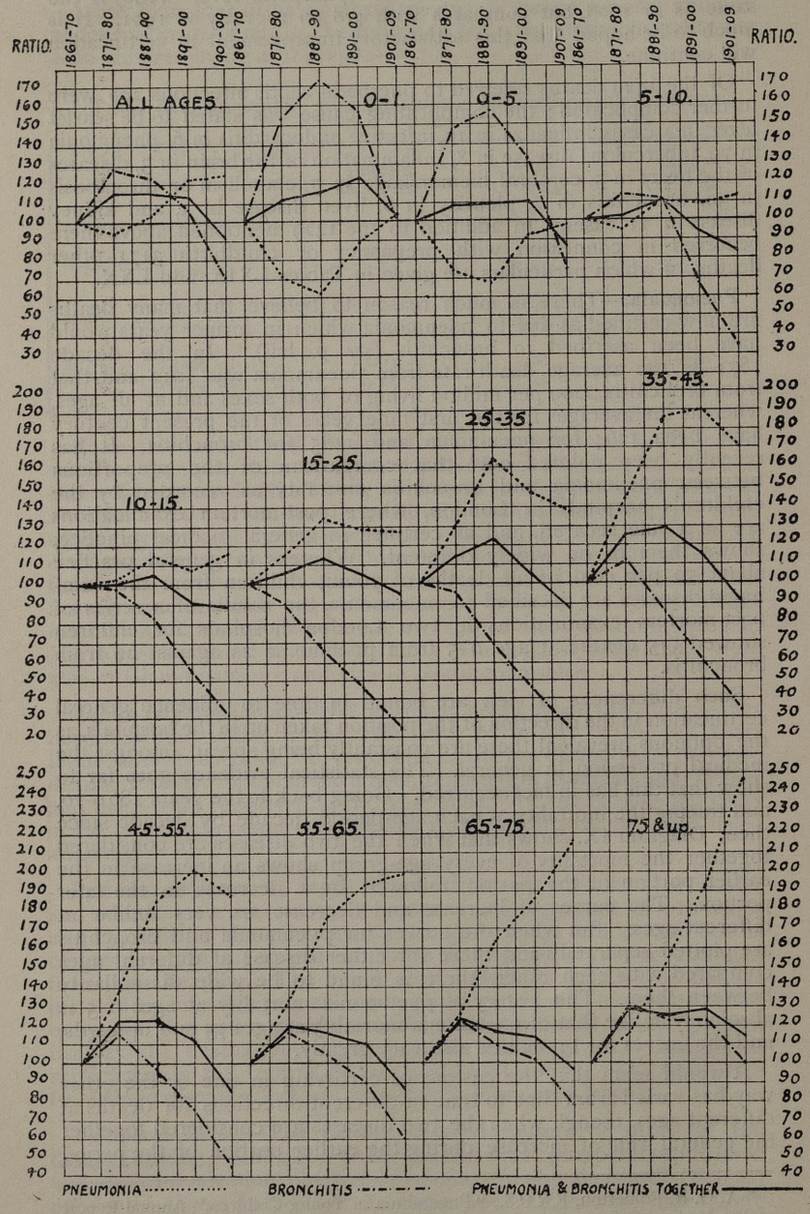
Pneumonia.—There is much reason to believe that many deaths are now certified as due to pneumonia which in former years would have been ascribed to bronchitis (*see* p. lvii). In the decade 1871–80 the average death-rate from pneumonia was 1012 and that from bronchitis 2299 per million living of both sexes and at all ages, whereas the averages for the first nine years of the present century have been 1264 for pneumonia and 1185 for bronchitis. It has recently been pointed out* that comparison of the proportions between pneumonia and bronchitis mortality as recorded by the children's hospitals in London, where post-mortem examinations are as a rule secured, and as certified in general medical practice, shows them to be widely different. Whereas in general practice about 50 per cent. of all deaths of young children from the combined diseases are ascribed to pneumonia, the results of a series of post-mortem examinations in two London hospitals for children showed 525 deaths at age 0–5 from pneumonia as against 29 from bronchitis.

Such differences of view are bound in time to influence general certification in the direction of the position taken up in the hospitals, as the opinions prevalent there are constantly being spread amongst the medical profession in general. The statistical evidence goes far to show that this has in fact occurred. Going back to the years 1861–70, and tracing the mortality at each age-period decade by decade since then, Diagram IX. shows that when the two diseases are considered together the mortality of every age-group shows an increase in the earlier portion of the period, followed by a decrease in the later portion. The curves of increase and decrease are very similar at different ages. But when the curves for pneumonia and bronchitis are plotted separately and those for either disease at different ages compared with each other, there is found to be wide dissimilarity between them. The history of pneumonia mortality at ages 0–5 is absolutely unlike that of pneumonia mortality at ages 75 and upwards, and the curves for bronchitis also vary greatly.

It would seem that the custom of certifying in one or the other way has varied from time to time in different directions for deaths at different ages, though when the two diseases are considered together the general rule of increase during the earlier portion of the period

* A. G. R. Foulerton, F.R.C.S., "Pneumonia in Young Children," Annual Report of the Medical Officer of the Local Government Board for 1908–09.

DIAGRAM IX.—ENGLAND AND WALES.—PNEUMONIA and BRONCHITIS. Subsequent MORTALITIES per cent. of those for 1861–70.



considered, followed by decrease later, holds good of all age-periods. It is only at ages 0–5, and to a less extent at 5–10 that initial decrease in recorded pneumonia mortality (as compared with 1861–70) occurred, but as about 40 per cent. of all deaths from the two diseases are those of children under five this initial decrease markedly affected the total death-rate. For persons of all ages and for children under five the curves of the separate diseases are exactly converse. When the bronchitis death-rate rose that from pneumonia fell, and when the bronchitis rate began to come down that from pneumonia began to go up. The evidence all seems to point to the conclusion that in comparing the mortality of the present day with that of former periods the only safe course is to study the combined records of the two diseases.

While the figures suggest transfer from bronchitis to pneumonia they are none the less impressed with the distinctive characteristics of the two diseases. The age and sex distributions differ very considerably. Nearly 60 per cent. of all deaths attributed to bronchitis occur at ages over 55, as against about 24 per cent. of pneumonia deaths; and the mortality of males considerably exceeds that of females in the case of pneumonia, but not of bronchitis. Approximate equality of mortality between the sexes is the rule at all ages in the case of bronchitis, but in that of pneumonia there is a large excess of male mortality except at ages 5 to 15 and from 75 onwards.

The deaths referred to pneumonia during 1909 numbered 46,108, of which 25,734 were of males and 20,374 of females. Of these deaths 6,072 were referred to lobar pneumonia, 19,795 to broncho-pneumonia, and 11 to epidemic pneumonia, whilst 20,230 were assigned to "pneumonia" without further qualification; in the case of the deaths of 264 males and 169 females the condition was stated to be septic.

The following table shows that the corrected death-rate of males from pneumonia of all forms considerably exceeds that of females, and that in both sexes the mortality is much higher in the urban than in the rural group of counties :—

TABLE LV.

Pneumonia. Mortality per Million Living at all Ages.		Crude Rates. Average 1904–08.	Crude Rates. Year 1909.	Corrected Rates.* Average 1904–08.	Corrected Rates.* Year 1909.	Ratio.†
Both Sexes	England & Wales ...	1,262	1,290	1,262	1,290	102
	Urban Counties ...	1,453	1,511	1,484	1,553	105
	Rural Counties ...	922	905	864	835	97
Males ...	England & Wales ...	1,472	1,490	1,472	1,490	101
	Urban Counties ...	1,695	1,742	1,730	1,789	103
	Rural Counties ...	1,064	1,037	1,000	966	97
Females ...	England & Wales ...	1,066	1,102	1,066	1,102	103
	Urban Counties ...	1,226	1,295	1,254	1,333	106
	Rural Counties ...	790	783	737	712	97

* See footnote, page xxxvii.

† *i.e.*, the ratio of the corrected death-rates in 1909 to those in 1904–08, the latter taken as 100.

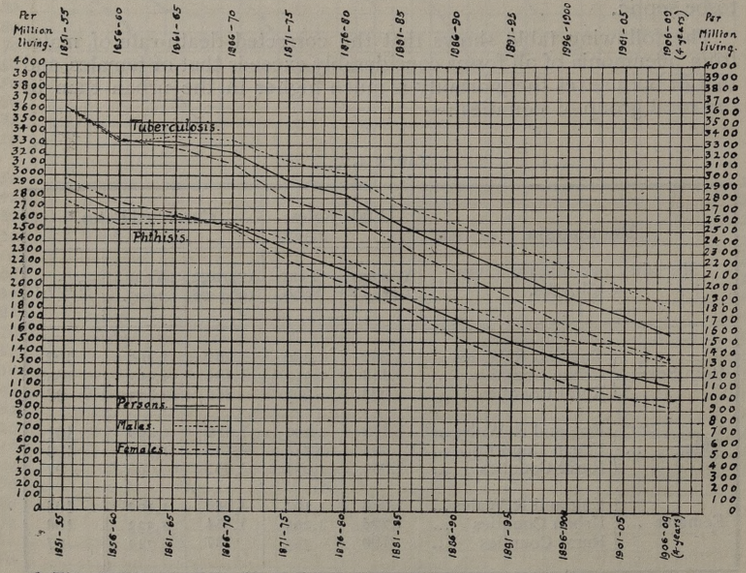
Compared with the average in the quinquennium 1904–08 the mortality from pneumonia in 1909 showed an increase in the urban group of counties and a slight decrease in the rural.

The mortality from the principal types of pneumonia varies considerably in age and sex incidence, that from broncho-pneumonia being much more concentrated upon the extremes of life than that from lobar, while the excess of male mortality is much greater in the case of lobar pneumonia. In both these respects lobar is more widely differentiated from bronchitis than is broncho-pneumonia.

Tuberculosis.—The mortality from this cause continues to decrease, and was lower in 1909 than in any previous year. The deaths assigned to tuberculous affections in the aggregate numbered 54,425, or 4,496 below the average number in the previous five years, corrected for estimated increase of population. Tuberculosis was responsible for 10·5 per cent. of the mortality from all causes, and for a death-rate of 1,523 per million living, at all ages and of both sexes.

Diagram X. shows the incidence of the mortality in each sex, both from all forms of the disease and from phthisis, in each quinquennium since 1851. It will be apparent from the diagram that although there has been a steady decrease in the mortality from tuberculosis in both sexes, the decrease has been much greater among females than males. In the first quinquennium the rates were the same in each sex (3,637 per million), but in the four-year period, 1906–09, while the rate among males had fallen to 1,825 per million, that among females had

DIAGRAM X.—ENGLAND AND WALES.—TUBERCULOSIS (all forms) and PHTHISIS. CORRECTED DEATH-RATES at ALL AGES, in quinquennia 1851–1909.*



* The death-rates throughout the entire period are based upon the sex and age constitution of the population as enumerated in 1901. For method of correction, *see* p. xxxvii.

fallen to 1,367 per million, or 25 per cent. lower. In the case of phthisis it will be seen that the mortality among females did not fall below that of males till a later period (1866–70), but that since then the excess in decrease of female mortality has been more marked than in the case of tuberculosis generally, the death-rate from phthisis among females during the four years, 1906–09, being 29 per cent. lower than that among males.

Among counties containing populations above 100,000 the highest uncorrected death-rates from tuberculosis in 1909 were 1,861 in Northumberland, 2,099 in Carnarvonshire and 2,115 in Carmarthenshire.

Phthisis (including tuberculous laryngitis).—In the year under notice tuberculous phthisis accounted for the deaths of 20,656 persons, and "phthisis" not otherwise defined, for the deaths of 17,983 persons, at all ages and of both sexes. Together these deaths were equal to 71 per cent. of the total deaths from tuberculosis, and to a rate of 1,081 per million of the population, or 7·5 per cent. of the total death-rate. This rate is the lowest on record, as were those also of 1905, 1907, and 1908. It is 6 per cent. below the average for the five years 1904–08.

TABLE LVI.

Phthisis. Mortality per Million Living at all Ages.		Crude Rates.		Corrected Rates.*		
		Average 1904–08.	Year 1909.	Average 1904–08.	Year 1909.	Ratio.†
Both Sexes	England & Wales ...	1,156	1,081	1,156	1,081	94
	Urban Counties ...	1,236	1,148	1,231	1,145	93
	Rural Counties ...	1,079	1,015	1,112	1,042	94
Males ...	England & Wales ...	1,362	1,270	1,362	1,270	93
	Urban Counties ...	1,500	1,390	1,495	1,389	93
	Rural Counties ...	1,175	1,105	1,210	1,131	93
Females ...	England & Wales ...	963	903	963	903	94
	Urban Counties ...	989	921	984	916	93
	Rural Counties ...	990	931	1,021	958	94

* See foot-note to page xxxvii.

† *i.e.*, the ratio of the corrected death-rates in 1909 to those in 1904–08, the latter taken as 100.

The phthisis mortality has fallen during the past half century by more than 50 per cent. at all ages, and by about 70 per cent. at ages 0–25. From that age onwards the fall has been considerably less marked, and has been more pronounced in females than in males.

Table LVI. shows that in 1904–08 the corrected phthisis death-rate at all ages was 41 per cent. higher amongst males than among females, and was higher in the urban group of counties than in the rural by 24 per cent. among males, but lower by 4 per cent. among females. When, however, examination is made of the mortality at the several ages, Table LVII. 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.

TABLE LVII.

Phthisis. Mortality at Age-groups, per Million Living.		Average 1904–1908. England and Wales.	Urban Counties.	Rural Counties.	Year 1909. England and Wales.	Urban Counties.	Rural Counties.
Both Sexes	0—	323	385	235	248	302	159
	5—	163	181	131	149	168	115
	10—	273	278	284	267	268	290
	15—	846	821	970	795	803	864
	20—	1,307	1,203	1,704	1,208	1,135	1,570
	25—	1,719	1,674	1,951	1,629	1,583	1,827
	35—	2,048	2,251	1,726	1,882	2,029	1,625
	45—	2,092	2,454	1,534	1,944	2,216	1,492
	55—	1,727	2,056	1,349	1,664	1,953	1,261
	65—	952	1,166	746	997	1,229	831
Males ...	0—	348	423	234	263	324	150
	5—	133	149	102	123	144	89
	10—	162	175	147	161	166	157
	15—	735	743	753	662	690	653
	20—	1,443	1,319	1,842	1,315	1,248	1,622
	25—	1,988	1,950	2,158	1,859	1,813	1,995
	35—	2,532	2,834	2,018	2,367	2,591	1,934
	45—	2,871	3,438	1,988	2,671	3,104	2,008
	55—	2,481	3,063	1,763	2,394	2,971	1,653
	65—	1,316	1,725	913	1,385	1,854	1,008
Females ...	0—	298	348	236	232	281	167
	5—	192	212	160	175	192	150
	10—	383	381	423	372	368	424
	15—	955	896	1,194	925	910	1,081
	20—	1,185	1,100	1,583	1,113	1,035	1,525
	25—	1,477	1,422	1,772	1,423	1,374	1,682
	35—	1,596	1,697	1,460	1,430	1,496	1,343
	45—	1,371	1,526	1,129	1,272	1,379	1,030
	55—	1,067	1,176	989	1,025	1,063	920
	65—	671	752	612	698	766	689

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 65 years; but that above this age 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 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.

In Tables 31, 32 and 33, the crude rates of mortality from phthisis in 1909 are shown in the several registration counties of England and Wales. In order to secure sufficiently reliable rates even in the smallest counties for purposes of comparison, examination has been made of the phthisis mortality in all the registration counties during the quinquennium ended 1909. In Table LVIII. 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.

TABLE LVIII.

Phthisis. 1905–1909.	Corrected Death-rates per million. Persons.	Males.	Females.
England and Wales	1,125	1,325	938
England (excluding Monmouthshire)	1,120	1,333	920
Wales (including Monmouthshire) ...	1,213	1,195	1,229
Cardiganshire	2,237	2,320	2,159
Carmarthenshire	1,525	1,409	1,633
Merionethshire	1,512	1,567	1,462
Carnarvonshire	1,501	1,588	1,420
Pembrokeshire	1,393	1,383	1,401
Anglesey	1,356	1,167	1,534
London	1,325	1,729	946
Northumberland	1,308	1,417	1,206
Lancashire	1,294	1,567	1,038
Cornwall	1,245	1,594	918
Montgomeryshire	1,217	1,316	1,125
Hampshire	1,184	1,454	931
Warwickshire	1,172	1,524	843
Flintshire	1,151	1,284	1,026
Brecknockshire	1,148	1,031	1,257
Suffolk	1,137	1,227	1,053
Glamorganshire	1,134	1,122	1,145
Devonshire	1,128	1,275	990

From this table it appears that ten of the eighteen counties suffering the highest mortality from phthisis were Welsh, and that no fewer than six of these had a higher mortality than any English county. Cardiganshire experienced a death-rate nearly double the average for England and Wales. The excess in these Welsh counties is shown in the table to affect female much more than male mortality.

This table also shows that the mortality of males from phthisis is lower in Wales than in England, but that the mortality of females is very much higher, with the result that in Wales female exceeds male mortality, though in England and Wales as a whole the converse has held good for the last forty years.

Tuberculous Meningitis.—Under this head, or else under that of acute hydrocephalus, there were returned last year 5,774 deaths at all ages—being fewer by 496 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.

The Tables on pages 300–301 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 3,794, or 66 per cent. occurred within the first five years of life—a number corresponding to a rate of 93 per 100,000 living at that age. The deaths under one year were equal to 135 in every 100,000 infants born.

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 :—

TABLE LIX.—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.
1847–1849 (3 years) ...	308	238	273	168	143	156
1850–1854	311	231	271	175	148	162
1855–1859	280	209	245	175	152	164
1860–1864	277	194	236	178	152	165
1865–1869	249	182	215	210	183	196
1870–1874	225	160	192	208	174	191
1875–1879	228	155	191	224	190	207
1880–1884	186	133	160	220	180	200
1885–1889	163	120	142	192	155	173
1890–1894	157	119	138	179	145	162
1895–1899	146	116	131	156	125	140
1900–1904	122	105	113	126	99	113
1905–1909	106	92	99	88	70	79

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, notwithstanding the alteration in classification mentioned in the footnote to Table LIX., which does not appear to have affected the figures very profoundly.

The malady is generally more destructive to young children in the town than in the country. Tables 37 and 38 show that in the selected urban counties the mortality of children under five years of age was equal in 1909 to a rate of 103, and in the rural counties to a rate of 63 per 100,000 living at this age.

Tuberculous Peritonitis (including *Tabes Mesenterica*).—Under this head there were returned last year 4,399 deaths at all ages, or fewer by 808 than the corrected average number in the preceding five years. Of this total 3,522 were definitely ascribed to tuberculous peritonitis, the remaining 877 being indefinitely assigned to tabes mesenterica.* The deaths of children under five years amounted to 64 per cent. of the total mortality. Among 100,000 boys living at this age the deaths were 79 in number ; while among the same number of girls living, the deaths numbered 58.

The mortality ascribed to tuberculous peritonitis is seen from Table LIX. to have displayed since 1875–79 a continuous decline, which since 1890–94 has become remarkably rapid. This is the more noteworthy in contrast with the tendency to increase up to about 1879. The death-rate of boys has exceeded that of girls by about 25 per cent. of late years, as against 15–20 per cent. in the earlier periods dealt with in the table.

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

From Tables 37 and 38 it will be seen that as in previous years the mortality amongst young children from tuberculous peritonitis (as from tuberculous meningitis) is far higher in the town than in the country. In the year 1909 the death-rate from this disease among children under five years of age was 75 per 100,000 living in the urban counties, and 43 in the rural counties.

Other Tuberculous Diseases.—The deaths at all ages returned under this head were 5,613 in number, and corresponded to a rate of 157 per million living, which is 14 per million below the average rate in the preceding five years (*see* Table 24). This total consists of 3,639 deaths from general tuberculosis, and of 1,974 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 5,613 deaths at all ages from "other tuberculous diseases," 1,795 were those of children under five years of age (*see* pages 300 and 301).

The mortality ascribed to lupus and to tuberculous disease of the bones and joints is stationary or slightly on the increase ; that from general tuberculosis tends to decrease ; and that ascribed to scrofula has almost disappeared (*see* Table 24).

Alcoholism and **Cirrhosis of Liver.**—The deaths of 1,671 persons, 998 males and 673 females, were returned in 1909 under the heading "Alcoholism, delirium tremens" ; of this total, 43 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 58 per million, and among females to a rate of 36 per million, or 26 and 29 per cent., respectively, below the average in the preceding five 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.

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. Since that year there has been a steady decline in the mortality ascribed to these causes.

Rheumatic Fever (Acute and Sub-acute Rheumatism).—The deaths referred to this disease numbered 1,970, corresponding to a death-rate of 56 per million among males and 55 per million among females. Few deaths of young children are ascribed to rheumatic fever, but after the age of five years or so there is comparatively little variation in the death-rate at different ages. The maximum mortality occurs in later childhood, and about this period of life females suffer more than males, the reverse being generally the case at other ages.

Cancer.—*Increase in Total Recorded Mortality.*—The deaths ascribed to cancer or malignant disease during 1909 numbered 34,053, of which 19,513 were referred to carcinoma, 1,974 to sarcoma, and 12,566 less definitely to "cancer" not otherwise defined. The latter number remains about stationary year by year, but the deaths ascribed to carcinoma are rapidly increasing. The mortality amongst males was 826 per million living as compared with 813 in 1908, and that amongst females 1,071 as compared with 1,027. The greater increase in the mortality of the female sex is contrary to the general rule which has obtained of late years,

Diagram XI. shows that from 1860 to about 1880 the increase in female mortality was greater than that in the mortality of males, but that since 1890 the reverse has been the case, male mortality (as recorded) having increased by 303 and female by 219 per million living.

Previously to 1909 the annual increase in female mortality had not been greater than that in male since the year 1900, and never since 1851‡ has the excess of increase amongst females been so great as in 1909.

Table LX., which shows the increase of mortality from cancer during 1909 as compared with the average of the preceding five years, indicates cancer to be more destructive in the urban than in the rural group of counties, although the crude rates 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.

TABLE LX.

Cancer. Mortality per Million Living at all Ages.		Crude Rates.		Corrected Rates.*		
		Average 1904–08.	Year 1909.	Average 1904–08.	Year 1909.	Ratio.†
Both Sexes	England and Wales ...	902	952	902	952	106
	Urban Counties ...	860	902	942	990	105
	Rural Counties	1,051	1,153	840	914	109
Males ...	England and Wales ...	777	826	777	826	106
	Urban Counties ...	741	783	820	867	106
	Rural Counties	925	992	720	769	107
Females ...	England and Wales ...	1,019	1,071	1,019	1,071	105
	Urban Counties ...	972	1,013	1,056	1,106	105
	Rural Counties	1,187	1,302	953	1,049	110

* See footnote, p. xxxvii.

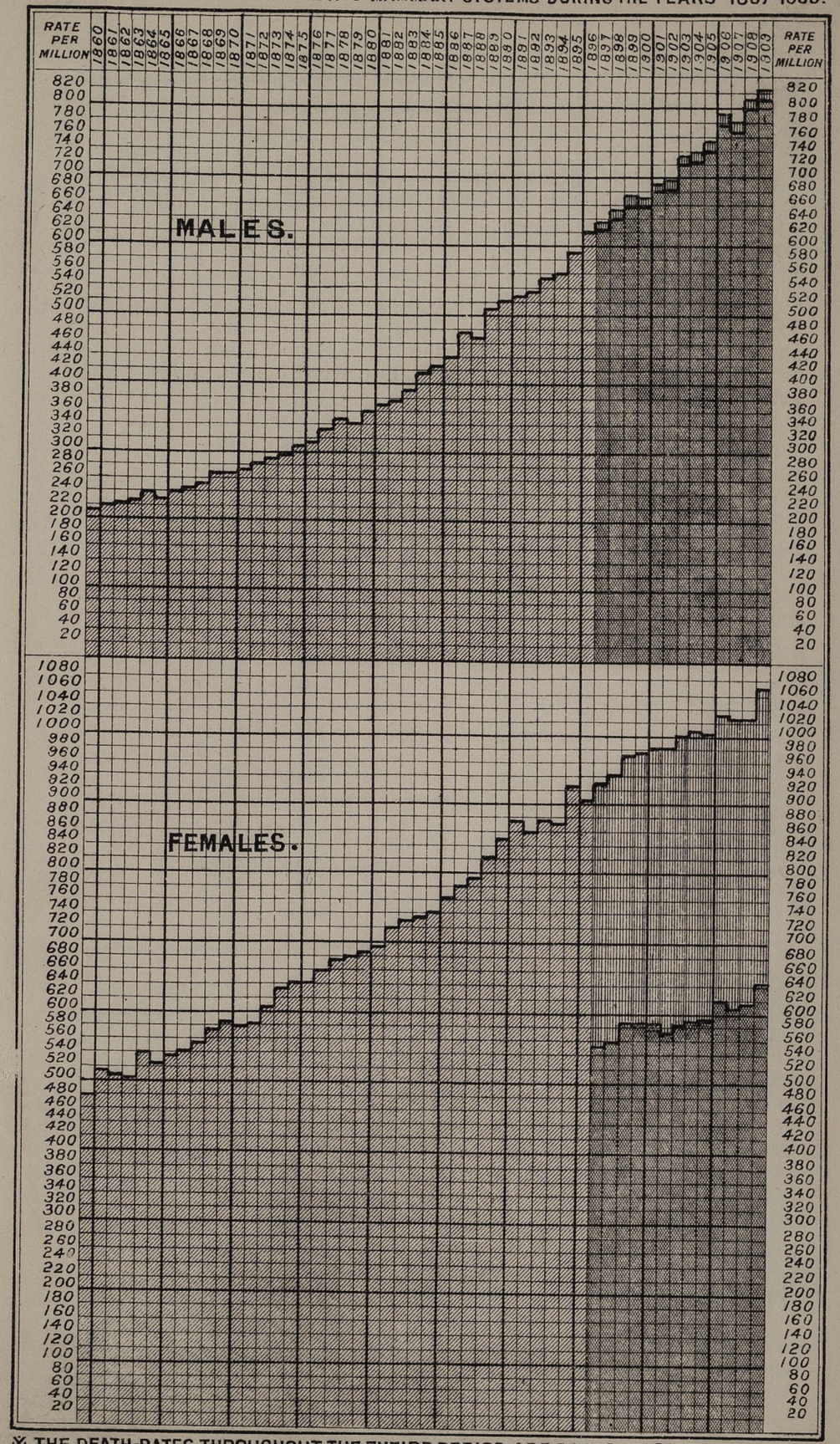
† *i.e.*, the ratio of the corrected death-rates in 1909 to those in 1904-08, the latter taken as 100.

Relation of Increase in Mortality to age and sex.—Table LXI. shows the mortality from cancer at each age-period. It further shows that as compared with the preceding quinquennium the mortality in each sex exhibited an appreciable increase in 1909 at every age-period at which cancer is an important cause of death, except the earliest (35–45).

‡ Corrected death-rates from cancer have not been calculated for years prior to 1851.

DIAGRAM XI – ENGLAND & WALES – CANCER; CORRECTED DEATH-RATES AT ALL AGES 1860-1909. ※

NOTE:–THE PORTION SHADED VERTICALLY REPRESENTS THE MORTALITY ASCRIBED TO CANCER OF THE GENERATIVE AND MAMMARY SYSTEMS DURING THE YEARS 1897-1909.



※ THE DEATH-RATES THROUGHOUT THE ENTIRE PERIOD ARE BASED UPON THE AGE CONSTITUTION OF THE POPULATION AS ENUMERATED IN 1901. FOR METHOD OF CORRECTION SEE PAGE XXXVII.

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TABLE LXI.

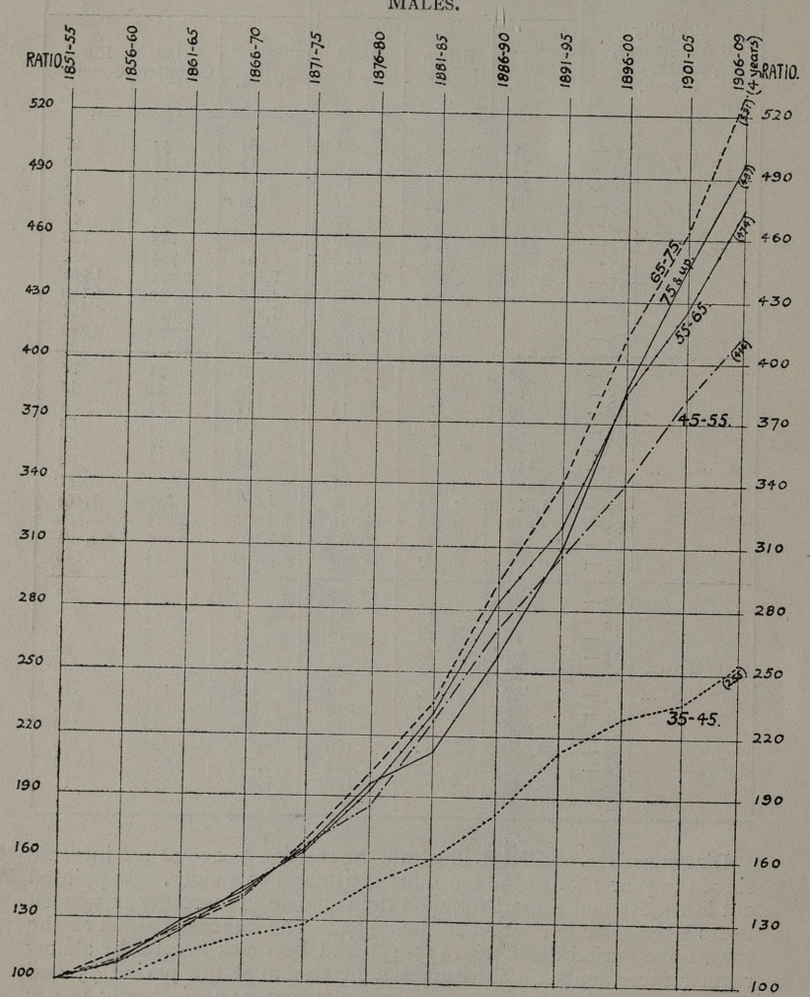
Cancer. Mortality at Age-groups, per Million Living.		Average 1904–1908. England and Wales.	Average 1904–1908. Urban Counties.	Average 1904–1908. Rural Counties.	Year 1909. England and Wales.	Year 1909. Urban Counties.	Year 1909. Rural Counties.
Both Sexes	0—	31	33	28	31	31	27
	5—	15	17	15	14	16	10
	10—	16	17	15	14	14	17
	15—	30	34	27	26	20	42
	20—	45	46	47	46	45	44
	25—	141	151	130	135	143	123
	35—	663	713	578	654	705	684
	45—	2,019	2,169	1,773	2,108	2,241	1,951
	55—	4,312	4,565	3,960	4,513	4,783	4,150
	65—	7,117	7,254	6,989	7,836	7,947	7,891
	75—	8,153	7,906	8,070	8,823	8,736	8,389
Males ...	0—	34	38	29	32	34	25
	5—	18	21	16	18	21	13
	10—	18	20	14	17	22	8
	15—	32	39	28	26	24	55
	20—	52	53	45	53	54	53
	25—	113	119	118	108	113	96
	35—	431	463	391	434	463	411
	45—	1,617	1,786	1,359	1,684	1,841	1,478
	55—	4,086	4,366	3,718	4,333	4,718	3,835
	65—	7,136	7,336	6,945	7,957	8,065	7,804
	75—	8,068	7,933	7,989	8,503	8,224	8,446
Females ...	0—	27	29	27	29	29	29
	5—	13	14	14	9	12	8
	10—	15	14	16	11	7	26
	15—	27	29	27	26	16	28
	20—	38	40	49	40	37	36
	25—	167	180	140	159	171	147
	35—	879	951	749	859	934	932
	45—	2,390	2,530	2,143	2,500	2,618	2,373
	55—	4,510	4,740	4,170	4,670	4,840	4,425
	65—	7,102	7,190	7,025	7,740	7,857	7,963
	75—	8,213	7,888	8,130	9,049	9,071	8,347

Diagrams XII. and XIII. illustrate the relation to age of the increase since the year 1851 of the mortality attributed to cancer. As pointed out in the Annual Report for 1908 the increase in mortality of women bears a remarkable relation to their age. The increase is least at the lowest age-period dealt with (35–45), and becomes greater by almost regular increments till it reaches a maximum at the period 75 and upwards, at which the increase is 280 per cent. as against only 49 per cent. at 35–45. Further, at the first of the five periods the increase has entirely, and at the second almost entirely, ceased since the years 1891–95 ; at the third period (55–65), while the increase is still very considerable, it has slackened of late years ; at the fourth and fifth periods there is as yet no evidence of slackening in the rate of increase. A similar character appears in the diagram relating to male mortality in regard to the first two age-periods only. At each age the relative increase is very much greater in the male sex.

It follows from Diagram XIII. that amongst women the average age of the known victims of cancer is considerably higher now than sixty

DIAGRAM XII.—ENGLAND AND WALES.—CANCER. Ratio per cent. of MORTALITY at several AGE-GROUPS in quinquennia since 1851–5 to the MORTALITY at the same AGE-GROUPS in 1851–5.

MALES.



years ago. It has increased approximately from 54·9 in 1851 to 60·0 in 1909.

Parts of the Body affected.—Tables LXII. and LXIII. show, for males and females respectively, the deaths attributed during 1901–09 to cancer of the various parts of the body. It is probable, however, that in many cases the organ mentioned in the certificate was not the primary seat of disease. The excess of female over male mortality is accounted for by the enormously greater frequency with which the female generative and mammary organs are affected than are those

of men. In the nine-year period ending with 1909 the recorded deaths of males from cancer, other than that of the generative and mammary organs, were equal to a rate of 747 per million, whilst the corresponding deaths of females amounted only to 602 per million. In the same period the death-rate from cancer of all parts of the body was 760 per million among males against 1,016 among females. Mortality from cancer of the generative and mammary organs is represented by distinctive shading in Diagram XI. The information, upon which this distinction is based, was not regularly abstracted prior to 1897.

In Tables LXIV. and LXV. the mortalities per million living from cancer of different parts of the body are set forth. These tables afford a ready means of studying the differences in mortality from cancer of the same organ at different ages and in the two sexes, while Table LXVI. shows the relative frequency of deaths from cancer of the more important organs in persons of the same sex and age.

DIAGRAM XIII.—ENGLAND AND WALES.—CANCER. Ratio per cent. of MORTALITY at several AGE-GROUPS in quinquennia since 1851–5 to the MORTALITY at the same AGE-GROUPS in 1851–5.

FEMALES.

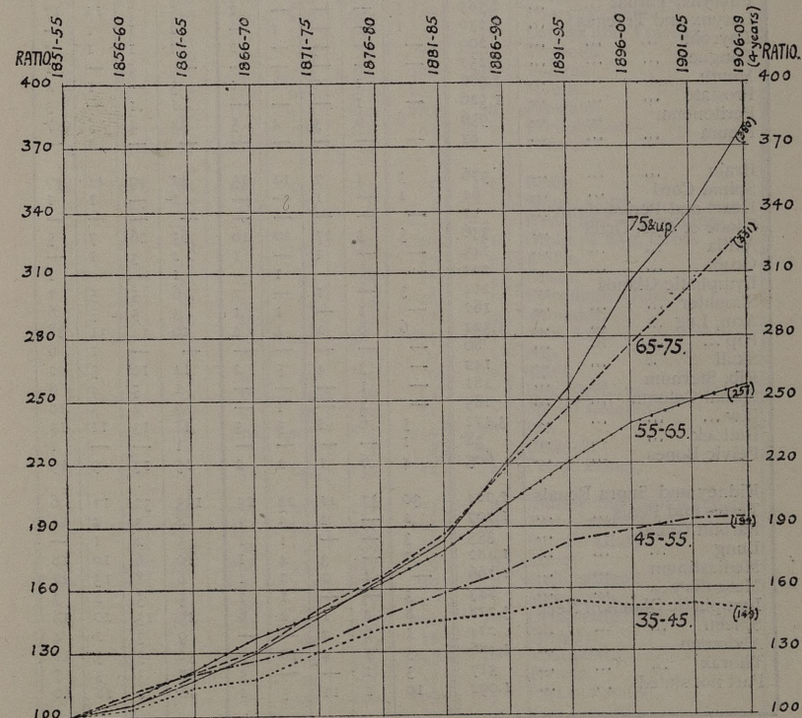


TABLE LXII.—ENGLAND and WALES.—DEATHS from CANCER,

MALES.

Part of the Body Affected.*	All Ages.	Ages at Death.								
		Under 1 Year.	1—	2—	3—	4—	Total under 5 Years.	5—	10—	15—
TOTAL	112,964	120	112	133	135	104	604	291	268	439
Skin of—										
Face	2,101	1	2	1	1	2	7	2	—	8
Lip	1,768	—	1	—	—	—	1	—	—	—
Nose	205	—	—	--	—	—	—	1	3	5
Scalp	107	—	2	2	—	—	4	1	—	1
Ear	236	2	—	1	2	—	5	1	1	1
Stomach	24,153	1	—	—	1	—	2	1	2	5
Intestines	8,995	3	2	2	2	3	12	8	5	15
Rectum	11,473	—	2	—	—	—	2	—	4	14
Breast	205	—	—	—	—	—	—	—	—	1
Œsophagus	7,351	—	—	—	—	—	—	—	1	1
Liver and Gall Bladder ...	14,139	9	6	9	13	4	41	24	13	20
Pancreas	2,107	1	1	—	1	—	3	—	1	3
Bladder and Urethra ...	3,514	—	—	2	9	1	12	7	2	2
Pharynx, Throat	2,583	3	—	—	—	2	5	7	12	17
Larynx and Trachea ...	2,230	1	—	—	1	—	2	1	1	—
Thyroid	209	—	—	--	—	1	1	1	1	2
Tongue	6,257	—	—	—	—	—	—	1	—	1
Mouth	1,986	—	1	1	2	1	5	—	1	4
Prostate	1,526	—	1	—	—	—	1	1	—	3
Peritoneum	956	6	6	3	4	5	24	4	5	7
Pleura	87	—	—	—	—	—	—	—	2	—
Brain	976	3	4	7	12	15	41	49	44	49
Spinal Cord	62	1	—	1	—	—	2	—	1	1
Heart and Pericardium ...	11	—	—	—	—	—	—	—	—	—
Globe of Eye, Orbit ...	336	5	3	27	20	10	65	26	7	5
Axilla	145	—	—	1	—	1	2	3	1	—
Groin	222	--	—	—	1	—	1	—	—	1
Lymphatic Glands ...	214	3	—	1	—	2	6	5	5	2
Shoulder	182	—	1	—	1	1	3	5	5	6
Arm, Leg	1,521	6	6	2	4	2	20	14	31	88
Hip	80	—	—	—	—	—	—	—	1	6
Skull	142	—	3	4	5	2	14	10	5	2
Rib, Sternum	181	—	1	—	—	—	1	5	4	8
Spinal Column	285	—	2	—	1	—	3	2	3	10
Jaw	3,272	5	6	2	5	3	21	13	11	15
Buttock	28	1	—	—	—	—	1	—	—	1
Pelvic Bones	605	4	6	1	2	2	15	13	9	19
Kidney and Supra-Renals	1,224	30	37	41	22	25	155	32	11	6
Testes and Penis	1,707	2	—	2	3	1	8	3	2	14
Parotid Gland	355	3	—	—	1	1	5	2	1	—
Lung	1,482	2	—	3	4	1	10	6	10	18
Mediastinum	1,166	—	1	2	2	1	6	8	13	24
Mesentery	243	3	—	—	1	1	5	5	2	3
Lymphatic Glands of Neck	3,218	8	2	1	2	6	19	13	20	18
Spleen	224	1	6	2	—	—	9	3	2	4
Abdomen	1,486	3	7	4	10	6	30	5	5	12
Thorax	317	3	1	—	—	3	7	3	3	7
Part not stated	1,092	10	2	11	3	2	28	6	18	10

* The arrangement of this column has been fixed in consultation

1901-1909, CLASSIFIED according to AGE, and PART AFFECTED.

MALES.

Ages at Death.								Part of the Body Affected.*
20—	25—	35—	45—	55—	65—	75—	85 and upwards.	
697	2,546	7,772	21,001	34,298	31,516	12,235	1,297	TOTAL.
								Skin of—
5	22	112	261	413	607	524	140	Face
1	4	53	155	380	560	490	124	Lip.
2	6	9	28	43	57	40	11	Nose.
2	6	4	12	26	23	23	5	Scalp.
—	5	8	21	29	57	84	24	Ear.
27	385	1,627	4,514	7,684	7,274	2,466	166	Stomach.
36	228	618	1,505	2,592	2,791	1,099	86	Intestines.
70	253	671	1,885	3,550	3,507	1,389	128	Rectum.
1	3	10	37	53	63	31	6	Breast.
1	30	386	1,674	2,709	1,925	579	45	Œsophagus.
38	205	825	2,324	4,545	4,325	1,622	157	Liver and Gall Bladder.
14	59	213	430	674	545	153	12	Pancreas.
2	34	160	510	984	1,251	491	59	Bladder and Urethra.
15	41	176	599	888	622	188	13	Pharynx, Throat.
3	11	132	561	801	567	141	10	Larynx and Trachea.
2	1	19	53	63	48	18	—	Thyroid.
2	33	427	1,626	2,143	1,485	498	41	Tongue.
7	12	118	410	625	570	207	27	Mouth.
2	2	20	111	418	652	287	29	Prostate.
16	61	90	173	270	218	82	6	Peritoneum.
1	7	11	11	27	21	7	—	Pleura.
64	150	188	188	142	55	5	1	Brain.
5	7	10	16	10	8	2	—	Spinal Cord.
—	2	—	6	2	1	—	—	Heart and Pericardium.
2	10	19	28	45	72	46	11	Globe of Eye, Orbit.
—	11	13	14	30	37	30	4	Axilla.
3	15	30	51	62	38	17	4	Groin.
9	11	27	35	54	43	16	1	Lymphatic Glands.
10	15	19	25	39	34	17	4	Shoulder.
85	108	121	182	292	307	230	43	Arm, Leg.
3	9	10	15	13	13	9	1	Hip.
16	7	13	16	26	22	9	2	Skull.
8	12	18	36	39	36	13	1	Rib, Sternum.
9	22	22	61	86	55	11	1	Spinal Column.
12	39	230	729	1,007	825	344	26	Jaw.
—	4	1	2	8	7	4	—	Buttock.
21	52	67	91	140	135	41	2	Pelvic Bones.
14	48	117	226	308	231	74	2	Kidney and Supra-Renals.
38	187	246	325	327	335	195	27	Testes and Penis.
4	8	26	66	100	99	41	3	Parotid Gland.
51	94	220	366	392	247	59	9	Lung.
22	86	144	289	314	210	46	4	Mediastinum.
9	10	31	48	51	57	20	2	Mesentery.
32	73	237	761	1,023	702	291	29	Lymphatic Glands of Neck
1	14	21	41	62	49	16	2	Spleen.
14	63	107	243	413	429	153	12	Abdomen.
3	25	40	60	94	55	18	2	Thorax.
15	56	106	181	302	246	109	15	Part not stated.

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

TABLE LXIII.—ENGLAND and WALES.—DEATHS from CANCER, 1901-1909, CLASSIFIED according to AGE, and PART AFFECTED.

FEMALES.

Part of the Body Affected.*	All Ages.	Ages at Death.												Part of the Body Affected.*
		Under 1 Year.	1—	2—	3—	4—	Total under 5 Years.	5—	10—	15—	20—	25—	35—	
TOTAL	161,570	87	94	109	106	87	483	205	230	408	577	4,447	17,189	TOTAL.
Skin of—														Skin of—
Face	1,419	1	—	1	2	2	6	2	4	2	3	18	47	Face.
Lip	154	1	1	—	—	—	2	—	—	—	—	1	3	Lip.
Nose	183	1	—	—	—	—	1	1	—	—	4	3	3	Nose.
Scalp...	159	—	—	1	—	1	2	—	1	—	—	3	6	Scalp.
Ear	78	—	—	—	—	—	—	—	—	—	—	4	10	Ear.
Stomach	22,969	—	—	—	—	1	1	—	1	3	18	360	1,523	Stomach.
Intestines	12,289	—	—	—	—	—	—	2	4	15	33	258	781	Intestines.
Rectum	9,643	—	1	1	—	—	2	—	—	18	46	280	791	Rectum.
Uterus	35,516	—	4	1	—	—	5	—	2	11	49	1,378	6,182	Uterus.
Breast	27,065	1	—	—	—	—	1	—	1	3	20	557	3,367	Breast.
Œsophagus	2,457	—	—	—	—	—	—	—	—	—	4	116	309	Œsophagus.
Liver and Gall Bladder ...	21,488	11	6	8	9	9	43	11	6	13	24	229	1,178	Liver and Gall Bladder.
Pancreas	1,970	—	—	1	—	—	1	2	2	2	4	47	139	Pancreas.
Bladder and Urethra ...	1,500	—	1	—	3	—	4	1	—	—	—	17	91	Bladder and Urethra.
Pharynx, Throat	729	—	—	—	1	—	1	5	6	7	8	43	110	Pharynx, Throat.
Larynx and Trachea ...	715	—	—	—	—	—	—	1	—	2	—	52	133	Larynx and Trachea.
Thyroid	531	1	—	1	—	—	2	—	—	3	4	20	50	Thyroid.
Tongue	782	1	—	—	—	—	1	—	—	—	3	53	85	Tongue.
Mouth	342	—	—	—	1	1	2	2	2	7	2	12	30	Mouth.
Peritoneum	2,400	2	3	1	3	2	11	4	5	7	6	80	204	Peritoneum.
Pleura	83	—	—	1	—	—	1	—	—	2	2	3	7	Pleura.
Brain	725	3	6	5	7	10	31	32	26	34	44	91	153	Brain.
Spinal Cord	52	—	1	—	—	—	1	1	—	1	1	3	12	Spinal Cord.
Pericardium	1	—	—	—	—	—	—	—	—	—	—	—	—	Pericardium.
Globe of Eye, Orbit ...	333	6	6	15	23	9	59	12	7	3	1	6	16	Globe of Eye, Orbit.
Axilla	222	—	—	—	—	—	—	—	—	1	—	4	17	Axilla.
Groin	194	—	—	—	—	—	—	1	—	—	2	8	24	Groin.
Lymphatic Glands ...	168	—	1	—	—	1	2	3	6	1	5	12	21	Lymphatic Glands.
Shoulder	155	—	—	—	1	1	2	2	6	5	4	12	16	Shoulder.
Arm, Leg	1,527	8	2	3	1	6	20	21	43	68	44	88	103	Arm, Leg.
Hip	65	—	—	—	1	—	1	1	3	3	9	5	6	Hip.
Skull	116	3	1	3	3	1	11	2	2	5	3	10	10	Skull.
Rib, Sternum	145	—	—	—	1	—	1	1	4	2	8	12	14	Rib, Sternum.
Spinal Column	234	3	1	1	2	—	7	—	2	7	5	15	34	Spinal Column.
Jaw	1,200	1	3	1	4	2	11	5	12	9	19	38	95	Jaw.
Buttock	39	1	—	4	—	—	5	—	—	3	2	2	2	Buttock.
Pelvic Bones	1,011	5	4	3	1	—	13	5	11	26	30	55	147	Pelvic Bones.
Ovary	3,220	—	2	2	—	1	5	7	9	39	45	206	557	Ovary.
Kidney and Supra-Renals	1,261	17	42	38	28	31	156	41	10	8	10	47	110	Kidney and Supra-Renals.
Parotid Gland	182	1	—	—	—	1	2	2	1	4	4	8	15	Parotid Gland.
Lung	1,174	2	1	—	3	1	7	9	16	21	24	61	168	Lung.
Mediastinum	739	—	—	—	—	—	—	2	4	9	18	41	90	Mediastinum.
Mesentery	365	—	1	1	—	—	2	3	1	3	4	9	33	Mesentery.
Lymphatic Glands of Neck	972	9	1	2	2	1	15	7	14	30	23	54	66	Lymphatic Glands of Neck.
Spleen	245	—	—	1	2	—	3	2	—	2	2	4	33	Spleen.
Abdomen	2,917	1	2	9	4	2	18	6	6	11	15	51	180	Abdomen.
Thorax	339	—	1	1	1	1	4	1	2	5	6	12	31	Thorax.
Part not stated	1,497	8	3	4	3	3	21	8	11	13	19	59	187	Part not Stated.

* The arrangement of this column has been fixed in consultation with Dr. Bashford, Director of the Imperial Cancer Research Fund.

45—	55—	65—	75—	85 and upwards.	Part of the Body Affected.*
34,434	44,020	39,763	17,465	2,349	TOTAL.
					Skin of—
136	220	390	450	141	Face.
10	21	50	53	14	Lip.
14	30	62	55	10	Nose.
18	32	44	42	11	Scalp.
21	14	14	10	5	Ear.
3,984	6,788	7,138	2,890	263	Stomach.
1,991	3,431	3,831	1,741	202	Intestines.
1,693	2,706	2,710	1,255	142	Rectum.
10,193	9,478	6,002	1,992	224	Uterus.
6,666	6,963	5,756	3,090	641	Breast.
474	576	648	300	30	Œsophagus.
3,629	6,677	6,676	2,739	263	Liver and Gall Bladder.
359	637	558	201	18	Pancreas.
206	402	489	255	35	Bladder and Urethra.
152	178	141	73	5	Pharynx, Throat.
163	182	135	41	6	Larynx and Trachea.
94	149	140	61	8	Thyroid.
128	167	209	121	15	Tongue.
49	88	104	37	7	Mouth.
498	702	632	231	20	Peritoneum.
21	23	17	6	1	Pleura.
154	103	44	12	1	Brain.
14	8	10	1	—	Spinal Cord.
—	—	1	—	—	Pericardium.
41	59	64	48	17	Globe of Eye, Orbit.
27	50	66	47	10	Axilla.
36	47	38	32	6	Groin.
33	33	38	12	2	Lymphatic Glands.
23	33	33	17	2	Shoulder.
182	279	345	260	74	Arm, Leg.
11	10	13	3	—	Hip.
17	24	19	10	3	Skull.
26	28	32	14	3	Rib, Sternum.
47	60	38	17	2	Spinal Column.
209	320	297	165	20	Jaw.
4	8	7	6	—	Buttock.
219	225	206	65	9	Pelvic Bones.
956	833	440	113	10	Ovary.
225	304	246	94	10	Kidney and Supra-Renals.
30	38	46	26	6	Parotid Gland.
304	307	203	51	3	Lung.
90	214	156	51	4	Mediastinum.
69	91	103	41	6	Mesentery.
162	217	226	138	20	Lymphatic Glands of Neck.
44	71	70	13	1	Spleen.
544	750	888	406	42	Abdomen.
70	97	65	35	11	Thorax.
338	347	323	145	26	Part not Stated.

TABLE LXIV.—ENGLAND and WALES.—MALES.—MORTALITY per MILLION LIVING at several AGES from CANCER of specified ORGANS or PARTS of the BODY, 1901–09.

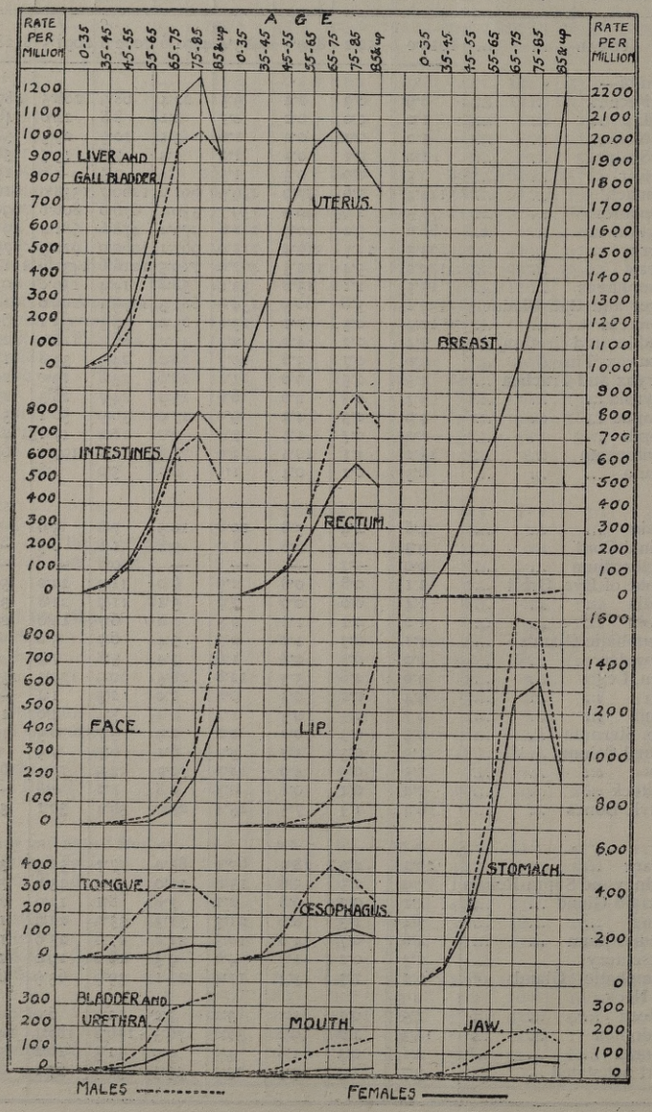
Part of Body Affected.	All Ages.	Ages at Death.						
		0—35	35—	45—	55—	65—	75—	85 and upwards.
TOTAL	759·8	47·3	425·6	1591·3	3996·3	6977·1	7833·6	7635·2
Skin of—								
Face	14·1	0·4	6·1	19·8	48·1	134 4	335·5	824·2
Lip	11·9	0·1	2·9	11 7	44·3	124·0	313·7	730·0
Nose	1·4	0·2	0·5	2 1	5·0	12·6	25·6	64·8
Scalp...	0·7	0·1	0·2	0·9	3·0	5·1	14·7	29·4
Ear	1·6	0·1	0·4	1·6	3·4	12·6	53·8	141·3
Stomach	162·5	4·1	89·1	342·0	895·3	1610·3	1578·9	977·2
Intestines	60·5	3·0	33·8	114·0	302·0	617·9	703·6	506·3
Rectum	77·2	3·4	36·7	142·8	413·6	776·4	889·3	753·5
Breast	1·4	0·0	0·5	2·8	6·2	13·9	19·8	35·3
Œsophagus	49·4	0 3	21·1	126·8	315·6	426·2	370·7	264·9
Liver and Gall Bladder	95·1	3·3	45·2	176·1	529·6	957·5	1038·5	924·2
Pancreas	14·2	0·8	11·7	32 6	78·5	120·7	98·0	70·6
Bladder and Urethra ...	23·6	0·6	8·8	38·6	114·7	276·9	314·4	347·3
Pharynx, Throat ...	17·4	0·9	9·6	45·4	103·5	137·7	120·4	76·5
Larynx and Trachea ...	15·0	0·2	7·2	42·5	93·3	125·5	90·3	58·9
Thyroid	1·4	0·1	1·0	4·0	7·3	10·6	11·5	—
Tongue	42·1	0·4	23·4	123·2	249·7	328·8	318·8	241·4
Mouth	13·4	0·3	6·5	31·1	72·8	126·2	132·5	158·9
Prostate	10·3	0·1	1·1	8·4	48·7	144·3	183·8	170·7
Peritoneum	6·4	1·1	4·9	13·1	31·5	48·3	52·5	35·3
Pleura	0·6	0·1	0·6	0·8	3·1	4·6	4·5	—
Brain	6·6	3·9	10·3	14·2	16·5	12·2	3·2	5·9
Spinal Cord	0·4	0·2	0·5	1·2	1·2	1·8	1·3	—
Heart and Pericardium	0·1	0·0	—	0·5	0·2	0·2	—	—
Globe of Eye, Orbit ...	2·3	1·1	1·0	2·1	5·2	15·9	29·5	64·8
Axilla	1·0	0·2	0·7	1·1	3·5	8·2	19·2	23·5
Groin	1·5	0·2	1·6	3·9	7·2	8·4	10·9	23·5
Lymphatic Glands ...	1·4	0·4	1·5	2·7	6·3	9·5	10·2	5·9
Shoulder	1·2	0·4	1·0	1·9	4·5	7·5	10·9	23·5
Arm, Leg	10·2	3·4	6·6	13·8	34·0	68·0	147·3	253·1
Hip	0·5	0·2	0·5	1·1	1·5	2·9	5·8	5·9
Skull	1·0	0·5	0·7	1·2	3·0	4·9	5·8	11·8
Rib, Sternum	1·2	0·4	1·0	2·7	4·5	8·0	8·3	5·9
Spinal Column	1·9	0·5	1·2	4·6	10·0	12.2	7·0	5·9
Jaw	22·0	1·1	12·6	55·2	117·3	182·6	220·2	153·1
Buttock	0·2	0·1	0·1	0·2	0·9	1·5	2·6	—
Pelvic Bones	4·1	1·3	3·7	6 9	16·3	29·9	26·3	11·8
Kidney and Supra-Renals	8·2	2·6	6·4	17·1	35·9	51·1	47·4	11·8
Testes and Penis ...	11·5	2·5	13·5	24·6	38·1	74·2	124·9	158·9
Parotid Gland	2·4	0·2	1·4	5·0	11·7	21·9	26·3	17·7
Lung	10·0	1·8	12·0	27·7	45·7	54·7	37·8	53·0
Mediastinum	7·8	1·6	7·9	21·9	36·6	46·5	29·5	23·5
Mesentery	1·6	0·3	1·7	3·6	5·9	12·6	12·8	11·8
Lymphatic Glands of Neck.	21·6	1·7	13·0	57·7	119·2	155·4	186·3	170·7
Spleen	1·5	0·3	1·1	3·1	7·2	10·8	10·2	11·8
Abdomen	10·0	1·3	5·9	18·4	48·1	95·0	98·0	70·6
Thorax	2·1	0·5	2·2	4·5	11·0	12·2	11·5	11·8
Part not stated	7·3	1·0	6·2	14·1	35·6	54·5	69·6	88·3

TABLE LXV.—ENGLAND and WALES.—FEMALES.—MORTALITY per MILLION LIVING at several AGES from CANCER of specified ORGANS or PARTS of the BODY, 1901–09.

Part of Body Affected.	All Ages.	Ages at Death.						
		0—35	35—	45—	55—	65—	75—	85 and upwards.
TOTAL	1016·0	59·2	879·7	2415·4	4491·6	7022·6	8091·5	8128·4
Skin of—								
Face	8·9	0·3	2·4	9·5	22·4	68·9	208·5	487·9
Lip	1·0	0·0	0·2	0·7	2·1	8·8	24·6	48·4
Nose	1·2	0·1	0·2	1·0	3·1	10·9	25·5	34·6
Scalp...	1·0	0·1	0·3	1·3	3·3	7·8	19·5	38·1
Ear	0·5	0·0	0·5	1·5	1·4	2·5	4 6	17·3
Stomach	144·4	3·6	77·9	279·5	692 6	1260·7	1338·9	910·1
Intestines	77·3	2·9	40·0	139·7	350·1	676·6	806·6	699·0
Rectum	60·6	3·2	40·5	118·8	276·1	478·6	581·4	491·4
Uterus	223·3	13·5	316·4	715·0	967·1	1060·0	922·9	775·1
Breast	170·2	5·4	172·3	467·6	710·5	1016·6	1431·6	2218·1
Œsophagus	15·5	1·1	15·8	33·2	58·8	114·4	139·0	103·8
Liver and Gall Bladder	135·1	3·0	60·3	254·6	681·3	1179·1	1269·0	910·1
Pancreas	12·4	0·5	7·1	25·2	65·0	98·5	93·1	62·3
Bladder and Urethra ...	9·4	0·2	4·7	14·5	41·0	86·4	118·1	121·1
Pharynx, Throat ...	4·6	0·7	5·6	10·7	18·2	24·9	33·8	17·3
Larynx and Trachea ...	4·5	0·5	6·8	11·4	18·6	23·8	19·0	20·8
Thyroid	3·3	0·3	2·6	6·6	15·2	24·7	28·3	27·7
Tongue	4·9	0·5	4·4	9·0	17·0	36·9	56·1	51·9
Mouth	2·2	0·3	1·5	3·4	9·0	18·4	17·1	24·2
Peritoneum	15·1	1·1	10·4	34·9	71·6	111·6	107·0	69·2
Pleura	0·5	0·1	0·4	1·5	2·3	3·0	2·8	3·5
Brain	4·6	2·4	7·8	10·8	10·5	7·8	5·6	3·5
Spinal Cord	0·3	0·1	0·6	1·0	0·8	1 8	0·5	—
Pericardium	0·0	—	—	—	—	0·2	—	—
Globe of Eye, Orbit ...	2·1	0·8	0·8	2·9	6·0	11 3	22·2	58·8
Axilla	1·4	0·0	0·9	1·9	5·1	11·7	21·8	34·6
Groin	1·2	0·1	1·2	2·5	4·8	6·7	14·8	20·8
Lymphatic Glands ...	1·1	0·3	1·1	2·3	3·4	6·7	5·6	6·9
Shoulder	1·0	0·3	0·8	1·6	3·4	5·8	7·9	6·9
Arm, Leg	9·6	2·6	5·3	12·8	28·5	60·9	120·5	256·1
Hip	0·4	0·2	0·3	0·8	1·0	2·3	1·4	—
Skull	0·7	0·3	0·5	1·2	2·4	3·4	4·6	10·4
Rib, Sternum	0·9	0·3	0·7	1·8	2·9	5·7	6·5	10·4
Spinal Column	1·5	0·3	1·7	3·3	6·1	6·7	7·9	6·9
Jaw	7·5	0·9	4·9	14·7	32·7	52·5	76·4	69·2
Buttock	0·2	0·1	0·1	0·3	0·8	1·2	2·8	—
Pelvic Bones	6·4	1·3	7·5	15·4	23·0	36·4	30·1	31·1
Ovary	20·2	2·9	28·5	67·1	85·0	77·7	52·4	34·6
Kidney and Supra-Renals	7·9	2·5	5·6	15·8	31·0	43·4	43·6	34·6
Parotid Gland	1·1	0·2	0·8	2·1	3·9	8·1	12·0	20·8
Lung	7·4	1·3	8·6	21·3	31·3	35·9	23·6	10·4
Mediastinum	4·6	0·7	4·6	10·5	21·8	27·6	23·6	13·8
Mesentery	2·3	0·2	1·7	4·8	9·3	18·2	19·0	20·8
Lymphatic Glands of Neck.	6·1	1·3	3·4	11·4	22·1	39·9	63·9	69·2
Spleen	1·5	0·1	1·7	3·1	7·2	12·4	6·0	3·5
Abdomen	18·3	1·0	9·2	38·2	76·5	156·8	188·1	145·3
Thorax	2·1	0·3	1·6	4·9	9·9	11·5	16·2	38·1
Part not stated	9·7	1·3	9·5	23·3	35·5	56·9	67·1	89·8

Age and Sex Distribution of Mortality from Cancer of different parts of the Body.—This is illustrated by Diagram XIV., which represents by means of broken and continuous lines the male and female mortality, at the seven age periods dealt with, of cancer of the regions principally attacked. The situations dealt with in the diagram account for 76 per cent. of all male and 85 per cent. of all female cancer mortality during the years 1901–09.

DIAGRAM XIV.—ENGLAND AND WALES.—CANCER. AGE and SEX MORTALITY from CANCER of various parts of the body. 1901–9.



The relation of mortality to age varies considerably for cancer of different organs, but little for the same organ in the two sexes. Even where the incidence of mortality is confined almost entirely to one sex, as in cancer of the breast, the curve of incidence upon the other sex is essentially similar in type, increasing in the case mentioned throughout life in males as in females, though deaths in the male sex are so few that this cannot be clearly brought out in the diagram.

The two organs giving rise to the highest cancer mortality in the female sex may be contrasted in order to illustrate the variations in age incidence of the disease. Though the total mortality from uterine cancer is much higher than that from cancer of any other organ in either sex, its curve of age incidence has less than half the vertical extent of that for cancer of the breast. This is due to the fact that the mortality at the earlier ages from uterine cancer is very much greater, though at later very much less, than that from cancer of the breast. More than half the victims of the former, and less than 40 per cent. of those of the latter disease are under 55 years of age. Stated in this way the differences in age distribution are much less than might at first sight be inferred from the diagram. This is because the high mortalities above 75, and especially above 85, are based upon a comparatively small number of deaths. But while this must be borne in mind, the differences in type of the curves in the diagram do represent very definite differences in the age incidence of the disease, which may perhaps, as our knowledge advances, assume a significance not at present apparent.

Table LXVI. presents the same contrast in a different way. It shows that whereas in the first two age-periods dealt with cancer of the uterus causes 22·8 and 36·0 per cent. of all the deaths of women from cancer at these ages as against 9·2 and 19·6 caused by disease of the breast, in the last two age-periods the percentages are only 11·4 and 9·5 for uterine as against 17·7 and 27·3 for mammary cancer.

This table also shows that whereas in almost every other instance there is some one period of life (generally the same for both sexes) at which cancer of any particular organ is especially characteristic, there are two such periods in regard to cancer of the female breast, viz., 35–55 and 75 onwards, with an intermediate period at which it is less common relatively to other cancers. The earlier maximum of relative prevalence corresponds with that for cancer of the uterus, towards the close of the period of functional activity of both organs, when it may well be supposed that both old age of the special tissues concerned—occurring in advance of general senility—and the effects of irritation incidental to functional activity are operative in predisposing towards cancer. The second and greater maximum is in sharp contrast with the facts as to relative prevalence of uterine disease. It may be added that the very small male mortality is greatly concentrated upon the end of life, the first period of characteristic prevalence in the female sex being unrepresented.

Diagram XIV. shows that cancer of the face and lip may be taken as representing the extreme of one type of age distribution, in which mortality is concentrated upon the extreme end of life; and cancer of the tongue (in males) as the best marked example of comparatively early age incidence. If irritation from smoking be taken as accounting for the age and sex distribution of tongue cancer, this may be compared with cancer of the uterus and with the earlier period of comparative prevalence of cancer of the female breast.

TABLE LXVI.—ENGLAND and WALES.—CANCER: PARTS of BODY, 1901–9.—PERCENTAGE of DEATHS at each AGE-GROUP to TOTAL DEATHS from CANCER in the same SEX and AGE-GROUP.

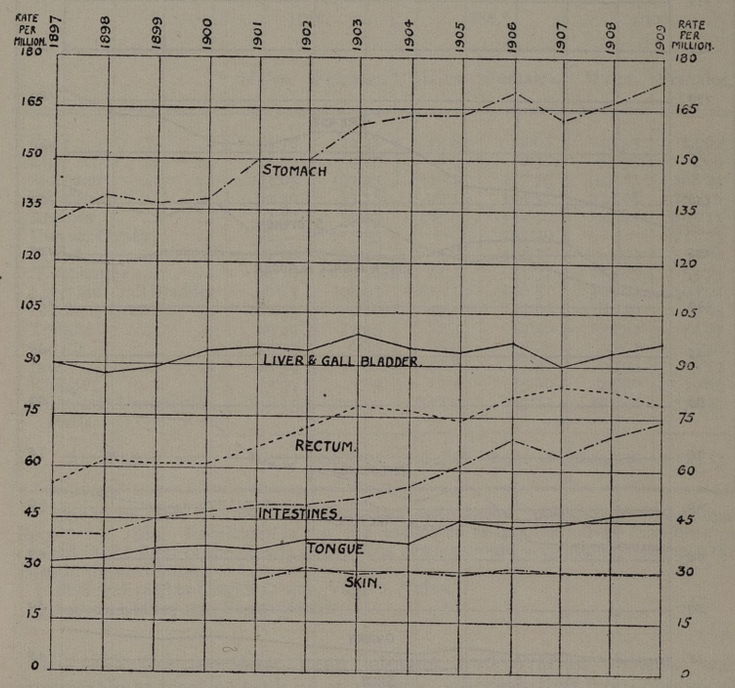
——	0—35	35—	45—	55—	65—	75—	85 and upwards.	All Ages.
MALES.								
Face	0·9	1·4	1·2	1·2	1·9	4·3	10·8	1·9
Lip	0·1	0·7	0·7	1·1	1·8	4·0	9·6	1·6
Stomach	8·7	20·9	21·5	22·4	23·1	20·2	12·8	21·4
Intestines	6·3	8·0	7·2	7·6	8·9	9·0	6·6	8·0
Rectum	7·1	8·6	9·0	10·4	11·1	11·4	9·9	10·2
Breast	0·1	0·1	0·2	0·2	0·2	0·3	0·5	0·2
Œsophagus	0·7	5·0	8·0	7·9	6·1	4·7	3·5	6·5
Liver and Gall Bladder	7·0	10·6	11·1	13·3	13·7	13·3	12·1	12·5
Bladder and Urethra ...	1·2	2·1	2·4	2·9	4·0	4·0	4·5	3·1
Tongue	0·8	5·5	7·7	6·2	4·7	4·1	3·2	5·5
Mouth	0·6	1·5	2·0	1·8	1·8	1·7	2·1	1·8
Jaw	2·3	3·0	3·5	2·9	2·6	2·8	2·0	2·9
Other organs	64·2	32·6	25·5	22·1	20·1	20·2	22·4	24·4
FEMALES.								
Face	0·6	0·3	0·4	0·5	1·0	2·6	6·0	0·9
Lip	0·0	0·0	0·0	0·0	0·1	0·3	0·6	0·1
Stomach	6·0	8·9	11·6	15·4	18·0	16·5	11·2	14·2
Intestines	4·9	4·5	5·8	7·8	9·6	10·0	8·6	7·6
Rectum	5·4	4·6	4·9	6·1	6·8	7·2	6·0	6·0
Uterus	22·8	36·0	29·6	21·5	15·1	11·4	9·5	22·0
Breast	9·2	19·6	19·4	15·8	14·5	17·7	27·3	16·8
Œsophagus	1·9	1·8	1·4	1·3	1·6	1·7	1·3	1·5
Liver and Gall Bladder	5·1	6·9	10·5	15·2	16·8	15·7	11·2	13·3
Bladder and Urethra ...	0·3	0·5	0·6	0·9	1·2	1·5	1·5	0·9
Tongue	0·9	0·5	0·4	0·4	0·5	0·7	0·6	0·5
Mouth	0·4	0·2	0·1	0·2	0·3	0·2	0·3	0·2
Jaw	1·5	0·6	0·6	0·7	0·7	0·9	0·9	0·7
Other organs	41·0	15·6	14·7	14·2	13·8	13·6	15·0	15·3

The mortality curves for the principal cancers of the digestive system—stomach, liver and gall bladder, intestines and rectum—are very similar, but males suffer more from cancers of the stomach and rectum, females from those involving the liver and intestines. It is possible, of course, that many of the cancers of the liver in women may be secondary to cancer of the breast and uterus, as in both sexes to cancer of the stomach. In these four cases the period of maximum comparative prevalence is much the same, 65–75 for diseases of liver and stomach, and 75–85 for diseases of intestines and rectum (Table LXVI.).

Organs Principally Affected at Different Ages.—Table LXVI. shows that amongst males cancer of the stomach, and next to it, cancer of the liver, cause most deaths at each age-period after 35. Cancer of the rectum takes third place except at the latest age-period, when cancer of the face causes rather more deaths. Amongst women the uterus is the principal seat of fatal cancer up to 65, the stomach from 65 to 75, and the breast after 75. The breast comes second up to 65, but only fourth from 65 to 75. Apart from the reproductive system the stomach and liver come first, as in men.

Increase in Mortality from Cancer of Different Organs.—The changes in mortality at all ages from cancer of the different organs during the last 13 years are contrasted in Diagrams XV. and XVI., which also indicate the relative amount of mortality in each case.

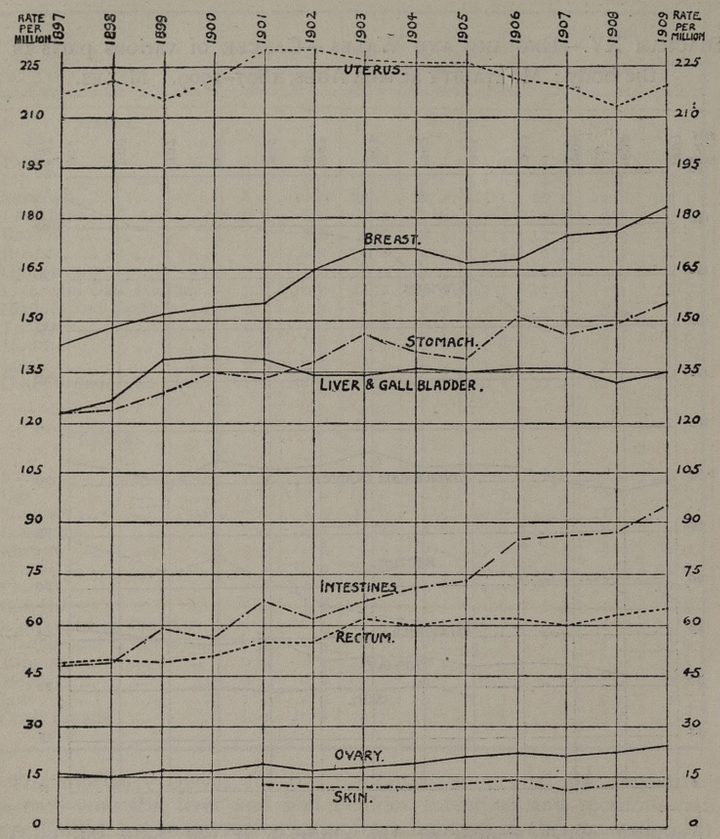
DIAGRAM XV.—ENGLAND AND WALES.—CANCER of various parts of the body; MORTALITY at ALL AGES, 1897–1909. MALES.



Amongst males, cancer of the stomach is not only the most important but the most rapidly growing form of the disease. Its apparent increase may be to some extent due to transference from the liver, the next commonest site in the male sex. Secondary growths in the liver, many of them due to primary growths in the stomach, being exceedingly common, it is possible that with improvement of certification the primary seat is returned now in a number of instances where some years ago the disease would have been referred to in its seat of secondary occurrence. This surmise is suggested by the fact that the returns of cancer of the stomach are rapidly increasing in both sexes, whereas those from cancer of the liver show little increase of recent years.

There is also a marked contrast in this respect between the two chief seats of the disease in the female sex, the uterus and the breast. Cancer of the former organ shows little or no increase during the 13 years, but the mortality from mammary cancer has increased by about 28 per cent., notwithstanding lives saved by improved methods of operation.

DIAGRAM XVI.—ENGLAND AND WALES. CANCER of various parts of the body; MORTALITY at ALL AGES, 1897–1909. FEMALES.



In both sexes the greatest relative increase, and in the female sex the greatest absolute increase, has been that from cancer of the intestines, the mortality attributed to which amongst women has practically doubled during the last 13 years. Doubtless this is very largely due to improved diagnosis. In the case of rectal cancer, on the other hand, the increase has been greater amongst men.

Table LXVII. enables us to trace these changes in mortality further back. Though yearly records of the part of the body attacked have only been kept since 1897, the Annual Report for 1889 contained a comparison of the mortalities from cancer of the various parts of the body as recorded in 1868 and 1888. The figures for 1868 were tabulated at the same time as those for 1888 and are therefore comparable with them, but this is not entirely true of the figures for 1909, as the methods by which these have been classified differ slightly from those used on the former occasion. In the earlier years also the number of cases in which the organ was unstated was larger than now.

Bearing in mind these possibilities of defective comparability, the Table may be used to compare the various mortalities of to-day with those recorded 21 and 41 years ago.

TABLE LXVII.—MORTALITY from CANCER of SEVERAL PARTS of the BODY.—ANNUAL DEATH-RATE per MILLION LIVING, 35 YEARS of AGE and UPWARDS.

Part of Body.	1868.		1888.*		1909.	
	Males.	Females.	Males.	Females.	Males.	Females.
Face	45·70	20·48	42·82	22·61	43·53	24·62
Lip	18·12	0·76	28·55	2·31	37·95	4·99
Stomach	283·65	193·45	346·15	277·75	547·83	468·23
Intestines	32·30	33.38	96·35	124·57	233·08	286·76
Rectum	63·82	59·93	128·98	112·12	247·41	195·11
Uterus, Ovary† ...	—	617·53	—	737·29	—	717·23
Breast	1·58	394·48	3·06	428·16	3·91	550·90
Œsophagus	14·18	12·14	71·37	31·37	185·83	53·73
Liver and Gall Bladder	96·13	103·93	215·13	298·51	303·03	409·01
Bladder, Urethra ...	16·55	9·10	44·86	17·99	82·59	29·94
Tongue	46·49	17·45	77·49	12·46	152·54	14·97
Mouth	18·12	6·83	28·04	5·08	40·92	5·16
Jaw	13·39	10·62	42·82	13·38	69·94	23·12
Kidney‡	3·94	3·03	17·33	15·69	25·30	19·96
Other and Unspecified Parts.	148·15	144·90	312·02	243·13	575·54	371·40
ALL PARTS ...	802·12	1,628·01	1,454·97	2,342·42	2,549·40	3,175·13

* The death-rates for this year are identical with those published in the Annual Report for 1889. Recalculation on the estimates of population at that time as revised in the light of the results of the 1891 census would very slightly increase the rates in these columns.

† 1868 and 1888 = Uterus, Ovary, Vagina, Vulva.

‡ 1909 = Kidney and Supra-Renals.

In 1888 the mortality from uterine and ovarian disease was apparently at least as high as at present, whereas that from cancer of the breast was much lower, these changes corresponding with those shown in Diagram XVI. Since 1868, however, the mortality from cancer of the uterus had in 1888 increased considerably more than that from cancer of the breast. Clearly, if any reliance is to be attached to the records, there has been a remarkable reversal of the relative position of the two chief sites of female cancer in regard to rate of increase in mortality.

The increase amongst males from cancer of the jaw, and especially of the tongue, is remarkable, and can scarcely be explained by improved diagnosis. Although cancer of the tongue in its later stages presents little difficulty in diagnosis, the recorded mortality has increased amongst males by no less than 228 per cent. in 41 years. Moreover the increase is entirely confined to the male sex.

Cancer of the Œsophagus was returned almost as frequently in the one sex as in the other in 1868, but now it would seem to be over three times as frequent in males as in females. This alteration in sex ratio applies also to the tongue, mouth, and jaw, but not to other portions of the alimentary canal, the ratio having altered little in the case of the stomach, intestines, and rectum.

Changes at Different Age-periods in Mortality from Cancer of Different Organs.—When the increase since 1901 in mortality ascribed to cancer of the stomach is analysed according to the age at death, it is found that in the female sex the same variation with age obtains as in the case of total cancer mortality (Diagram XIII.). At ages 35–55 the mortality has, with fluctuations, remained at much the same level as in 1901, while the increases at other ages for 1909 as compared with 1901 are as follows :—55–65, 11 per cent. ; 65–75, 23 per cent. ; and 75 and upwards, 42 per cent. The same remarkable relation to age is manifested in the recent records of female mortality from cancer of the liver and gall-bladder. At 35–45 this now shows a decrease of 35 per cent. as compared with 1901 ; at 45–55 a decrease of 14 per cent. ; at 55–65 a decrease of 1 per cent. ; at 65–75 an increase of 2 per cent. ; and at 75 and upwards an increase of 17 per cent. In the case of cancers of the uterus and intestines the same relationship is clearly but less perfectly marked, while the increase in female mortality from cancers of the breast and rectum has been without any clearly marked relationship to age.

The same relation of increase in mortality to age is discernible in the case of the principal seats of male cancer, though much less marked than in those of the female stomach and liver.

Diabetes Mellitus was the certified cause of death in 3,698 instances in the year under notice—this number being in excess of the quinquennial average, corrected for increase of population, by 262. Nearly three-quarters (71 per cent.) of the total mortality 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.

Diseases of Particular Organs.

Convulsions.—The number of deaths referred to this indefinite heading during 1909 was 10,315, corresponding to a mortality of 288 per million living at all ages. Deaths of infants under one year of age accounted for 9,057 out of this total, the corresponding infantile mortality being 9·9 per 1000 births. One death out of 11 at this age is attributed to convulsions.

As the term is merely the name of a symptom, not of a disease, it is to be hoped that its use on the scale indicated above will not be continued. There has already been very great improvement in this respect. Going back a quarter of a century we find that the proportion of infantile deaths so certified in 1884 was one in seven, corresponding to a mortality of 21 per 1000 births. The mortality at all ages was 854 per million living, or three times as high as at present. It must also be borne in mind that convulsions as a cause of death cannot be expected to disappear altogether from our records. In a very large number of cases lack of opportunity for more exact diagnosis, or its intrinsic difficulty, must continue to stand in the way of satisfactory certification of some of these deaths, and it is much to be preferred that indefinite certificates should be issued in cases where no evidence has been obtained on which to found a definite diagnosis. But though we cannot hope to get rid of this unsatisfactory heading altogether, the restriction of its use is still being continued at such a rate as to indicate that it will probably be carried much further than the point at present attained.

Diseases of the Heart.—In the year under notice diseases of the heart are reported to have caused the deaths of 50,918 persons, the corresponding death-rate being 1,423 per million living, or 1,396 for males and 1,451 for females. These rates vary little from year to year as a rule, but were appreciably increased in the earlier years of influenza prevalence, that for persons reaching 1,701 per million in 1891. Diagram VI. shows the large proportion of all deaths due to this class of diseases, and Diagram VII. shows how little they have contributed to the fall in the death-rate. The reduction of mortality which has occurred has been much more marked in the male sex.

According to the experience of the last nine 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.

Tables 23 and 24 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.

Diseases of the Blood Vessels.—About four-fifths of the deaths under this heading are referred to cerebral hæmorrhage or to its symptoms apoplexy or hemiplegia. On the average of the last nine years the deaths at all ages from cerebral hæmorrhage (together with apoplexy and hemiplegia) correspond to a rate of 667 per million for males, and of 762 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 2,092 in a million men, and of 2,296 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.

Laryngitis.—During 1909 1,022 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 24 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 improbably 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 1909, when about two-thirds of the deaths from laryngitis were those of children under the age of five years.

Bronchitis.—More deaths are still attributed to this than to any other single cause of death, although the mortality assigned to it has fallen greatly since 1871–80 (*see* Table 22 and Diagram VII.). For the past eight years the deaths referred to the various forms of pneumonia have exceeded those referred to bronchitis. The question of possible transfer to pneumonia of deaths formerly assigned to bronchitis is discussed on pages lxix–lxxi.

Gastric Ulcer.—The number of deaths from gastric ulcer varies little from year to year. In the year 1909 the deaths so returned amounted to 1,728, against 1,775 and 1,713, respectively, in the two years immediately preceding. Eighty-two 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 nine years ended 1909 the death-rate at all ages from gastric ulcer averaged 36 per million for males, and 63 per million for females, but the difference between the rates for the two sexes has been diminishing throughout the period. Among women seven-tenths of the deaths occur at ages from 15 to 45 years, whilst among men at the same ages the proportion is only four-tenths. Women experience the highest mortality from gastric ulcer at ages from 20 to 25, when it accounts for the deaths of 110 in each million living, or more than six times the rate experienced by men at the same time of life. At all ages after the 45th year the male death-rate exceeds the female, the mortality attaining its maximum among men at ages above 65 years.

Appendicitis.—The mortality for this disease prior to 1901 cannot be stated. The recorded death-rate has increased from 38 per million in 1901 to 64 in 1909 (74 in males and 54 in females). Disregarding the ages above 75 years, when the rates are of doubtful value, the period of highest mortality in both sexes appears to be that of later childhood and adolescence.

Peritonitis.—Under this heading 615 deaths are classed, and of these the infective nature has been medically attested in 58 instances (*see* supplementary tables, pages 314–315). 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, puerperal septic infection, 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 17 per million living, or less than a third of the rate recorded even so recently as the year 1900. The mortality was 16 per million among males and 18 per million among females. It may be presumed that many of the deaths which ten years ago would have been ascribed to peritonitis are now referred to gastric ulcer, appendicitis, intestinal obstruction, or some other definite disease.

Diseases of the Liver.—To these diseases in the aggregate there were ascribed in the year under notice 5,491 deaths, corresponding to a rate of 154 per million living at all ages and of both sexes. Tables 26 and 28 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 1890, for example, the rates were 312 per million living among males, and 279 among females ; whereas in 1909 they were only 167 and 141 respectively.

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 14,340 deaths were referred to this heading—a number corresponding to a rate of 402 per million living, without distinction of age or of sex. Diagram VII. shows that this rate represents a considerable increase on those prevalent thirty years ago.

Diseases and Accidents of Pregnancy and Childbirth. — From Table LXVIII. it will be seen that, apart from 1,429 deaths from puerperal sepsis, 1,950 deaths were attributed to diseases and accidents of pregnancy and childbirth. Particulars of these deaths will be found in Table LXIX., and of 1,221 other deaths not assigned to, but definitely stated to have been connected with pregnancy and parturition, in Table LXX.

TABLE LXVIII.—SUMMARY of DEATHS of WOMEN in ENGLAND and WALES during 1909 either caused by or associated with PREGNANCY and CHILDBEARING.

—	All Ages.	Ages.				
		15—	20—	25—	35—	45 and upwards.
Diseases and Accidents of Pregnancy and Childbearing (Table LXIX.).	1,950	64	286	843	732	25
Puerperal Septic Diseases (p. 299).*	1,429	34	265	728	389	13
Other Diseases associated with, but not classed to, Pregnancy and Childbirth (Table LXX.).	1,221	16	160	587	441	17
Total	4,600	114	711	2,158	1,562	55

* For secondary causes associated with puerperal septic diseases, *see* remarks, page lxix.

The total deaths assigned to pregnancy or childbirth numbered 3,379, and corresponded to a rate of 3·70 per 1000 births. In the ten years immediately preceding the average proportion had been 4·22. Inclusion of the 1,221 deaths in Table LXX. raises this proportion to 5·03 per 1000 births. The mortality amongst women aged 15–45 years from all the causes included in Table LXVIII. was 508 per million living, or 5 per million more than in the preceding year.

TABLE LXIX.—DEATHS of WOMEN in ENGLAND and WALES during 1909, other than those due to SEPSIS, which were definitely returned as caused by PREGNANCY and CHILDBEARING.

(Deaths classed to Diseases and Accidents of Pregnancy and Childbirth in Tables 27 and 28, and on page 311.)

Cause of Death.	All Ages.	Ages. 15—	20—	25—	35—	45 and upwards.
Abortion, Miscarriage	85	2	7	33	41	2
Placenta Prævia, Flooding	574	4	46	230	282	12
Ectopic Gestation	74	1	5	43	25	—
Ruptured Uterus	22	—	1	9	12	—
Inversion of Uterus	11	1	4	5	1	—
Retroflexion of Uterus	2	—	1	—	1	—
Contracted Pelvis	24	2	1	11	10	—
Instrumental Delivery	3	—	—	3	—	—
Adherent Placenta	30	—	6	14	10	—
Calcareous Placenta	1	—	1	—	—	—
Cæsarian Section	12	—	3	6	3	—
Craniotomy	3	—	—	1	2	—
Mal-presentation	1	—	—	—	1	—
Hydrocephalic Fœtus	3	—	—	1	2	—
Molar Pregnancy	4	—	—	3	1	—
Embolism, Thrombosis	176	1	19	94	62	—
Puerperal Mania	42	1	4	29	8	—
Puerperal Convulsions	462	43*	137	181	96	5
Vomiting	12	4	1	3	4	—
Rupture of Spleen	1	—	—	—	1	—
Administration of Chloroform	4	—	—	2	2	—
Pregnancy and Childbirth, apart from the above complications :—						
(*a*) With Secondary Causes as follows :—						
Diarrhœa	4	—	—	3	1	—
Anæmia	6	1	—	2	3	—
Inflammation of Brain	3	1	—	1	1	—
Other Diseases of Nervous System	1	—	—	—	1	—
Valvular Disease, Endocarditis	1	—	—	—	1	—
Dilatation of Heart	3	—	1	1	1	—
Heart Disease	3	—	—	3	—	—
Cerebral Hæmorrhage	23	1	3	12	7	—
Apoplexy	3	—	1	—	2	—
Bronchitis	10	—	—	3	7	—
Asthma	1	—	1	—	—	—
Pleurisy	5	—	—	3	2	—
Other Diseases of Respiratory System	8	—	1	4	2	1
Tonsillitis, Quinsy	1	—	—	—	1	—
Gastric Catarrh	2	1	—	—	1	—
Other Diseases of Stomach	1	—	—	1	—	—
Enteritis	1	—	—	—	1	—
Gastro-enteritis	2	—	2	—	—	—
Appendicitis	1	—	—	1	—	—
Obstruction	2	—	—	—	2	—
Other Diseases of Liver	3	—	—	2	1	—
Nephritis	38	—	5	23	10	—
Chronic Bright's Disease	2	—	—	1	1	—
Other Diseases of Bladder	1	—	—	1	—	—
(*b*) Without stated Secondary Cause	279	1	36	114	123	5
Total	1,950	64	286	843	732	25

* The age of the deceased in one of these cases was 14 years.

TABLE LXX.—DEATHS of WOMEN in ENGLAND and WALES during 1909, definitely returned as associated with PREGNANCY and CHILDBEARING.

(Deaths not classed to Diseases and Accidents of Pregnancy and Childbirth in Tables 27 and 28, and page 311.)

Cause of Death.	All Ages.	Ages. 15—	20—	25—	35—	45 and upwards.
Measles	2	—	—	1	1	—
Scarlet Fever	16	1	6	6	3	—
Influenza	60	—	6	34	20	—
Whooping-cough	1	—	1	—	—	—
Diphtheria	4	—	—	2	2	—
Enteric Fever	13	1	2	6	4	—
Diarrhœa	8	—	1	4	3	—
Syphilis	1	1	—	—	—	—
Gonorrhœa	1	—	—	1	—	—
Infective Endocarditis	4	—	1	—	3	—
Lobar Pneumonia	91	—	13	50	28	—
Broncho-Pneumonia	34	—	5	12	17	—
Pneumonia (not defined)	203	3	25	107	65	3
Tuberculous Phthisis	70	1	6	39	23	1
Phthisis (not otherwise defined)	57	1	10	33	13	—
Tuberculous Meningitis	1	—	—	—	1	—
Tuberculous Peritonitis	3	—	1	1	1	—
Other Tuberculous Diseases	14	—	1	9	4	—
Alcoholism	2	—	—	1	1	—
Rheumatic Fever, Rheumatism of Heart	16	—	3	8	5	—
Cancer	11	—	1	3	7	—
Purpura	3	—	1	2	—	—
Anæmia	13	—	1	6	6	—
Diabetes Mellitus	7	—	—	2	5	—
Meningitis, Inflammation of Brain	3	—	—	2	1	—
Chorea	5	—	2	3	—	—
Epilepsy	9	—	—	5	4	—
Other Diseases of Nervous System	5	—	—	2	3	—
Valvular Disease, Endocarditis	92	—	11	43	35	3
Pericarditis	2	—	—	1	1	—
Dilatation of Heart	12	—	—	6	6	—
Fatty Degeneration of Heart	13	—	—	5	7	1
Other Diseases of Heart	81	—	10	40	30	1
Cerebral Hæmorrhage, Apoplexy, Hemiplegia.	16	—	2	4	10	—
Laryngitis	2	—	—	1	1	—
Bronchitis	34	—	5	12	15	2
Emphysema, Asthma	10	—	—	7	3	—
Pleurisy	6	—	2	2	2	—
Other Diseases of Respiratory System	2	—	1	—	1	—
Gastric Ulcer	9	—	2	4	2	1
Other Diseases of Stomach	7	—	—	5	2	—
Enteritis, Gastro-enteritis, Ulceration of Intestines.	15	—	4	6	5	—
Appendicitis	4	—	—	4	—	—
Intestinal Obstruction	6	—	1	3	2	—
Diseases of Liver	14	1	1	5	7	—
Diseases of Thyroid Body	2	—	—	2	—	—
Acute Nephritis	96	7	14	43	31	1
Chronic Bright's Disease	98	—	14	41	40	3
Other Urinary Diseases	5	—	1	1	3	—
Ovarian Tumour	2	—	—	2	—	—
Uterine Tumour and other Diseases of Uterus.	15	—	3	6	5	1
Violence	5	—	1	1	3	—
Other Causes	16	—	2	4	10	—
Total	1,221	16	160	587	441	17

Causes of Death Ill-Defined or Not Specified.

In the year 1909 the deaths of 49,210 persons, or 9·5 per cent. of the total deaths, were referred to the headings in the list of causes of death grouped under the above title. This number, however, does not include all deaths from ill-defined causes, since many others can be referred to the system attacked by disease, though the disease itself is unstated.

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 replies received was 4,760.

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

The 511 replies respecting deaths from peritonitis resulted in the transference of 124 deaths to appendicitis, 38 to tuberculous peritonitis, 34 to generative diseases, 32 to gastric ulcer, 23 to ulcer of intestines, 40 to other diseases of the digestive system, 28 to puerperal sepsis, 15 to cancer, and 31 to other definite causes. The 657 replies respecting tumours of various organs led to the transference of 352 deaths to cancer, 28 to tuberculous diseases, 20 to syphilis, and 35 to other definite headings. The 238 replies respecting septicæmia, pyæmia, and other septic diseases resulted in the transference of 24 deaths to puerperal sepsis and 96 to other definite headings. The 208 replies respecting hydrocephalus led to the addition of 154 deaths to congenital hydrocephalus, and 34 to tuberculous meningitis. The 160 replies respecting cerebro-spinal meningitis led to the addition of 81 deaths to cerebro-spinal fever, and 60 to tuberculous meningitis. The 130 replies respecting paralysis led to the addition of 69 deaths to cerebral hæmorrhage, 35 to diseases of the spinal cord, and 22 to other definite causes. The 116 replies respecting hæmatemesis led to the addition of 38 deaths to gastric ulcer, 18 to cirrhosis of liver, 13 to cancer, 9 to alcoholism, and 20 to other definite headings.

Inquiries were also sent relating to deaths described as due to cancer, in which no mention was made of the organ or part affected, and as a result this information was supplied in 559 out of 565 cases.

The total additions to certain definite headings resulting from these inquiries were as follows :—To tuberculous diseases 653 deaths, to cancer 600, to congenital defects 158, to appendicitis 141, to cerebral hæmorrhage 90, to venereal diseases 83, to cerebro-spinal fever 82, to gastric ulcer 82, and to alcoholism 43.

Violence.

The deaths caused by different forms of accident or negligence are enumerated in the abstracts on pages 312 and 313, and also in the special Tables relating to violent deaths on pages 451 to 469. These tables show that 15,260 deaths were referred to this heading during the year 1909, corresponding to a rate of 425 per million living. Among males the deaths numbered 10,383, and were equal to a rate of 602 per million ; the deaths of females numbered 4,877, and were equal to 264 per million. Of the 10,383 deaths of males from

accident, 1,913 were stated to be caused by vehicles and horses ; 1,793 by drowning ; 1,339 by falls other than those in mines, quarries, &c., on railways, in ships, boats, and docks, and during building operations ; 1,367 by accidents in mines, quarries, and excavations ; and 1,088 by conflagrations, burns, scalds, and explosions other than those in mines, &c., on railways, and in ships, boats, and docks. Of the deaths of females due to accident, 1,571 were caused by conflagrations, burns, scalds, and explosions, and 1,271 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, and the exception under this heading is considerably modified if account is taken of the burns, scalds, and explosions occurring in mines, railways, ships, boats, and docks. The deaths caused by "vehicles other than railway" numbered 1,549, being 1,256 of males and 293 of females. The different kinds of vehicles are shown on pages 454–5 and 464–5, together with the number of deaths caused by each. The coroners' certificates do not in all cases show whether the vehicles were mechanically propelled or not, but simply state that death was caused by "tramcar," "omnibus," "wagon, &c." These deaths have consequently been included in the class of "other and undefined vehicles." The tables show that 395 deaths were caused by vehicles (other than railway) propelled by mechanical power, 556 deaths were caused by horse-drawn vehicles and horses, and 598 were caused by other or undefined vehicles.

The deaths from violence (apart from those attributed to homicide) of infants under the age of one month numbered 677, *viz.*, 334 males, and 343 females. Of the 677 deaths, the number attributed to suffocation in bed was 397, to other forms of suffocation 55, and to neglect 194. The number of infants at this age returned as "found drowned" was 13.

In the case of 14,944 out of the 15,260 deaths stated to be due to accident or negligence, coroners' inquests were held ; the causes of 278 deaths were certified by medical practitioners, and in 38 cases the causes remained uncertified ; 3 of these were not reported to the coroner.

The deaths at all ages of 2,683 men and 894 women were attributed to suicide, details of which will be found on pages 470 and 471.

Of the 287 deaths by homicide, 132 were those of males and 155 of females. The Tables on pages 472 to 475 show that 166 of these were returned by coroners' juries as murder, and 121 as manslaughter (of which 4 were returned as justifiable homicide). The 287 deaths due to homicide include 45 of infants under one month, 39 of which were described as murder and 6 as manslaughter.

There were 19 executions (all males) during the year, the numbers in the preceding three years having been 8, 10 and 12 respectively.

Certification of Causes of Death.

Of the 518,003 deaths registered in England and Wales during the year 1909, the causes of 474,546, or 91·61 per cent., were certified by registered medical practitioners; inquests were held respecting 36,436, or 7·03 per cent. ; whilst the causes of the remaining 7,021, or 1·36 per cent., were uncertified. This is again the lowest proportion of uncertified deaths hitherto recorded.

Of the 7,021 uncertified deaths, 690, or 9·8 per cent., were not reported to coroners, as compared with 740, or 9·9 per cent in the year 1908.

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 nine years 1901–1909 :—

TABLE LXXI.

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... ...	91·64	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
1909... ...	91·61	7·03	1·36	1·23	0·13

In six English counties—Berkshire, Derbyshire, Warwickshire, Herefordshire, Durham, and Westmorland, and in six Welsh counties—Carmarthenshire, Carnarvonshire, Radnorshire, Cardiganshire, Pembrokeshire, and Anglesey, the proportions of uncertified deaths were unduly high, ranging from 2·66 to 6·25 per cent. of the total deaths, compared with 1·36 per cent. in the whole of England and Wales (Table LXXII.).

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 8 per cent., as against 34 per cent. in the Welsh counties.

Table LXXIII. shows the uncertified deaths registered during 1909, 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.

TABLE LXXII.—CERTIFIED DEATHS, INQUEST CASES, and UNCERTIFIED DEATHS IN 1909, 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	91·61	7·03	1·36	1·23	0·13
London { North of Thames ..	89·08	10·88	0·04	0·02	0·02
London { South of Thames ..	91·31	8·51	0·18	0·16	0·02
Surrey	91·61	7·60	0·79	0·49	0·30
Kent	91·42	6·37	2·21	2·08	0·13
Sussex	92·63	6·91	0·46	0·39	0·07
Hampshire	91·37	7·80	0·83	0·73	0·10
Berkshire	91·51	5·83	2·66	2·46	0·20
Middlesex	91·79	7·91	0·30	0·20	0·10
Hertfordshire	93·70	4·85	1·45	1·37	0·08
Buckinghamshire	92·42	6·18	1·40	1·36	0·04
Oxfordshire	91·55	6·89	1·56	1·41	0·15
Northamptonshire	92·48	5·05	2·47	2·01	0·46
Huntingdonshire	93·64	4·77	1·59	1·27	0·32
Bedfordshire	93·58	4·98	1·44	1·01	0·43
Cambridgeshire	93·23	5·03	1·74	1·71	0·03
Essex	91·36	6·71	1·93	1·88	0·05
Suffolk	91·88	6·42	1·70	1·64	0·06
Norfolk	92·50	5·88	1·62	1·40	0·22
Wiltshire	92·21	7·14	0·65	0·59	0·06
Dorsetshire	92·68	5·90	1·42	1·35	0·07
Devonshire	91·93	7·20	0·87	0·82	0·05
Cornwall	92·62	6·73	0·65	0·48	0·17
Somersetshire	93·15	6·04	0·81	0·69	0·12
Gloucestershire	91·58	7·75	0·67	0·54	0·13
Herefordshire	91·72	5·36	2·92	2·86	0·06
Shropshire	92·27	5·08	2·65	2·60	0·05
Staffordshire	91·87	6·53	1·60	1·55	0·05
Worcestershire	93·18	4·93	1·89	1·86	0·03
Warwickshire	92·02	5·17	2·81	2·74	0·07
Leicestershire	92·61	6·26	1·13	0·96	0·17
Rutlandshire	92·56	6·15	1·29	1·29	—
Lincolnshire	92·03	5·93	2·04	1·93	0·11
Nottinghamshire	92·87	5·38	1·75	1·60	0·15
Derbyshire	90·39	6·81	2·80	2·73	0·07
Cheshire	92·20	7·22	0·58	0·51	0·07
Lancashire	92·04	6·23	1·73	1·67	0·06
West Riding of Yorkshire	91·85	7·29	0·86	0·80	0·06
East Riding of Yorkshire	89·72	9·64	0·64	0·60	0·04
North Riding of Yorkshire	92·61	6·46	0·93	0·47	0·46
Durham	90·21	6·33	3·46	2·92	0·54
Northumberland	91·57	6·96	1·47	1·37	0·10
Cumberland	92·54	4·92	2·54	2·44	0·10
Westmorland	91·35	5·19	3·46	3·46	—
Monmouthshire	91·75	7·10	1·15	1·04	0·11
Glamorganshire	90·78	8·92	0·30	0·09	0·21
Carmarthenshire	92·73	4·59	2·68	1·55	1·13
Pembrokeshire	88·26	6·28	5·46	5·01	0·45
Cardiganshire	91·72	4·14	4·14	2·14	2·00
Brecknockshire	91·67	7·11	1·22	0·89	0·33
Radnorshire	91·10	5·26	3·64	1·62	2·02
Montgomeryshire	93·72	4·30	1·98	1·65	0·33
Flintshire	92·44	5·62	1·94	1·74	0·20
Denbighshire	93·91	3·93	2·16	1·69	0·47
Merionethshire	94·97	3·85	1·18	1·07	0·11
Carnarvonshire	93·48	3·80	2·72	1·88	0·84
Anglesey	90·36	3·39	6·25	0·71	5·54

TABLE LXXIII.—UNCERTIFIED DEATHS REGISTERED in 1909, ARRANGED according to SEX, AGE, and ASSIGNED CAUSE of DEATH.

Assigned Cause of Death.	Total.	Whether Reported to Coroners.				Ages.							
		Reported.		Not Reported.				Years.					
		Males.	Females.	Males.	Females.	Under 3 months	3 months and under 1 year.	1—	5—	15—	25—	45—	65 and upwards.
Small-pox ..	2	1	—	—	1	—	1	—	1	—	—	—	—
Measles	96	42	45	4	5	1	21	72	2	—	—	—	—
Scarlet Fever ..	3	3	—	—	—	—	—	3	—	—	—	—	—
Whooping-cough	26	10	13	1	2	5	10	11	—	—	—	—	—
Diphtheria ..	16	6	9	1	—	—	1	4	11	—	—	—	—
Enteric Fever ..	—	—	—	—	—	—	—	—	—	—	—	—	—
Diarrhœa ..	53	22	20	7	4	7	20	16	6	—	—	1	3
Pneumonia ..	126	73	40	9	4	9	31	36	9	5	12	20	4
Tuberculous Diseases.	144	66	50	9	19	1	8	7	10	25	55	34	4
Alcoholism ..	5	5	—	—	—	—	—	—	—	—	3	1	1
Cancer	34	8	22	—	4	—	—	—	—	—	3	19	12
Premature Birth and Congenital Defects.	863	386	256	126	95	854	8	1	—	—	—	—	—
Dentition.. ..	99	47	42	6	4	1	61	37	—	—	—	—	—
Epilepsy	109	46	62	—	1	—	2	2	7	16	37	30	15
Convulsions ..	1165	600	475	46	44	617	396	141	11	—	—	—	—
Other Nervous Diseases.	78	33	37	4	4	1	4	9	7	3	7	26	21
Cerebral Hæmorrhage and Apoplexy, Hemiplegia.	256	118	125	6	7	—	1	2	2	1	21	106	123
Other Circulatory Diseases.	1649	846	737	40	26	1	—	8	17	33	217	830	543
Bronchitis ..	426	208	183	21	14	24	69	59	2	2	15	100	155
Other Respiratory Diseases.	107	50	47	6	4	7	2	15	3	3	9	38	30
Digestive Diseases.	130	52	58	11	9	10	20	14	6	6	18	32	24
Childbirth	21	—	19	—	2	—	—	—	—	2	19	—	—
Violence	38	13	22	3	—	12	2	1	2	—	5	2	14
Atrophy, Debility, &c.	287	126	95	39	27	228	47	8	1	2	1	—	—
Old Age	830	394	391	18	27	—	—	—	—	—	—	3	827
Other stated Causes.	399	201	169	12	17	76	27	27	15	10	36	97	111
Causes not stated	59	34	24	—	1	11	7	2	1	1	6	10	21
All Causes ..	**7021**	**3390**	**2941**	**369**	**321**	**1865**	**738**	**475**	**113**	**109**	**464**	**1349**	**1908**
All Causes — Reported to Coroners — Males ..	**3390**	**877**	**361**	**238**	**50**	**52**	**219**	**688**	**905**				
All Causes — Reported to Coroners — Females	**2941**	**625**	**308**	**194**	**57**	**46**	**219**	**600**	**892**				
All Causes — Not Reported to Coroners — Males ..	**369**	**197**	**43**	**27**	**2**	**3**	**14**	**33**	**50**				
All Causes — Not Reported to Coroners — Females	**321**	**166**	**26**	**16**	**4**	**8**	**12**	**28**	**61**				
All Causes — Total	**7021**	**1865**	**738**	**475**	**113**	**109**	**464**	**1349**	**1908**				

DEATHS IN PUBLIC INSTITUTIONS.

Of the 518,003 deaths registered during the year, no fewer than 103,701 or 20·02 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 16·74 per cent.

Thus the present figures confirm those of previous reports to the effect that the proportion of deaths occurring in public Institutions has a distinct tendency to increase. The following table shows the proportions of deaths occurring in Workhouses, Hospitals, and Lunatic Asylums (*a*) to total deaths, and (*b*), to total population.

TABLE LXXIV.

Public Institutions.	Percentage of Total Deaths.		Rate per 1,000 living.	
	Ten years, 1899–1908.	1909.	Ten years, 1899–1908.	1909.
Workhouses and Workhouse Infirmaries.	8·95	10·82	1·44	1·57
Hospitals	6·03	7·13	0·96	1·03
Lunatic and Idiot Asylums	1·76	2·07	0·28	0·30

A table, showing the names and descriptions of the several institutions and the numbers of deaths occurring therein, is given on pages 231 to 282 of this Report.

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 1909 the number of births exceeded the number of deaths by 3,999,105; had neither emigration nor immigration occurred this surplus would have raised the population in the middle of the year 1909 to 45,457,826. The method adopted, in the absence of precise information as to migration, for estimating the population of England and Wales, has been described on p. ix. The populations of the several divisions of the United Kingdom are provisionally estimated as follows:—

TABLE LXXV.—POPULATION ESTIMATED to the MIDDLE of the YEAR 1909.

——	Persons.	Males.	Females.
England and Wales	35,756,615	17,265,780	18,490,835
Scotland	4,877,648	2,384,907	2,492,741
Ireland	4,371,570	2,172,398	2,199,172
United Kingdom ...	45,005,833	21,823,085	23,182,748

Marriages.

The marriages in the United Kingdom during the year 1909 numbered 313,286, corresponding to a rate of 13·9 persons married per 1000 of the population at all ages.

This rate was 0·4 per 1000 below the corresponding rate in 1908 and 1·0 below the average rate in the ten years, 1899–1908.

TABLE LXXVI.

—	Marriages, 1909.	Persons married to 1000 living.	
		Ten years, 1899–1908.	1909.
England and Wales	260,544	15·7	14·6
Scotland	30,092	14·0	12·3
Ireland	22,650	10·2	10·4
United Kingdom ...	313,286	14·9	13·9

Births.

The births registered in the United Kingdom in the year 1909 numbered 1,145,813 and were in the proportion of 25·5 per 1000 of the population at all ages.

TABLE LXXVII.

—	Births, 1909.	Births to 1000 living.	
		Ten years, 1899–1908.	1909.
England and Wales	914,472	27·8	25·6
Scotland	128,582	28·6	26·4
Ireland	102,759	23·2	23·5
United Kingdom ...	1,145,813	27·4	25·5

This rate was 0·8 per 1000 below the corresponding rate in 1908; compared with the average in the ten years 1899–1908 the birth-rate in 1909 showed a decrease of 1·9 per 1000.

Deaths.

The deaths registered in the United Kingdom in the year 1909 numbered 667,570, and were in the proportion of 14·8 per 1000 of the population at all ages.

This rate was 0·3 per 1000 below the corresponding rate in 1908; compared with the average in the ten years 1899–1908 the death-rate in 1909 showed a decrease of 1·6 per 1000.

TABLE LXXVIII.

—	Deaths, 1909.	Deaths to 1000 living.	
		Ten years, 1899–1908.	1909.
England and Wales	518,003	16·1	14·5
Scotland	74,594	16·9	15·3
Ireland	74,973	17·8	17·2
United Kingdom ...	667,570	16·4	14·8

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 1909 were not available.

TABLE LXXIX.

—	Deaths under 1 year to 1000 Births.	
	1899–1908.	1909.
England and Wales	138	109
Scotland	120	121*
Ireland	99	92
United Kingdom	132	—

* This proportion relates to the year 1908.

In Tables 58–61, pages 114–117, the population, marriages, births, deaths and principal causes of death are given for each of the years 1881–1909 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 1909 was 252,105, and the deaths during the year numbered 985, giving a death-rate of 3·9 per 1000, as compared with 5·5, 4·7, and 4·8 per 1000, respectively, in the three preceding years. The mortality in the Army abroad was 4·8 per 1000, against 7·8, 6·4, and 6·9 in the three preceding years; whilst the mortality in the Army at home was 3·1 per 1000, against 3·1, 3·1, and 2·6 (Table 48).

Mortality in the Navy.

The average strength of the service afloat during the year 1909 was 112,700, and the deaths during the year numbered 362, being in the proportion of 3·21 per 1000 of the strength, against an average of

3·82 per 1000 in the six years immediately preceding. Of the 362 deaths in 1909, 258 were caused by disease and 104 by violence ; the death-rate from disease was therefore 2·28 per 1000, and that from violence 0·92 per 1000. Of the 104 deaths by violence, 58 were due to drowning, and 3 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 1909, this register was increased by the addition of 181 entries of birth and 3,268 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 1891–1909. In the year 1908 the number employed was 243,189, of whom 23,478 were employed in sailing vessels, being 2,343 fewer than in the preceding year, and 219,711 in steam vessels, being 1,381 fewer than in the preceding year.

The reported deaths from all causes in sailing or steam vessels during the year ended 30th June, 1909, numbered 2,143, of which 1,155 resulted from disease, suicide, &c., 487 from wreck or casualty to ship, and 501 from accident other than wreck or casualty to ship, showing a death-rate from all causes of 8·8 per 1000 of the strength ; this rate was 0·9 per 1000 below the mean rate in the previous five years. (Table 50.)

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.

Marriages.—Table LXXX. compares the crude marriage rates (persons married annually stated in terms of total population) in the several countries and states dealt with from the years 1881–85 onwards. In the first period, 1881–85, the position of this country was fifteenth out of 30 in the list ; in 1896–1900 the position had risen to eleventh out of 31 ; but in 1906–08 it had fallen to seventeenth out of 30.

Table LXXX.—Annual Marriage-rates per 1000 persons living, 1881–1909.

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.	1909.
Bulgaria	17·9	17·4	16·4	16·6	19·8	19·1	19·8	17·7	—
Servia	22·1	21·6	20·2	19·9	19·7	20·4	21·2	18·4	18·7
Western Australia ...	14·2	14·3	14·0	19·8	18·4	17·4	16·0	15·0	14·5
Russia (European) ...	18·0	17·1	17·9	17·8	—	—	—	—	—
Ontario, Province of ...	14·2	13·5	13·2	13·9	17·5	17·9	19·7	18·9	—
Hungary	20·4	17·8	18·0	17·0	17·2	17·4	19·6	18·2	17·0
Japan	—	16·6	17·0	18·1	16·3	14·6	17·7	18·7	—
New Zealand	13·6	12·0	12·2	14·2	16·3	17·0	18·0	18·0	16·7
Roumania	17·9	15·1	15·8	15·2	16·3	20·6	21·3	18·4	18·7
Belgium	13·7	14·2	15·1	16·6	16·1	16·1	16·0	15·6	—
German Empire... ...	15·4	15·8	15·9	16·8	16·1	16·3	16·3	15·9	—
Prussia	15·9	16·2	16·1	16·9	16·1	16·4	16·4	16·1	15·7
Spain	12·6	13·3	16·2	15·3	16·0	14·2	13·9	14·3	13·0
Austria	15·8	15·5	15·8	16·2	15·7	15·8	15·0	15·2	—
England and Wales...	**15·2**	**14·7**	**15·1**	**16·1**	**15·6**	**15·6**	**15·8**	**14·9**	**14·6**
France	15·0	14·4	15·0	15·1	15·3	15·6	16·0	16·1	15·7
Tasmania...	16·3	13·8	11·9	13·5	15·2	15·5	15·8	15·7	16·3
Switzerland	13·7	14·1	14·5	15·5	15·0	15·6	15·6	15·6	—
The Netherlands ...	14·3	14·0	14·5	14·9	14·9	14·9	15·0	14·4	14·1
Italy	16·1	15·5	14·8	14·3	14·7	15·5	15·4	16·6	15·4
New South Wales ...	17·0	14·9	13·3	13·9	14·7	15·3	15·7	15·9	16·1
Denmark...	15·4	14·0	13·9	15·0	14·3	14·9	15·3	14·8	14·6
Scotland	13·8	13·0	13·6	14·6	13·9	14·0	13·9	13·1	12·3
Victoria	14·7	16·3	12·9	13·3	13·7	14·6	15·4	14·8	14·7
South Australia	16·9	13·5	12·9	12·5	13·3	14·2	15·9	15·8	16·1
Finland	14·9	14·5	13·0	14·9	13·0	13·6	13·7	13·4	12·8
Norway	13·4	12·8	12·9	13·7	12·3	11·8	12·1	12·2	12·0
Queensland	17·3	16·3	12·6	12·7	12·2	13·5	15·2	14·4	15·9
Sweden	12·8	12·2	11·5	12·2	11·8	12·3	12·4	12·2	11·9
Ireland	8·7	8·7	9·5	9·9	10·4	10·3	10·3	10·4	10·4
Chili	12·6	7·4	9·2	9·3	10·3	11·4	13·0	13·0	11·8

Table LXXXI. sets forth the relative positions when the number of persons married annually is stated in proportion to total marriageable persons (*see* Tables I. and II.). Calculated in this way the relative position of England and Wales in 1900–02 is much the same as in Table LXXX.

In England and Wales and in the Netherlands there was a decline of 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.

TABLE LXXXI.—MARRIAGE RATES PER 1000 OF THE UNMARRIED AND WIDOWED POPULATION AGED 15 YEARS AND UPWARDS.

Countries (Arranged in order of rates in 1900–2).	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 Table LXXXII. 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, with the exception of Ireland, Bulgaria and Roumania.

TABLE LXXXII.—ANNUAL BIRTH-RATES per 1000 persons living, 1881–1909.

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.	1909.
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	40·4	—
Roumania	41·8	40·9	41·0	40·2	39·4	40·5	41·7	40·8	41·7
Jamaica	—	36·8	38·6	38·9	39·0	38·1	35·0	37·6	37·8
Ceylon	—	30·3	31·7	37·2	38·8	35·7	32·8	40·1	36·7
Servia	46·3	43·7	43·3	40·1	38·7	41·3	40·0	36·8	36·5
Hungary	44·6	43·7	41·7	39·4	37·2	36·0	36·0	36·3	37·0
Chili	39·1	35·5	37·0	35·0	36·1	36·6	38·6	39·3	38·8
Austria	38·2	37·8	37·4	37·3	35·6	34·9	33·8	33·5	—
Spain	36·4	36·0	35·3	34·3	35·0	33·4	32·9	33·2	32·6
Prussia	37·4	37·3	37·0	36·5	34·8	33·8	33·0	32·8	31·8
German Empire... ...	37·0	36·5	36·3	36·0	34·3	33·1	32·3	32·1	—
Italy	38·0	37·5	36·0	34·0	32·6	31·9	31·5	33·4	32·4
Japan	—	28·5	28·6	31·1	31·7	28·9	33·0	33·9	—
The Netherlands ...	34·8	33·6	32·9	32·1	31·5	30·4	30·0	29·7	29·1
Finland	35·5	34·5	31·8	32·6	31·3	31·4	31·3	30·8	31·3
Western Australia ...	34·5	36·9	30·7	28·3	30·3	30·0	29·2	28·9	27·7
Denmark	32·4	31·4	30·4	30·0	29·0	28·5	28·3	28·3	28·0
Tasmania	35·0	34·1	32·7	28·2	29·0	29·5	29·6	30·8	29·9
Scotland	33·3	31·4	30·5	30·0	28·9	27·9	27·0	27·2	26·4
Norway	31·2	30·8	30·2	30·1	28·6	26·7	26·3	26·2	26·1
England and Wales... ...	**33·5**	**31·4**	**30·5**	**29·3**	**28·1**	**27·1**	**26·3**	**26·5**	**25·6**
Switzerland	28·6	27·5	27·7	28·5	28·1	27·4	26·8	27·1	—
Belgium	30·7	29·3	28·9	28·9	27·7	25·7	25·3	24·9	—
New South Wales ...	37·7	36·4	32·9	28·0	26·7	27·0	27·1	26·8	26·9
Queensland	36·5	37·4	34·1	29·1	26·7	26·3	26·9	26·7	27·2
New Zealand	36·3	31·2	27·7	25·7	26·6	27·1	27·3	27·4	27·3
Sweden	29·4	28·8	27·4	26·9	26·1	25·7	25·5	25·7	25·6
Victoria	30·8	32·7	30·9	26·2	25·0	25·1	25·2	24·6	24·6
South Australia	38·5	34·7	32·0	27·0	24·5	23·7	23·9	24·7	24·7
Ireland	23·9	22·8	23·0	23·3	23·2	23·6	23·2	23·3	23·5
Ontario, Province of ...	22·4	22·0	19·9	20·1	21·8	22·9	23·3	24·9	—
France	24·7	23·1	22·3	21·9	21·2	20·6	19·7	20·2	19·6

Legitimate Fertility.—In order to eliminate the more serious inequalities of circumstance which render crude birth-rates unsuitable for purposes of comparison (*see* pp. xxvi–xxviii), the basis of fertility of married women is adopted in Table LXXXIII. On this basis England and Wales occupies a still lower position, the recorded fertility in 1890–92 and 1900–02 being below that of any other European country except France. Ireland, on the other hand, occupies a position near the top of the list, whereas in Table LXXXII. it stands almost last.

TABLE LXXXIII.—LEGITIMATE FERTILITY. PROPORTION OF LEGITIMATE BIRTHS per 1000 WIVES aged 15–45 YEARS.

Countries (Arranged in order of rates in 1900–02).	Approximate periods.			Increase (+) or Decrease (—) per cent. in Fertility during 20 years.
	1880 82.	1890–92.	1900–02.	
European Countries.				
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
Australian Commonwealth.				
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.

Illegitimate Fertility.—Table LXXXIV. presents the same information with regard to illegitimate as Table LXXXIII. with regard to legitimate fertility. Except in the cases of the German Empire, Sweden, France, Belgium, and the Australian Commonwealth, the falls shown in illegitimate fertility in Table LXXXIV. are greater than the corresponding falls in legitimate fertility.

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.

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.

TABLE LXXXIV.—ILLEGITIMATE FERTILITY. PROPORTION OF ILLEGITIMATE BIRTHS per 1000 UNMARRIED and WIDOWED WOMEN aged 15–45 YEARS.

Countries (Arranged in order of rates in 1900–02).	Approximate periods.			Increase (+) or Decrease (—) per cent. in Illegitimacy during 20 years.
	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	22·9	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

Deaths.—During the last four years the crude death-rates have been, on the whole, lower than in any of the earlier periods shown in Table LXXXV. In England and Wales the rates in successive quinquennia since 1881–5 show a continuous decrease, although at the period when the fall in corrected death-rate was arrested (*see* Diagram, p. xxxviii) the fall in crude death-rate also was very slight. The decrease continued uninterruptedly in the years 1906–09. All the principal countries of Europe have experienced lower death-rates during the present century than were ever recorded for them before. In the case of England and Wales and the Netherlands this has happened in no less than six out of the nine years; Austria, Belgium, and Spain have had five "lowest death-rates on record" since 1900; Denmark, Norway, Prussia, and Switzerland, four; Italy, three; and France, Hungary, Russia, Scotland, and Sweden, two each. The countries showing the greatest declines are Spain and the Netherlands, while France shows the least. The lowest death-rate recorded for Ireland was that for the year 1896.

The crude death-rates given in Table LXXXV. 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 made possible by means of Table 56, inserted for the first time in the Annual Report for 1908, which shows the age constitution of the principal Foreign and Colonial populations as enumerated in or about the year 1901. 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 (*see* Table LXXXVI.).

TABLE LXXXV.—ANNUAL CRUDE DEATH-RATES per 1000 persons living, 1881–1909

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.	1909.
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	31·5
Ceylon	—	25·1	28·3	27·0	26·7	34·3	30·1	29·4	30·3
Hungary	33·1	32·1	31·8	27·9	26·2	24·8	25·2	24·8	25·1
Spain	32·6	30·9	30·1	28·8	25·8	25·6	24·0	23·3	23·4
Roumania	26·2	28·7	31·0	27·4	25·5	24·3	26·7	27·7	27·8
Austria	30·1	28·9	27·9	25·6	24·2	22·4	22·6	22·3	—
Jamaica	—	23·5	22·0	22·1	22·6	26·2	28·3	22·4	21·7
Bulgaria	17·7	18·9	27·8	23·9	22·5	22·3	22·3	24·3	—
Servia	24·5	25·9	28·9	24·8	22·4	24·0	22·8	23·7	29·3
Italy	27·3	27·2	25·5	22·9	21·9	20·8	20·7	22·6*	21·4
Japan	—	20·6	21·1	20·7	20·9	19·8	20·9	21·0	—
German Empire ...	25·3	24·4	23·3	21·2	19·9	18·2	18·0	18·1	—
France	22·2	22·0	22·3	20·7	19·6	19·9	20·2	19·0	19·3
Prussia	25·4	24·0	22·8	21·0	19·6	17·9	17·8	17·9	17·0
Finland	22·2	20·0	20·5	19·0	18·6	17·5	17·9	18·5	16·7
Switzerland	21·3	20·4	19·8	18·1	17·7	17·0	16·8	16·2	—
Ireland	18·0	17·9	18·5	18·1	17·6	17·0	17·7	17·6	17·2
Belgium	20·6	20·2	20·1	18·1	17·0	16·4	15·7	16·5	—
Scotland	19·6	18·8	19·0	18·0	16·9	16·0	16·2	16·1	15·3
England and Wales...	**19·4**	**18·9**	**18·7**	**17·7**	**16·0**	**15·4**	**15·0**	**14·7**	**14·5**
The Netherlands ...	21·4	20·5	19·6	17·2	16·0	14·8	14·6	15·0	13·7
Sweden	17·5	16·4	16·6	16·1	15·5	14·4	14·6	14·9	13·7
Denmark	18·4	18·7	18·6	16·4	14·8	13·5	14·2	14·5	13·1
Norway	17·2	17·0	16·8	15·6	14·5	13·6	14·2	14·3	13·5
Ontario, Province of ...	11·4	11·0	10·6	11·6	13·0	14·1	14·3	13·9	—
Victoria	14·7	16·1	14·0	13·7	12·7	12·4	11·7	12·5	11·2
Western Australia ...	17·1	16·0	16·3	15·1	12·4	11·9	11·1	10·7	9·9
Queensland	19·2	14·9	12·4	12·0	11·4	9·6	10·4	10·2	9·7
New South Wales ...	15·7	13·8	12·8	11·9	11·2	9·9	10·6	10·1	9·6
South Australia	14·7	12·6	12·3	12·0	10·8	10·3	9·7	9·7	9·3
Tasmania	16·0	14·9	13·3	12·4	10·8	11·2	11·2	11·7	10·0
New Zealand	10·9	9·9	10·1	9·6	9·9	9·3	10·9	9·5	9·2

* Excluding the deaths in the earthquake at Messina and Reggio the death-rate was 20·3 per 1000.

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

The International Statistical Institute has recommended that the particular constitution, in respect of age and sex, of the population of Sweden in 1890 should be taken as a 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 in all countries 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 age-groups in harmony with this rule should be of far greater value than those founded on the five age-groups of the Swedish standard population.

It will probably be possible, however, in future years, to give the death-rate of England and Wales also as corrected on the basis adopted by the International Institute.

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

—	England and Wales.	Ireland.	France.	New South Wales.	German Empire. (Census, 1900.)	Russia. (Census, 1897.)
Persons.						
All ages... ...	**1,000,000**	**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	385,521
15—65	629,133	632,700	656,877	605,581	603,223	572,312
65 years and upwards.	46,661	63,808	82,050	34,496	48,794	42,167
Males.						
All ages... ...	**483,543**	**493,418**	**491,977**	**524,199**	**492,082**	**489,599**
Under 15 years ...	161,871	154,189	130,576	182,294	174,404	191,691
15—65	301,349	307,405	323,878	321,846	295,918	277,430
65 years and upwards.	20,323	31,824	37,523	20,059	21,760	20,478
Females.						
All ages... ...	**516,457**	**506,582**	**508,023**	**475,801**	**507,918**	**510,401**
Under 15 years ...	162,335	149,303	130,497	177,629	173,579	193,830
15—65	327,784	325,295	332,999	283,735	307,305	294,882
65 years and upwards.	26,338	31,984	44,527	14,437	27,034	21,689

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 LXXXVIII. and LXXXIX.

It will be observed from the figures in Table LXXXVII. that while the death-rates of the several countries are very diversely affected by differences of sex and age constitution, no other European population was ten years ago so favourably constituted, with regard to mortality, as that of this country. In every instance the crude death-rate has to be diminished by correction in order to secure fair comparison with that of England and Wales. The reverse holds good of Australia, but this is due to the small proportion of aged persons in the Australian population (*see* Table 56, p. 110), which, in that respect, is affected by the large immigration of earlier years, and cannot be compared with those of older countries.

The exceptionally favourable constitution of the population of this as compared with other European countries is sufficiently remarkable to attract special attention. Leaving aside variations as to sex, which are of minor importance with regard to this matter, attention may be

TABLE LXXXVII.—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).	Mean age† of population. Persons.
	Persons.		Males.		Females.			
	Corrected Death-rates.	Crude Death-rates.	Corrected Death-rates.	Crude Death-rates.	Corrected Death-rates.	Crude Death-rates.		
Russia (European) (1896-8) ..	28·61	32·80	29·80	34·59	27·49	31·09	1667	25·50
Spain (1900-02)	26·53	27·63	27·37	28·97	25·74	26·36	1546	28·48
Hungary (1899-01)	24·87	26·34	24·96	26·87	24·79	25·81	1449	26·98
Austria (1899-01)	23·12	24·83	23·86	25·80	22·42	23·90	1347	27·50
Bulgaria (1899-01)	20·92	23·26	20·89	23·47	20·96	23·03	1219	25·72
Italy (1900-02)	20·23	22·72	20·09	23·13	20·36	22·31	1179	28·53
Prussia (1899-01)	19·70	21·08	21·03	22·42	18·45	19·77	1148	26·84
German Empire (1901)	19·52	20·84	20·78	22·10	18·34	19·61	1138	27·14
Finland (1899-01)	19·12	20·54	19·98	21·26	18·32	19·84	1114	27·58
Scotland (1900-02)	17·61	17·91	18·56	18·50	16·73	17·36	1026	27·20
France (1900-02)	17·50	20·80	18·56	21·95	16·51	19·69	1020	32·28
England and Wales (1900-02)	**17·16**	**17·16**	**18·37**	**18·37**	**16·04**	**16·04**	**1000**	**27·50**
Switzerland (1899-01)	16·86	18·22	17·57	18·99	16·20	17·48	983	28·90
Belgium (1899-01)	16·78	18·53	17·80	19·55	15·82	17·52	978	28·69
Ireland (1900-02)	16·59	18·27	16·25	18·31	16·90	18·23	967	29·22
Western Australia (1900-02) ..	15·83	13·72	17·80	14·68	14·00	12·21	922	26·42
The Netherlands (1898-00) ..	15·40	17·32	16·03	18·06	14·81	16·60	897	27·74
Sweden (1899-01)	13·88	16·78	14·45	17·24	13·36	16·35	809	29·83
Denmark (1900-02)	13·63	15·80	14·41	16·66	12·90	14·98	794	28·38
Queensland (1900-02)	13·29	11·89	14·88	13·61	11·80	9·74	774	25·08
New South Wales (1900-02) ..	13·10	11·72	13·79	13·01	12·44	10·29	763	25·59
Victoria (1900-02)	13·08	13·12	13·99	14·80	12·22	11·43	762	26·98
South Australia (1900-02) ..	11·73	11·02	12·33	11·78	11·16	10·23	684	26·01
Tasmania (1900-02)	11·44	10·88	11·55	11·59	11·33	10·11	667	25·29
New Zealand (1900-02)	10·80	10·01	11·12	11·05	10·51	8·86	629	26·41

* 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.

† Excluding cases in which the age was not stated.

directed to age variations alone, as displayed in Table 56, pp. 110 and 111. From this it is seen that some European countries, as Russia and Bulgaria, have a younger population than England and Wales, and others, as France, Sweden and Ireland, have an older. Yet all are less favourably constituted, and that to a degree which, to some extent, corresponds with the difference of the mean age of their populations from that of England and Wales. The two oldest populations, those of France and Sweden, are shown by the extent

of the difference between their crude and corrected death-rates to be less favourably constituted than any of the other populations older than our own ; and amongst the populations younger than ours the corresponding position is held by the two youngest, those of Russia and Bulgaria.

It would seem to follow that the average age of the English population in 1901, 27·5 years, approximates to that most favourable for a low death-rate amongst populations of the European type. Comparison of Tables 3 and 14 shows that since about 1875 the constitution of the English population had been becoming more and more favourable up to 1901, since the difference between crude and corrected death-rates as given in these tables diminishes from 1875 onwards. This change has been accompanied by a very considerable increase in the mean age of the population, *i.e.*, from 26·31 in the year 1881. There can be little doubt that this increase has continued since 1901, and, if so, we may very possibly find that in 1911 some other country has displaced England and Wales from the most advantageous position, the population of this country having, by continued increase in age beyond the most favourable point, become less favourably constituted than in 1901.

Mean age alone, however, cannot be taken as a test of the degree to which any population is favourably or unfavourably constituted in this matter, though a certain relationship to age can be traced in comparing the populations of European countries. But if comparison is made between Russia and New South Wales, both young populations of approximately equal mean age, it can be seen from Table LXXXVII that correction increases the crude death-rate of New South Wales to almost exactly the same proportional extent as it diminishes that of Russia. Table 56, p. 110, shows that the explanation lies mainly in the very high proportion of children under five years of age in the Russian population, comparing with a very moderate proportion in the case of New South Wales, where the low mean age is due to the large proportion of children and young adults, with an abnormally small proportion of persons over 45 years of age. Further, the mean age of the English and Austrian populations in Table LXXXVII is exactly the same, yet the constitution of the Austrian population was much less favourable, because the proportion of persons at both extremes of life included in the Austrian population was higher. In fact, not only the mean age, but the age distribution of our population in 1901 was favourable to low death-rates. The proportion of persons aged 15–45 was very high, owing largely, no doubt, to the rapid fall in the birth-rate which had then been in progress for a little over 20 years. Three continental countries, as well as Scotland and Ireland, had a larger proportion of persons aged 15–20, and three of persons aged 35–45. No European country except Scotland and Ireland included a larger proportion of those aged 20–25, and none at all of those aged 25–35. It was this preponderance of young adults, with mortalities below the average for persons of all ages (*see* Tables LXXXVIII and LXXXIX), together with a very moderate proportion of children under five years and of old people, which gave the English population of 1901 its great advantage in this connexion. Up to and at the census of 1881 the proportion of young children had been much higher and that of young adults considerably lower, while that of old people was approximately as in 1901. Till 1891 the age distribution of the population showed little change. At that census, however, the effect of the falling birth-rate was clearly shown by decrease of young children and increase of

young adults, and in 1901 this had become more marked. In 1911 it may, perhaps, be anticipated that the decrease in young children will have continued, but that the increase in adults will extend to a later age than heretofore. Whether the increase in the elderly and decrease in children over five (working in the same direction) will be found to more than neutralize decrease in children under five or not in 1911, it seems almost certain that sooner or later continued fall in the birth-rate, if it occurs, will result in an unfavourable age distribution of the French type, where a small proportion of children over five, and a very large proportion of persons over middle age, much more than counterbalance the favourable effect of a small

TABLE LXXXVIII.—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 LXXXVII.

proportion of children under five. Two conclusions may be drawn from these considerations, that comparison of crude death-rates is not likely to remain permanently so advantageous to this country as at the present time, and that in order to institute useful comparisons correction of national death-rates for differences in age and sex constitution is essential.

Tables LXXXVIII and LXXXIX enable detailed comparisons to be made of the mortality in different countries of persons of the same age and sex, of the mortality of the two sexes at various ages in the different countries, of ages at which mortality is relatively high or low in one country as compared with others, &c.

TABLE LXXXIX.—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 LXXXVII.

The position occupied by England and Wales in relation to the other 24 countries, included in these Tables, is as follows :—

TABLE XC.

—	All Ages.	Under 5 years.	5–	10–	15–	20–	25–	35–	45–	55–	65–	75–
Males	12	11	13	17	20	21	15	6	4	3	6	13
Females	14	11	14	18	21	22	22	11	6	8	11	12

It will be seen that from ages 10 to 35 our mortality experience was very favourable, but that from 35 to 75 it was almost equally unfavourable, especially in the male sex, Spain and Scotland alone having a higher mortality than England and Wales amongst males aged 55–65, at which age the Scottish mortality is much the highest in the Table. Reference to page lv shows that there is a marked degree of correspondence between the ages at which mortality in towns is highest as compared with rural mortality, and those at which English mortality is highest as compared with that of other countries. Although the improvement of conditions which has so greatly reduced the mortality of the young in this country has diminished that of elderly persons but slightly (*see* Table XXXII), it would seem from Table LXXXVIII that much of the mortality amongst our middle-aged and elderly men must be preventable, though not yet prevented. For even if our condition of industrialism and urbanization tell with especial severity upon these ages, it can scarcely be possible that Great Britain must accept as inevitable a death-rate amongst men of 45–55, exceeded only by Austria and Switzerland, and one amongst those ten years older exceeded only by Spain. In the case of males aged 10–25 and females aged 10–35, however, the English mortalities are less than those of any other European country in the Tables, and the relative position of this country with regard to children under five is by no means unfavourable when it is borne in mind to what an extent mortality at this age depends upon urbanization (*see* Tables 37 and 38).

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 average annual rate in England and Wales in the quinquennium 1901–1905 was 12·1 per 1000 of the 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 twenty years the number of deaths exceeded the births.

TABLE XCI.—NATURAL INCREASE.—Mean Annual rate of increase, by excess of Births over Deaths, per 1000 living, 1881–1909.

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.	1909.
Tasmania...	19·0	19·2	19·4	15·8	18·2	18·3	18·4	19·1	19·9
Bulgaria	19·5	17·0	9·7	17·1	18·1	21·7	21·3	16·1	—
Western Australia ...	17·4	20·9	14·4	13·2	17·9	18·2	18·1	18·2	17·8
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	18·1
Servia	21·8	17·8	14·4	15·3	16·3	17·3	17·2	13·1	7·2
New South Wales ...	22·0	22·6	20·1	16·1	15·5	17·1	16·5	16·7	17·3
The Netherlands ...	13·4	13·1	13·3	14·9	15·5	15·6	15·4	14·4	15·4
Queensland	17·3	22·5	21·7	17·1	15·3	16·7	16·5	16·5	17·5
Prussia	12·0	13·3	14·2	15·5	15·2	15·8	15·2	14·9	14·8
German Empire ...	11·7	12·1	13·0	14·8	14·4	14·9	14·3	14·0	—
Denmark	14·0	12·7	11·8	13·6	14·2	15·0	14·1	13·8	14·9
Norway	14·0	13·8	13·4	14·5	14·1	13·1	12·1	11·9	12·6
Roumania	15·6	12·2	10·0	12·8	13·9	16·2	15·0	13·1	13·9
South Australia	23·8	22·1	19·7	15·0	13·7	13·4	14·2	15·0	15·4
Finland	13·3	14·5	11·3	13·6	12·7	13·9	13·4	12·3	14·6
Victoria	16·1	16·6	16·9	12·5	12·3	12·7	13·5	12·1	13·4
England & Wales ...	**14·1**	**12·5**	**11·8**	**11·6**	**12·1**	**11·7**	**11·3**	**11·8**	**11·1**
Scotland	13·7	12·6	11·5	12·0	12·0	11·9	10·8	11·1	11·1
Austria	8·1	8·9	9·5	11·7	11·4	12·5	11·2	11·2	—
Hungary	11·5	11·6	9·9	11·5	11·0	11·2	10·8	11·5	11·9
Japan	—	7·9	7·5	10·4	10·8	9·1	12·1	12·9	—
Belgium	10·1	9·1	8·8	10·8	10·7	9·3	9·6	8·4	—
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	11·9
Switzerland	7·3	7·1	7·9	10·4	10·4	10·4	10·0	10·9	—
Spain	3·8	5·1	5·2	5·5	9·2	7·8	8·9	9·9	9·2
Ontario, Province of ...	11·0	11·0	9·3	8·5	8·8	8·8	9·0	11·0	—
Chili	11·3	0·3	4·4	6·2	6·1	3·7	9·0	7·7	7·3
Ireland	5·9	4·9	4·5	5·2	5·6	6·6	5·5	5·7	6·3
France	2·5	1·1	0·0	1·2	1·6	0·7	−0·5	1·2	0·3

Infantile Mortality.—The accompanying Table shows the relative incidence of infantile mortality in those countries that have been able to furnish returns, although the comparison is to a certain extent vitiated by differences of practice in regard to the registration of stillbirths. 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, Norway, Sweden, and Australasia the rates of infantile mortality are exceptionally low.

TABLE XCII.—INFANTILE MORTALITY.—DEATHS of children under one year to 1000 births, 1881–1909.

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.	1909.
Chili	—	264	336	333	331	328	297	320	—
Russia (European) ...	271	264	276	261	—	—	—	—	—
Austria	—	—	—	226	215	209	204	—	—
Hungary	—	—	250	219	212	205	208	199	212
Prussia	207	208	205	201	190	177	168	173	164
Jamaica	—	170	171	175	174	197	223	175	174
Spain	193	—	—	—	173	173	—	—	—
Ceylon	—	158	169	168	171	198	186	183	202
Italy	—	—	185	168	168	160	155	153	—
Japan	—	—	147	153	154	153	151	157	—
Servia	157	158	172	159	149	144	147	158	—
Belgium	156	163	164	158	148	153	132	147	—
Bulgaria	—	—	140	143	148	154	154	170	—
France	167	166	171	159	139	143	135	—	—
England & Wales ...	**139**	**145**	**151**	**156**	**138**	**132**	**118**	**120**	**109**
The Netherlands ...	181	175	165	151	136	127	112	125	99
Switzerland	171	159	155	143	134	127	121	108	—
Finland	162	144	145	139	131	119	112	125	111
Western Australia ...	—	123	130	160	126	110	98	85	78
Scotland	117	121	126	129	120	115	110	121	—
Denmark	135	136	138	132	119	109	106	123	—
Ontario, Province of ...	—	—	—	—	114	137	121	124	—
Ireland	94	95	102	106	98	93	92	97	92
New South Wales ...	124	115	111	113	97	75	89	76	74
Victoria	122	131	111	111	96	93	73	86	71
Queensland	137	119	103	103	94	75	77	70	72
Sweden	116	105	103	101	91	81	77	85	—
Tasmania	109	103	94	98	90	91	82	75	65
South Australia	—	105	99	112	87	76	66	70	61
Norway	99	96	98	96	81	69	67	76	—
New Zealand	90	84	87	80	75	62	89	68	62

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, appreciable reductions in the rates of mortality from these diseases have taken place in many European countries.

TABLE XCIII.—MEASLES.—DEATH-RATES per 1000 persons living, 1881–1909.

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.	1909.
Spain	—	—	—	—	0·66	0·45	0·35	0·36	0·39
Hungary	—	—	—	0·43*	0·40	0·49	0·42	0·45	0·39
Belgium	0·52	0·58	0·60	0·40	0·37	0·34	0·27	0·40	—
The Netherlands ...	0·26	0·38	0·20	0·17	0·37	0·25	0·26	0·27	0·17
Austria	0·48	0·56	0·42	0·38	0·34	0·33	0·24	0·28	—
England & Wales ...	**0·41**	**0·47**	**0·41**	**0·42**	**0·33**	**0·27**	**0·36**	**0·23**	**0·35**
Scotland	0·36	0·41	0·51	0·43	0·32	0·31	0·24	0·52	—
Roumania	—	0·13	0·18	0·17	0·26	0·03	0·21	0·25	0·10
Prussia	0·42	0·42	0·27	0·26	0·25	0·24	0·18	0·19	0·17
Italy	—	0·61*	0·42	0·25	0·21	0·29	0·24	0·34	0·32
Switzerland	0·11	0·14	0·16	0·13	0·20	0·16	0·17	0·06	—
Ireland	0·18	0·20	0·17	0·18	0·16	0·09	0·13	0·20	0·10
South Australia	0·16	0·01	0·18	0·05	0·13	0·00	0·01	0·04	0·00
Sweden	0·21	0·18	0·13	0·11	0·08	0·04	0·08	0·09	—
New Zealand	0·09	0·03	0·16	0·06	0·07	0·01	0·11	0·02	0·03
Western Australia ...	0·82	—	0·08	0·05	0·06	0·02	0·02	0·10	0·03
Ontario, Province of ...	0·06	0·07	?	0·04	0·04	0·06	0·07	0·02	—
New South Wales ...	0·05	0·06	0·15	0·11	0·03	0·01	0·06	0·02	0·01
Victoria	0·08	0·03	0·12	0·14	0·03	0·01	0·03	0·02	0·00
Queensland	0·08	0·00	0·14	0·11	0·02	0·01	0·04	0·07	0·01
Tasmania...	—	0·00	0·06	0·07	0·01	0·02	0·01	0·02	0·01

* 4 years.

TABLE XCIV.—SCARLET FEVER.—DEATH-RATES per 1000 persons living, 1881–1909.

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.	1909.
Servia	—	—	—	—	0·99	1·72	1·43	1·41	—
Hungary	—	—	—	0·56*	0·66	0·43	0·57	0·65	0·51
Austria	0·62	0·56	0·54	0·56	0·45	0·38	0·36	0·53	—
Roumania	—	0·15	0·32	0·26	0·45	0·20	0·35	0·78	1·08
Prussia	0·58	0·30	0·23	0·27	0·30	0·21	0·22	0·22	0·22
Belgium	0·27	0·17	0·15	0·22	0·13	0·11	0·13	0·16	—
England & Wales ...	**0·44**	**0·24**	**0·18**	**0·13**	**0·13**	**0·10**	**0·09**	**0·08**	**0·09**
Ontario, Province of ...	0·22	0·08	?	0·08	0·13	0·03	0·05	0·07	—
Scotland	0·35	0·22	0·20	0·17	0·09	0·05	0·05	0·08	—
Sweden	0·57	0·44	0·28	0·09	0·09	0·07	0·04	0·05	—
Spain	—	—	—	—	0·06	0·07	0·12	0·11	0·09
Tasmania...	—	0·01	0·01	0·05	0·06	—	—	—	0·01
Italy	—	0·31*	0·20	0·11	0·05	0·08	0·09	0·10	0·08
New Zealand	0·12	0·03	0·01	0·00	0·05	0·02	0·03	0·06	0·03
Switzerland	0·09	0·09	0·07	0·02	0·05	0·04	0·04	0·04	—
Ireland	0·27	0·14	0·10	0·09	0·04	0·03	0·02	0·02	0·03
The Netherlands ...	0·15	0·07	0·04	0·03	0·03	0·03	0·05	0·05	0·03
New South Wales ...	0·11	0·08	0·08	0·04	0·03	0·03	0·02	0·03	0·02
South Australia	0·10	0·02	0·03	0·03	0·02	0·03	0·01	—	—
Victoria	0·06	0·03	0·03	0·03	0·02	0·00	0·00	0·02	0·03
Queensland	0·01	0·04	0·01	0·06	0·01	0·00	0·01	—	0·00
Western Australia ...	—	—	0·00	0·01	0·01	0·01	--	0·01	—

* 4 years.

TABLE XCV.—DIPHTHERIA and CROUP.—DEATH-RATES per 1000 persons living, 1881–1909.

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.	1909.
Servia	—	—	—	—	0·66	0·52	0·41	0·32	—
Hungary	—	—	—	0·67*	0·47	0·35	0·35	0·45	0·44
Austria	1·46	1·34	1·22	0·80	0·43	0·33	0·25	0·28	—
Prussia	1·72	1·57	1·34	0·59	0·40	0·27	0·24	0·25	0·25
Sweden	0·85	0·52	0·61	0·44	0·34	0·22	0·16	0·12	—
Ontario, Province of ...	0·70	0·65	0·44	0·34	0·30	0·19	0·17	0·20	—
Spain	—	—	—	—	0·25	0·17	0·18	0·20	0·21
Belgium	0·78	0·66	0·49	0·27	0·21	0·16	0·16	0·17	—
Switzerland	0·64	0·34	0·46	0·29	0·21	0·15	0·15	0·16	—
England & Wales† ...	**0·16**	**0·17**	**0·25**	**0·27**	**0·20**	**0·18**	**0·16**	**0·16**	**0·15**
Scotland†	0·21	0·22	0·22	0·16	0·15	0·17	0·14	0·14	—
Italy	—	0·74*	0·51	0·24	0·14	0·13	0·17	0·17	0·17
Roumania	—	0·19	0·20	0·29	0·13	0·07	0·06	0·04	0·05
The Netherlands† ...	0·12	0·15	0·16	0·10	0·10	0·06	0·06	0·06	0·06
Victoria†	0·15	0·41	0·20	0·15	0·10	0·04	0·07	0·09	0·06
Western Australia† ...	0·18	0·09	0·11	0·10	0·10	0·23	0·24	0·40	0·27
Japan	0·03	0·04	0·07	0·13	0·09	0·09	0·09	0·10	—
Ireland†	0·06	0·08	0·07	0·08	0·08	0·08	0·06	0·09	0·09
New South Wales† ...	0·24	0·26	0·29	0·09	0·08	0·07	0·09	0·08	0·10
Queensland†	0·17	0·28	0·26	0·11	0·08	0·07	0·10	0·05	0·09
South Australia	0·57	0·50	0·40	0·11	0·07	0·04	0·04	0·03	0·04
Tasmania†	—	0·26	0·27	0·08	0·05	0·02	0·04	0·06	0·06
New Zealand†	0·20	0·18	0·17	0·08	0·04	0·04	0·06	0·04	0·07

* 4 years. † Excluding Croup.

TABLE XCVI.—WHOOPING COUGH.—DEATH-RATES per 1000 persons living, 1881–1909.

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.	1909.
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	0·44	—
Austria	1·10	0·97	0·71	0·53	0·44	0·48	0·38	0·32	—
Hungary	—	—	—	0·59*	0·42	0·40	0·43	0·31	0·34
Belgium	0·68	0·63	0·55	0·48	0·38	0·35	0·32	0·36	—
Prussia	0·52	0·51	0·45	0·42	0·36	0·31	0·23	0·28	0·25
England & Wales ...	**0·46**	**0·44**	**0·40**	**0·36**	**0·30**	**0·24**	**0·29**	**0·28**	**0·20**
Ireland	0·30	0·28	0·26	0·27	0·24	0·21	0·18	0·22	0·27
Spain	—	—	—	—	0·23	0·23	0·17	0·24	0·18
The Netherlands ...	0·35	0·30	0·32	0·26	0·21	0·18	0·18	0·23	0·17
Italy	—	0·37*	0·26	0·23	0·20	0·18	0·18	0·16	0·15
Switzerland	0·24	0·22	0·19	0·17	0·20	0·19	0·12	0·14	—
Sweden	0·19	0·17	0·17	0·20	0·18	0·17	0·12	0·18	—
Roumania	—	0·04	0·12	0·17	0·16	0·20	0·16	0·35	0·16
Tasmania	—	0·13	0·10	0·11	0·13	0·01	0·26	0·12	0·01
New South Wales ...	0·15	0·19	0·19	0·14	0·12	0·01	0·38	0·04	0·01
South Australia	0·23	0·17	0·17	0·15	0·10	0·04	0·19	0·05	0·05
Queensland	0·14	0·16	0·18	0·19	0·09	0·02	0·22	0·07	0·06
Victoria	0·15	0·13	0·15	0·08	0·09	0·20	0·10	0·05	0·13
Western Australia ...	0·12	0·31	0·17	0·10	0·09	0·04	0·39	0·07	0·01
New Zealand	0·22	0·15	0·23	0·07	0·08	0·03	0·33	0·04	0·04
Ontario, Province of ...	0·10	0·09	?	0·07	0·08	0·11	0.10	0·11	—
Japan	—	—	—	—	0·05	0·07	0·07	0·08	—

* 4 years.

TABLE XCVII.—ENTERIC FEVER.—DEATH-RATES per 1000 persons living, 1881–1909.

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.	1909.
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	0·30
Spain	—	—	—	—	0·44	0·41	0·35	0·32	0·27
Italy	—	0·79*	0·51	0·50	0·35	0·28	0·25	0·27	0·28
Hungary	—	—	—	0·38*	0·28	0·27	0·26	0·24	0·30
Queensland	0·96	0·53	0·24	0·31	0·25	0·17	0·16	0·19	0·15
New South Wales ...	0·51	0·45	0·24	0·30	0·22	0·18	0·12	0·19	0·18
Ontario, Province of ...	0·27	0·24	?	0·21	0·20	0·40	0·23	0·30	—
Austria	0·73	0·58	0·44	0·27	0·19	0·15	0·15	0·15	—
Belgium	0·56	0·40	0·34	0·24	0·17	0·12	0·12	0·11	—
South Australia	0·43	0·37	0·22	0·29	0·16	0·13	0·10	0·10	0·09
Victoria	0·52	0·61	0·27	0.29	0·16	0·13	0·07	0·14	0·10
Tasmania	—	0·58	0·30	0·30	0·15	0·20	0·21	0·20	0·20
Ireland	0·16	0·17	0·17	0·21	0·13	0·09	0·08	0·08	0·07
Roumania	—	—	0·16	0·12	0·13	0·16	0·17	0·21	0·29
England & Wales ...	**0·22**	**0·18**	**0·17**	**0·17**	**0·11**	**0·09**	**0·07**	**0·07**	**0·06**
Scotland	0·27	0·19	0·18	0·16	0·11	0·09	0·08	0·06	—
The Netherlands† ...	0·18	0·13	0·12	0·10	0·09	0·08	0·07	0·06	0·05
Prussia	0·47	0·25	0·18	0·13	0·09	0·06	0·06	0·05	0·05
Sweden‡	0·27	0·23	0·20	0·15	0·09	0·06	0·06	0·09	—
New Zealand	0·23	0·22	0·17	0·14	0·08	0·05	0·06	0·10	0·06
Switzerland	0·29	0·16	0·11	0·08	0·06	0·05	0·05	0·04	—

* 4 years. † Including Typhus. ‡ Including Brain Fever and acute Poliomyelitis.

Pulmonary Tuberculosis.—Disregarding 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 mortality from this disease. Several States were unable to furnish complete returns of mortality under this heading. For example, no comparison can be instituted as regards France, Denmark, Sweden, Roumania, or Bulgaria, as the statistics of those countries have been limited to towns only; again in Hungary, in Prussia, and in Ontario the returns comprise deaths from all forms of tuberculosis, while in Italy deaths from general tuberculosis are included under pulmonary tuberculosis.

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. This rate was exceeded in five continental countries, while in only two others were the average rates below that recorded in this country.

TABLE XCVIII.—PULMONARY TUBERCULOSIS, &c.—DEATH-RATES per 1000 persons living, 1881-1909.

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.	1909.
Pulmonary Tuberculosis:									
Austria	3·90	3·80	3·60	3·45	3·40	3·15	3·14	3·02	—
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	1·84
Switzerland	2·09	2·13	1·99	1·90	1·89	1·84	1·72	1·73	—
Spain	—	—	—	—	1·46	1·41	1·38	1·35	1·24
Japan	—	1·01	1·36	1·45	1·46	1·56	1·54	1·55	—
Scotland	2·11	1·89	1·74	1·65	1·45	1·38	1·35	1·26	—
The Netherlands ...	—	—	1·89	1·65	1·33	1·34	1·30	1·20	1·23
England & Wales ...	**1·83**	**1·64**	**1·46**	**1·32**	**1·22**	**1·15**	**1·14**	**1·12**	**1·08**
Belgium	—	—	1·56	1·42	1·18	1·05	1·01	1·01	—
Victoria	1·41	1·45	1·33	1·19	1·12	0·99	0·96	0·95	0·85
Queensland	1·74	1·29	1·06	0·87	0·81	0·68	0·64	0·63	0·60
New South Wales ...	1·14	0·99	0·87	0·80	0·80	0·67	0·62	0·63	0·64
South Australia ...	1·06	1·07	1·01	0·89	0·80	0·82	0·76	0·89	0·79
Western Australia ...	0·87	0·94	0·75	0·67	0·73	0·82	0·78	0·72	0·68
New Zealand	0·91	0·84	0·81	0·78	0·70	0·62	0·67	0·64	0·61
Tasmania	—	0·97	0·87	0·70	0·63	0·66	0·63	0·60	0·62
Pulmonary and General Tuberculosis:									
Italy	—	1·37*	1·29	1·25	1·16	1·22	1·24	1·22	1·22
Tuberculosis (all forms):									
Hungary	—	—	—	3·64*	3·94	3·84	3·84	3·70	3·62
Prussia	3·13	2·90	2·47	2·08	1·91	1·71	1·70	1·65	1·55
England & Wales ...	**2·54**	**2·32**	**2·12**	**1·91**	**1·74**	**1·64**	**1·61**	**1·58**	**1·52**
Ontario, Province of ...	1·25	1·16	1·14	1·41	1·29	1·31	1·14	1·13	—

* 4 years.

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; for the whole of the German Empire statistics of cancer are available only from 1908. For Hungary it is probable that the rates are understated, 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 have been 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.

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, 1901-05, being exceeded only in Switzerland when correction is made for differences in age and sex constitution.

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.

TABLE XCIX.—CANCER.—DEATH-RATES per 1000 persons living, 1881-1909.

Countries (Arranged in Order of crude rates in 1901-5).	Crude Rates.					Corrected Rates.				
	1881-1885.	1886-1890.	1891-1895.	1896-1900.	1901-1905.	1901-1905.	1906.	1907.	1908.	1909.
Switzerland	1·03	1·14	1·22	1·27	1·30	1·10	1·12	1·06	1·11	—
The Netherlands ...	0·60	0·70	0·81	0·92	0·97	0·85	0·88	0·89	0·90	0·90
England & Wales	**0·55**	**0·63**	**0·71**	**0·80**	**0·86**	**0·86**	**0·92**	**0·91**	**0·92**	**0·95**
Scotland	0·54	0·62	0·69	0·77	0·84	0·83	0·94	0·94	0·94	—
Austria	0·44	0·50	0·59	0·69	0·74	0·69	0·73	0·72	0·72	—
Victoria	0·45	0·53	0·62	0·69	0·74	0·76	0·77	0·82	0·81	0·82
Ireland	0·38	0·43	0·49	0·58	0·69	0·56	0·64	0·62	0·62	0·65
New Zealand ...	0·30	0·42	0·52	0·59	0·67	0·75	0·79	0·82	0·79	0·82
South Australia ...	0·32	0·39	0·48	0·56	0·67	0·76	0·84	0·80	0·77	0·86
Prussia	0·34	0·41	0·50	0·57	0·65	0·64	0·69	0·72	0·73	0·74
New South Wales ...	0·27	0·36	0·43	0·54	0·64	0·80	0·85	0·87	0·84	0·90
Belgium	—	—	—	—	0·58†	0·49	0·49	0·51	0·54	—
Queensland	0·25	0·27	0·34	0·44	0·57	0·79	0·76	0·90	0·71	0·83
Tasmania	—	0·49	0·49	0·55	0·56	0·68	0·63	0·77	0·82	0·82
Italy	—	0·43*	0·44	0·51	0·55	0·45	0·51	0·50	0·53	0·53
Ontario, Province of	0·21	0·29	?	0·44*	0·52	—	—	—	—	—
Western Australia ...	0·33	0·41	0·31	0·31	0·45	0·74	0·98	0·83	0·86	1·09
Spain	—	—	—	—	0·44	0·38	0·41	0·41	0·44	0·44
Hungary	—	—	—	0·30*	0·39	0·38	0·39	0·41	0·42	0·43
Servia	—	—	0·06*	0·08	0·10	—	—	—	—	—

* 4 years. † 3 years.

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 1909 by 1,953,563, this addition raising the total of names in the indexes, which at the end of 1909 embraced a period of 72½ years, to 118,695,604.

The following statements as to the number of prosecutions for offences against the Registration Acts and searches in the Registers in connexion with Old Age Pensions have been prepared by the Chief Clerk:—

OFFENCES AGAINST THE REGISTRATION ACTS.

In 1909, 27 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 failing to comply with a requisition to register a birth	1
For giving a false place of birth in order to avoid vaccination	9
For giving a false age when registering the death of an old-age pensioner	6
For otherwise giving false information to the registrar when registering a birth or death ...	2
For falsifying certificate of birth or death and using same as true	6
For causing the body of a live-born child to be buried as still-born	3

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 17 years was of full age, and the man who gave the notice was sentenced to six calendar months' imprisonment with hard labour.

Old Age Pension Searches.

In the autumn of 1908 a special arrangement was made with the Board of Customs and Excise, under the sanction of His Majesty's Treasury, for verifying free of charge the ages of persons claiming Old Age Pensions. A form was drawn up providing for the entry of the particulars requisite for a search in the birth registers, and bearing a counterfoil for recording the result of the search; and local Pension Officers were supplied with copies of this form and were instructed to send one direct to this Office in the case of every claimant stated to have been born in England or Wales on or after 1st July, 1837, whose age required verification. A number of clerks were engaged (temporarily in the first place), and were trained as rapidly as possible to deal with the forms as they arrived here. The applications began to reach this Office early in October, 1908. The number received up to the end of December in that year was 20,855, and 39,155 more were received in 1909. Of these 60,010 cases 58,626 had been fully dealt with by the end of 1909, the remaining 1,384, consisting of some which had only been received in the last days of the year, and of others which had been unsuccessfully searched for, and were held over for further enquiry. Among the cases that were fully dealt with in the year 1909 were 23,929 in which the alleged dates of birth were found to be precisely or approximately correct, 970 in which the applicants proved to be older than they had stated, 225 in which they were younger but were still of pensionable age, 2,031 of applicants who were found to be less than 70 years old, and 10,618 which could not be traced although search had been carried back to the beginning of civil registration, and forward to dates varying from five to ten years later than the alleged dates of birth.

The proportion of cases, 18 per cent., not found is larger than was expected—a result which might seem to suggest that registration of births was much more incomplete in the first two and a half years of registration than had been supposed. The course of the searching, however, revealed other factors which have no doubt contributed to the result. Not only had many of the applicants no accurate knowledge of the date or place of their birth, but the names stated by others as those of their parents did not tally with the names found in the register. On this account alone, the cases not found would have been much more numerous than they were but for the care and ingenuity shown by the Searching Clerks in tracing misspelt surnames by means of the alphabetical indexes. In many cases the registers themselves were referred to after search in the indexes had failed, and in some of these the father's surname (under which of course every birth is indexed) was found to differ entirely from the name stated, while the agreement of other details was so close as to establish the identity of the case. Obviously this procedure could only be used when the district of birth was so small that a search in the register would not occupy too much time; therefore there are an unknown number of old persons whose births cannot be traced, because they were born in populous districts and have been known by other surnames than those used by their parents. It may be

expected that the number of untraceable cases will decrease year by year; for no doubt registration became both more complete and more accurate in detail as it became more familiar to the public, and as the local Registrars gained experience in the performance of their work.

Searches and Certificates.

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

During the 52 weeks ended 1st January, 1910, the total number of searches was 73,543, and of certificates issued 54,674. The total amount received in fees was 10,568*l.* 8*s.*

Table C.

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)...	58,664	37,485	7,686 8 6
1898 (52 weeks)...	63,825	41,143	8,450 19 6
1899 (52 weeks)...	57,670	44,793	8,551 19 6
1900 (52 weeks)...	57,895	45,479	8,658 9 6
1901 (52 weeks)...	58,445	45,254	8,645 10 0
1902 (53 weeks)...	61,437	48,262	9,177 15 0
1903 (52 weeks)...	63,519	49,469	9,437 9 6
1904 (52 weeks)...	62,270	48,658	9,274 12 0
1905 (52 weeks)...	65,142	50,310	9,611 9 0
1906 (52 weeks)...	64,340	49,429	9,458 6 0
1907 (52 weeks)...	69,249	53,058	10,194 9 0
1908 (53 weeks)...	72,370	54,870	10,550 8 0
1909 (52 weeks)...	73,543	54,674	10,568 8 0

Table C. 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.

T. H. C. Stevenson.

METEOROLOGY OF THE YEAR 1909.

Remarks on the Conspicuous Meteorological Occurrences in the British Isles in 1909.

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

The following summary of the most notable meteorological features of the year 1909 has been prepared from various official reports, daily, weekly, and monthly returns, and the records of numerous rainfall observers :—

1. *Gales.*—On January 7th and 8th a North-Westerly gale blew in many parts of the British Isles, attaining the force of a strong gale (force 9) in several localities. A whole gale (force 10) was reported at Skerryvore, Butt of Lewis, Wick and Flamborough Head, and a storm (force 11) at the Outer Farne. On January 11th a Westerly to North-Westerly gale on our western and northern coasts, the wind rising to a whole gale at Pladda, the Rhinns of Islay and the Outer Farne, and to a storm at Sule Skerry. A deep system which was almost stationary in the neighbourhood of the Faröe on January 13th and 14th occasioned a whole gale from West and North-West at a number of places on the western coasts, between Swansea Bay and Islay. This disturbance was still in the vicinity of the Arctic Circle on the 16th, when the Westerly wind again increased on the western coasts, to a whole gale at the Scarweather (Swansea Bay), Bahama Bank, and the Rhinns of Islay, and to a storm at Pladda. From about 10 a.m. on the 13th the gale lasted 76 hours at Loop Head, and 120 hours at the Fastnet. On January 17th there was a South-Westerly gale on our western coasts generally, the force of a whole gale at Loop Head, Tearaght, Bahama Bank, and the Mull of Galloway. During the next eight months, February to September, there was a marked absence of general gales, a strong or whole gale was felt locally. With October the conditions assumed a very windy type, the force of a high wind being experienced at one or more places on our coasts on 29 consecutive days, gale force on 21 days, a strong or whole gale on 12 days. Between the 5th and the 9th a whole gale between South and West blew at Caldy, Malin Head, and Skerryvore, from North-West at Cape Wrath and Sule Skerry, a hurricane (force 12) at the Mull of Galloway. Between the 12th and 15th a whole South-Westerly gale. On the 23rd and 24th a whole gale from North at the Fastnet, and from South-West at Pembroke, Caldy, Scarweather, and Portland Bill. Between the 26th and 29th a whole gale from East or North-East at Aran Island North, the Fastnet, Caldy, the Owers, the Casquets, and Flamborough Head, a storm at Start Point. November was a much quieter month, but on the 12th and 13th a whole gale from between West and North blew at Bahama Bank, the Outer Dowsing, Spurn Head, and Flamborough Head, a storm at the Outer Farne. Very disturbed conditions prevailed during the greater part of December, nearly all the cyclonic systems being very deep, that of the 2nd and 3rd being the deepest of the year. The first five days had the wind mainly from between South-West and North-West, increasing to a whole gale at numerous points on the

western, southern and eastern coasts, to storm force at Caldy, the Scarweather and the Outer Farne on the 3rd, hurricane force at the Scarweather on the 2nd. (*See* Weekly Weather Report, p. 388.) A strong South-Easterly gale blew on many coasts on the 21st and 22nd, a whole gale at Malin Head, Bardsey, Pembroke, Spurn Head and Flamborough Head, a hurricane at Caldy. Self-registering anemometers at 25 stations recorded the following instances of mean hourly velocities of 55 or more miles of wind :—

January 16th, Scilly, 55 ; 18th, Edinburgh, 56.
October 7th, Pendennis, 56 ; 23rd, Scilly, 70 ; Pendennis, 55.
November 12th–13th, Fleetwood, 55 ; 18th, Pendennis, 56.
December 1st, Scilly, 56, 2nd, Pendennis, 55 ; 2nd–3rd, Southport, 58, Fleetwood, 66.

The highest velocity attained in a gust was 90 miles per hour at Scilly on October 23rd. (For more detailed records, *see* Appendix III. of the Weekly Weather Report.)

2. *Rainfall.*—There was a more equable distribution of precipitation over the kingdom than is usual, the wet districts in the south-west, west and north-west, receiving less than the normal, much less in many localities, and the drier eastern districts more than the normal. Newquay returns show a deficiency of 9·7 ins., Cally 9·9 ins., Valencia 11·4 ins., Fort William 11·7 ins., Killarney 12·2 ins., Roche's Point 15 ins., and Glencarron 17·8 ins. On the other side Southampton and Ventnor had an excess of 5·2 ins., Margate 5·3 ins., Tunbridge Wells 5·5 ins., Hillington 6·1 ins., Totland Bay 6·4 ins., Salisbury 6·5 ins., and Dungeness 12·7 ins. The largest totals in the returns communicated to the Office were 71·4 ins. at Glencarron, 66·9 ins. at Fort William, 56·6 ins. at Darwen, 54·2 ins. at Poltalloch, 52·9 ins. at Arlington, 50·6 ins. at Bettws-y-Coed, and 50·4 ins. at Blacksod Point—a very short list of falls exceeding 50 ins. The limit of 100 ins. was exceeded in the highlands of Western Scotland, Cumberland, and North Wales. There was not a score of instances of totals less than 25 ins., the smallest being 23·1 ins. at Cambridge, and 23 ins. at Shrewsbury. The frequency of precipitation ranged from 284 days at Balta Sound, 281 at Sumburgh Head, 275 at Foynes, 274 at Stornoway, 263 at Blacksod, and 261 at Wick to 153 at Tealby, 149 at Ampleforth, and 146 in the Forest of Dean (200 feet). Heavy falls of an inch and upwards in a day were exceptionally numerous. The following is a list of falls of 2 ins. and upwards in 24 hours :—January 17th, West of Scotland and North of Ireland ; February 2nd, West of Scotland ; 3rd, North Lancashire ; April 3rd, Dublin ; July 20th, Argyllshire ; August 1st, Hull ; 17th, South of England ; September 27th, County Clare ; 28th, South Wales and Devon ; October 15th, North Devon ; 26th to 28th, South of England, in places the rainfall amounted to nearly 6 ins. in three days ; November 11th and 28th, North of Scotland ; December 9th, North-west of Scotland ; 10th, North Lancashire ; 11th, Kincardine ; 16th, Portland Bill ; 21st, Gloucestershire and Monmouthshire. Some very heavy downpours in short periods were noted. April 27th, 0·14 ins. in 10 minutes at Camden Square, London ; May 26th, 0·16 ins. in 15 minutes at Rochford (Worcs.) ; June 24th, 0·18 ins. in 5 minutes at Camden Square ; July 30th, 0·13 ins. in 5 minutes at St. James's Park, London ; August 17th, 2·2 ins. in 5 hours at Salisbury, and nearly all of a total of 2·6 ins. at Maidenhead fell in 2 hours ; September 6th, 1·55 in. at Cromer in 55 minutes ; 17th, 0·14 in. in 2 minutes at Epsom, 0·8 in. in 15 minutes at Oxford, 0·3 in. in 20 minutes at Pyrton Hill, and 1·4 in. in 2 hours at Wisley ; 23rd, 1·55 in. in 4 hours at Belvoir Castle ; 25th, 0·24 in. in

3 minutes at Epsom ; October 5th, 0·1 in. in 10 minutes at Camden Square ; and 13th, 0·25 in. in 5 minutes at Norwich.

3. *Snowstorms.*—In the middle of January, under the influence of a very deep disturbance centred near Iceland, heavy snowstorms occurred in Scotland, Ireland, and the North of England, occasioning immense and widespread inconvenience, traffic by road and rail being suspended in many localities, and shipping seriously interfered with. In the first seven days of March there was snow in practically all parts of the country, but the distribution was very irregular, many observers measuring only from 1 in. to 4 ins., but on the 3rd Belvoir Castle 8½ ins., and Epsom 10 ins. ; on the 3rd and 4th Tonbridge 22 ins. ; on the 6th Belvoir Castle 8 ins., and Tenbury 8½ ins. ; and on the 7th Huddersfield 10 ins., and Birmingham 11 ins. The melted snow yielded from an inch to nearly 2 ins. of water at a number of stations. Snow and hail squalls were experienced extensively on the last day of April, and on the opening day of May snow fell generally, down to the shores of the English Channel. As late as May 12th to 15th there were falls of snow in many districts, as far as the southern counties. No further falls occurred until October 29th, when there was a heavy storm in Northumberland. The snows of the remainder of the year were light, Crathes reporting 6 ins. on November 13th, and there were various falls of from 6 ins. to 8 ins. in the course of December, the most extensive fall being on the 20th to the 22nd.

4. *Thunderstorms.*—In January electrical disturbances were rather numerous, visiting Western Scotland on the 6th, and many parts of England and Scotland on the following day. From the 13th to the 16th there were a number of thunderstorm records distributed over the whole kingdom. There were few records during February and March, and the first half of April, but they became very frequent over many districts in the last week of April, few, however, being described as heavy, and they did not result in any great rainfalls. The May thunderstorms were limited almost entirely to the few days 23rd to 26th, nearly all in England. On June 1st South-Eastern England was affected by an electrical disturbance which produced heavy rain all over the district. From the 20th to the 24th there were numerous storms distributed all over the Kingdom, with heavy rains in many places, while the storms of the 27th to 29th were marked by comparatively little rain. The storms of July were neither so frequent nor so extensive, and resulted in no great rainfalls, the heavy rainstorm over the southern half of England and Wales on the 27th was not attended by thunderstorms. A great rainstorm over the same region on August 17th was of a similar thunderless character, while the thunderstorms of the 16th and 25th were not marked by much rain. On September 17th a singular and very violent thunderstorm occurred over the western and middle regions of the Thames watershed, with very heavy rain and terrific thunder and lightning. There appear to have been no premonitory indications of its approach, and in the immediately surrounding districts there were no signs of a storm being in progress. A thunderstorm over the Straits of Dover on the 22nd gradually worked northward across Britain, and arrived in the Orkneys on the 24th, passing from a low into a high pressure system. Again, on the 25th, South-Eastern England was visited by a sharp thunderstorm, which was coincident with a magnetic storm. The thunderstorms of October and November were of minor importance, but those of December, like those of January, were very frequent for the season, thunder or lightning or both being reported on at least nineteen days.

5. *Dry Periods.*—Although the year was marked by an unusual frequency of great rainstorms there were many long spells either of absolute drought or with no rainfall worth mentioning. One of these dry intervals set in about January 19th over a great part of Britain, and was maintained generally until about February 8th, Portland Bill returning 21 successive rainless days. The break lasted only a couple of days, and between the 10th and 26th many localities had from 15 to 17 rainless days. February may thus be regarded as a very dry month, the total rainfall in several instances being less than ½ in., at Cuckfield only 0·1 in. Western Scotland experienced a very remarkable drought during March, the district along the Caledonian Canal receiving less than an inch of rain in the whole month, or from 3 ins. to 6½ ins. less than the normal. Fort Augustus totalled less than 0·8 in., and Fort William only 0·3 in. Over England generally there was little or no rain from March 31st to April 12th. From May 1st to 23rd, and June 1st to 24th were droughty periods over extensive areas, in the West as well as in the East. In the first 18 days of August there was a rainless fortnight over southern England, while in southern Ireland the month as a whole was dry, Ballinacurra, Cork, receiving 0·3 in. distributed over 6 days, as many as 17 successive days being rainless. September 7th to 29th was another dry spell over a large extent of country, with from 14 to 17 successive rainless days in many places, and only very trifling showers on one or two other days. Southern Ireland continued remarkably dry, the total rainfall at Ballinacurra in the 58 days, August 1st to September 27th, being only ½ in. November, generally, was a dry month, with 12 to 14 consecutive rainless days in many places between the 13th and 27th. At Ampleforth rain fell on three days only, and the total fall at Bawtry and Lincoln throughout the month was less than ¼ in.

6. *Temperature.*—At nearly every station the *highest* temperature of the year was attained in the spell of hot weather experienced from the 6th to the 15th of August, 92° at Epsom on the 15th, 90° at Maidenhead on the 12th, 89° at Cullompton on the 9th, and 85° or 86° at a number of places on the 12th, 86° at Weymouth on the 9th. With this exception the only other maxima of 80° and upwards occurred on May 21st and 22nd, 83° at Epsom, 84° at London and Maidenhead. A very striking feature of the summer was the persistent cold, June providing few instances of maximum temperatures above 70°, many of these were below 55°, even as low as 50° at Totland Bay, 49° at Salisbury, Buxton and Woburn early in the month. July was only a little less cold than June, the maxima on many days being below 60°. There was some compensation for this in the many warm days in the winter months, the thermometer rising on February 4th to 58° at Cambridge and Epsom, and 59° at Killarney ; passing 65° rather frequently in October, and touching 70° in some instances ; 60° to 62° in Ireland and north Britain on November 3rd ; and in December passing 55° in many cases, 58° at Torquay on the 3rd, and Kingstown on the 27th, and 59° at Kingstown on the 10th.

The *lowest* night temperatures were registered at various periods in February, March, November and December. Shade values below 20° were numerous, down to 9° at Hereford and Epsom in March, Phœnix Park in December, 8° at Rugby, Lewes, and Cirencester in March, Bawtry, Kilkenny and Thorntonhall in December ; 7° at Wokingham in February, Wokingham, Llangammarch Wells and Nairn in March, Clongowes Wood in December ; 6° at Stokesay in March ; 4° at Crathes in November ; Mayfield (Staffs) in December ; 3° at Kingston-on-Soar and Swarraton in March, Worksop in

December ; 1° at West Linton in March, Garforth in December ; and 0° at Marlborough in March, Balmoral in December. Even in June there were some records of frost, the thermometer sinking to 29° at Llangammarch Wells, 30° at Garforth, and 31° at Burnley. There were, however, several very high night minima in the winter months, temperature at various southern stations, including London, not descending below 60° on October 4th and 17th. In December there were many minima as high as 50° to 52°. At Guernsey (Brooklyn) the thermometer did not descend below 32° all through the year, and at Scilly a minimum of 30° was registered on February 28th.

The range of temperature for the year amounted to 85° at Marlborough, 83° at Epsom, 82° at Swarraton, 81° at Worksop and Kingston-on-Soar, 80° at Garforth, and 75° and upwards at a number of other stations, all inland ones, while it was 50° or less at several places along the southern, western and northern coasts, 45° at Balta Sound, 43° at Holyhead, 43° at Scilly and Blacksod Point, 41° at Deerness, and only 36° (63° to 27°) at Castlebay. For the country as a whole the mean temperature for the year was about 1° below the normal, all districts showing a deficiency.

7. *Bright Sunshine.*—In the north-east of England the duration of bright sunshine was less than usual, York returning a deficiency of 131 hours for the year. East Scotland was more variable, Aberdeen showing a deficit of 96 hours, Edinburgh an excess of 157 hours. All other districts returned a general excess, in many localities more than 100 hours, the largest excesses being 203 hours at Pembroke, 208 at Torquay, 209 at Falmouth, 214 at Plymouth, 229 at Westminster, and 243 at Blackpool. The largest aggregates for the year were along the English Channel, where nearly all the stations had more than 1,900 hours, ranging up to 1,981 at Bognor, 1,990 at Guernsey (Villa Carey), 1,992 at Salcombe, and 1,999 at Jersey. In Scotland the largest total was 1,441 hours at Balruddery, and in Ireland 1,633 hours at Ballinacurra. The only cases of less than 1,000 hours were 999 at Manchester (City), 986 at Hull, and 966 at Fort Augustus, this last-mentioned being, however, 77 hours more than the normal. The percentage of the possible duration ranged from 45 at Jersey and other southern stations to 22 at Hull and Fort Augustus.

The months of June and July were notable for their deficiency of sunshine, June in particular being an exceptionally dull summer month, London's total sunshine of 91 hours being the lowest on record, and 76 hours less than the normal. March also was very dull. Generally speaking, the other nine months were more than usually sunny, the excess in April ranging up to between 50 and 95 hours, and in May to between 100 and 130 hours. January, November and December were marked by several brilliant days, the excess of sunshine being exceptionally large for the winter season.

8. *Fog.*—As in the previous year there was again a general absence of great fogs over the inland districts. On January 27th and 28th there was a good deal of fog over England, the latter date was unusually dark in London, yet there was brilliant sunshine in the suburbs. There were fairly frequent fogs in March, and for brief periods they were very dark in London on the 3rd, Tottenham on the 22nd, and Ampleforth on the 30th. November was a month of sunshine and of remarkable freedom from fog.

With the exception of October there were well-marked periods of fog on our western and eastern coasts in all months, but the south coast of England was not much affected, except in January and May. The longest spells were from July 27th to August 15th on the western coasts, and from September 17th to October 3rd on the western and eastern coasts.

9. *Barometer.*—The mean distribution of pressure for the whole year was in very close agreement with the normal, the greatest differences being an excess of 0·025 in. at Stornoway, and a deficiency of 0·025 in. at Dungeness. From a mean of 30·01 ins. at Brest and Paris the values diminished to 29·95 ins. along the south coast of England, 29·8 ins. in Shetland, and 29·71 ins. at Reykjavik (Iceland). The highest pressures recorded were confined to January, February and December, the barometer rising to 30·78 ins. at Jersey on January 2nd, to 30·69 ins. at Roche's Point on February 14th, and to 30·73 ins. at Aberdeen on December 14th. In other months there were few instances as high as 30·5 ins. There were very numerous depressions in which pressure was below 29 ins., and on January 4th the barometer fell to 28·35 ins. at Wick, and on December 3rd to 28·03 ins. at Spurn Head, and 28·09 ins. at Shields. The range of pressure exceeded 2 ins., excepting in the extreme south-west of England. At Spurn Head it amounted to 2·66 ins., at Scilly 1·87 ins. Over Scotland and the north-east of England both the extreme readings occurred in December.

There was a reversal of the normal distribution during March, the lowest pressure being on the Bristol Channel, the highest over Iceland, in June the lowest pressure was over the North Sea and to the eastward, the highest out on the Atlantic and up to Iceland.

10. *High Tides.*—March 25th, exceptionally high on the north-east coast, but causing comparatively little damage.

11. *Floods.*—January 17th and 18th in Scotland and Ireland, following heavy snow and rainstorms. A bog slide in Galway caused loss of life, and much destruction of property. February 4th to 6th serious floods in the north of Ireland after very heavy rain. The great rainstorms of the autumn caused destructive floods in South Wales (twice) and in the south-east of England.

12. *Earthquakes.*—On July 28th and 29th earthquake shocks were felt at Laudale.

13. *Aurora Borealis.*—There were very numerous records of auroræ, but seldom noted as presenting any unusual features. On December 1 h a brilliant display was seen in many parts of Scotland.

14. *Magnetic Storm.*—A very severe magnetic disturbance occurred on September 25th, interfering seriously with the telegraphic services. The storm appears to have been general throughout the world. Aurora was seen in various countries the same evening, but it was not of an exceptional character.

15. *Observations in the Upper Air.*—In the Weekly Weather Report details have been published of 473 ascents of kites or captive balloons, 101 pilot balloons, and 74 registering balloons. Of the latter 68 reached the stratosphere. The greatest heights attained were, with kites 3,300 metres from the Howard Estate Observatory, Glossop, on May 5th ; with pilot balloons 19 kilometres from Pyrton Hill on February 22nd, and with registering balloons 23 kilometres from Manchester on January 13th. The lowest temperature observed was 206°·5 A. or − 66°·5 C. at 13 kilometres on November 4th, in an ascent from Pyrton Hill.

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, Berkhamsted, Greenwich, Norwood, and Salisbury, 86°.

The lowest temperatures were at Stokesay, 6° ; Llangammarch Wells, 7° ; and at Salisbury, Shrewsbury, and York, 10°.

The heaviest falls of rain at any of the stations were at Bettws-y-Coed, 50·6 ins. ; Stonyhurst, 48·8 ins. ; and at Llangammarch Wells, 47·9 ins.

The least falls of rain were at Shrewsbury, 23·0 ins. ; Cambridge, 23·1 ins. ; and at Kew, 23·7 ins.

The greatest number of days of rain were at Norwich, 233 ; Cromer, 225 ; and at Llangammarch Wells, 224.

The least number of days of rain were at Wakefield, 159 ; Portsmouth, 162 ; and at Spurn Head, 166.

The highest temperatures in the sun were at the Royal Observatory, Greenwich, 151° ; and at Bath, 145°.

The lowest temperatures on the grass were at Llangammarch Wells,—4° and 2° ; and at Buxton, 5°.

The greatest number of days of temperature on the grass at 30° or below were at Llangammarch Wells, 180 ; Cambridge, 152 ; and at Berkhamsted and Buxton, 146.