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THE

REGISTRAR-GENERAL'S

STATISTICAL REVIEW

OF

ENGLAND AND WALES

FOR THE YEAR

1934

(New Annual Series, No. 14)

TEXT

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VEAR 1932. PART I—MEDICAL.

Table 24 (page 311). County of Westmorland. Aggregate of Rural Districts. Puerperal Sepsis. All Ages should read—3.

YEAR 1933—TEXT.

TABLE LXXVI (page 118). List No. 140. Post abortive sepsis.

Deaths of Married Women per million living at ages 35-45 1930-32—for 43 read 36.

YEAR 1934. PART I-MEDICAL.

Table 10 (page 45). Scarlet Fever (column 8).

Blackburn—for 32 read 42.

""", (page 49). Typhoid and Paratyphoid Fevers (column 2).

Cardiganshire—for 7 read 37.

Table 17 (page 76). Footnote (c).

For Matlock RD read Matlock UD.

YEAR 1934. PART II—CIVIL.

TABLE E (page 16). Footnote (c).

For Matlock RD read Matlock UD.

STATISTICAL REVIEW, 1934.

Note.—Of the tables referred to below, those numbered in Arabic will be found in "Tables, Part I—Medical," and those lettered in "Tables, Part II—Civil," while those numbered in Roman numerals appear in the text of this volume.

DEATHS.

The deaths of 476,810 persons were registered in England and Wales during 1934, 242,855 of these being males and 233,955 females.

This number is 4.0 per cent. below that for 1933.

Deaths of non-civilians, which numbered only 358, are now allocated to their administrative area of residence, and are included in all 1934 tables.

Death-Rates.—The death-rates used in this Review are of several kinds. The *crude* death-rate of a given region or locality represents the number of deaths which were registered during the year as belonging to that locality, after correction for transfers to the place of residence of the deceased, per 1,000 or million of the corresponding estimated population at the middle of the year. In this rate are included deaths at all ages whatsoever. For England and Wales as a whole the crude death-rate in 1934 was 11.8 per 1,000.

Specific death-rates relate either to mortality assigned to specific causes by the processes outlined at the commencement of the section "Causes of Death" (p. 44), or else to the mortality amongst selected groups of persons specified according to their sex, age, civil condition or occupation. Specific rates of the latter type are, with certain exceptions, obtained by relating the numbers of deaths registered as being those of persons in the selected group to the estimated number of such persons alive at the mid-year. Exceptions to this are the rate of infant mortality which is based upon the number of live births registered during the year, and certain death-rates connected with childbearing which, for reasons explained in the section on puerperal causes of death, are based upon the number of registered live and still-births.

Standardized death-rates are attempts to express the mortality of a population of changing or abnormal age distribution by a single figure calculated in such a way that the changes or abnormalities in constitution do not appreciably affect it. The standardized rates used in this Review for England and Wales as a whole, whether for all causes or specific causes, are the rates which would result if each sex and age group of the census population in 1901 was subject to the death-rate at that age, during the year to which the rate

applies.* On this basis of standardization the rate from all causes in 1934 was 9.3 per 1,000 living, the lowest rate ever recorded.

As the population of this country in 1901 included relatively few infants and old people it forms a standard exceptionally favourable to low mortality. Its use for this purpose accordingly yields comparatively low standardized rates all round. In order to provide standardized rates for this country comparable with those of countries using the standard recommended by the International Statistical Institute (a composite population made up of those of a large number of European countries in 1900 or 1901), rates calculated upon the latter by the method suggested by the Institute† are shown in Table XXII, as well as those based on the 1901 English standard, which is that used elsewhere in this Review. It will be seen that use of the less favourable standard increases the rate from 9·3 to 10·4 per thousand.

Neither standard is satisfactory for the population as now constituted owing to the rapid changes in the proportionate age distribution which have occurred since 1901, but a change to some standard of more recent date would only temporarily remove this objection at the cost of grave disadvantages to the continuity of recorded death-rates. More complicated rates such as the life-table death-rate, whilst they would be free from some of the faults of the standardized rate as at present defined, suffer from the disadvantage that they postulate conditions which are hypothetical and their

precise meaning is difficult to visualize.

The important effect of the rapid changes at present proceeding in the age-constitution of the population on the crude and standardized death-rates is evidenced by the fact that from 1901, when both rates were 16.9 per 1,000 persons living, the crude rate declined to 12.1 in 1921, but since then has shown no further tendency to fall, the average rate in 1921–25 being 12.2, in 1926–30 12.1, and in 1931–34 12.1. The standardized rate however, which reached 11.3 in 1921, has continued to fall to its present low record of 9.3.

Another method of expressing mortality by a single figure which is not influenced by the proportions at risk at different ages is to calculate an "equivalent average death-rate,"‡ that is to say an arithmetic mean of the rates at quinquennial groups of ages up to some convenient limit of age such as 65, this being equivalent to calculating a standardized death-rate at ages under 65 based upon a population equally distributed over the 13 age groups.§ This has

† Annuaire International de Statistique, 1917, p. viii.

the effect at present of giving too great weight to mortality at the higher ages 35–65, but the extent of that overweighting is rapidly diminishing year by year, whereas the underweighting of these ages by use of the 1901 standard population becomes continually more pronounced. This is made clear by the comparison of populations in Table I, the numbers in parentheses representing the standard population of persons at ages under 65 in 1901 if it were redistributed on the basis of equal weighting used in calculating the equivalent average death-rate.

Table I.—Population of Persons in England and Wales by Ages, per 10,000 at all ages, 1901, 1911, 1921, 1931 and 1934.

		190	01	1911	1921	1931	1934
	1	Standard.	Uniform.	Census.	Census.	Census.	Estimated
0-		1,143	(733)	1,069	877	749	710
5-		2,099	(1,467)	1,995	1,895	1,635	1.644
15-		1,958	(1,467)	1,805	1,756	1,734	1.583
25-		1,616	(1,467)	1,651	1,520	1,605	1,665
35-		1,228	(1,467)	1,344	1,411	1,368	1,389
45-		892	(1,467)	978	1,167	1,235	1,235
55-		597	(1,467)	637	769	932	982
65-		331	1 20	377	434	536	569
75-	./.	121	_	126	151	182	197
85 and	l up.	15	-	18	20	24	26
All ag	es	10,000		10,000	10,000	10,000	10,000

The equivalent average death-rates at ages under 65 for each sex give a simple measure, unaffected by age distribution, of the mortality up to that age, but the information given by these two figures would need to be supplemented by rates at 65–75 and 75 and over in order to gain a fairly complete picture of mortality.

In Table II the trends for each sex, since 1901, of (a) the crude death-rate, (b) the standardized death-rate, (c) the equivalent average death-rate under 65, and (d) the life-table death-rate (1,000 divided by the complete expectation of life at birth) are compared. The proportionate fall in the equivalent average death-rate under 65 has been only slightly greater than that of the standardized rate at all ages, notwithstanding that the improvement at the excluded ages over 65 has been very much less than at the earlier ages. Their simple definition and ready calculation, and the fact that they are not dependent upon an arbitrary standard population out of relation to present-day conditions, give these equivalent rates certain advantages over the standardized rates for separate causes, and these alternative rates have been given in several tables of this Review.

^{*} For a full description of the methods employed for this "standardization" see The Registrar-General's Decennial Supplement—1921, Part III (pages xxxiii—xlii). Standardized death-rates for the sexes separately quoted in this Review are based upon the age distribution of persons of undistinguished sex in the general population of England and Wales in 1901.

[†] G. W. Yule; Journal of Royal Statistical Society, 1934. xcvii, Pt. I, 15. § If rates at all the quinquennial age groups are not available, twice the rate for the decennial group can be substituted without appreciable error.

Table II.—Trend of Crude and Corrected Death-Rates since 1901 by Sex; Rates per 1,000 living and per cent. of the rate in 1911.

	Cru all a		Standa all a		Equiv averag under	e rate	Life table death-rate, all ages		
3000	M.	F.	M,	F.	М.	F.	М.	F.	
			Rate	s per 1,00	0 living.				
1901 1911 1921 1931 1932 1933 1934	18·1 15·6 13·0 13·0 12·7 12·9 12·5	15·8 13·7 11·3 11·6 11·4 11·7 11·1	18·5 15·6 12·5 11·3 10·9 10·9	15·5 13·0 10·2 9·0 8·7 8·8 8·3	16·2 13·6 10·5 9·3 8·9 9·1 8·8·	13·2 11·0 8·5 7·2 6·9 7·0 6·7	19·4 18·0 17·0	18·1 16·8 15·9	
			Per ce	nt. of rate	e in 1911.				
1901 1911 1921 1931 1934	116 100 83 83 80	115 100 82 85 81	119 100 80 72 67	119 100 78 69 64	119 100 77 68 65	120 100 77 65 61	100 92 87 —	100 93 82	

For most causes of death the standardized rates in Table 8 were below the average for the preceding five years, the comparison on this basis being specially favourable for influenza, whooping cough, respiratory diseases, tuberculosis, tabes dorsalis, cerebral hæmorrhage, epilepsy, fatty heart, gangrene, valvular disease of the heart, chronic nephritis and accidental burns in both sexes, and for encephalitis lethargica, meningitis and general paralysis in males. The causes which showed appreciable increases over the preceding five-year average were measles, scarlet fever, diphtheria, erysipelas, diseases of the ear and mastoid, cellulitis and angina pectoris in both sexes, disordered action of the heart and leukæmia in males, and peritonitis and injury by fall in females.

Adjusted Death-Rates for Local Areas.—In the Decennial Supplement for 1871–80 (45th Annual Report) "corrected death-rates" were given for each Registration County, defined as "the death-rates that would have been recorded had the age distribution of the population in each county been identical with the age distribution of the whole population of England and Wales." The populations employed for the local rates and for the standard were derived from the means of the census populations of 1871 and 1881. On page xix of that Report a different method was used to measure the effect on mortality of differing age constitution of

the aggregates of urban and rural areas, for which the preceding method of standardization could not be used. This consisted in applying the mean death rates for England and Wales at different ages in 1871-80 to each of the populations of the aggregates at 1881 census and comparing the resulting death rates. In the Supplement for 1881-90 the first or "direct" method of standardization was again used, the standard population being the mean population of England and Wales in the decennium, and the second or "indirect" method was further developed for comparing urban with rural England (p. xxxvi, footnote). For the latter purpose the mean death rates in England and Wales at 11 age groups during 1881-90 were applied to the mean population of the urban or rural aggregate for the decennium at the same ages, and the resulting death-rate was then divided into the corresponding resulting deathrate in England and Wales during the decennium, producing a "factor for correction for age and sex distribution." The crude death-rate for the aggregate multiplied by this factor gave the " corrected death-rate."

In the Supplement to the 65th Annual Report, the direct method of standardization was applied to the rates for all registration districts, the standard population being the mean population in 1891–1900.

Following the Census of 1901, and in subsequent years to 1910, standardized rates were calculated and published in the Annual Reports of the Registrar General for each registration county, these being arrived at by the direct process of standardization using 1901 census population as standard. Similar rates for 1901–10 were tabulated for each registration district in the Supplement to the 65th Annual Report, these being also related to 1901 population as standard.

In the Report for 1911 the indirect method was employed for every administrative area, a standardizing factor being calculated by applying the mean death rates in England and Wales during 1901–10 for each sex at separate ages to the local population as constituted in 1911 on the one hand and to the standard population of England and Wales in 1901 on the other. These factors, by which the crude death-rates were to be multiplied, were employed throughout the ensuing decade until they were recalculated by applying the mean national death rates in 1920–22 to the local census population in 1921 and the standard population of England and Wales in 1901. The 1921 series was not published in the annual Reports but the appropriate factor was furnished to each local Medical Officer of Health.

The disadvantages of continuing to relate the death-rates of local areas to a standard population so different in age constitution from the present population of England and Wales are plain from the fact that a corresponding standardizing factor for England and Wales as a whole for the year 1931 calculated by applying

1930–32 rates would be ·82, compared with unity in 1901 and ·98 in 1911. In consequence, neither the standardizing factor nor the resulting standardized death-rate for a local area calculated on the 1901 standard now conveys any information in itself, without first comparing it with the corresponding factor or rate for the country as a whole.

What is needed is a simple ratio which immediately conveys to the mind, without further calculations, the extent to which a local death-rate in 1934 is in excess or defect of the rate expected in that year, after taking into account (1) the sex and age constitution of its population as determined at the most recent census, and (2) the mortality in the country as a whole during 1934. Whether the ratio be calculated by the direct or indirect method of standardization is of no practical importance provided that the standard rates used for the latter are those of a recent period of years.

This need has been met for 1934 by the calculation for every separate administrative area, county aggregate, county and region, as shown in Table 17, of an areal comparability factor (A.C.F.) and a ratio of adjusted death-rate to national rate or standardized ratio.

The method of calculation is as follows:—Standard death-rates for the triennium 1930-32 at various sex and age groups are obtained by dividing the deaths registered in the three years by three times the census population. The groups employed may be conveniently reduced to 11 without seriously affecting the accuracy of the resulting factor, viz. persons under 5, persons aged 5-34, males aged 35-54, 55-64, 65-74, 75-84, females of the same ages, and persons aged 85 and over. In certain areas where the population at 5–34 is known to be abnormally distributed owing to the presence of large schools or institutions for young people this age group is further subdivided. The standard rates are multiplied by the corresponding groups of the census population in 1931 of the area (as defined in 1934) and the sum of the resulting products divided by the total population gives the expected mean local death-rate at all ages in 1930-32. The ratio of the mean crude death-rate of England and Wales in 1930-32 to this local index rate is the "areal comparability factor" or "A.C.F." for the area as given in Column 13 of Table 17.

The A.C.F. for 1934 relates to the population of the area as defined by boundaries during that year, but it is of course based upon the sex and age constitution of that area as it was determined at the last census of 1931. Provided that there have not been in the meantime changes in boundary important enough to disturb appreciably the relative age distribution of the population included, the same comparability factor may be applied also to the crude rates of the preceding years 1931, 1932, or 1933, or to the mean rate for a series of years around the census as in Tables III and XCVII, and except where influenced by boundary changes in the future it will remain applicable until a new series of factors can be calculated on the basis of the next census.

The adjusted death-rate for 1934 is obtained by multiplying the local crude death-rate by the A.C.F. for that year, and the standardized ratio given in column 14 of Table 17 is the ratio of this adjusted death-rate to the crude death-rate of England and Wales in 1934. Adjusted local $DR = A.C.F. \times crude\ D.R.$

If it is desired to calculate standardized death rates based on 1901 standard population and comparable with those given for separate areas in the Annual Reports for 1911–14, the adjusted death rate must be further multiplied by the time comparability factor (T.C.F.) or ratio of the standardized national rate (persons) to the crude national rate (persons) for the year in question. Standardized local D.R. = T.C.F. × A.C.F. × crude local D.R. The numerical values of the T.C.F. for the years 1931 to 1934 are:—1931, ·820; 1932, ·808; 1933, ·796; 1934, ·790.

The assumption here involved is that the distribution by sex and age of the local population has undergone since the 1931 Census the same proportionate changes as has the distribution of the national population (the age changes in the national population between census years having been calculated annually since 1915 by adding births and deducting the deaths registered at various ages). Although this assumption is not necessarily true in the case of certain rapidly changing areas, it is the best approximation which can be made and is more satisfactory than the assumption hitherto made in local standardization for inter-censal years, namely that the local sex and age distribution remained unchanged until it was again ascertained by the next Census.

The comparability factors in Table 17 can only be applied to mortality from all causes, although for specific causes of death whose incidence according to sex and age is similar to that for all causes combined the appropriate factor would be found to be very similar. For most causes, however, the specific factor, which can be calculated in the same manner by substituting death-rates from the specific cause in 1930–32 for the death-rates from all causes, differs from the factor tabulated. This is shown below by a few examples which have been calculated for the county boroughs of Bournemouth and St. Helens.

		Com	_			
	All				Heart	Respiratory
	causes.	Cancer.	Measles.	Diabetes.	disease.	tuberculosis.
Bournemouth	 0.75	0.70	1.39	0.68	0.65	1.01
St. Helens	 1.23	1.32	0.80	1.34	1.46	0.97

Whilst the cancer, diabetes and heart disease factors tend to resemble the factors for all causes, those for measles and phthisis are widely different.

The effect of standardization of the death rates of the county boroughs upon the amount of variation met with in these rates is seen in Table III. Whilst the ratio of the crude death-rate in the quinquennium 1929–33 to the national rate ranged from .85 (Coventry) to 1.27 (Hastings), the corresponding standardized ratio

ranged from ·83 (Eastbourne) to 1·38 (Oldham), that is to say the range was increased by the process of standardization. The correction for differences in age distribution accentuates the contrasts between the mortalities of the northern industrial towns and the residential and agricultural towns rather than diminishing them. Of the 39 towns with crude mortality 8 or more per cent, in excess of that of England and Wales in 1929-33, standardization reduced the ratio for 12, the most remarkable reductions being for Hastings, 1.27 to .85, Bath, 1.15 to .84, and Bournemouth, 1.15 to .86. No change resulted for one town, but for the remaining 26 the adjusted death-rate was more in excess of the national rate than was the crude rate, 24 of these towns being in the North Region. Far from accounting for part of the wide differences in mortality rates between individual county boroughs, the peculiarities in age distribution tend in general to mask these differences, the more favourably circumstanced towns having larger proportions of old people. This is no new phenomenon, for in 1911, whereas the ratio of the crude death rate to the national rate ranged from .72 (Eastbourne) to 1.38 (Liverpool and Middlesbrough), the ratio for standardized rates had a wider range from .75 (Eastbourne) to 1.50 (Middlesbrough). The changes which have taken place in the standardized death rates of each separate county borough since 1911-14 are dealt with in a special section on "Standardized Mortality of the County Boroughs and Administrative Counties in 1931-34 compared with 1911-14" (pp. 144-150 and Tables XCVII and XCVIII). A study of the effect of eliminating several factors which do contribute to the mortality differences shown in Table III will be found in the section on "Relation between Mortality in the County Boroughs and Distribution of Social Classes, Housing Density and Situation" (pp. 150-155).

Table III.—Distribution of Comparability Factors, Crude and Standardized Mortality Ratios of the County Boroughs, 1929-33 and 1934.

<u>—</u>	-63-	-89.	-73-	-87.	-83-	-88-	-66-	-86.	1.03-	1.08-	1.13-	1.18-	1.23-	1.28-	1.33-	1.38-	Total
Ratio of crude death-rate to national rate 1929-33 Ratio of adjusted death-	-	_	-		2	3	10	13	16	15	18	3	3	_	_	_	83
rate to national rate, 1929-33	_	_	-	_	4	6	9	8	7	13	8	10	7	7	3	1	83
national rate, 1934 Ratio of adjusted death- rate to national rate.	-	-	-	-	3	7	14	14	14	14	9	4	3	-	1	-	83
1934 Comparability factor, 1934	1	_	2	1 2	3 4	9 5	8 6	10 11	12 13	11 19	7 12	9 7	4	6	2	1	83 83

Mortality at different portions of the year.—Table 4 indicates that the crude death-rate was below the corresponding rate in the decade 1921–30 for the March and December quarters, but was higher than in the preceding four years in the June quarter and

higher than in the preceding year in the September quarter. Table 31 shows that the last three quarters were unusually warm when judged by the mean air temperature at Greenwich, the December quarter being the warmest since 1913.

The contributions of the four quarters to the year's mortality in quinquennial periods since 1851, and in each year since 1931, are shown in Table IV. It should be noted, however, that the crude quarterly mortalities in Tables IV and 4 do not represent the full improvement which would be registered since 1901 if these rates were standardized.

The mortality of the June quarter was, for the first time since 1928, as high as that of the year as a whole.

The present stability of the death-rate in the last three quarters of the year is more apparent from the experience during the last ten years (Table 4). The average mortality in these quarters during the decennium ranged only from $10 \cdot 7$ to $11 \cdot 4$, being $10 \cdot 9$ in 1934, while the death-rate in the March quarter fluctuated between $13 \cdot 4$ in 1930, and $20 \cdot 9$ in 1929, an influenza year when the first quarter was exceptionally cold. So long as these tendencies continue,

Table IV.—Quarterly Death-rates in each quinquennium 1851–1930 and in 1931, 1932, 1933 and 1934 with ratio to yearly rate taken as 100.

		D	eath-rate livi	e per 1,0 ng.	00	Ra	taken a	early ras 100.	ate
	•	March.	June.	September.	December.	March.	June.	September.	December.
1851–55 1856–60 1861–65 1866–70 1871–75 1876–80 1881–85 1886–90 1891–95 1896–1900 1901–10 1911–15 1916–20 1921–25 1926–30 1931 1932 1933 1933		25·3 24·1 25·7 24·3 23·2 21·4 21·7 21·8 19·5 17·4 16·9 17·5 15·1 15·9	22·5 21·6 22·0 21·6 22·0 21·1 20·7 19·3 18·5 16·6 15·2 14·1 13·7 11·5 11·5 11·5 11·6 10·8	21·0 19·6 20·4 21·5 20·4 18·8 17·6 17·0 16·4 17·5 14·9 12·6 12·7 10·9 9·6 9·7 9·6 9·7 9·6	21.9 21.9 22.3 22.0 22.1 20.6 19.4 18.9 18.1 17.2 16.1 14.7 14.0 15.8 12.0 11.6	111 111 114 110 110 112 110 115 117 110 112 118 118 118 122 124 131	99 99 97 96 96 100 99 95 99 94 95 96 96 96 98 95 98 95	93 90 96 93 90 91 90 88 99 93 86 89 76 79 78	96 100 99 98 100 99 100 100 97 101 100 98 110 98 96

the mortality experienced in the March quarter virtually determines the death-rate for the year.

The numbers of deaths from different causes which occurred in each of the first nine months of the year are set out in Table 23.

Mortality of each sex.—The excess of male over female standardized mortality in 1934 was 25 per cent., compared with 24 in 1933 and 25 in 1932. Comparing the sex rates age by age, male excess occurred at each age group except 10–15, this excess being greater at ages 15–25 and 45 and upwards, than in either of the quinquennia 1921–25 or 1926–30. These changes recorded in Table V are derived from Table 5, with substitution for 1911–15 and 1916–20 of rates based on the total male population and all deaths registered in this country for those in Table 5, which refer to civilian males only in those periods.

Table V shows that male excess is slight or absent at ages 10-15, a female excess having been the rule until 1927. At 5-10 a small

Table V.—Mortality of Males per cent. of that of Females at Various Ages from 1841–45 onwards. (See Table 5.)

0891	All Ages Standard- ized.	0-	5-	10-	15-	20-	25-	35-	45-	55-	65-	75-	85 and up- wards
1841-45 1846-50 1851-55 1856-60 1861-65 1866-70 1871-75 1876-80 1881-85 1886-90 1891-95 1896-00 1901-05 1911-15 1916-20 1921-25	109 108 110 109 111 113 115 116 116 116 118 119 120 122 124 122	117 116 116 116 115 115 115 117 118 118 119 119 119 119 121 121	102 103 104 99 102 107 108 107 102 100 98 97 97 100 100 104	92 95 98 96 98 100 97 97 97 96 96 95 95 95	88 91 90 90 93 94 97 96 96 98 100 106 107 107 111 114	105 104 103 102 105 106 109 108 102 106 108 120 119 121 122 122 122 113	95 94 97 96 100 105 109 104 107 108 116 118 118 118 124 124	101 99 102 103 109 113 119 117 117 118 122 121 121 126 131 130	114 113 118 118 122 124 128 129 127 129 128 129 130 129 130 129 131 132	111 112 114 115 118 120 121 122 122 122 121 124 128 128 133 137 133	111 111 112 111 112 115 114 114 116 117 115 117 119 121 124 132	109 109 110 108 109 109 111 112 113 112 111 113 115 115 118 121 119 121	106 107 106 107 110 111 110 111 112 114 110 109 110 113 115 111 110
1926-30 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934	124 123 123 125 122 127 126 125 124 125	125 124 124 125 126 122 128 128 125 126 124	110 104 109 109 109 113 110 115 116 110	105 100 107 113 100 104 100 108 107 100	106 104 104 108 108 109 108 114 113 109	108 106 107 110 103 110 112 114 114 114 115	112 115 112 112 112 111 111 106 110 109 107	134 131 133 135 130 139 133 129 123 124 124	140 135 135 137 138 143 144 140 135 141 142	136 135 134 136 134 139 135 137 142	130 129 129 129 130 126 133 132 134 129 132	121 123 120 123 117 121 121 123 122 124	108 111 108 110 103 103 111 110 110 111

female excess during 1891–1910 has given place to a male excess, reaching 16 per cent. in 1932, but amounting to only 4 per cent. in 1934. At 15–20 a similar reversal of the sex ratio took place at the end of last century. At 25–35, on the other hand, the male excess, after reaching a maximum in 1911–20, is declining.

In 1934 the maximum disparity in sex mortality is reached at ages 45-65, after which it decreases again with advancing age. Only in

extreme old age has the female mortality not declined more than the male since the middle of last century.

The causes of death accounting for this large male excess may be gathered from Table 8, in which the mortality disadvantage of females arising from their greater age is neutralized by reference of the rates for both sexes to a common population basis.

The causes chiefly accounting for male excess, with the contribution of each to its total of 2,100 per million, are seen to be, in order of importance, heart disease (332), accident (297), pneumonia (276), tuberculosis (175), digestive diseases (159), and arterio-sclerosis (121). These causes jointly contribute 65 per cent. of the total male excess. The principal causes common to both sexes in Table 8, for which female standardized mortality exceeds that of males, are, in order of numerical importance, mitral or unspecified valvular disease, whooping cough, rheumatoid and osteo-arthritis, diabetes, non-malignant tumours, gall stones, other diseases of the liver and gall bladder (not cirrhosis), peritonitis, diphtheria, rheumatic fever and pernicious anæmia.

Infant Mortality.

Of the 476,810 deaths registered during the year, 35,017, or 7.3 per cent., were those of infants under one year of age.

The rate of infant mortality resulting from these deaths is 59 per 1,000 live births; this rate is 5 per 1,000 below that of the previous year and establishes a new low record.

The rates in the four quarters of the year were 78, 56, 46 and 55 respectively, being higher in the June quarter but lower in the other quarters than in 1933.

Table VI traces the changes in the quarterly incidence of infantile mortality during the last 64 years, and shows, in conjunction with Table VII, that until 1901–05, and again, but to a very slight degree, in 1911–15, while the coldest months of the year yielded the highest general death-rate, the hot summer months levied the highest toll on infant life.

Since the beginning of the present century, this experience has undergone a remarkable change. In all four quarters, the infant death-rate has fallen in each successive quinquennium, but with great inequality. Comparing 1934 with 1896–1900, the fall ranges from 45 per cent. in the March quarter, 55 in the June, and 63 in the December, to 78 per cent. in the September quarter. The mortality in the third quarter now yields the lowest quarterly rate, while the March quarter yields the highest.

The changes in the infant mortality rate from all causes and from diarrheal diseases since 1861-65 are shown in Table VII. The diarrheal rate for 1934, 4.84 per 1,000 live births, is the lowest ever recorded (see Table 12), notwithstanding the warmth of the September quarter.

Table VI.—Average Rate of Infantile Mortality by Quarters in Quinquennia, 1871–1930, and in 1931, 1932, 1933 and 1934.

		Yearly		Quarterly	v Averages.	
		Average.	March.	June.	September.	December.
1871–75		 153	151	133	180	149
1876-80	•••	 145	147	128	161	143
1881–85		 139	140	125	152	139
1886-90	1	 145	146	125	163	147
1891–95		 151	151	132	169	151
1896-1900	0	 156	142	124	212	148
1901-05		 138	137	113	162	140
1906-10		 117	124	98	120	128
1911-15		 110	119	91	120	109
1916-20		 90	116	83	75	91
1921-25		 76	94	70	62	77
1926-30		 68	91	60	52	69
1931		66	94	59	46	67
1932		65	88	59	50	65
1933		64	84	53	49	69
1934		 59	78	56	46	55
10 m / 10 m					La garage and a second	41000

Table VII.—Infant Mortality, distinguishing Mortality from Diarrheal Diseases, 1861–1934.

Deaths under 1 year of age per 1,000 Live Births.

Year.	Diarrhœal Diseases.	Other Causes.	All Causes.	Year.	Diarrhœal Diseases.	Other Causes.	All Causes.
1861–65 1866–70 1871–75 1876–80 1881–85 1886–90 1891–95 1896–00 1901–05 1906–10 1911–15 1916–20 1921–25 1926–30	15 20 19 16 14 17 20 31 23 18 19 9 8 6	136 137 134 129 125 128 131 125 115 99 91 81 68 62	151 157 153 145 139 145 151 156 138 117 110 90 76 68	1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934	14 6 7 6 7 8 6 6 7 5 5	69 71 62 69 68 62 64 59 67 55 61 59 58 54	83 77 69 75 75 70 70 65 74 60 66 65 64 59

Table VIII shows that the fall during the five quinquennia for which detailed age distinction is available was continuous at every age-group except 1–7 days, at which age the rate in 1926–30 was slightly in excess of that for the preceding five years. During the first month of life the fall was 21 per cent., but at the later age-groups

the average fall was slightly over 50 per cent., reaching a maximum of 56 per cent. at 3–6 months. At ages from 1 week upwards a further fall was registered by 1934 on the 1926–30 rates ranging from 9 per cent. in the second week to 32 per cent. at 9–12 months. The rates attained were the lowest recorded for each age-period over 2 weeks. In the first week of life there has been in recent years a tendency for the rate to increase, and in seeking a cause for this the increasing proportion of primiparous births to all births should be borne in mind.

Distribution of Infant Mortality.—Table IX shows how infant mortality was distributed in 1934 between the sexes and throughout the country

For convenience in the interpretation of this and similar tables where the regional subdivision is employed, the counties comprising each region are given below.*

The rates for the aggregates of different classes of area are, as usual, highest for the county boroughs and lowest for rural districts. London usually occupies an intermediate position together with the smaller towns, but in 1934 the rate was higher than in the aggregate of county boroughs. In London's outer ring, which comprises almost as great a population as London itself, infant mortality was lower than in the aggregate of all the rural districts outside Greater London, and was 19·9 per 1,000 live births less than in the Administrative County. The only region showing a lower rate than this was the surrounding area of South-East England outside Greater London.

It has been noticed almost invariably since 1911 that the Northern county boroughs have had the highest and the rural districts of the South the lowest infant mortality rate, and it was pointed out in Table XXI of the Review for 1931 (Text, p. 27) that when the

^{*} Regional Summary.—The country was re-divided into regions in 1931, after consultation with other Government Departments, with a view to securing greater homogeneity in the character of the sectional populations than was provided by the old grouping into North, Midlands, South (including London) and Wales.

The counties in the various regions are as follow:—

South East. Bedfordshire. Berkshire. Berkshire. Buckinghamshire. Essex. Hertfordshire. Kent. London. Middlesex. Oxfordshire. Southampton. Surrey. Sussex, East. , West. Wight, Isle of.	North I. Durham. Northumberland. North II. Cumberland. Westmorland. Yorkshire. East Riding. North Riding. North III. Yorkshire, West Riding. York C.B. North IV. Cheshire. Lancashire.	Midland I. Gloucestershire. Herefordshire. Shropshire. Staffordshire. Warwickshire. Worcestershire. Midland II. Derbyshire. Leicestershire. Northamptonshire. Nottinghamshire. Peterborough, Soke of.	East. Cambridgeshire. Ely, Isle of. Huntingdonshire. Lincolnshire— Parts of Holland. "Kesteven. "Lindsey. Norfolk. Rutlandshire. Suffolk, East. "West. South West. Cornwall. Devonshire. Dorsetshire. Somersetshire. Wiltshire.	Wales I. Brecknockshire. Carmarthenshire. Glamorganshire. Monmouthshire. Wales II. Anglesey. Caernarvonshire. Cardiganshire. Denbighshire. Flintshire. Merionethshire. Montgomeryshire. Pembrokeshire. Radnorshire.
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For the constitution of Greater London, see pp. 63-65 of the Preliminary Report on the Census of England and Wales, 1931.

twelve regional aggregates in use prior to 1931, apart from London, were arranged in order of the mean number of persons per room at the census, the rates for 1926–30 almost followed the same order.

In Table VII of the Review for 1932 it was further shown that when the county boroughs and county aggregates of urban and

Table VIII.—Age Distribution of Infant Mortality, 1881-1934.

Rates per 1,000 (Live) Births.

	-		100	too por	1,000			The state of the state of	State Section			-
	Da	ays.		We	eks.				Months	•		Total
Year.	0-1	1-7	0-1	1-2	2–3	3-4	Total under four weeks	Four weeks to 3 m'nths	3–6	6-9	9–12	under one year.
1881-1885 1886-1890 1891-1895 1896-1900 1901-1905 1906-1910 1911-1915 1916-1920 1921-1925 1926-1930	11·5 11·4 11·0 10·4 10·3	13·0 12·7 12·4 11·3 11·5	24·5 24·1 23·4 21·7 21·8	5·8 5·7 5·6 5·0 4·3	5·7 5·3 4·7 3·9 3·2		2 2 2	37 39 74 74 70 22.8 20.2 16.5 12.8 10.9	28 30 31 34 28 22·0 19·6 14·6 11·3 9·6	4 4	14.8 14.1 10.8 8.3 7.5	139 145 151 156 138 117·1 108·7 90·9 74·9 67·9
1906 1907 1908 1909	11·8 11·3 11·5 11·6 11·5	13·2 13·1 12·8 13·2 12·5	25·0 24·4 24·3 24·7 24·1	6·1 6·0 5·9 5·7 5·4	6·2 5·9 5·8 5·3 5·1	4·6 4·5 4·3 4·0 3·8	41·9 40·7 40·3 39·8 38·5	25·7 23·3 24·2 20·4 20·0	27·0 21·3 23 6 19·2 18·8	20·7 17·3 17·7 15·6 15·0	17·2 15·1 14·6 13·8 13·2	132·5 117·6 120·4 108·7 105·4
1911	11.6	12·7	24·3	6·0	6·0	4·5	40·6	24·7	25·9	20·6	17·4	129·2
1912	11.3	12·9	24·2	5·6	5·0	3·7	38·4	17·7	14·9	12·5	11·4	94·7
1913	11.8	12·7	24·5	5·8	5·4	3·9	39·5	20·3	19·8	15·7	13·6	108·9
1914	11.4	12·7	24·1	5·5	5·0	3·9	38·5	19·3	18·7	15·0	13·0	104·4
1915	10.9	12·5	23·4	5·7	5·0	3·7	37·7	18·6	18·2	16·0	15·2	105·8
1916	10·9	12·3	23·2	5·6	4·9	3·4	36·9	16·9	15·2	11·7	10·3	91·1
1917	11·0	12·4	23·4	5·6	4·8	3·4	37·1	16·9	15·0	11·6	10·6	91·1
1918	11·1	12·1	23·2	5·5	4·6	3·4	36·6	17·1	16·1	14·4	13·7	97·9
1919	12·2	13·7	25·9	6·1	4·9	3·6	40·4	16·4	14·4	11·8	10·3	93·2
1920	10·4	11·5	21·9	5·3	4·6	3·3	35·0	15·5	13·0	11·0	10·0	84·5
1921	10·8	11.6	22·4	5·4	4·5	3·0	35·2	14·7	13·7	9·7	7·8	81·2
1922	10·4	11.6	22·0	5·2	4·1	2·8	33·9	12·4	10·6	9·2	8·6	74·7
1923	10·2	10.9	21·1	4·6	3·6	2·6	31·9	11·4	10·0	8·3	7·6	69·2
1924	10·6	11.2	21·8	4·8	3·8	2·6	33·0	12·4	10·8	9·3	8·8	74·2
1925	10·1	11.1	21·2	4·7	3·7	2·7	32·3	12·5	11·2	9·4	9·0	74·5
1926	10·0	11·3	21·3	4·6	3·6	2·5	31·9	11.6	10·4	8·6	7·7	70·2
1927	10·6	11·6	22·2	4·3	3·4	2·5	32·3	10.7	9·7	8·7	8·2	69·7
1928	10·4	11·2	21·6	4·1	3·0	2·4	31·1	10.7	9·2	7·4	6·8	65·1
1929	10·4	11·9	22·3	4·6	3·3	2·6	32·8	11.6	10·7	9·9	9·4	74·4
1930	10·4	11·6	22·0	3·8	2·9	2·2	30·9	9.6	7·8	6·1	5·5	60·0
1931	10·4	11·7	22·1	4·0	3·1	2·4	31·6	10·9	9·3	7·8	6·8	66·4
1932	10·6	11·8	22·4	3·8	3·0	2·4	31·6	10·8	9·1	7·2	6·3	65·0
1933	11·1	11·8	22·9	4·0	3·1	2·2	32·2	9·9	8·8	6·8	6·0	63·7
1934	10·9	11·7	22·6	3·9	2·8	2·0	31·3	8·8	7·5	5·8	5·1	58·6
			Rates	per 1,0	000 of	those to	r 1906-	-10.				12.000
1906-1910	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1911-1915	991	977	984	983	930	929	970	886	891	919	953	928
1916-1920	957	954	955	966	825	810	920	724	664	694	730	776
1921-1925	904	869	886	862	684	667	831	561	514	532	561	640
1926-1930	896	885	890	741	561	571	791	478	436	468	507	580
1926	870	869	869	793	632	595	794	509	473	497	520	599
1927	922	892	906	741	596	595	803	469	441	503	554	595
1928	904	862	882	707	526	571	774	469	418	428	459	556
1929	904	915	910	793	579	619	816	509	486	572	635	635
1930	904	892	898	655	509	524	769	421	355	353	372	512
1931	904	900	902	690	544	571	786	478	423	451	459	567
1932	922	908	914	655	526	571	786	474	414	416	426	555
1933	965	908	935	690	544	524	801	434	400	393	405	544

965 | 908 | 935 | 690 | 544 | 524 | 801 | 434 | 400 | 393 | 405 | 544 | 948 | 900 | 922 | 672 | 491 | 476 | 779 | 386 | 341 | 335 | 345 | 500

Table IX.—Distribution of Infant Mortality, 1934.

nt something		ths per ive) Bir		Mortality per cent. of that in England and Wales.			hs per live) Birt		Mortality per cent. of that in England and Wales.
action at a	Males.	Fe- males.	Both Sexes.	Both Sexes.	1930-88, 198	Males.	Fe- males.	Both Sexes.	Both Sexes.
England and Wales	65.4	51.4	58.6	100	seeb. Saltement				
South-east Greater London Remainder of South-east North North I	57·9 63·0 50·1 74·4 85·0	45·9 51·0 38·1 58·2 69·7	52·1 57·2 44·3 66·5 77·6	89 98 76 113 132	East South-west	54·9 53·5 72·3 74·3 66·1	43·5 45·2 56·3 55·5 58·7	49·3 49·4 64·5 65·2 62·4	84 84 110 111 106
" II " III "	69·7 68·1 74·6 64·7 66·9 60·3	52·3 50·3 59·2 50·3 52·0 47·0	61·2 59·4 67·1 57·7 59·7 53·8	104 101 115 98 102 92	County Boroughs* Other Urban Districts* Rural Districts* Greater {Admin. Co. London {Outer Ring}	73·3 61·1 60·2 73·3 53·1	57·4 48·8 45·4 61·1 41·5	65·6 55·1 53·0 67·4 47·5	94 90 115 81

^{*} Excluding Greater London.

rural districts were grouped according to their mean densities per room, the infant mortality rates in 1930–32 increased regularly with the density. Thus whilst county boroughs with mean densities less than 0.7 persons per room had an average rate of 57.6 per 1,000 births, those with densities exceeding 1.15 per room had an average rate of 92.7. A similar progression was evident for the county aggregates, but for the Metropolitan boroughs the increase was only noticeable for those with mean densities exceeding 1.3 persons per room. It must be remembered, however, that the mean density per room tends to increase from South to North, this being evident when the county boroughs are grouped according to the zones of latitude in which they are situated and also according to the percentage of the populations in private families who were living more than two per room in 1931 (see Table VII of the Review for 1933).

In Table X the trend of infant mortality attributed to the group of congenital causes (premature birth, debility, malformations, etc., Nos. 157–161 of the International List), and to all other causes, since 1930–32, is compared for (a) the group of 14 county boroughs* having densities of 1.00 or more persons per room, at the census of 1931, (b) the group of 6 county aggregates of urban districts† having average densities of .85 or more persons per room, (c) the group of 15 county aggregates of rural districts‡ having average densities

^{*} Dewsbury, Dudley, Gateshead, Middlesbrough, Newcastle-on-Tyne, St. Helens, South Shields, Stoke-on-Trent, Sunderland, Tynemouth, West Ham, West Hartlepool, West Bromwich, Wigan.

[†] Durham, Northumberland, Staffordshire, Yorkshire West Riding, Glamorganshire, Monmouthshire.

[‡] Buckinghamshire, Cambridgeshire, Cornwall, Devonshire, Huntingdonshire, Middlesex, Norfolk, Rutlandshire, Somersetshire, Surrey, Sussex East, Sussex West, Isle of Wight, Caernarvonshire, Cardiganshire.

below $\cdot 70$ persons per room, (d) all the county boroughs with densities below 1 per room, (e) London, with a density per room of $\cdot 98$, and (f) England and Wales as a whole, with an average density of $\cdot 83$.

Table X.—Infant Mortality from Congenital and Other Causes, in groups of areas of certain densities of persons per room in 1931—1930-32, 1933 and 1934.

				1000	0.0,	1000	-						
			Co	ngenita	1 Cause	s.		•		Other C	auses.		
		County boroughs with 1 or more persons per room.	County aggregates of U.D.'s with .85 or more persons per room.	County aggregates of R.D.'s with less than .7 persons per room.	County boroughs with less than 1 per room.	London A.C. (·98 persons per room).	England and Wales.	County boroughs with 1 or more persons per room.	County aggregates of U.D.'s with ·85 or more persons per room.	County aggregates of R.D.'S with less than '7 persons per room.	County boroughs with less than 1 per room.	London A.C. (·98 persons per room).	England and Wales.
		a	b	С	d	e	f	a	ь	С	d	e	f
720						Ra	tes per	1,000 L	ive Birt	hs.			
1930–32	3	34·8 38·6 36·6	35·3 37·5 35·8	28·5 29·7 29·8	32·8 35·0 33·8	25·5 27·1 26·8	31·1 33·1 31·7	48·5 47·2 40·5	37·4 37·7 28·0	20·1 17·9 18·8	37·6 36·6 29·4	37·9 32·4 40·6	32·7 30·6 26·9
Mariana a						Rate	es per c	ent. of	those in	1930–3	2.		
1933 1934		111 105	106 101	104 105	107 102	106 105	106 102	97 84	101 75	89 94	97 78	85 107	94 82

Although no improvement has occurred in the rate from congenital causes in any of these groups of areas since 1930–32, the mortality rates from causes other than congenital have declined by 16 and 25 per cent. respectively in the two groups of areas with least satisfactory housing indices, compared with a decline of 6 per cent. for the most satisfactory group (c), and 18 per cent. in the country as a whole. The London rate, being influenced by the biennial periodicity of measles, was lower in 1933, but higher in 1934 than the average rate of 1930–32. The high rate of 40.5 per 1,000 live births for group (a) is in part attributable to the fact that 11 of the 14 county boroughs are situated in the north, and in part to the social conditions of which the average number of persons per room is an index, and the contrast between this rate and that of 29.4 for group (d) is indicative of the effect of these factors on infant mortality from causes other than congenital.

Table IX shows that in 1934 North I gave the highest rate of 77.6 per 1,000 births, this rate being 132 per cent. of the rate in England and Wales. North IV followed with 115 per cent., and Wales I with 111. The Greater London rate was 98 per cent. of that in England and Wales, that of the Eastern Counties and the South-West 84, and of the South-Eastern region outside Greater London 76.

Table XI.—Infant Mortality at Various Stages of Infancy in different Classes of Area compared with that in 1911-15 and 1926-30.

		1 1		W. d.					11-1	o am	100	30-30	
			Jnder 4 Morts		r 1 000			3 Mont		1		Ionths.	
				I (pe	1 1,000	Live bi	1	mpared	with 19	011–15 t	•	1,000.	
		London Admin. County.	County Boroughs.	Other Urban Districts.	Rural Districts.	London Admin. County.	County Boroughs.	Other Urban Districts.	Rural Districts.	London Admin. County.	County Boroughs.	Other Urban Districts.	Rural Districts.
1911-15		1,000 949 800 728	1,000 943 855 812	1,000 940 862 823	1,000 971 871 841	1,000 834 574 505	1,000 810 640 548	1,000 790 627 507	1,000 834 672 582	1,000 793 605 539	1,000 739 604 516	1,000 691 550 430	1,000 726 577 480
			Morta	lity (per	r 1,000	Live Bi	rths) con	mpared	with 19	26-30 ta	aken as	1,000.	
			Out	side Gre London			Out	side Gr London				side Gre	
		Greater London.	County Boroughs.	Other Urban Districts.	Rural Districts.	Greater London.	County Boroughs.	Other Urban Districts.	Rural Districts.	Greater London.	County Boroughs.	Other Urban Districts.	Rural Districts.
1926-30	·	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1926 1927 1928 1929 1930		1,002 993 994 1,041 969	1,013 1,018 985 1,020 964	1,003 1,032 967 1,027 971	978 1,005 965 1,060 995	1,029 889 1,068 1,091 922	1,079 976 978 1,041 921	1,083 1,025 966 1,070 852	1,069 1,070 928 1,088 837	1,044 931 1,059 1,094 870	1,080 1,004 971 1,117 825	1,129 1,087 888 1,134 754	1,089 1,050 934 1,115 805
1931 1932 1933 1934	::	1,017 1,028 1,041 980	981 988 1,007 983	989 990 1,003 981	1,010 984 1,016 997	1,075 1,025 869 1,030	993 1,011 938 787	1,003 963 906 710	937 1,004 927 813	1,037 1,017 891 982	980 930 956 716	946 925 905 734	910 983 854 808
		- 6	6–9 Mor	ths.			9–12 M	onths.		To		ler 1 Ye	-
			Morta	lity (per	1,000 1	Live Bir	ths) cor	npared	with 19	11–15 ta	ken as	1,000.	
	7.	London Admin. County.	County Boroughs.	Other Urban Districts.	Rural Districts.	London Admin. County.	County Boroughs.	Other Urban Districts.	Rural Districts.	London Admin. County.	County Boroughs.	Other Urban Districts.	Rural Districts.
1911-15 1916-20 1921-25 1926-30	::	1,000 735 578 546	1,000 729 604 517	1,000 685 568 463	1,000 739 583 506	1,000 738 592 529	1,000 732 643 550	1,000 701 573 478	1,000 736 602 535	1,000 833 655 592	1,000 818 700 626	1,000 800 683 598	1,000 851 721 659
			Morta	lity (per	1,000 I	Live Bir	ths) cor	npared	with 19	26–30 ta	ken as	1,000.	
				side Gre London.				side Gre London				side Gre London.	
		Greater London.	County Boroughs.	Other Urban Districts.	Rural Districts.	Greater London.	County Boroughs.	Other Urban Districts.	Rural Districts.	Greater London.	County Boroughs.	Other Urban Districts.	Rural Districts.
1926-30 1926 1927 1928 1929 1930	::	1,000 950 954 1,040 1,213 849	1,000 1,096 1,059 883 1,254 707	1,000 1,087 1,110 880 1,185 736	1,000 1,073 1,154 851 1,186 729	1,000 1,004 921 1,039 1,209 830	1,000 1,038 1,094 885 1,280 703	1,000 1,037 1,172 836 1,241 714	1,000 1,000 1,188 874 1,182 756	1,000 1,007 952 1,028 1,100 913	1,000 1,047 1,024 956 1,100 871	1,000 1,045 1,062 933 1,088 872	1,000 1,017 1,052 936 1,094
1931 1932 1933 1924		902 915 759 878	992 897 884 702	917 824 821 615	973 925 829 719	817 937 691 855	936 791 832 644	925 795 789 591	908 910 829 715	991 1,060 910 960	978 947 951 833	971 938 932 825	900 974 974 948 893

Compared with the preceding year most of the regions showed substantially lower rates, the percentage fall being 17 in North III, 16 in Midland II and Wales I, 14 in North IV and 13 in North II, whereas in Greater London mortality was higher.

Adhering to the density classification hitherto used, it is seen from Table XI that the fall from 1911–15 to 1926–30 amounted to 41 per cent. in London, 37 per cent. in the county boroughs, 40 per cent. in the small towns and 34 per cent. in the rural districts. The 1934 rates showed a further improvement on 1926–30 rates amounting to 17 per cent. in the county boroughs and small towns and 11 per cent. in the rural districts, Greater London being excluded in each case.

Distribution of the Fall in Mortality at Various Stages of Infancy.—The reduction of mortality at various stages of infancy in different classes of area is outlined for the period during which the necessary detail of tabulation is available in Table XII.

Table XII.—Infant Mortality (per 1,000 Live Births) at Various Stages of Infancy in Different Regions of England and Wales, per 1,000 of that in 1916-20.

			1,	,000	OT 11	iat i	п 19	10-2	υ.				
			Under	4 Weeks	s.	4 \	Weeks t	o 3 Mor	ths.	11 15 15 15 15 15 15 15 15 15 15 15 15 1	3-6 M	fonths.	
		England and Wales.	North.	Rest of* England.	Wales.	England and Wales	North.	Rest of* England	Wales.	England and Wales.	North.	Rest of* England.	Wales.
1911–15	::	1,053 1,000 902 859	1,032 1,000 915 871	1,074 1,000 898 855	1,051 1,000 928 952	1,232 1,000 782 660	1,194 1,000 813 687	1,262 1,000 771 650	1,310 1,000 826 699	1,370 1,000 799 665	1,322 1,000 812 673	1,425 1,000 789 657	1,540 1,000 850 698
1931 1932 1933 1934	::	853 853 870 846	854 853 865 850	854 858 873 837	971 953 1,003 1,007	660 660 604 537	696 704 640 515	632 633 581 524	709 644 716 529	647 634 609 523	672 642 658 482	621 620 555 523	642 624 670 524
			6-9 N	Months.		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	9-12	Months.		To	otal und	ler 1 Ye	ar.
		England and Wales.	North.	Rest of* Fngland.	Wales.	England and Wales.	North.	Rest of* England.	Wales.	England and Wales.	North.	Rest of* England.	Wales.
911-15 916-20 921-25 926-30	::	1,392 1,000 818 698	1,000 834 691	1,000 798 700	1,000 862 719	1,380 1,000 842 721	1,000 876 737	1,000 798 716	1,000 909 710	1,218 1,000 846 755	1,187 1,000 864 764	1,242 1,000 836 755	1,273 1,000 886 808
931 932 933		666 619 584 500	691 596 594 466	633 635 578 492	696 600 658 445	655 602 573 489	711 581 593 478	613 613 577 479	779 596 650 444	738 723 708 651	756 723 720 632	727 729 705 654	814 759 814 708

^{*} Excluding London Administrative County.

In this table the comparison with 1911–15 is shown up to 1926–30 on the basis of the division previously used, that is to say, the aggregates referred to, other than the Administrative County of London, include in each instance some districts comprising London's

outer ring, but from 1926–30 onwards the new density summary is used. It was pointed out in the Review for 1931 (p. 10) that the effect of the change on infant mortality rates is only of importance for the "other urban districts," the new aggregate having rates higher than the old, in 1931, by 5 per cent. for the first 4 weeks of life, 3 per cent. at 1–6 months, 8 per cent. at 6–9 months, 7 per cent. at 9–12 months and 5 per cent. for the first year as a whole. This effect, however, is eliminated in Table XI by the change of datum line at 1926–30.

In Greater London and each class of area 1934 rates show a sustained improvement over 1926–30 at 6–12 months. In the large towns and rural districts the degree of recent improvement progressively increases throughout the first year of life.

Table XII compares the extent of decline since 1916–20 at different stages of infancy in the North and in Wales with that in the rest of England, excluding London Administrative County. Mortality during the first 4 weeks has fallen to almost the same extent in the North as in the rest of England, by 15 per cent., but in Wales the improvement up to 1921–25 has not been maintained in more recent years.

The slower decline in Wales than in England of mortality rates at 1–12 months has been pointed out in recent Reviews, but 1934 witnessed a remarkable fall in the Welsh rates, bringing the percentage decrease since 1916–20 to 47 at 1–3 months, 48 at 3–6 months and 56 at 6–12 months.

The analysis of infant deaths by detail of age, initiated in 1905 with distinction of registration counties mainly urban and mainly rural in character, and expanded in 1917 and again in 1931, is given for each region and class of area in Table 13. Distinctions of sex and legitimacy are shown only for England and Wales as a whole, but are available for each of the populations dealt with. Some of the facts and rates applying to the illegitimate will be found in Table 14. The rates per 1,000 live births appear in Table XIII, and as percentages of the England and Wales rate in Table XIV.

The chance of dying within half an hour of birth ranged from 1·1 per 1,000 in North II to 2·0 in the East. This measure is very dependent upon accuracy of certification, which in turn may be correlated with the frequency of the presence of a medical attendant at the birth. When the mortality within the first day as a whole is examined, Wales gives, as in each year since 1927, the highest rate of any of the large regions, the sequence being then as usual from North to South. For the combined mortality from the second to the seventh day Wales II shows the highest rate, 150 per cent. of the rate for England and Wales, followed by Wales I, whilst Greater London gives the lowest ratio, 76 per cent. North I gives the highest rates from the 2nd week onwards. The South-West gives the lowest rates at 1–6 months, the East at 6–9 months and South-East outside Greater London at 9–12 months.

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Table XIII.—Infant Mortality at Various Ages, 1934.

Rates per 1,000 Live	Live Births.
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	Total under	Under	30 Minutes	Total			Day	ys.			1 Day		Wee	eks.		Total	4 Weeks		Months.	
	one Year.	30 Minutes.	and under 1 Day.	under 1 Day.	1	2	3	4	5	6	under 1 Week.	0	1	2	3	under 4 Weeks.	to 3Months.	3-6	6–9	9-12
England and Wales. All Infants $ \begin{cases} M. \\ F. \\ P. \end{cases} $	65·4 51·4 58·6	1·8 1·6 1·7	10·3 8·1 9·2	12·1 9·7 10·9	3·9 3·0 3·5	3·6 2·5 3·0	2·7 1·7 2·2	1·5 1·2 1·3	1·0 0·8 0·9	0·8 0·6 0·7	13·6 9·8 11·7	25·6 19·5 22·6	4·3 3·5 3·9	3·0 2·5 2·8	$2 \cdot 3$ $1 \cdot 8$ $2 \cdot 0$	35·2 27·2 31·3	10·1 7·5 8·8	8·3 6·7 7·5	6·4 5·2 5·8	5.4 4.8 5.1
Legitimate $\begin{cases} M. \\ F. \\ P. \end{cases}$	63·6	1·5	10·1	11·6	3·9	3·6	2·6	1·5	1·0	0·8	13·3	24·9	4·2	3·0	2·2	34·3	9·7	8·0	6·4	5·3
	49·9	1·2	8·0	9·2	2·9	2·4	1·7	1·1	0·8	0·6	9·6	18·8	3·4	2·4	1·7	26·3	7·2	6·5	5·1	4·8
	56·9	1·4	9·1	10·4	3·4	3·0	2·1	1·3	0·9	0·7	11·5	21·9	3·8	2·7	2·0	30·4	8·5	7·3	5·7	5·1
Illegitimate $ \begin{cases} \mathbf{M} \\ \mathbf{F} \\ \mathbf{P} \end{cases} $	104·9	8·5	14·2	22·7	5·0	4·3	4·0	2·1	1·9	1·3	18·6	41·4	6·1	4·1	3·9	55·5	19·0	15·5	8·0	7·0
	85·4	9·4	10·3	19·6	4·8	3·5	2·4	2·1	1·0	0·8	14·5	34·2	5·5	4·1	3·3	47·0	14·3	11·6	7·5	4·9
	95·4	8·9	12·3	21·2	4·9	3·9	3·2	2·1	1·4	1·0	16·6	37·9	5·8	4·1	3·6	51·4	16·7	13·6	7·7	6·0
South-East	52·1	1·6	7·9	9·5	2·9	2·3	1·6	1·0	0·7	0·6	9·0	18·5	3·0	2·0	1·7	25·1	8·6	7·8	5·7	4·8
	57·2	1·6	8·0	9·5	3·0	2·1	1·6	0·9	0·7	0·5	8·9	18·4	2·7	1·8	1·7	24·7	10·0	9·6	7·0	6·0
	44·3	1·7	7·7	9·4	2·8	2·4	1·7	1·0	0·8	0·6	9·3	18·7	3·4	2·2	1·6	25·8	6·6	5·1	3·8	3.0
North	66·5	1·7	10·1	11·8	3·8	3·5	2·5	1·6	1·1	0·8	13·4	25·1	4·6	3·5	2·4	35·6	9·7	8·3	6·8	6·2
	77·6	1·8	10·1	11·9	3·7	3·6	2·7	1·4	1·2	0·7	13·3	25·2	6·2	4·9	3·4	39·7	11·7	10·5	7·8	7·9
	61·2	1·1	9·2	10·3	2·9	4·0	2·6	1·6	1·0	1·1	13·4	23·7	3·5	3·0	2·2	32·4	8·5	7·7	6·9	5·7
	59·4	1·5	10·1	11·5	4·3	3·4	2·6	1·7	1·2	0·8	13·9	25·4	3·9	2·8	2·0	34·2	8·0	6·3	5·7	5·2
	67·1	1·9	10·3	12·2	3·8	3·4	2·4	1·6	1·0	0·9	13·1	25·3	4·5	3·4	2·2	35·3	10·0	8·6	6·9	6·2
Midland	57·7	1·8	9·7	11·5	3·4	3·1	2·3	1·5	1·0	0·7	11·9	23·4	4·1	2·6	1·9	32·0	8·5	7·1	5·6	4·5
	59·7	1·8	9·9	11·8	3·3	3·1	2·2	1·4	1·2	0·7	11·9	23·7	4·1	2·7	1·9	32·4	9·1	7·4	6·0	4·8
	53·8	1·9	9·2	11·0	3·6	3·0	2·4	1·7	0·6	0·6	11·9	22·9	4·0	2·3	2·0	31·2	7·5	6·4	4·8	4·0
East	49.3	2.0	8.6	10.6	3.5	3.1	2.0	1.0	0.8	0.6	11.0	21.6	3.9	3.1	1.8	30.4	6.7	4.8	3.4	4.0
Wales I	64·5 65·2 62·4	1·6 1·4 1·5 1·2	8·5 11·1 11·7 9·4	10·1 12·5 13·1 10·6	3·5 4·9 4·7 5·5	3·2 4·1 4·1 3·9	2·4 2·9 2·8 3·5	1·4 1·9 1·9 2·0	0·8 1·3 1·3 1·5	0·9 1·0 0·9 1·2	12·0 16·1 15·7 17·6	22·2 28·7 28·8 28·2	3·8 4·2 4·5 3·2	2·7 3·3 3·3 3·2	2·3 2·3 2·4 1·9	30·9 38·3 39·0 36·4	6·5 9·2 9·1 9·3	4·7 7·5 7·3 7·8	3·9 5·1 5·0 5·3	3·4 4·5 4·7 3·7
County Boroughs* Other Urban Districts* Rural Districts*	65·6	1·7	10·0	11·8	3·7	3·3	2·2	1·4	1·0	0·8	12·3	24·1	4·3	3·1	2·2	33·7	10·1	8·5	7·0	6·2
	55·1	1·6	9·6	11·2	3·6	3·2	2·3	1·4	1·0	0·9	12·4	23·5	4·3	2·9	2·0	32·7	7·4	6·2	4·7	4·1
	53·0	1·8	8·6	10·4	3·4	3·3	2·6	1·6	1·0	0·7	12·6	23·0	3·7	3·0	2·0	31·7	7·6	5·6	4·2	3·8

^{*} Excluding Greater London.

Table XIV.—Infant Mortality at various Ages, in different parts of the Country, per cent. of that of all Infants of the same Age in England and Wales, 1934.

	Total	Under	30 Minutes	Total			Day	rs.			1 Day		We	eeks.		Total	4 Weeks		Months	
	one Year.	30 Minutes.	and under 1 Day.	under 1 Day.	1	2	3	4	5	6	under 1 Week.	0	1	2	3	under 4 Weeks.	to 3Months.	3-6	6–9	9-12
England and Wales $\begin{cases} P. \\ M. \\ F. \end{cases}$	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	112	106	112	111	111	120	123	115	111	114	116	113	110	107	115	112	115	111	110	106
	88	94	88	89	86	83	77	92	89	86	84	86	90	89	90	87	85	89	90	94
South-East	89	94	86	87	83	77	73	77	78	86	77	82	77	71	85	80	98	104	98	94
	98	94	87	87	86	70	73	69	78	71	76	81	69	64	85	79	114	128	121	118
	76	100	84	86	80	80	77	77	89	86	79	83	87	79	80	82	75	68	66	59
North	113	100	110	108	109	117	114	123	122	114	115	111	118	125	120	114	110	111	117	122
	132	106	110	109	106	120	123	108	133	100	114	112	159	175	170	127	133	140	134	155
	104	65	100	94	83	133	118	123	111	157	115	105	90	107	110	104	97	103	119	112
	101	88	110	106	123	113	118	131	133	114	119	112	100	100	100	109	91	84	98	102
	115	112	112	112	109	113	109	123	111	129	112	112	115	121	110	113	114	115	119	122
Midland	98	106	105	106	97	103	105	115	111	100	102	104	105	93	95	102	97	95	97	88
	102	106	108	108	94	103	100	108	133	100	102	105	105	96	95	104	103	99	103	94
	92	112	100	101	103	100	109	131	67	86	102	101	103	82	100	100	85	85	83	78
East South-West	84	118	93	97	100	103	91	77	89	86	94	96	100	111	90	97	76	64	59	78
Wales	110 111 106	94 82 88 71	92 121 127 102	93 115 120 97	100 140 134 157	107 137 137 130	109 132 127 159	108 146 146 154	89 144 144 167	129 143 129 171	103 138 134 150	98 127 127 125	97 108 115 82	96 118 118 114	115 120 95	99 122 125 116	74 105 103 106	63 100 97 104	88 86 91	88 92 73
County Boroughs* Other Urban Districts* Rural Districts*	112	100	109	108	106	110	100	108	111	114	105	107	110	111	110	108	115	113	121	122
	94	94	104	103	103	107	105	108	111	129	106	104	110	104	100	104	84	83	81	80
	90	106	93	95	97	110	118	123	111	100	108	102	95	107	100	101	86	75	72	75

^{*} Excluding Greater London.

Urban mortality excess is not, as a rule, present from birth, but tends to increase throughout the later months of infancy. This is shown in 1934 by the fact that the divergence between the county boroughs and rural districts increases from 7 per cent. of the rate for England and Wales at 0–4 weeks to 29 at 1–3 months, 38 at 3–6 months, 49 per cent. at 6–9 months and 47 per cent. at 9–12 months.

Table XV.—Mortality of the first 30 Minutes of Life 1934.

lal rs.					Under 30	Minutes		
International List Numbers.	Cause of Death.	All Infants.	Le	gitimate.		11	legitimat	e.
Inter List 1			Males.	Fe- males.	Both Sexes.	Males.	Fe- males.	Both Sexes.
					Deaths.			
86 157 158 159 160 161 (a) 161 (b&c 172-175 182 194: 1	Homicide Accidental suffocation Lack of care Other forms of violence Violence and lack of care Other Causes	83 39 395 156 96 6 16 1 168 27 212 16	35 20 220 84 51 3 — 1 19 — 20 3		76 39 366 143 91 6 1 1 45 1 48 4	2 -14 6 5 -6 -60 14 80 5	5 15 7 — 9 — 63 12 84 7	7 29 13 5 - 15 - 123 26 164 12
	All Causes	1,003	436	337	773	112	118	230
			Mot	tality pe	r Million	Live Bir	ths.	
86 157 158 159 160 161 (a) 161(b&c) 172-175 182 194: 1	Convulsions Congenital malformations Congenital debility Premature birth Injury at birth. Atelectasis Other diseases peculiar to early infancy Homicide Accidental suffocation. Lack of care Other forms of violence Violence and lack of care Other causes Other causes	139 65 661 261 161 10 27 2 281 45 355 27	119 68 749 286 174 10 	147 68 525 212 144 11 4 - 93 4 101 4	133 68 640 250 159 10 2 2 2 79 2 84	151 -1,060 454 379 -454 -4,545 1,060 6,060 379	397 1,192 556 715 - 5,007 954 6,676 556	271 -1,125 504 194
	All Causes	1,678	1,485	1,211	1,352	8,484	9,378	8,920
	11. 47. 7. 4. 48. 48. 48.		Perce	entage of	Total un	der 24 F	lours.	
86 157 158 159 160 161 (a) 161 (b& c) 172–175 182 194: 1	Convulsions Congenital malformations Congenital debility Premature birth Injury at birth Atelectasis Other diseases peculiar to early infancy Hornicide Accidental suffocation. Lack of care Other forms of violence Violence and lack of care Other causes	17 16 9 28 17 13 73 7 88 77 88 77 81	15 14 9 27 18 11 — 13 76 — 57 19	17 18 9 26 16 16 100 	16 16 9 27 17 13 100 8 79 20 63 11		-56 -15 35 75 -89 80 86 78	-39 -11 41 20 -71 -92 87 89 75
	All Causes	15	13	13	13	37	48	42

Comparison af Table XIII with 1933 reveals decreases in the rates for the first month of life in each region except North I, East, South-West and Wales II, at the 2nd and 3rd months except in Greater London and North I, at 3–9 months except in Greater London, and at 9–12 months except in Greater London, North I and the South-West.

Deaths occurring immediately after birth.—The separate tabulation of deaths registered as occurring within 30 minutes of birth according to sex, cause and legitimacy, first published in the Review for 1928, is repeated for 1934 in Table XV.

This very early mortality displays the same startling differential incidence upon the illegitimate as in previous years, especially for those causes of death which imply, or are likely to mask, violence or neglect. For violence and lack of care as a whole a rate of 6,360 per million for illegitimate infants compares with one of 84 for the legitimate. Moreover, 81 per cent. af all such deaths under 24 hours occurred within this first half-hour, as against 15 per cent. for mortality generally, so that the risk represented by violence and lack of care is one applying especially to this first half-hour of life. The rate of mortality among legitimate infants from all causes was 1,485 per million live born males and 1,211 for females, the corresponding rates in the preceding 5-year period being 1,421 and 1,243 respectively. The female excess of deaths during the first half-hour which were classed to congenital malformations, noticeable in the years 1931-33, and the male excess of deaths classed to injury at birth were not so pronounced in 1934. The rates per million live births in each triennium 1928-30 and 1931-33 and for 1934 from various causes are given below.

		Males.			Females.				
Legitimate Infants.	1928– 30.	1931– 33.	1934.	1928– 30.	1931–33.	1934.			
Congenital malformations Congenital debility Premature birth Injury at birth Atelectasis Other diseases of early infancy	90 87 700 262 148	83 85 715 297 192	119 68 749 286 174	93 62 583 235 145	154 56 570 211 161	147 68 525 212 144			

Of the 164 deaths of illegitimate infants assigned to violence and lack of care 108 or 66 per cent. relate to abandoned infants of unknown parentage.

Causes of Infant Mortality.—The causes of infant mortality are set forth in Tables 11–15, which compare the records of 1934 with those of previous years, and show the incidence of mortality from each cause upon infants distinguished by sex, age, legitimacy, class of area, and section of the country. From these tables has been prepared the comparison in Table XVI between the mortality from the chief causes distinguished at various ages in 1934 and 1929–33, and from all causes in 1934 and 1933.

Table XVI.—Comparison of Infant Mortality Rates (per 100,000 Live Births) in 1934 with those of immediately preceding years.

			W. 100 - 100					ASSESSMENT OF				No. of Lot, House, etc., in such such such such such such such such
	Under 4 Weeks.	4 Weeks to 3 Months.	3-6 Months.	6-9 Months.	9-12 Months.	Under 1 Year.	Under 4 Weeks.	4 Weeks to 3 Months	3-6 Months.	6-9 Months.	9-12 Months.	Under 1 Year.
edinolistic me	Inc Cat	rease c ises as	or Decr compa	rease fr red wi	om Var th 1929	ious -33.	Perc	entage compa	Increased wi	th 192	Decreas 9-33.	se as
Measles (7)	$ \begin{array}{c cccc} & -2 \\ & -3 \\ & -1 \\ & -17 \\ & -31 \\ & -6 \\ & -6 \\ & +64 \\ & -31 \\ & -40 \\ & +16 \\ & -5 \\ & +4 \\ & -51 \end{array} $	-8 -9 -3 -14 -58 -31 -40 + 5 -21 -24 - - -13 -175	$ \begin{array}{c} +1 \\ -13 \\ -10 \\ -5 \\ -3 \\ -72 \\ -34 \\ -17 \\ +2 \\ -18 \\ -2 \\ -4 \\ -162 \\ \end{array} $	+ 2 -22 -13 -11 - 6 -88 -25 - 9 - 2 - 5 - 1 - 3 -174	+ 4 - 30 - 12 - 8 - 90 - 17 - 5 - 1 - 4 11 - 171	+ 7 - 76 - 48 - 27 - 41 - 339 - 112 - 78 + 69 - 80 - 67 + 17 - 8 - 28 - 733	-33 -43 * -15 -24 -10 - +13 -2 + 8 -24 + 2 -2	-19 -64 -43 -34 -20 -19 -11 + 4 -24 -1711 -17	+13 -25 -59 -21 -10 -21 -18 -16 + 4 -40 -15 * -18 - 3 -18	+ 6 -36 -34 -29 -28 -22 -25 - 9 -42 -50 * -23	+ 6 -46 -67 -24 -31 -25 -25 - 8 -67 -10 -25	$\begin{array}{c} + 7 \\ -33 \\ -63 \\ -28 \\ -19 \\ -25 \\ -19 \\ -3 \\ +10 \\ -21 \\ -4 \\ +8 \\ -16 \\ -4 \\ -11 \\ \end{array}$
. 31.225.05	In	crease 1934 a	or Dec	crease coared w	of Morta vith 193	lity in 3.					f Morta at in 1	
All Causes	-89	-111	-123	-98	- 88	-509	- 3	-11	-14	-14	-15	- 8

Note.—The percentages in this Table being based on rates per 100,000 live births may differ on this account from those derivable from the rates in Table VIII.

* Numbers too small to provide significant comparison.

The decrease from the previous year is seen to have applied to each period of age. The same is true when comparison is made with the average rates for the preceding five years, the extent of the decline amounting to over 20 per cent. at 6–12 months. Mortality of infants from measles was above the 5-year average at each age over 3 months. Deaths attributed to congenital defects and injury at birth per 1,000 live births have progressively increased since 1923, their rate in 1934 again being the highest recorded in Table 12. Mortality from premature birth, which has since 1922 risen and fallen each year with the influenza rate, was lower than in the three preceding years. Arranging the 13 years 1922–34 in ascending order

of their infant mortality from influenza, the following correspondence is found between the rates per 100,000 live births from these causes.

No. of		
years.	Influenza.	Premature Birth.
6	20 to 58	1749 to 1768
2	69, 81	1820, 1830
5	89 to 125	1855 to 1882

The rates for tuberculosis, syphilis, convulsions, bronchitis, respiratory disease other than bronchitis or pneumonia, inflammation of the stomach, diarrhœa, hernia, congenital debility and suffocation in bed established new low records in 1934, whilst those for diphtheria and meningitis were equal to the lowest previously recorded. Whooping cough, influenza and pneumonia reached the lowest levels save in 1930 (Table 12).

Table XVII.—Infant Mortality by Cause, Sex and Legitimacy, 1934.

		Deaths	per 1,00	00 Live	Births.			Morta	lity per	cent.	
-	All In	fants.	Legiti Infa		Illegiti Infa			e of Fer Infants.		Illegit of Legi Infa	timate
	Male.	Fe- male.	Male.	Fe- male.	Male.	Fe- male.	All In- fants.	Legiti- mate.	Illegi- timate.	Male.	Fe- male.
Under four weeks	35·20 10·07 8·30 6·43 5·37 65·37	27·20 7·50 6·74 5·18 4·82 51·44	5.30	7·20 6·52 5·07 4·81	19.01	47·05 14·31 11·60 7·47 4·93 85·35	129 134 123 124 111 127	130 134 122 125 110 127	118 133 133 106 141 123	162 197 194 125 132 165	179 199 178 147 102 171
Measles (7) Whooping cough (9) Tuberculosis, all forms (23-32) Syphilis (34) Convulsions (86) Bronchitis and pneu- monia (106-109)	1·19 1·28 0·79 0·35 2·15 11·52	1·75 0·59 0·32	0·77 0·31 2·11	0·27 1·39	1·44 1·14 1·21	1·35 1·99 0·48 1·35 2·30 12·08	134 109 150	110 73 131 115 152 129	112 72 238 90 132 130	129 113 148 390 144 138	127 114 81 500 165 138
Diarrheea and enteritis (119) Developmental and wasting diseases (157–159, 161a & b) Congenital defects (malformations and atelectasis) (157, 161a)	5·55 31·89					9·62 36·72		137	130	239	251 149
Congenital defects (malformations and atelectasis) (157, 161a) Congenital debility, sclerema and ic-	8.60							119	138	110	95
terus (158, 161b) Premature birth(159) Other causes All causes	3.75 19.54 10.65 65.37	15·56 8·15	19·05 10·14	15·08 7·64	30.45		126 131	154 126 133 127	166 116 115 123	171 160 220 165	158 173 255 171

Table XVII contrasts the mortality of male with that of female, and of legitimate with that of illegitimate, infants. The sex ratio of mortality was 127, the lowest ratio recorded since 1911–20, a maximal ratio of 133 having been reached in 1930, followed by a decline in each year since (see Table XVI and Diagram 1 of Review

for 1932). This low ratio of male to female deaths was particularly evident at 3–6 and 9–12 months, and, amongst the causes distinguished, for whooping cough and the developmental and wasting diseases. Male excess ranges from 9 per cent. for syphilis to 54 for the congenital debility group. The excess mortality of the illegitimate is, as usual, very much greater for syphilis than for any other cause distinguished in the table.

Distribution throughout the country of Infant Mortality from various causes.—Table XVIII, which is derived from Table 15, furnishes an analysis by cause of the differences in total mortality under one year of age shown in Table XIII.

Table XVIII.—Comparison of Infant Mortality from the Principal Causes in Geographical Regions, 1934.

					G A						-			
AGEL ADECTION OF THE SECOND OF	Measles (7).	Whooping cough (9).	Tuberculosis, all forms (23–32).	Syphilis (34).	Convulsions (86).	Bronchitis and pneumonia (106-109).	Diarrhœa and enteritis (119).	Congenital malformations (157).	Congenital debility (158).	Premature birth (159).	Injury at birth (160).	Suffocation—in bed, or not stated how (182 pt.).	Other Causes.	All Causes.

Differences from Rates for England and Wales per 100,000 Live Births.

	+19i - 26i - 11i - 3i - 124i - 10i + 96i - 66i - 61i - 392i + 1i - 4i - 70i - 651
Douth Dast	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
	+70 - 10 - 20 + 2 - 137 + 204 + 307 - 04 - 75 - 300 + 5 - 14 - 22
Remainder of South-	-58 -50 $+3$ -12 -105 -337 -225 -69 -36 -400 -11 $+12$ -145 $-1,433$
East	-58 - 50 + 3 - 12 - 105 - 337 - 225 - 69 - 36 - 400 - 11 + 12 - 147 - 1705
North	+43 - 3 + 13 + 9 + 66 + 174 + 21 + 33 + 71 + 240 + 5 + 6 + 117 + 795
North I	+46 + 41 +31 +51 +217 +576 +146 + 50 +147 +415 +10 - 4 +171 + 1,897
TT L	+84 - 38 + 11 - 15 + 88 + 69 - 71 + 23 + 55 + 61 - 22 + 5 + 6 + 256
TIT	+62 - 46 - 16 + 3 + 29 - 59 - 106 + 27 + 2 + 90 + 13 + 13 + 70 + 82
77 737	+22 + 11 + 21 - + 17 + 156 + 61 + 31 + 80 + 292 + 4 + 6 + 149 + 850
	-51 + 41 - 2 22 - 105 - 52 + 14 - 23 + 148 - 9 + 2 - 27 - 86
midiana	-52 + 68 - 8 + 4 - 47 - 63 + 6 + 25 - 32 + 178 + 20 - 7 + 18 + 110
Transcenter	-49 - 14 + 9 - 9 + 27 - 190 - 167 - 9 - 6 + 87 - 65 + 20 - 109 - 475
,,	-58 + 8 + 9 - 12 + 16 - 368 - 255 + 15 - 37 - 105 - 45 - 9 - 83 - 924
Dast	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
	-60 - 12 - 5 - 13 - 20 - 344 - 263 + 62 - 76 - 61 + 328 - 64 - 84 + 40 + 75 + 397 - + 3 - 17 + 593
Wales -	-95 + 32 - 6 - 16 + 328 - 64 - 84 + 40 + 75 + 357 - 75 + 36 + 661
Wales I -	
,, II -	-93 + 144 - 8 + 7 + 349 - 120 - 87 - 138 + 162 + 284 + 31 + 29 - 175 + 385

Rates per cent. of those for England and Wales

										10-19-50			-	
South-East	1171	83[841	911	311	991	120	891	761	78	100	901	92	89
Greater London	162	93	71	106	24	120	163	89	69	78	103	67	98	98
Remainder of South-									-				0.1	
East	49	67	104	65	42	67	54	89	86	77	95	129	84	76
North	138	98	119	126	137	117	104	105	128	114	102	114	113	114
3741. T	141	127	145	250	221	156	130	108	158	124	104	90	119	132
II	174	75	116	56	149	107	85	104	122	103	91	112	101	104
	155	70	77	109	116	94	78	104	101	105	106	131	108	101
,, III	119	107	130	100	109	115	113	105	131	117	102	114	116	115
,, IV		127	97	100	88	90	89	102	91	108	96	105	97	99
Midland	55								87	110	109	83	102	102
Midland I	54	145	88	112	74	94	101	104						
" II	57	91	113	74	115	81	65	99	98	105	72	148	88	92
East	49	105	113	65	109	64	47	102	85	94	81	79	91	. 84
South-West	47	92	93	62	89	66	46	114	73	95	113	69	84	84
NAT 1	16	121	91	53	282	94	83	107	129	123	100	107	98	110
W-l-a T	15	97	91	29	278	96	83	116	118	125	95	88	104	111
	18	195	88	121	294	88	82	77	164	116	113	169	81	
, II	181	1951	00	141	294	00	041	111	104	110	110	1001	GI	107

The greatest departures from the average mortality of the whole country in Table 15 are furnished on the one side by North I, which shows excesses under every one of the causes distinguished, except suffocation, producing a net excess of 18.97 deaths per 1,000 live births over the average for England and Wales; and on the other by the South-East excluding Greater London, with comparatively favourable experience under every head distinguished except suffocation and tuberculosis, yielding a total rate 14.33 lower than the general average.

As usual, three causes contribute more than any other to these differences, the three being bronchitis and pneumonia, premature birth, and diarrhea. The predominant influence of these causes in determining local variations of infant mortality has been evident in each of the last twelve years. Jointly they account in 1934 for 60 per cent. of the divergence above the mean in North I, and for 67 per cent. of the divergence below the mean in the South-East excluding Greater London.

Mortality from bronchitis and pneumonia (considered jointly because of evidence of interchangeability between these forms of return) shows the usual excess in the North of England, amounting to 56 per cent. in North I, 15 in North IV and 7 in North II. In contrast with this the Eastern counties show a rate 36 per cent., the South-West 34 and the South-East outside Greater London 33 per cent. below the mean. Urbanization also is associated with a higher rate for this as for most other forms of infant mortality and Greater London, in great contrast to 1933, gave a rate 20 per cent. above that in England and Wales.

The next chief cause of local differences in infant mortality, premature birth, is more closely associated with geographical position than with urbanization, the range being from 125 per cent. of the general average for Wales I and 124 for North I, to 78 per cent. for Greater London and 77 for the remainder of the South-East.

Mortality from diarrhæa increases from South to North, as usual, but this sequence is profoundly modified by the extent of urbanization. In London the 1934 rate was 12·01 per 1,000 live births, in the outer ring 3·99, the county boroughs 5·63, other urban districts 3·24, and rural districts 2·68. For London the relation between diarrhæa rate and the summer temperature is shown by the fact that 1921, 1926, 1929, 1932, 1933 and 1934, the only years since 1920 in which the Greenwich mean temperature for the September quarter reached 63° F. or over, were also the only years in which the London diarrhæa death-rate exceeded 9·8, whilst at the other end of the scale the 4 years with the coolest summer quarters, 1922, 1924, 1927 and 1931, were the only years giving rates below 9 (see Table XVIII of Review for 1933).

In 1934, as in the preceding year, North I had the highest rate and the South-West the lowest.

For the first time, save in 1931, more deaths were assigned to congenital malformation than to diarrhoea. The former is steadily increasing in importance amongst the causes of infant deaths, its

mortality having risen year by year from $4\cdot16$ in 1923 to $6\cdot06$ per 1,000 live births in 1934. This increase affects all sections of the population to much the same extent, but mortality in 1934 was highest in Wales I, as in the 3 preceding years, and comparatively low in Wales II, Greater London and the rest of the South-East.

Injury at birth has increased since 1918 without intermission except in 1922. Wales II shows the highest rate in 1934, and the East the lowest.

Congenital debility was, as usual, less frequently returned as a cause of death in Greater London than in any region, and the rate for the county boroughs was considerably less than that for the rural districts during the first four weeks of life. Convulsions continued to decline as a registered cause of death, the 1934 rate being only 45 per cent. of that of 10 years earlier. The Greater London rate has fallen from .98 in 1931 to .43 in 1934, whereas in Wales the rate is 5.08 and in the North 2.46 per 1,000 live births.

Mortality in the first 24 months of life—Handicap of the Winterborn Child.

In Table XIX the deaths in column (b) are those of children registered as dying during 1931–33, who had completed the number of months of life shown in column (a) but not the next number, the first line representing deaths under 1 month of age, the next line deaths at 1–2 months, and so on up to the end of the second year of life. The calculated births from which these were derived, in column (d), are estimated as follows:—The deaths at 0–1 month of age may be regarded as derived from the births occurring between about mid-December, 1930, to mid-December, 1933, or allowing for the delay in birth registration it may be assumed that they were derived from the births registered from January, 1931, to December, 1933, inclusive, namely 1,826,466. By the same reasoning the deaths at 3–4 months of age may be related to the births registered from October, 1930, to September, 1933, inclusive, namely 1,851,284, and similarly at 6–7, 9–10, 12–13, 15–16, 18–19, and 21–22 months.

Since the births have only been tabulated by quarters, the intervening estimates corresponding to deaths at 1–2, 2–3 months, etc., are arrived at by dividing the differences between the successive numbers at 0–1, 3–4, etc., into three equal parts, which is equivalent to joining the known points for each third month of age by a series of straight lines. The continuous increase noticed on passing down this column is due to the falling birth-rate during 1929 to 1933. The use of a more elaborate method of curve fitting would make little difference to the resulting survivors in column (f), which are calculated by aggregating the deaths out of 10,000 births, given in column (e), down to the required age, and subtracting the totals from 10,000.

DIAGRAM I. SURVIVORS TO EACH MONTH OF AGE UP TO TWO YEARS AND CHANCE OF DYING WITHIN A MONTH (1931-33).

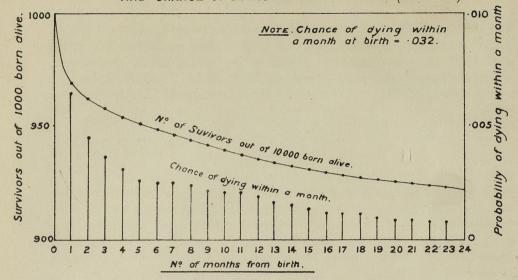
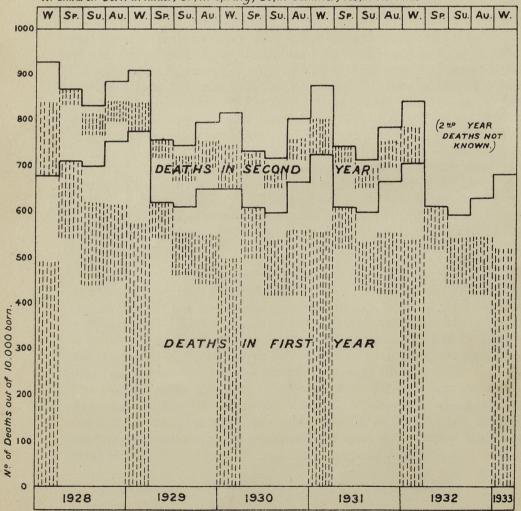


DIAGRAM 2. DEATHS IN THE FIRST AND SECOND YEARS OF LIFE OUT OF 10000 CHILDREN BORN, ACCORDING TO SEASON OF BIRTH.
W. Children born in Winter; Sp, in Spring; Su, in Summer; Au, in Autumn.



NOTE. Shaded areas represent deaths in the March quarters.

Table XIX is given because hitherto no national statistics for England and Wales of deaths by separate months of age during the second year of life have been placed on record. No process of smoothing has here been applied to the deaths, which present in their crude form some irregularities clearly due to chance causes, or errors of statement, such as the dislike of 13 and preference for 18 over 19 months, these irregularities being also reproduced in the last column. In Diagram 1 free-hand curves have been drawn through the points given by columns (f) and (g).

Table XIX.—Deaths at each month of the first two years of life in 1931-33; chances of dying and of survival.

Number of completed months of life.	Deaths in children who lethis number but not the research	nad completed of months	Estimated number of births from which the deaths in (b) were derived.	Estimated deaths (as in (b)) derived from each 10,000 live births.	Number out of 10,000 born alive who survive exactly the number of months specified in (a).	Estimated chance of dying within a month, after surviving the number of months specified in (a).
a.	b.	с.	d.	c.	f.	g.
0 1 2 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	58,042 11,333 7,948 6,398 5,496 4,709 4,496 4,433 4,337 3,996 3,777 3,867 3,504 2,822 2,717 2,374 2,169 2,020 2,177 1,640 1,623 1,486 1,428 1,439	138 144 144 141 140 135 138 129 128 133 127 121 124 114 115 116 111 119 111 115 126 116 108	1,826,466 1,834,739 1,843,012 1,851,284 1,857,163 1,863,042 1,868,921 1,874,253 1,879,585 1,884,916 1,888,232 1,891,548 1,991,618 1,904,995 1,907,525 1,910,055 1,912,586 1,913,935 1,915,284 1,916,634 1,919,277 1,921,921 1,924,565	318 62 43 35 30 25 24 24 23 21 20 20 18 15 14 11 11 11 11 9 8 8 8	10,000 9,682 9,620 9,577 9,542 9,512 9,487 9,463 9,439 9,416 9,395 9,375 9,355 9,337 9,322 9,308 9,296 9,285 9,274 9,263 9,254 9,238 9,231 9,224	1 in 31 156 224 274 318 380 395 394 410 448 470 469 520 622 666 776 845 844 843 1,029 1,157 1,156 1,320 1,319

Table XX gives the deaths of children, at each 3 months of age up to 2 years, registered in each quarter during the six years 1928–1933. The children dying aged 0–3 months in the first quarter of 1933 may have been born at any time from October, 1932, to March, 1933, inclusive, but would not be drawn equally from the births of these two quarters. The distribution of the first three frequencies in column (b) of Table XIX shows that of each 100 deaths under 3 months of age, 75 would be under 1 month, 15 aged 1–2 months, and 10 aged 2–3 months. By subdividing the 58,042 deaths under 1 month into deaths occurring on the 1st day, 2nd to 4th days, 5th to 7th days, 2nd week, 3rd week and 4th week, it is estimated that 21.6 per cent. of infants dying under 1 month of age were born in the preceding month, or allowing for the slight

Table XX.—Quarterly deaths registered during 1928-33 at 3-monthly ages up to 2 years, and mortality at those ages out of 10,000 children who were born at different seasons of the year.

Year.	Quar-	Mean Air		I	Deaths at	months	of age (a	ill causes)	. ,2113	816/b),		ber of Births
104	ter.	Temp.	0-3	3-6	6–9	9-12	12–15	15–18	18-21	21-24		tered.
1927 1928 1929	4th 1st 2nd 3rd 4th 1st† 2nd	42·6 50·7 58·7 45·8 37·5 50·2	8,212 6,707 5,627 7,002 9,232 6,715	1,889 1,260 1,268 1,668 2,672 1,322	1,729 1,113 874 1,152 3,007 1,321	1,663 1,204 656 936 2,963 1,268		- - - - 1,874 808	- - - 1,510 575	- - - 1,341 461	167 170 165 155	,566 ,926 ,997 ,675 ,669 ,047 ,451
1 93 0	3rd 4th 1st 2nd 3rd 4th 1st†	60·0 46·1 40·7 52·1 58·7 45·2 39·4	5,877 6,753 7,887 6,494 5,490 6,445 8,840	1,203 1,692 1,635 1,132 932 1,365 2,302	908 1,147 1,376 1,011 588 958 2,059	838 950 1,310 1,015 530 740 1,880	619 706 1,016 909 464 602 1,504	467 535 727 639 313 436 1,015	358 490 667 480 236 374 933	328 336 527 369 197 278 728	163 150 158 170 165 154	777
1932	2nd 3rd 4th 1st* 2nd 3rd 4th	51·7 56·8 46·2 41·1 50·3 59·8 45·6	6,372 5,299 6,316 8,181 6,426 5,412	1,186 905 1,505 1,978 1,182 1,040	1,118 621 1,101 1,688 1,046 728	958 559 918 1,483 1,069 596	787 405 658 1,152 921 466	555 341 482 758 660 365	412 251 393 671 510 305	330 201 318 518 415 230 283	163 161 147 152 165	,760 ,133 ,525 ,116 ,403 ,186
1933	1st* 2nd 3rd 4th	41·0 53·2 62·0 43·6	6,026 7,710 5,681 4,984 6,076	1,412 1,697 1,016 1,029 1,351	959 1,568 759 728 891	707 1,528 756 545 641	485 1,119 623 422 501	425 840 428 313 381	325 691 323 270 356	283 604 266 186 274	148 154 147	597
	1855 1856 1850 1850		Т	Deaths in	successiv	ze 3-mon	thly inte	rvals, ou	t of 10.06	00		hs out 00 born
Pel	riod of B	irtn.					eriod spec				1st year.	2nd year.
pring,	r, 1927–2 , 1928 er, 1928 in, 1928	8	493 393 339 447	76 75 100 169†	53 68 181† 84	57 174† 76 53	158† 66 37 45	49 27 32 46	22 29 40 30	20 31 22 12	679 710 696 753	249 153 131 133
pring, umme	r, 1928-29 r, 1929 er, 1929 an, 1929	9 	578† 398 358 446	83 72 103 107	57 69 84 66	60 78 62 35	64 54 28 39	40 19 27 66†	15 22 57† 27	17 44† 20 13	778 617 607 654	136 139 132 145
pring, umme	; 1929–3 , 1930 er, 1930 un, 1930	0	500 384 331 414	72 56 82 147†	37 57 124† 71	47 112† 58 36	95† 47 24 42	35 20 29 48*	16 23 40* 32	20 31* 25 15	656 609 595 668	166 121 118 137
pring, umme	r, 1930–3 , 1931 er, 1931 in, 1931	1	555† 390 328 425	75 56 93 131*	39 68 105* 70	58 91* 66 40	73* 57 29 32	42 22 26 56*	19 20 43* 21	18 37* 17 12	727 605 592 666	152 136 115 121
pring, umme	r, 1931–3 , 1932 er, 1932 n, 1932	2	539* 391 345 425	78 64 90 118*	48 59 100* 53	47 94* 48 38	74* 38 27 35	28 19 24 —	18 22 —	18 	712 608 583 634	138
Vinter	, 1932–3	86 100	521*	69	49	44	_	-			683	170
Mean 1928-	Spr -31 Sur	nter ring nmer tumn	532 391 339 433	77 65 94 139	47 66 124 73	56 114 65 41	98 56 30 40	42 22 29 54	18 24 45 27	19 36 21 13	711 635 623 685	176 137 124 134

 $[\]dagger\,$ Influenza epidemic and cold winter quarter (below 40° F.)

delay in death registration, approximately one quarter of the infants registered in a given month as dying under 1 month of age were born in the preceding month and three quarters in the month of death.

It follows that of each 100 children dying under 3 months of age in the 3rd quarter about 2 will have been born in April, 6 in May, 15 in June, 32 in July, 27 in August and 18 in September. Allowing for an average delay of about a month between a birth and its registration in all cases where the infant survived a month, this means that of deaths at ages 0-3 months in a given quarter about one-twelfth would be of children whose births were registered in the preceding quarter, and the rest would be of children whose births were registered in the quarter of death. The registered births being known for each quarter, by applying the above weights, the calculated births from which deaths at 0-3 months in the 3rd quarter of 1931 were derived would be 161,352 and the mortality rate in that quarter at ages under 3 months, per 10,000 born, is 5,299 divided by 16·135, or 328 as stated in Table XX.

Deaths at 3–6 months of age are seen from column (b), Table XIX, to consist of 39 per cent. at age 3 months, 33 per cent. at 4 months and 28 per cent. at 5 months, and at 6–9, 9–12 and succeeding 3-month periods the ages at death are distributed over the 3 successive months in approximate proportions 35, 33 and 32 per cent. After allowing for a month's delay in birth registration, the resulting weights calculated from these two distributions are approximately the same. Thus, of deaths at ages 3–6 months in a given quarter, approximately three quarters would be of children whose births were registered in the quarter preceding the death, one fifth of children whose births were registered in the quarter before that and one twentieth of children whose births were registered in the quarter when death occurred. For deaths at 6–9 months the same fractions are to be applied to the births one quarter further back, and so on.

Thus the mortality rates, per 10,000 born alive, at 3-6 months of age in the 4th quarter of 1931, at 6-9 months in the 1st quarter of 1932, and so along the diagonal in the upper part of Table XX are found by dividing 1,505, 1,688, 1,069, etc., by $(\cdot 2 \times 161.133) +$ $(.75 \times 147,525) + (.05 \times 152,116) = 150,476$. These rates are the numbers of children dying in successive quarters of a year, starting from birth, out of 10,000 born alive during the months April to September, 1931, and since the bulk of them were born from June to September they may be spoken of as "summer-born children of 1931," those contributing the deaths along the next diagonal as the "autumn-born children of 1931," and so on. In the lower section of Table XX, the mortality suffered in the first 8 quarterly periods of a year from birth by each successive group of 10,000 children from the winter-born of 1927-28 to the winter-born of 1931-32 is set out along each horizontal line, and in the last 2 columns and in Diagram 2 are shown their total mortalities in the 1st and 2nd years of life.

^{*} Influenza epidemic.

There was a great disadvantage in survival to the end of the 2nd year for children born in the winter months compared with those born at other seasons. Despite the fact that each group of children has, by the end of 2 years from birth, passed twice through a complete round of the seasons, out of each 10,000 children born in the four winters of 1928 to 1931, an average of 887 died within 2 years, for those born in spring the corresponding rate was 772, in summer 747 and in autumn 819 (Table XX, last four lines). This handicap for the winter-born children is revealed by the height of the columns in Diagram 2, and it is contributed to by the mortality of the 2nd year as well as of the first. The average rates per 10,000 for the first year, given at the foot of Table XX, showed 14 per cent. excess for the winter-born over the summer-born, which is equivalent to a difference of 9 in the infant mortality rate. For the second year the excess was 42 per cent., the handicap in the second year being relatively much greater, though absolutely less important than in the first year.

The handicap of the winter-born children in comparison with the summer-born arises, of course, from the fact that they experience the harder conditions of each successive winter at an age half a year younger, namely at 0-3 and 12-15 months instead of at 6-9 and 18-21 months. Moreover, so long as the death-rate is declining with advancing age, each winter will continue to take a greater toll of the winter-born children than of the summer-born of the same age last birthday, since there is a greater gross mortality to be

Table XXI.—Mortality at 3-monthly ages up to two years, during the March quarters, 1924-33.

Yea		Influenza deaths	Mean Air Temperature	Nur	nber dyi	10,00	March of origina	quarter a	t age spe alive.	cified ou	t of
16.	ır.	(all ages).	°F.	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24
		N	farch quarters i	n order	of increa	sing mea	n air ten	aperature	./		
1929 1931 1924 1930 1933 1932 1925 1927 1928 1926	::	23,927 9,448 12,803 2,208 19,849 9,176 7,614 17,944 3,231 2,914	37.5 39.4 39.5 40.7 41.0 41.1 41.6 42.0 42.6 42.9	578 555 571 500 521 539 517 537 493 500	169 147 155 107 118 131 132 153 121 130	181 124 147 84 100 105 116 146 105 112	174 112 140 78 94 91 111 146 98 107	158 95 122 64 74 73 88 120 81 91	120 66 88 46 56 48 66 91 57 65	92 57 72 40 43 40 48 67 43 53	79 44 57 31 37 31 40 56 34 38
1924, 1	927. \			552	149	144	139	119	89	69	57
1929, 1925, 1	1933	7,000-10,000	100.000.000	537	137	115	105	85	60	48	38
1932 1926, 1 1930	928,	Under 4,000		498	119	100	94	79	56	45	34

influenced by the unfavourable conditions. Table XXX of the Review for 1933 showed that the death-rate ceases to fall after 11 years, and presumably this handicap must continue to accumulate up to that age, after which the position will be reversed, and as the death-rate then rises the winter-born will each year be at a slight advantage and will gradually regain what they have lost.

Table IV and its predecessors show that the bulk of the annual variation in infant mortality is caused by the March quarters. The importance of the coldness of this quarter, and of the presence or absence of an influenza epidemic, may be ascertained from Table XXI, where the 10 March quarters from 1924 to 1933 have been arranged first in order of increasing mean air temperature in England and Wales, and then in groups according to the influenza deaths. It must be remembered that the rates are also influenced by the general downward secular trend of mortality due to other factors.

Since there is a correlation between the influenza and temperature factors in the March quarters (as may be seen from Table LXXXVIII of the Review for 1933), it is necessary to contrast pairs of years having similar influenza prevalence but differing coldness and vice versa. Comparing 1930 with 1926 or 1928, 1933 with 1927, and 1931 with 1932, only in the last of these pairs did the coldest year have the highest mortality rates according to Table XXI, the reverse being true of the others. On the other hand, comparison of adjacent pairs of years in the upper part of the table—that is, quarters of similar coldness-shows that the rates fluctuated with the influenza deaths in almost every instance in passing down the table, except between 1933 and 1925, where the effect of the downward secular trend of rates in the interval counteracts the influenza factor. The extent of the correlation of the rates with influenza prevalence is perceived in the lower part of the table. The relative amount of excess in the epidemic years increases with age up to the end of the second year. It may be inferred from this analysis that a low mean temperature was relatively unimportant as a factor in comparison with influenza prevalence.

Diagram 2 and Table XX show that the freedom from influenza and the mildness of the March quarters of 1928 and 1930 gave a considerable survival advantage at the end of their first year to children born in those winters, compared with the 4 winters when influenza was epidemic, the rates being 679 and 656 compared with 778, 727, 712, 683. The rates for the March quarters only were 493 and 500, compared with 578, 555, 539, 521 in the influenza years. The deaths, per 10,000 born, which occurred in the March quarters are depicted by shaded areas in Diagram 2. The winter-born children of 1927–28 lost their advantage by being exposed to the severe cold and influenza of the March quarter of 1929 at the beginning of their second year, producing the very high mortality rate of 158 in that quarter and 249 for the second year of life. The winter-born children of 1929–30, being exposed in their second year

to the less severe winter and slighter influenza of 1931, maintained their advantage at the end of the second year.

Mortality at Ages over One Year.

Table XXII states the crude and standardized death-rates at all ages for sexes and persons for the whole country, as well as the mortality per million living at different ages, for 1933 and 1934, and in order to provide means of comparison with experience of some ten years back, for 1921–30.

Table XXII.—Mortality from all Causes per Million Population, 1921-30, 1933 and 1934.

in the govern		Males.			Females.			Persons.	
	1921- 30.	1933.	1934.	1921- 30.	1933.	1934.	1921-	1933.	1934.
All Ages.	12,927 11,826	12,948 10,920	12,511 10,428	11,401 9,602	11,711 8,809	11,112 8,328	12,131 10,644	12,304 9,794	11,783 9,305
Standardized (B	12,774	11,874	11,364	20,386	10,162	9,600	22,896	10,976	10,438 17,504 2,428
5 10 15	2,513 1,658 2,602	2,268 1,481 2,552	2,477 1,443 2,369	2,327 1,637 2,483	2,120 1,375 2,270	2,379 1,397 2,186	2,420 1,648 2,543 3,178	2,194 1,429 2,411 3,100	1,420 2,278 2,868
20 25 35	3,335 3,890 6,379	3,285 3,507 5,714	3,084 3,212 5,113	3,030 3,458 4,830	2,922 3,208 4,635	2,659 3,031 4,111 7,659	3,656 5,544 10,006	3,353 5,130 9,879	3,119 4,571 9,175
45 55 65	11,615 24,363 59,152	11,676 23,733 56,715	10,946 23,340 55,605	8,554 18,124 46,014	8,332 17,300 44,009	16,403 42,046	21,086 51,907	20,327 49,698 124,354	19,656 48,126 114,001
75 85 and upwards	136,934 283,060	139,423 286,550	129,319 256,366	114,049 261,506	114,443 259,386	103,918 230,629	123,108 268,676	268,062	238,92

A. English Standard (Population of England and Wales, 1901). (See page 2.)

B. International Standard.

The mortality of children aged 5–10 was higher than in 1933, but at all other ages distinguished in Table XXII it was lower. At every age-group for males and at every age-group except 5–10 for females mortality was lower than in 1921–30.

The extent of the fall at the various ages can be better appreciated from Table XXIII, in which the mortality in 1933 and 1934 is expressed as a percentage of the rate in the decennium 1921–30, and 1934 mortality is also expressed in terms of that in 1911–14. At "all ages" the standardized rates according to the English standard have declined since 1911–14 by 30 per cent. for males and 32 per cent. for females, and since 1921–30 by 12 and 13 per cent. respectively. The fall is much greater at 0–5 than at any higher age, amounting to about 53 per cent. since 1911–14 and 24 per cent. since 1921–30.

At 5–10 mortality was higher than in any year since 1929 for boys and since 1925 for girls, no improvement being evident over the rates for 1921–30. At 10–15 the decline amounted to about 14 per cent., and at 15–25 to 8 per cent. for males and 12 for females, increasing to maxima at 35–45 of 20 per cent. for males and 15 for females. At 45–85 mortality was about 5 per cent. for males and 9 per cent. for

females below the 1921-30 level, and at 85 and upwards the improvement was rather greater.

Mortality at 75–85 has fluctuated considerably during the last 15 years without showing any progressive improvement. These fluctuations have been mainly governed by the occurrence of influenza epidemics, as may be seen from the fact that in the 7 years with an influenza crude death-rate below ·3 per 1,000 (1920, 1921, 1923, 1926, 1928, 1930, 1934) male mortality at 75–85 from all

Table XXIII.—Mortality at various ages from all causes in 1933 and 1934, per cent. of that for the same sex and age in 1921-30 and in 1934 per cent. of that for 1911-14.

encers?		Males.	Niteria		Females	000 <u>0</u>		Persons	
onte, stand-	Per cent. of 1921–30.		Per cent of 1911-14.	Per ce 1921		Per cent. of 1911-14.		ent. of -30.	Per cent. of 1911–14.
7.49 5.50	1933.	1934.	1934.	1933.	1934.	1934.	1933.	1934.	1934.
All Ages— Crude	100·2 92·3 93·0 78 90 89 98 99 90 101 97 96 102	96·8 88·2 89·0 76 99 87 91 92 83 80 94 96 94 94	84·0 70·3 71·4 48 75 73 81 83 65 64 74 78 88 95 94	102·7 91·7 92·8 78 91 84 91 96 93 96 97 95 96	97·5 86·7 87·6 77 102 85 88 88 88 89 91 91 91	85·1 67·9 70·0 46 73 68 81 83 75 64 67 73 83 91	101·4 92·0 92·8 78 91 87 95 98 92 93 99 96 96 96 101 100	97·1 87·4 88·3 76 100 86 90 90 85 82 92 93 93 93 93	84·5 69·1 70·6 47 74 71 81 83 70 63 70 76 86 93 96

A English Standard (Population of England and Wales 1901). B. International Standard. (See page 2.)

causes never exceeded 133 and female mortality never exceeded 109 per 1,000, whereas in the remaining 9 years with influenza above this level, the male rate for all causes ranged from 137 to 154 and the female rate from 112 to 131. In seeking an explanation for the contrasts between 1933 and 1934 rates, this factor is an important one.

Table XXIV measures the effect of changes in the birth-rate upon the mortality rate at 0-5 years in 1911-14 and from 1917 onwards, by comparison with the trend of rates which have been standardized by reference to the 1901 Census population at individual years of age up to 5. It shows that in all these years the fall of the

birth-rate has caused some under-statement of crude mortality at 0-5 for each sex except during the three years 1920–22, when its temporary rise after the war reversed the process. The fall of 53 per cent. shown for this mortality in Table XXIII is seen to be slightly over-stated from this cause, being reduced to 50 per cent. when the standardized rates are considered.

Both the crude and standardized rates at these ages were the lowest ever recorded.

Table XXIV.—Comparison of Crude and Standardized Death-Rates per 1,000 living at Age 0-5, 1911-14 and 1917-34.

	Ma	les.	Fem	ales.	Pers	ons.
	Crude.	Stand- ardized.	Crude.	Stand- ardized.	Crude.	Stand- ardized.
1911–14 1917	40·6 31·8 38·9 32·8 36·2 32·3 30·2 24·3 25·1 25·3 23·3 23·7 21·9 26·3 20·5 22·4 21·0	40·8 34·3 43·1 36·6 31·8 29·2 28·5 25·0 27·3 27·1 24·9 25·2 23·3 27·7 21·4 23·1 22·0	33·9 26·3 34·1 26·4 28·9 25·8 24·5 19·6 20·2 20·7 18·8 18·9 17·4 21·6 16·0 17·4	34·2 28·4 37·5 29·5 26·0 23·6 23·1 20·1 20·0 20·0 18·5 22·7 16·7 18·0 17·6	37·3 29·1 36·5 29·6 32·5 29·1 27·4 22·6 23·0 21·1 21·3 19·7 24·0 18·3 19·9 19·0	37·5 31·4 40·3 33·1 29·0 26·4 25·8 22·5 24·6 24·6 22·4 22·6 20·9 25·2 19·1 20·6 19·8
1933	19.9	$\begin{array}{c c} 21 \cdot 2 \\ 20 \cdot 7 \end{array}$	15·8 15·6	16·9 16·7	17·9 17·5	19·1 18·7

Mortality at 1–5.—Table XXV shows that mortality has fallen more rapidly for the years immediately following infancy than for the first year of life itself, so the features of the changes in progress at these ages also call for some consideration. Compared with 1911–14 or 1921–30 the decline in 1934 has been least in the fifth year and greatest in the second, decreasing continuously from the second to the fifth year of life. The second year of life usually manifests the greatest degree of annual variation and would seem to be the age of greatest susceptibility to disturbing factors. That the death-rates of children aged 1–5 are more sensitive than those of infants or older children to environmental factors such as are indicated by urbanisation or density of persons per room was shown in the Review for 1932 (Table XXVIII).

Compared with the preceding year, whilst mortality was lower at ages under 2, it was higher during the third, fourth and fifth years of life. At 3–4 the rate exceeded those of all years since 1929, and at 4–5 exceeded those of all years since 1930, and in view of the increase at ages 5–10 also, the reasons for this unfavourable feature in an otherwise good year require some examination, first with regard to the regional distribution and then with regard to the causes of death chiefly concerned.

Table XXV.—Mortality per 1,000 living (both sexes), in each of the first Five Years of Life, 1911-14, 1921-30, 1933, and 1934.

Year of Life.	1911–14.	1921–30.	1933.	1934.	1934 pe	1934 per cent. of		
			1000.	1334.	1911–14.	1921–30		
0-1 1-2 2-3 3-4 4-5	118·16 34·06 13·68 8·32 6·14 37·27 37·52	75·51 19·88 8·51 5·23 3·90	64·85 13·06 5·86 4·09 3·36	63·12 12·75 5·92 4·47 3·56	53·4 37·4 43·3 53·7 58·0 47·0	83·6 64·1 69·6 85·5 91·3		
1-5 { Crude Standard	 15·62 15·54	23·52 9·47 9·37	19·05 6·56 6·58	18·74 6·59 6·67	49·9 42·2 42·9	79·7 69·6 71·2		

The distribution throughout the country of mortality at 1–2 and 2–5 is shown in Table XXVI, which may be compared with Table XIII (Infant Mortality). The greatest excess over the general average recorded in the table at ages 1–2 is for North I, which shows a rate more than twice the corresponding rates for the Eastern region, the South-West and the South-East. Next in order comes North IV, followed by North II and Greater London. At 2–5 North I also shows the highest rate, followed by the other North regions. The South-East excluding Greater London and the South-West occupy the lowest places in the order of mortality at both ages. The division of Wales into two regions indicates that Wales II, which is of course mainly rural, had, as in the 3 preceding years, a mortality for the second year of life much below the general average.

Comparison of 1934 mortality at ages 2–5 in each region with the rates in 1931–33 (Table XXVII) shows that the increase was chiefly in Greater London, the South-East and East, whilst the Midlands and Wales registered a considerable decline, the Midland rates having fallen progressively during the 4 years.

The sensitiveness of mortality at age 1-2 to the general healthiness of the year has been pointed out in previous Reviews. It is to be expected that the most susceptible age would also exhibit the

the first four of these causes and from all other causes combined are set out in Table XXIX for the regions where an increase was manifest, and for the remainder of England and Wales. In Greater London measles caused 329 deaths in excess of the preceding year, diphtheria an excess of 84 and pneumonia of 47, whilst violent deaths fell by 23 and other deaths by 89. A large increase of measles deaths occurred also in each of the other divisions distinguished, and diphtheria deaths increased greatly in the South-East outside Greater London and in the remainder of England and Wales, though not in the East. Pneumonia deaths increased in the South-East and violent deaths in the East, but elsewhere for these causes, and in each division for the group of "other causes," deaths in 1934 registered a decline.

It is evident that measles and diphtheria were mainly responsible for the unsatisfactory rates at 2–5 in the South-East, and had it not been for these two diseases a considerable fall in the rates throughout the country would have occurred.

Table XXIX.—Deaths at Ages 2-5 from Measles, Diphtheria, Pneumonia, Violence and Other Causes in Several Geographical Divisions, 1931, 1932, 1933, 1934.

Div	risions	, 1931	, 1932,	, 1900,	1904.	adeques constant proporti	populari menderan	one reconstructed aspect	
period and area	1931.	1932.	1933.	1934.	1931.	1932.	1933.	1934.	
		Greater	Londor	ı.	Remainder of South-East.				
Measles Diphtheria Pneumonia Violent causes Other causes All causes.	40 175 259 110 679	333 173 229 111 736 1,582	40 212 227 121 709 1,309	369 296 274 98 620 1,657	31 77 134 69 368 679	76 34 110 64 613 697	33 36 101 67 434 671	55 93 130 67 381 726	
	k or a produced large	Ea	ast.		Remainder of England and Wales.				
Measles	16 27 56 27 140	24 28 49 27 134	15 16 47 28 173	53 17 42 32 142 286	860 552 1,480 600 3,025 6,517	480 539 1,153 539 2,801 5,512	489 534 1,272 527 2,829 5,651	660 805 1,030 509 2,495 5,499	

The chief causes of death in England and Wales at ages 1–5 are set forth in Table XXX, which also provides comparison with 1911–14 and with 1921–30.

Mortality from all causes combined at these ages was 42 per cent. of the rate in 1911–14 and 70 per cent. of that in 1921–30. The causes showing an increase over 1921–30 were diphtheria, violence

other than burns and scalds, scarlet fever, measles, and congenital malformations. On the other hand, each form of tuberculosis, rickets, meningitis, convulsions, bronchitis, inflammation of the stomach, diarrhea, acute nephritis, and burns and scalds all established new low records.

Table XXX.—Deaths from Various Causes per Million living at Ages 1-5 Years in 1911-14, 1921-30 and 1934. (Both Sexes.)

norm and me such as	Death-rate.		e.	o constraints are seen		eath-rat	e.
Cause of Death.	1911-	1921-30.	1934.	Cause of Death.	1911- 14.	1921- 30.	1934.
7. Measles 8. Scarlet fever 9. Whooping cough 10. Diphtheria 11. Influenza 23. Tuberculosis of Respiratory System 24. Tuberculosis of Nervous System. 25. Tuberculosis of Intestines and Peritoneum. 26-32. Other Tuberculous Diseases. 63: 1. Rickets 79. Meningitis 86. Convulsions	2,673 373 1,216 781 60 237 705 391 288 172 451 460	1,104 143 864 535 270 136 445 157 155 93 188 179	1,117 166 446 607 58 64 339 55 106 35 97 66	105: 2. Laryngitis	152 872 2,170 866 140 94 1,639 89 85 360 274 1,071	51 448 2,120 536 80 43 468 43 79 247 239 847	19 170 1,235 356 56 16 213 23 81 161 264 839

It was demonstrated in Table XXIV of the Review for 1931 that the quinquennial rates since 1876–80 at ages 0–5 have fallen continuously, both for tuberculosis of the nervous system and of the intestines and peritoneum. To maintain continuity with that table the rates per 1,000 at 0–5 years in 1934 were 0.35 for the nervous system, 0.06 for the intestines and peritoneum, 0.18 for other forms and 0.60 for all forms of tuberculosis.

The decline in mortality assigned to other infective and respiratory diseases and to meningitis, convulsions and rickets since 1921 is revealed by the annual rates in Table XXXI.

Table XXXI.—Death-Rates from various causes per million living at ages 1-5 years in each year 1921-1934.

		Measles.	Scarlet Fever.	Whooping Cough.	Diph- theria.	Bronchitis and pneu- monia.	Diarrhœa and enteritis.	Mening- itis.	Convul- sions.	Rickets
1921		603	198	853	778	3,305	990	288	321	109
1922	2000	1,530	229	1,838	723	4,461	403	263	268	86
1923		1,332	169	745	464	2,700	479	233	219	98
1924		1,155	149	716	438	3,368	424	205	189	94
1925		1,326	172	1,108	473	3,033	466	188	191	102
1926		848	105	749	474	2,784	502	165	153	86
1927		950	90	743	448	3,339	358	157	133	80
1928		1,122	92	572	504	2,250	368	120	99	102
1929		965	102	1,411	533	3,940	419	138	117	89
1930		1,142	116	401	552	1,792	276	111	89	78
1931		923	87	540	427	2,487	271	114	87	80
1932	1	988	92	602	387	1,929	266	126	85	66
1933		571	129	494	394	1,986	300	106	77	41
1934		1,117	166	446	607	1,761	213	97	66	35

The most favourable years for measles were 1933 and 1921, and for whooping cough 1930 and 1934, the worst years for the latter being 1922, 1929 and 1925. Scarlet fever and diphtheria rates moved downwards together from 1922 to 1924, and from 1930 to 1931, and upwards in unison from 1924 to 1925, 1927 to 1930 and 1932 to 1934. Meningitis, other than cerebro-spinal or tuberculous, and convulsions are rapidly disappearing as certified causes of death.

Mortality at 5-10.—The recent increase in the death-rate of children of these ages, already commented upon, is due in the main to diphtheria, to which cause 1,859 deaths of children aged 5-10 were assigned in 1934, or 25 per cent. of the deaths from all causes. It will be demonstrated later (Table XL) that the diphtheria death-rate at this period of life was the highest since 1902, with the single exception of 1920. Table XXXII shows that the residual rate from all causes except diphtheria fell to 1.97 per 1,000 in 1923, fluctuated slightly until 1929, declined again to 1.77 by 1932 and has remained at 1.82 in 1933 and 1934. The measles rate has not manifested any consistent change at this age during the last 13 years, but the pneumonia rate has tended to decline. Mortality from diseases of the ear and mastoid has increased considerably from the low rate of 41 per million reached in 1922 to 89 in 1934. The risk of death from violence has declined recently from the high levels reached about 1929. The tuberculosis rate has steadily declined.

Table XXXII.—Death-Rates at Ages 5-10 per Million Living from Various Causes, 1921-34.

	All Causes.	Diphtheria.	All except diphtheria.	Measles.	Tubercu- losis, all forms.	Diseases of Ear and Mastoid.	Pneu- monia.	Violence.
1921 1922 1923 1924 1925 1926 1927 1928 1929	2,759 2,562 2,252 2,302 2,470 2,427 2,332 2,329 2,461 2,282	542 411 282 253 308 374 309 372 392 410	2,217 2,152 1,971 2,049 2,161 2,053 2,023 1,957 2,069 1,872	47- 111 99 98 129 87 81 117 77 116	408 388 391 367 354 341 332 318 297 286	51 41 44 47 42 57 56 54 57 61	285 260 243 259 294 267 303 242 297 215	255 244 239 261 264 276 299 307 328 307
1931 1932 1933 1934	2,144 2,070 2,194 2,428	320 298 377 610	1,824 1,773 1,817 1,819	90 103 61 133	263 243 224 225	59 63 73 89	229 212 228 196	296 294 302 272

Mortality of the Aged.—The rapid increase in the relative magnitude of this section of the population continues to form an outstanding feature of our vital statistics. Persons over 70 years of age were 297 per 10,000 total population in 1911, 344 in 1921, and 426 in 1931, and were estimated as forming 455 per 10,000 in 1934.

The causes of death at ages over 70 are grouped, as in previous years, in Table XXXIII.

Table XXXIII.—Mortality over 70 Years of Age in 1911–20, 1921–30, 1932, 1933 and 1934, from the chief Causes of Death.

				ach Caus 1 Death		N	Iortalit;	y per 1,	000 Livi	ng.
	1911-20.	1921-30.	1932.	1933.	1934.	1911- 20.	1921-30.	1932.	1933.	1934
			MALI	es.					Series Tomas I	
Influenza (11)	20 81 148	26 107 205	23 119 308	37 116 317	9 125 335	2·3 9·4 17·1	2·8 11·8 22·7	2·6 13·2 34·0	4·1 12·8 34·9	0· 13· 34·
Cerebral Hæmorrhage (82, 96, 97, 99 and 100)	163 137 34 29 222 166	195 110 35 29 140 153	170 63 31 35 87 163	166 63 31 32 79 158	169 54 31 34 76 167	18·8 15·9 4·0 3·3 25·7 19·0	21·6 12·1 3·9 3·2 15·5 17·2	18·8 7·0 3·4 3·9 9·6 18·0	18·3 7·0 3·4 3·5 8·7 17·4	17· 5· 3· 3· 8· 17·
All Causes	1,000	1,000	1,000	1,000	1,000	115.5	110.8	110-5	110-1	104.
Cancer (45-53) Heart Diseases (90-95) Disease of Blood Vessels, including Cerebral Hæmorrhage (82, 96, 97, 99 and 100). Bronchitis (106). Pheumonia (107-109). Chronic Nephritis (131 and 132) Dld Age (162). Other Causes	157 149 32 21 248 129	105 223 181 117 34 23 165 121	109 322 170 69 33 29 111 127	108 329 159 70 32 27 100 124	118 347 170 56 32 29 99 138	8·7 15·2 15·5 14·8 3·2 2·1 24·6 12·7	10·2 21·6 17·6 11·4 3·3 2·2 16·0 11·7	10·2 30·2 15·9 6·5 3·1 2·7 10·4 11·9	10·4 31·6 15·2 6·7 3·1 2·6 9·6 11·9	15· 4· 2· 8· 12·
All Causes	1,000	1,000	1,000	1,000	1,000	99.0	97.0	93.8	96.1	88 - 8
lelomb oil bus red a langue Caronia		1	PERSO	NS.	ori in	1000				
nfluenza (11)	22/ 85 151	29 106 215	27 114 316	44 112 324	10 121 341	2·3 9·0 16·0	3·0 10·8 22·0	2·8 11·4 31·8	4·5 11·4 33·0	0 · · · · · · · · · · · · · · · · · · ·
		STATE OF THE REAL PROPERTY.	SCORES STATE			100	19.2			
Disease of Blood Vessels, including Cerebral Hæmorrhage (82, 96, 97, 99 and 100)	159 144 33 24 237 145	187 114 34 26 154 135	170 67 32 32 100 143	162 67 32 29 91 139	169 55 32 32 89 151	16·9 15·2 3·5 2·6 25·0 15·3	19·2 11·7 3·5 2·6 15·8 14·0	17·1 6·7 3·2 3·2 10·1 14·4	16·5 6·8 3·2 3·0 9·3 14·2	16· 5· 3· 3· 8· 14·

Centenarians.—Among the deaths registered during the year there were 76 of reputed centenarians, 6 of whom were males and 70 females. In the preceding three years the numbers were 91, 109 and 110 respectively. Particulars of the ages returned and of the regions concerned are given in Table XXXIV.

Table XXXIV.—Age at Death of Centenarians, 1934.

			M	ales.				Females					
	100 and over	100	101	102	103	104	100 and over	100	101	102	103	104	105
Greater London Remainder of South- East	3 2 - 1	- 1 1 - -		- - 1 - 1	1 111111		14 23 4 8 4 9 8	7 11 2 5 1 4 4	5 6 1 1 - 2 1	1 3 1 1 1 -	- - 1 1 2 -	1 - 1 - 1	2 - 1 - 1
England and Wales	6	2	_	2	_	2	70	34	16	9	4	3	4

CAUSES OF DEATH.

The causes of death of males and females at 18 groups of ages are stated in Table 21 for the whole country, and in Table 22 further detail of age is shown for all causes of significance at ages 0-5. In Table 23 deaths from each cause distinguished are tabulated by month of occurrence and by sex (but not by age). Table 23 differs from all others in referring to date of occurrence and not of registration. Table 21 includes the full International List of causes of death, as revised in 1929. Certain of the numbered items in it are subdivided, and where this occurs the letters (a), (b), &c., indicate subdivisions in international use, and numbers (1), (2), &c., subdivisions made without international agreement. All other abstracts of the causes of death are arranged in the form of the short list of causes adopted by the Registrar-General in consultation with the Ministry of Health for use during 1931-40. The relation of this list to the detailed International List, as revised by the International Commission in 1929, is shown at the head of Table 24.

The contents of every heading in both the short and the detailed list now in use are defined in the Registrar-General's "Manual of the International List of Causes of Death" (1929 Revision),* which should be consulted in all cases where it is desired to ascertain

the precise significance of any heading in the lists.

Where two or more causes of death are jointly stated, the classification of the death to one or other of the causes in the International List is carried out in conformity with rules of selection, whose general principles are laid down in the Manual. Thus, with certain exceptions, deaths from violence associated with disease are classed to the appropriate violent cause, and deaths from an infectious disease associated with a local disorder such as a cardiac or renal lesion are classed to the infectious disease. Deaths are therefore not always classed to the immediate cause, but in some instances to a more remote one leading up to it. These rules for selection have not been seriously modified since 1901, so that continuity in the

resulting tabulation has been maintained. Sufficient understanding and experience of the new form of certificate, introduced in 1927, has first to be gained before replacing the code of selective rules by the expressed opinion of the certifier. However desirable it may seem to make the change at once for certain combinations of causes, the importance of safeguarding the continuity of the statistics of causes of death must outweigh such considerations until the quality of certification is such as to justify reliance upon the order of statement for all combinations of causes. Special secondary tabulations according to the associated cause are made for deaths connected with anæsthetics, alcoholism and childbearing.

In Table 24 deaths are shown for the several geographical regions of the country, for urban and rural portions of administrative counties, and for county and metropolitan boroughs, arranged by sex, age, and the short list of causes as set out at the head of the table. The same information, though not by age, is also available for each individual administrative area.

In addition to the above tables, which relate exclusively to the year 1934, Table 6 contains a statement of the number of deaths registered in each year 1924-34 from each cause distinguished in Table 21 so far as available, with distinction of sex but not of age; while Table 7 states the corresponding crude death-rates per million living for persons, males and females, so far as these can be regarded as of any significance, no rates being shown for causes which give a rate of less than five per million population. But the crude rates in Table 7 are liable to be misleading as indices of the progress of mortality even where their numerical basis is adequate. Owing to the rapid ageing of the population at the present time as a result of simultaneous fall in birth and death-rates the rates shown in Table 7 for causes mainly affecting old people tend automatically to increase, and thus to overstate mortality from such causes as cancer, cerebral hæmorrhage and heart disease. As this overstatement had become seriously misleading in many cases, Table 8 was inserted to correct it by showing the course of mortality from each cause dealt with when allowance is made for such population changes by standardization (see page 1). Owing to the clerical labour involved in the preparation of these rates the list of causes in Table 8 is much shorter than that in Table 7, and rates are shown only for males and females separately. Standardized rates for both sexes jointly are given for a few causes in Table 9. Tables Nos. 11 and 12 state the mortality during the eleven years 1924-34 of infants under one year of age from the causes of chief importance at that age, but without distinction of sex.

1, 2. Typhoid and Paratyphoid Fevers.—The number of deaths classified to this heading during 1934 was 159. Of these, 25 were ascribed to paratyphoid infection, forming 16 per cent. of the total compared with 18 per cent. in the preceding period of 5 years.

^{*}Copies may be obtained from H.M. Stationery Office. Price 3s. net.

The standardized rate corresponding to these deaths, 4 per million persons living (Table 9), is the lowest recorded. This rate is quite trifling compared with those of earlier years, the rate for 1871-75, for instance, having been 371 per million, or over 90 times that for 1934.

The distribution of this mortality throughout the country is outlined in Table XXXV.

Table XXXV.—Typhoid and Paratyphoid Fevers; Mortality, Prevalence and Fatality at all ages. Measles and Whooping Cough; Mortality at ages under five years, and Proportion of Deaths occurring in the First One or Two Years of Life, 1934.

		yphoid a yphoid F		Mea	sles.		ooping ugh,
calus elvadable calus elvada suspice di destina distinationalies	Deaths per million living.	Cases† per million living.	Deaths per 1,000 cases noti- fied.	Deaths per 100,000 living at 0-5.	Deaths at 0-2 per cent. of those at all ages.	Deaths per 100,000 living at 0-5.	Deaths at 0-1 per cent of those at all ages
England and Wales	4	30	131	114	57	67	44
South-East Greater London Remainder of	4 3	29 26	128 128	139 200	57 60	62 73	39 37
South-East	4	33	127	44	45	46	43
North I	6	36 96	120 65	150 165	58 52	71	42 49
" II	7	36	196	176	62	37	60
,, III	5	18	254	138	61	52	41
" IV	3	25	118	144	59	86	38
Midland Midland I	5	22 23	191 221	56 45	53 58	76 88	49
TT	2	20	125	77	47	51	52
East \dots	4	37	103	81	43	66	46
South-West	4	38	115	42	52	49	54
Wales	2	16	150	40	44	66	55
Wales I	2 4	13	125	43	44	55	55
" II	4	23	188	29	43	100	56
County boroughs* Other urban dis-	4.	24	150	129	58	85	44
tricts*	4	30	133	78	52	54	44
Rural districts*	5	45	113	53	50	51	53
Greater London :—		-52.00	19 4 1241		1 () () () () () () () () () (
Admin. County	4	30	117	289	62	102	37
Outer Ring	3	22	144	118	55	46	39

^{*} Excluding Greater London.

The highest mortality rate in 1934 for any region is that for North II. North I follows next, and Wales I and Midland II show the lowest rates. Excess of mortality in the small towns had been

the general rule during the twenty years preceding 1933, but in 1934 the rural districts outside Greater London had a rate of 5 per million, the small towns 4, and county boroughs 4.

Prevalence (Table 26) was 3 per 100,000 living, the lowest rate recorded. The fatality rate (Table XXXVI) was above the rates of the four preceding years. The distribution throughout the various regions in 1934 is also shown in Table XXXV.

Prevalence was highest in North I and lowest in Wales I. Fatality was highest in North III. The proportion of paratyphoid to total notifications ranged from 25.6 in Wales to 33.8 in the South East, 34.3 in the South West, 34.9 in the Midlands, 41.8 in the East, and 42.9 per cent. in the North.

Table XXXVI.—Fatality of certain Infectious Diseases (Deaths per 1,000 Notified Cases), 1911-34.*

Year.	1. Enteric (typhoid and para- typhoid) fever.	6. Small-pox.	8. Scarlet fever.	10. Diphtheria.	15. Erysipelas.	16. Poliomyelitis (including polioencepha- litis).	17. Encephalitis lethargica.	18. Cerebro- spinal fever (meningo- coccal meningitis).
1911	174	78·0	18·1	103	39	?		?
1912	191	73·2	18·6	96	39	?		?
1913	182	87·0	16·1	88	35	283		1,089
1914	194	61·5	17·2	99	42	348		1,257
1915	199	141·3	18·6	107	46	331		630
1916	174	113·2	17·8	101	39	270	?	656
1917	205	333·3	15·3	100	43	469	?	663
1918	201	30·8	20·5	106	47	1,004	?	673
1919	147	77·6	14·7	90	42	297	533	727
1920	171	114·1	12·0	81	52	404	539	911
1921	158	15·9	9·5	72	55	314	493	1,007
1922	191	27·7	12·7	78	53	352	742	1,047
1923	140	2·8	11·6	68	50	185	517	934
1924	120	3·5	10·5	60	52	183	279	746
1925	139	1·7	10·8	58	57	370	520	876
1926	133	1·8	8·3	59	55	181	583	926
1927	103	3·2	6·8	52	56	203	713	911
1928	124	4·3	5·7	52	55	306	819	1,061
1929	133	3·6	6·0	55	58	263	999	882
1930	106	2·4	6·7	47	56	212	1,241	938
1931	110	1·6	6·6	53	66	247	1,471	650
1932	101	1·5	6·2	54	68	237	1,463	568
1933	126	3·2	5·6	56	66	253	1,887	556
1934	131	33·5	6·3	59	71	201	1,917	666

[†] Including cases in Port Sanitary Districts.

^{*} The rates in this table are given with reserve, being in some respects unsatisfactory. For the years 1911-13 cases of disease among non-civilians have been excluded from the notification returns, but it has not been possible to distinguish their deaths; for the years 1920-1925 inclusive both cases and deaths relate to civilians only; for all other years the figures relate to the total population.

The numbers relating to small-pox in some years are too small to yield significant rates, but their basis of fact can be ascertained from Tables 6 and 28, and the rates quoted serve to bring out the extremely mild type of disease prevalent in 1921-33. The rates for poliomyelitis include polioencephalitis, which was not distinguished in the notification returns until 1919. The extraordinary rise in 1918 is partly ascribable to certification of a number of deaths from the then "new disease," encephalitis lethangica, as polioencephalitis, but mainly to a reduction in notifications unaccompanied by significant change in the number of deaths (see Report for 1918). The rates from this disease will be found to differ from some of those published in the Annual Reports of the Chief Medical Officer of the Ministry of Health, partly because polioencephalitis is included throughout and partly because special inquiries made by the Ministry in certain years have led to revision of the returns for those years, which is not embodied in Table XXXVI. The cases there referred to are similar for each year dealt with, being in all cases derived from the published notification returns. The latter source of discrepancy applies also to cerebro-spinal fever, and in this case there is a possibility that some cases of posterior basal meningitis may not have been notified as cerebro-spinal fever though all such deaths are included in the table.

The highest mortality rate recorded in Table 10 is, for counties of over 100,000 population, 15 per million in Cumberland and 14 in Cambridgeshire. The county boroughs with highest rates are Worcester (38), Chester (25), Burton-upon-Trent (21) and Dewsbury (19).

6. Small-pox.—The deaths allocated to this cause numbered 6. The mortality record for this disease is contained in Table 9, which shows that the standardized rate for 1934 was less than 0.5 per million, indicated by 0 in the table, as in seventeen other years since the 1901–05 epidemic. In the remaining eleven of these years the rate has been one per million.

Of the 6 deaths classed to small-pox, 4, occurring in Blackburn, were described as variola major; of the other two, a male, aged 16 in Southwark and a female aged 57 in Havant, the type was not

specified in the records of death.

The notified cases numbered 179, compared with 631 in 1933 and 2,039 in 1932, and of these 149 occurred in Greater London, and 23 in Blackburn.

Owing to the outbreak of variola major at Blackburn the fatality rate based upon the total deaths and notifications in England and Wales was enhanced to 33·5 per 1,000 cases, compared with 3·2 in 1933 (Table XXXVI).

7. Measles.—The deaths registered from this cause numbered 3,768 corresponding to a mortality of 93 per million population. But allowance for decreased proportion of children in the present population increases the rate on standardization from 102 to 151 for males and from 85 to 139 for females. The death-rate for children under 15 years of age, 390 per million, is seen from Table 9 to be the highest since 1930.

The distribution throughout the country of mortality from measles is stated in Table XXXV in the form of death-rates per 100,000 living at ages 0–5. Deaths at these ages in 1934 formed 87 per cent. of the total, and statement in this form prevents the comparison being prejudiced by varying proportions of children in the populations compared. The regions showing the highest rates

were Greater London and North II.

The Table also demonstrates to what an extent measles mortality is enhanced by urban conditions, the county borough rate of 129 being almost $2\frac{1}{2}$ times that in the rural districts, a similar gradation with urbanisation having been evident in each of the 24 years for which the facts are available. The proportion of deaths which occurred at ages under 2 years was 50 per cent. in the rural districts and 58 per cent. in the county boroughs, and was higher in the North, Midland I and Greater London than in the less urbanised areas.

The relations of combined measles and whooping cough mortality at ages under 5 to latitude and to overcrowding were referred to in the Review for 1932 (Table XXVII and Diagram 2). Owing to

large annual fluctuations in local mortality from these diseases. average rates over a long period of years must be used in order to obtain a reliable measure of the association between these factors and mortality from each disease separately. The averages of the annual death-rates from measles per million children living at ages under 5 during the 14 years 1921-34 in each county borough have been used for this purpose in Table XXXVII, where the 83 towns have been grouped according to their latitude and the proportion of their populations living at densities of 2 per room or over in 1931. The means of the death-rates in the county boroughs comprising each group are found to increase very greatly with the overcrowding rate in each zone of latitude, as may be seen by following the rates down each vertical column of the table. Within each of the zones bounded by 51-52°, 52-53° and 53-54° of north latitude the average mortality risk from measles to children under 5 is about 3 times as great in towns having more than 12 per cent. of their population living at densities of 2 or more per room as in towns having less than 3 per cent. living at such densities.

Table XXXVII.—Average Annual Death-Rates from Measles per 100,000 Children aged 0-5 during 1921-34 in the County Boroughs distributed according to Rate of Overcrowding and Latitude.

Per cent. at density over		Degre	es of No	orth Lati	tude.		All
2 per room in 1931.	50°-	51°-	52°-	53°-	54°-	55°-	latitudes.
0 3 6 9 12	21 85 102	53 90 99 — 177	72 91 121 199 195	57 121 141 214 157 204	106 168 269 224	199	53 100 128 198 194 212
All	67	93	106	152	167	199	127

Amongst towns with a similar index of overcrowding the lowest rates occur in the south-coast towns (50°-) in each instance, but as the rates are then followed further north, that is to say horizontally across the table, it is evident that mere northerliness of situation, when thus divorced from its accompanying increased housing density, has no important effect upon measles mortality.

During 1921–34 the highest average rates at ages under 5 were given by Liverpool with 3,325 deaths per million, Sunderland (2,866), Wigan (2,826) and Middlesbrough (2,682). The lowest rates were those of Bournemouth (208), Eastbourne (209), Canterbury (323)

and Southend (413).

Table 10 shows that, of administrative counties with over 100,000 population, Yorkshire North Riding returned the highest

death-rate at all ages in 1934, 217 per million or more than twice the rate for England and Wales, London with 202, Durham with 141, and Northumberland with 133, coming next. The highest county borough rates were—Middlesbrough 717, Barnsley 645, Bootle 352 and West Ham 340.

8. **Scarlet Fever.**—Deaths registered from this cause numbered 963, smaller numbers having been recorded in 1917, 1924 and each year 1926 to 1933. The rate at ages under 15, 83 per million living, was also greater than in those years and 1918.

The progress of the decline from the maximum decennial rate of 1861-70 (Table 9) may be traced in the following statement of proportionate figures for subsequent periods, taking the rate of 2,617 in that decade as 1,000-1871-80, 729; 1881-90, 345; 1891-1900, 168; 1901-10, 119; 1911-20, 54; 1921-30, 28; 1931. 17; 1932, 18; 1933, 24; 1934, 32. The records of individual years since 1881 indicate that, ignoring increases which were not maintained over at least two years, the downward trend has been interrupted by short periods of rising rates, such periods being 1888-90, 1891-93, 1898-1902, 1911-14, 1917-20, 1928-30 and 1932-34. Save in 1934 each successive maximum has been lower than the preceding one. It is noteworthy that several of the periods of increase were coincident with similar periods of rise in the diphtheria-death rate (1891-93, 1912-14, 1917-20, 1928-30, 1932-34.) Prevalence increased by 17 per cent. in 1934 compared with the preceding year, whereas mortality increased by 33 per cent.

Table XXXVI shows that the fatality ratio of deaths to notified cases was $6\cdot 3$ in 1934 compared with a mean rate of $6\cdot 2$ per 1,000 cases notified in the preceding five years. This rate is one-third of that at the commencement of the record in 1911, when the notifications were first tabulated, scarlet fever and small-pox showing much the greatest declines of fatality in the Table.

The distribution of the disease according to urbanisation and geographical location is given in Table XXXVIII. Increased prevalence compared with 1933 is recorded in every region except Greater London, North IV and Wales I, the percentage increase in the notification rate ranging from 17 in the South West to 77 in the East. In London Administrative County there was a 15 per cent. decrease in prevalence with a 16 per cent. fall in mortality. The death-rate fell also in North IV and the South West and remained the same in Wales II, but increased in the other regions.

The notification rate was greatest in North I, followed by North III, and lowest in Wales II, and showed as usual an increase with urbanisation from 304 in the rural districts to 434 in London Administrative County. The fatality ratios were lowest in Midland II, Greater London and the South West, and highest in North I and Wales II.

Table XXXVIII.—Scarlet Fever and Diphtheria, 1934: Mortality at All Ages under 15 Years, Prevalence and Fatality at All Ages.

	14,384(1)	Scarlet	Fever.		D	iphtheria	
A STATE OF THE STA	Deaths per million living at 0-15.	Cases per 100,000 living at all ages.	Deaths per 1,000 cases noti- fied.	Deaths at 0-5 per 100 at all ages.	Deaths per million living at 0-15.	Cases per 100,000 living at all ages.	Deaths per 1,000 cases noti- fied.
England and Wales	83	376†	6.3	42	402	170†	59
South-East	73 75	385 433	5·3 4·4	35 39	379 450	180 223	49 46
East	69	310	7.1	31	269	115	58
North	122	436	7.9	49	561	211	68
North I	268	763	11.5	53	357	160	68
,, III	67	338	6·2 7·3	33	645	196	88 67
737	127 66	463 321	5.8	55 39	756 521	276 196	65
Midland	53	329	4.9	38	222	114	53
Midland I	65	351	5.4	35	254	130	53
" II	31	287	3.5	50	159	85	50
East	55	330	5.6	29	166	66	72
South-West	22	194	4.7	26	184	81	53
Wales	73	326	7.3	44	509	202	69
Wales I	80	375	7.0	51	553	216	72
" II	49	190	9.2	17	369	165	57
County boroughs*	79	389	5.8	44	479	206	59
Other urban districts*	92	366	7.3	46	403	141	73
Rural districts* Greater London :—	82	304	8.7	37	222	95	64
Admin. County	63	434	3.7	41	511	281	40
Outer Ring	87	432	5.2	37	392	163	57

^{*} Excluding Greater London.

Children under 5 provided $42\cdot3$ per cent. of the deaths, compared with $44\cdot2$ in 1933 and $45\cdot7$ in 1932. The death-rates per million living at ages 0–5, 5–10, 10–15 and 15–20 respectively were 142, 97, 24, 14, compared with 89, 52, 18, 9 in 1931–33, 87, 59, 19, 8 in 1926–30 and 154, 93, 30, 15 in 1921–25. It was shown in the Review for 1933 (p. 50) that the rate of fall in mortality risk has been greater for younger than for older children, the 1931–33 mortality rates at the four ages being 1·9, 2·4, 3·6 and 5·9 per cent. respectively of the corresponding rates in 1861–70. The death-rates in the first 4 quinquennia of life were in the ratio 100:42:10:4 in 1891–1900, and by 1926–30 this had changed to 100:68:22:9. In 1934 the ratio was 100:68:17:10.

Table 10 shows that, amongst counties with over 100,000 population, mortality was highest in Durham (102 deaths per million) and Northumberland (75).

[†] Including Port Sanitary Districts.

The highest rates amongst the county boroughs (average 23) are those of Gateshead (138) and Sunderland (96).

Scarlet fever prevalence, as indicated by the average notifications per annum to each 1,000 persons living during 1931–34 is compared with that during 1921–24 in each county (including the associated county boroughs) in Table XLVI. In the country as a whole prevalence changed little in the interval, being 2.72 per 1,000 in 1921–24 and 2.79 in 1931–34. The counties manifesting a change in rate exceeding 15 per cent. during the ten years are found to group themselves into areas as follows:—

Increases excee	eding 15	per cer	Decreases exceeding 15 per cent.					
Northumberland			63	Cumberland		0.000		26
Durham			55	Westmorland				26
Yorkshire, N. Rid			17					-
,, W. Ric		786	24	Cheshire		Roth		33
, E. Rid			63	Flint		macro lega	of the same	23
Leicester			55	Derby				25
Lincoln, Lindsey			34	Stafford				28
, Kesteve			132	Ctanora				20
,, Holland		200	47	Rutland				48
Huntingdon	1876		211	Northampton		•		46
Cambridge			63	Oxford				45
Suffolk, East			60	Berkshire	• •			26
,, West			76	Buckingham	••	•	••	18
Bedford	981		46	Gloucester	• •			38
Essex			24	Somerset	• •			25
Doscar			27	Somerset	• •			20
				Anglesey				40
Cornwall			74	Caernarvon	• •		1.4	31
Devon	•		49	Merioneth	• •		•	
D 1		• • •	80		••		•	48
Pembroke	909		00	Montgomery	• •			58
				Radnor	• •			17
Monmouth				Carmarthen	• •	*******		31
Monmouth			57	T-1 C XXV: -1-4				
				Isle of Wight	• •			53
Sussex. West			49	Norfolk				24

It is noteworthy that increases ranging from 17 to 211 per cent. occurred in all the counties adjacent to the East Coast north of the Thames with the exceptions of Norfolk and Ely. Despite these increases, however, the rate of prevalence in 1931–34 exceeded the average for England and Wales only in half of the counties of this eastern group. Decreases occurred in most of Wales and in the Midlands.

The correlation of this distribution of scarlet fever by counties with those of erysipelas and puerperal fever in the same periods is referred to on page 63.

9. Whooping Cough.—The deaths allocated to this heading numbered 2,049 (863 males and 1,186 females). The excess for females is shown by Table 6 to be a constant feature of this disease, and tends to increase with age. The percentage ratios of the

numbers of female deaths to male deaths in 1934 are 112 at 0–3 months, 121 at 3–6 months, 146 at 6–12 months, and 126, 131 and 258 in the second, third and fourth years of life respectively, the ratios between the death-rates being slightly higher owing to the excess of males at risk at these ages. An increasing female excess after 3–6 months, at which age the excess is scarcely appreciable when averaged over a period of years, has been a constant feature of the records of the last four decades.

The standardized death-rates, 67 for males and 94 for females (Table 8), are the lowest recorded except in 1930, this being true also of influenza mortality, with which, as was shown in the Review for 1933, whooping cough mortality has tended in recent years to be associated to some extent.

The death-rate per million living at ages under 15 reached a maximum of 1,511 for the five years 1866–70, after which, with a single exception, the quinquennial rates progressively declined to 387 in 1926–30. In 1934 the rate was 214 (Table 9).

The distribution of mortality at ages under 5 and the proportion of deaths under 1 year of age are given in Table XXXV. The average rates of the 5 years 1926–30 and the annual rates since 1931 at ages under 5 are:—

	London.	County	Urban	Rural
950 - 55 50		boroughs.	districts.	districts.
1926–30	130	133	106	90
1931	99	105	71	52
1932	116	121	88	72
1933	111	79	64	68
1934	102	85	54	51

Wales II, Midland I and North IV registered the highest mortality and North II and the remainder of South East the lowest.

North II showed the highest proportion of deaths at ages under 1 year. Only 37 per cent. of Greater London deaths were of children under 1 year of age compared with 53 per cent. in the rural districts.

When the county boroughs are grouped according to the zone of latitude in which they are situated and the rate of overcrowding, as in Table XXXIX, the average mortality at ages under 5 during the 14 years 1921–34 increases step by step with the overcrowding rate in the southern towns (50°–52°), and a similar increase is noticeable amongst towns in the most northerly counties (54°–55°), but this is less evident in the intermediate area.

It may be of some significance that the sex ratio of average female to male death-rate in the 12 towns with 12 per cent. or over of their populations living 2 or more per room was $1\cdot41$, compared with $1\cdot28$ in the remaining towns and $1\cdot30$ in all the county boroughs.

Although there is evidence of a northward increase in deathrates amongst the towns having less than 6 per cent. overcrowded, there is less indication of this amongst the other groups of towns. Table XXXIX leads to the conclusion that overcrowding or the unsatisfactory social and economic conditions which are responsible for it, are in general more important in their effects on urban mortality from whooping cough than is northerliness of situation in England and Wales.

Table XXXIX.—Average Annual Death-Rates from Whooping Cough per 100,000 males and females aged 0-5 during 1921-34 in the County Boroughs, distributed according to Rate of Overcrowding and Latitude.

		and	Lauru	10.	permit i				
Per cent. at	na bol	Degrees of North Latitude.							
density over 2 per room in 1931.	50°-	51°-	52°-	53°-	54°-	55°-	All latitudes.		
and the state of the		Males,							
0 3 6 9 12 15-18	51 66 85 — 65	53 87 100 — 166 91	101 90 150 62 100 —	57 109 129 152 98 109	74 113 135 149	95	69 91 124 134 107 139		
2.7	1. 193	1	Female	s.			55641 55741		
0 3 6 9 12 15-18 All densities	68 82 92 80	59 106 125 — 218	118 129 177 111 161 —	87 144 158 194 140 137	97 154 213 202 181	155	87 119 152 174 163 190		

10. Diphtheria.—The 4,085 deaths in 1934 include 1,971 males and 2,114 females. A female excess is shown also by the standardized death-rates (Table 8), as in each year since 1919 except 1922 and 1931, though the crude death-rate (Table 7) is generally higher for males. For 1934 the crude rates were 102 per million for males and 100 for females, and the standardized rates 134 for males and 144 for females.

The history of diphtheria mortality is best expressed by the death-rate from diphtheria and croup at ages under 15 in Table 9, for during last century much diphtheria was evidently returned as croup, and the larger proportional child population in itself tended to produce a higher crude death-rate at all ages. In 1861–65 this rate was 1,422 per million, but fell to 891 in the next quinquenniu m and the 5-yearly rates then showed only slight fluctuations unti

the end of the century. The downward trend of annual rates since 1900 has been interrupted by short periods of increase. These occurred in 1912–14, 1917–20, 1924–26, 1927–30 and 1932–34, a contingent rise in scarlet-fever mortality occurring in four of these periods. The rate in 1934, 402 per million living under 15, is above that of the twelve preceding years. (Table 9.)

The annual mortality rates since 1901 at different ages shown in Table XL indicate a much greater proportionate decline in infancy

Table XL.—Diphtheria and Croup Mortality—1901-1934.

Table	, 1211.	Dipinui	OZZC CC								
Year.	Deaths per 100,000 live births.	ning 8 8 Das 191 Las Coins Malida	Deaths per 100,000 living.								
	Age 0-	1-	2-	3-	4-	5-	10-	15-	25 and up.		
1901 1902 1903 1904 1905	59 49 37 38 34	160 132 111 105 96	? 156 118 104 106	? ? 136 126 119	? ? ? 122 113	80 71 54 53 50	14 11 10 8 8	3 2 1 1 1	1 1 1 1		
1906 1907 1908 1909 1910	38 30 31 32 22	102 92 82 82 82 65	104 100 88 89 67	129 123 110 103 78	122 112 110 93 80	58 52 53 49 40	8 9 9 7 6	1 2 1 1 1	1 1 0 0		
1911 1912 1913 1914 1915	26 19 24 28 27	70 60 61 79 77	75 66 64 86 92	90 76 81 105 106	96 76 76 106 103	48 43 46 60 59	7 8 8 11 12	1 1 1 2 2	0 0 0 1 1		
1916 1917 1918 1919 1920	23 23 24 21 26	72 58 63 56 84	81 71 76 74 96	99 86 88 89 106	101 83 91 92 110	54 45 50 56 62	10 9 10 12 14	2 2 2 2 2 2	0 0 0 0 1		
1921 1922 1923 1924 1925	23 25 16 15 17	62 68 39 36 40	73 70 46 44 41	96 78 51 49 50	89 75 51 47 59	54 41 28 25 31	13 11 7 5 6	2 1 1 1 1	1 0 0 0 0		
1926 1927 1928 1929 1930	18 17 21 22 19	43 40 47 44 49	44 42 46 53 53	48 47 49 58 58	54 51 59 58 61	37 31 37 39 41	6 7 8 10 12	1 1 1 2 1	0 0 1 1 1		
1931 1932 1933 1934	16 12 12 12	32 25 23 35	38 35 37 51	51 44 43 80	49 51 55 75	32 30 38 61	9 7 9 13	1 1 1 2	1 0 0 1		

and the pre-school ages than in later childhood. The rates of 1933 expressed as percentages of the average rates in 1904–6 were 33, 23, 35, 34 and 46 for the first 5 years of life, and 71 at ages 5–10. The mortality amongst infants under 1 year reached the low rate of 12 per 100,000 live births in 1932 and has remained at that level since. In the second year of life the 1934 rate was above that of the three previous years and for the third year of life lower rates than in 1934 were registered in 1923–28 and 1931–33. At ages 3–4 mortality rose from 43 per 100,000 living in 1933 to 80 in 1934, and at 4–5 it rose to 75, these rates not having been exceeded since 1921. At 5–10 the average rates during the 6 quinquennial periods from 1901–30 have been 62, 50, 51, 53, 36 and 37, followed by 33 for the triennium 1931–3, but in 1934 a rate of 61 per 100,000 was recorded which has only once been exceeded since 1902, namely, in 1920. The same is true of the rate of 13 for children aged 10–15.

The changes which have taken place in the relative incidence of diphtheria mortality at the various ages (Table XLI) as a result of the more rapid fall in mortality risk at the earlier ages are considerable. There has been a progressive shifting of mortality risks towards the school age, so that whereas 30 years ago the danger at ages 1–5 was double that at 5–10, the rates in terms of that at 5–10 are now only 57 per cent. at 1–2, 84 at 2–3, 131 at 3–4 and 123 at 4–5. A similar progressive change in the age distribution of mortality risks from diphtheria in childhood has been noticed in Prussia.*

Table XXXVIII shows that diphtheria mortality was highest in North III, followed by North II, and lowest in Midland II and the East. For the country as a whole, outside London, the rate increased regularly with urbanisation, and the London rate was also in excess of that for London's Outer Ring. It seems probable that diphtheria is still much more freely notified in some sections of the population than in others. Thus the frequency of its notification has been greater in London than in any of the regions or density aggregates separated in this table or its predecessors in each of the years 1916–34, with the exception of 1931 when the London rate was exceeded in Wales II.

A contrast between North I and the other Northern regions, both as regards prevalence and mortality, has been evident in each of the years 1931 to 1934 as shown below:—

		Noti		s per 10 ing.	0,000	Deaths per million living at ages 0-15.				Deaths per 1,000 notified.			
		1931.	1932.	1933.	1934.	1931.	1932.	1933.	1934.	1931.	1932.	1933.	1934.
North I North II North III North IV	4: ::	64 142 119 141	51 163 131 147	72 165 163 147	160 196 276 196	136 409 371 372	67 488 330 379	128 427 447 380	357 645 756 521	62 77 79 66	41 79 64 64	53 70 67 64	68 88 67 65

^{*} Reichsgesundheitsblatt X, Jan. 9, 1935, p. 24.

Table XII.—Diphtheria Mortality at Various Ages of Childhood as percentage of the Rate at 5-10 Years. 1901-34.

L	Jercenta	Se or me	Trace a	10 10 1	Ctars.	1001 01.	0.00
Year.	0-	1-	2-	3–	4-	5–10	10–15
1901	74	200	?	?		100	17
1902	69	186	220	?		100	15
1903	69	206	218	252	3	100	19
1904	72	198	196	238	230 -	100	15
1905	68	192	212	238	226	100	16
1906	66	176	179	222	210	100	14
1907	58	177	192	237	215	100	17
1908	58	155	166	208	208	100	17
1909	65	167	182	210	190	100	14
1910	55	162	167	195	200	100	15
1911	54	146	156	187	200	100	15
1912	44	137	153	177	177	100	19
1913	52	133	139	176	165	100	17
1914	47	132	143	175	177	100	18
1915	46	131	156	180	175	100	20
1916	43	133	150	183	187	100	19
1917	51	129	158	191	184	100	20
1918	48	126	152	176	182	100	20
1919	37	100	132	159	164	100	21
1920	42	135	155	171	177	100	23
1921	43	115	135	178	165	100	24
1922	61	166	171	190	183	100	27
1923	57	139	164	182	179	100	25
1924	56	140	176	192	188	100	20
1925	55	126	132	158	190	100	19
1926	49	116	119	130	146	100	16
1927	52	129	135	152	165	100	23
1928	54	127	124	132	159	100	22
1929	56	113	136	149	149	100	26
1930	46	120	129	141	149	100	29
1931	50	100	119	159	153	100	28
1020	40	83	117	147	170	100	23
1932	32	61	97	113	145	100	24
1934	20	57	84	131	123	100	21
							1 1 1

Recent bacteriological research suggests that under present conditions the fatality rate of an outbreak of diphtheria is largely dependent upon the proportion of cases infected by particular strains of C. diphtheriæ which may have a localised distribution. Table XLII is therefore introduced to show the trend, over a series of years, of prevalence and fatality indices in London, each county borough having a population exceeding 150,000 in 1931, and in the residue of each region surrounding these towns. Although local differences in the standard of notification of diphtheria may affect comparison of local rates in a given year, this factor is not likely to affect comparisons of the trend of prevalence or fatality in one town with the corresponding trend during the same period in another town. There are wide differences, both as regards prevalence and fatality, between towns of similar size and situation, such as Manchester and Liverpool, or Leeds and Sheffield.

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Table XLII.—Diphtheria prevalence and fatality rates in Certain Large Towns and Regions, 1926 to 1934.

			Notifie	ed Cases	per 10	0,000 liv	ving.					Deat	hs per 1	,000 No	tified C	ases.		1,011
	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934
ngland and Wales	131	133	155	159	184	126	108	118	170	59	52	52	55	47	50	7	-	
South-East: — London Admin. County Croydon C.B.	296	271	275	268	303	195	188	225	281	40	32	33	30	34	53 31	54 38	56	59
Portemouth C P	155	122 310	223	194	169	90	48	91	181	103	39	66	53	39	(24)	96	78	57
Southampton C.B.	204	150	360 194	317 214	255 232	151	97	77	136	70	65	61	33	27	35	(8) (9) 40	(46)	86
West Ham C.B.	221	302	342	265	282	122	119 105	161 182	419 291	58 19	39	58	68	69	60	(9)	(31)	28
Remainder of South-East	113	124	161	156	168	102	65	74	124	53	42 52	32 57	48 59	40	31 50	51	105	61
North I: Newcastle-on-Tyne C.B	73	78	96	95	78	42	55	33	137	82	67	(30)	48	(18)	(51)	(32)	56 (96)	59 61
Sunderland C.B	49	72	104	79	144	90	61	39	82	(88)	128	(11)	(62)	49	65	(44)	(41)	78
North II :- Kingston-upon Hull C P	250	84 253	132 225	121	119	65	49	81	172	87	79	62	63	56	63	42	51	69
Remainder of North II	72	74	82	279 64	280 80	361	534	473	333	24	43	31	44	54	82	78	60	60
North III :- Bradford C.B	114	116	97	139	117	69 82	42 106	63 129	151 288	88 58	58	42	75	62	69	83	96	109
Leeds C.B.	79	91	133	110	207	203	183	216	455	69	103 64	68 33	122 47	55 54	(36)	45	39	52
Sheffield C.B	201	164	159	146	134	80	79	189	272	52	38	40	45	29	88 (14)	54 (15)	83 20	70 30
Remainder of North III North IV:— Birkenhead C.B.	68	74	98	99	116	115	136	150	234	84	73	65	68	71	90	75	78	79
Rolton C P	87	105	90	67	167	152	172	241	472	(51)	(48)	(42)	(29)	103	102	39	41	38
Liverpool C R	175	79	61 218	40	45	25	24	60	54	121	71	153	(110)	(37)	(45)	(71)	(56)	116
Manchester C.B.	153	175	158	267 120	462 137	375	384	340	338	72	52	52	58	59	59	56	60	61
Salford C.B	215	204	173	288	317	95 257	140 329	134 350	169 414	88	69	79	63	55	82	76	85	65
Remainder of North IV	85	97	99	113	124	98	91	96	155	38 75	46 63	24 68	56 67	41 63	53 68	30 77	30	30
Midland I:— Birmingham C.B	247	211	218	238	235	178	117	83	156	50	31	33	36	37	35	30	69 38	74 53
Bristol C.B	186	169	153	289	369	207	134	157	182	62	49	28	57	27	37	41	34	23
Coventry C.B	74	144	162	265	293	114	64	81	108	(53)	113	168	88	85	57	(27)	74	65
Domaindan of Widland T	93	83 95	111 112	97 126	91	75	59	85	104	90	48	(19)	40	39	81	(31)	(30) 55	(21)
Midland II: Leicester C.B.	152	127	188	104	148	101	64 32	61 140	116	80	78	71	61	49	57	62	55	63
Nottingham C.B.	238	355	346	259	255	99	51	56	192 76	106	35 66	41 47	51 83	(30)	(53)	(92)	38	43
Remainder of Midland II	95	94	115	116	155	80	59	58	72	67	70	65	74	50	(15)	(66) 65	(38) 54	(28)
East	53	61	133	126	107	86	78	69	66	52	65	51	64	59	67	64	65	56 72
South-West:— Plymouth C.B. Remainder of South-West	152	197	217	264	318	191	212	165	186	116	62	76	48	37	46	45	53	45
Wales I Cardiff C B	108	46 179	81	113	159	82	66	63	70	49	63	59	69	56	51	52	61	55
Swances C R	151	122	248 239	328 266	321 290	264 289	221	215	235	66	37	28	41	40	41	20	40	40
Remainder of Wales I	142	123	163	179	238	163	190	172	200 215	57	70	41	39	23	23	(29)	(32)	(24)
Wales II	82	115	93	107	234	229	165	153	165	66	64 48	70 74	71 70	52 54	57 51	62 56	72 59	82 57

Note.—In London, notifications are transferred to the area of residence, but this is not the case in other towns.

Note.—Rates in parentheses are founded upon less than 10 deaths.

A tabular analysis of the distribution of the fatality ratio in successive years since 1926 was made in the Review for 1933 (p. 54).

Table 10 shows that the counties, with over 100,000 population, with highest mortality in 1934 were Monmouthshire (218 per million), Bedfordshire (209) and Yorkshire, North Riding (187). The highest rates among county boroughs (average 125) were those for Merthyr Tydfil (626), Warrington (494) and Bootle (469).

Table XLIII.—Influenza Mortality per million Population during the first 3 and last 9 months of each Year, 1921-34.

1981 501 2785 4:			790 004 7080	January-March.	April-December.
921	Harris .			356	198
922				1,854	133
923				240	214
924				1,322	213
925				783	175
926		* 1985		298	206
927		1000		1.827	147
928		1 20		332	152
				2,450	173
929		1 10.	421	225	94
930		. 83	182	958	167
931		· 82··	27.	926	133
932	· 22 ·	· El··	10x.		97
1933	. Bl .		120	1,995	96
1934				271	96

11. Influenza.—The deaths assigned to this cause numbered 5,619, 2,925 of males and 2,694 of females. The resultant crude mortality rate of 139 per million is reduced on standardization, by allowance for the increased age of the population, to 106 (Table 9), 122 for males and 91 for females (Table 8). Since the pandemic of 1918–19 this standardized rate is the lowest recorded, except in 1930.

Mortality in the March quarter of 1934 was 271 per million, this being a crude rate. As Table XLIII indicates, mortality in the latter nine months of the year has been subject to much slighter annual fluctuation than that in the first quarter.

The distribution of influenza mortality throughout the country is indicated in Table XLIV.

The highest regional rate is that for Wales II, followed by the South-West, Midland I and North I, while the lowest rates are those recorded for North III and Greater London. Mortality generally was highest in the rural districts, decreasing with urbanisation, though the rate in London Administrative County was higher than in the Outer Ring.

In these respects the mortality from influenza contrasts with the incidence of the epidemic diseases of childhood which follow an almost constant rule of increase with urbanisation. In 18 of the 24 years, 1911–34, for which comparison is possible, the highest mortality from influenza has been recorded in the rural districts.

Table XLIV.—Influenza; Mortality. Encephalitis Lethargica and Cerebro-spinal Fever; Mortality, Prevalence and Fatality, 1934.

Salada matalage	In- fluenza.	E	ncephali ethargic	tis a.	Cer	rebro-spi Fever.	nal
· · · · · · · · · · · · · · · · · · ·	Deaths per Million Living.	Deaths per Million Living.	Cases per Million Living.	Deaths per 100 Cases Notified	Deaths per Million Living.	Cases per Million Living.	Deaths per 100 Cases Notified
England and Wales	139	19	10†	192	18	27†	67
South-East Greater London Remainder of South-	125 119	12 10	7 5	186 202	13 15	21 25	61 58
East North	134 138 167	16 27 34	9 14 12	172 201 275	10 27 40	14 42 54	70 65
" II " III " IV	129 105 147	21 21 30	16 7 17	129 284 175	21 28 23	43 46 34	75 49 62
Midland I	154 167 129	18 17 18	9 10 7	207 182 275	17 17	22 18	67 78 91
East South-West Wales	122 170 166	23 21 18	13 17 7	179 122	18 9 12	30 14 17	62 62 69
Wales I	162 176	9 41	6 10	237 142 400	14 12 17	16 19 9	83 64 200
County boroughs* Other urban districts* Rural districts*	127 148 166	22 23 19	13 11 10	174 208	23 16	38 21	60
Greater Admin. Co. London Outer Ring	128 109	9 12	7 3	196 124 364	16 18 11	19 34 17	85 54 67

^{*} Excluding Greater London.

Complications of Influenza.—Deaths assigned to influenza in England and Wales are subdivided in Table 21 into four groups, No. 11(a)1" with pneumonic complications," No. 11(a)2" with other respiratory complications," No. 11(b)1" with non-respiratory complications," and No. 11(b)2" without stated complications." The percentage distribution in these groups at several ages is given in Table XLV both for 1933, an epidemic year, and for 1934 when influenza was at a low level. Deaths from pneumonic complications comprised about 45 per cent. of all influenza deaths at ages under 25 in 1934, compared with 61 per cent. in 1933. Amongst males over 25 and females over 65 the proportions at each age were virtually the same in the two years, but female deaths at 25-65 contained a

smaller proportion with pneumonic complications in 1934 than in 1933. Other respiratory complications comprised 18 and 21 per cent. in males and females respectively in 1934, compared with 24 and 27 per cent. in 1933, the proportion being lower at each age except for females under 25. Non-respiratory complications formed 26 per cent. in 1934 compared with 17 in 1933, a higher proportion being found in every sex and age group distinguished. The residual deaths, attributed to influenza without mention of any complications, formed 8 per cent. of all influenza deaths amongst males and 10 per cent. amongst females of all ages, but the proportions were considerably greater at ages over 75.

Comparison of the London deaths in 1933 with those for England and Wales as a whole reveals higher proportions with mention of pneumonia and lower proportions of influenza with no respiratory

Table XLV.—Deaths classed to Influenza with Various Complications, by Sex and Age. Numbers of deaths in London, 1933, and percentage of all Influenza deaths, England and Wales, 1933 and 1934.

soluni, ili, imakelen		200	1.11	MALE	s.					F	EMAL	ES.	12(2)	
here was all 100 Mil a	0-	5-	25-	45-	65-	75 & up.	All Ages.	0-	5-	25-	45-	65-	75 & up.	All Ages.
SCHOOL WEST SERVICES				9 S	Per	ent. o	f total	Influe	nza I	eaths.				
England and Wales, 1933. 11a1 With pneumonic complications	60	61	69	56	43	31	52	62	61	63	53	40	30	45
other respiratory complica- tions	13	10	14	25	29	37	24	10	8	15	22	32	38	27
tions 11b2 Without stated complications	20 7	23 6	12 5	14 5	19 9	15 17	16 8	20 8	25 6	17 5	19 6	19	15	18 10
England and Wales, 1934. 11a1 With pneumonic complications 11a2 ,, other respiratory complica-	41	50	67	56	43	30	50	43	44	55	45	41	28	41
tions	8	7	10	18	22	32	18	11	12	10	16	24	32	21
tions 11b2 Without stated complications	38 13	35	20 3	6	25 9	24 14	24 8	37 9	37	29	31 8	26 9	23	28 10
rable warrange bedd c				STATE STATE	7 , 13: 17:	111	No. of	death	s.	in in a	: 30	183 ·		
London Admin. County, 1933. 11a1 With pneumonic complications 11a2 , other respiratory complica-	20	33	144	285	87	60	629	18	32	109	216	119	143	637
tions	3	4	201	114	44 2 1	60 2 3	245 8 5	3	6	24 - 2	51 1 3	63 6 2	144 7	291 14 7
,, other non-respiratory complications	4 5	12	8 10	23 11	32	17 24	96 59	10 3	5	16 7	42 14	34 16	49 46	156 87
Total classed to Influenza	32	50	183	437	174	166	1,042	34	44	158	327	240	389	1,192
-manual of rails bits					Per	cent.	of total	l Influ	ienza	deaths			ii	
11a1 With pneumonic complications	62	66	79	65	50	36	60	53	73	69	66	50	37	54
tions	9	8	.11	26	25	36	24	9	14	15	16	26	37	24
non-respiratory complica- tions	13	24	5 5	6 3	20 5	13 15	10	29	11 2	12	14	17	14 12	15 7

[†] Including Port Sanitary Districts.

complications. The numbers of deaths with mention of certain special causes in association with influenza amongst the London deaths in 1933 are stated below: encephalitis or encephalomyelitis 5, epilepsy 5, other nervous diseases (excluding cerebral vascular lesions) 48, peptic ulcers 6, peritonitis 4, other digestive diseases (including "gastric influenza") 37, diabetes 16. Some of these were mentioned in combination with respiratory complications and are included in groups 11(a)1 or 11(a)2.

15. Erysipelas.—Deaths attributed to erysipelas numbered 1,458, 789 of males and 669 of females, corresponding to standardized death-rates of 34 per million for males and 27 for females. These rates attained their lowest level in 1923, 15 and 14 respectively, but in recent years mortality has increased (Table 8). It may be noted that a similar course has been followed by the standardized rates for carbuncle and boil (No. 151), which have been higher since 1932 than in any of the preceding 14 years. The standardized rates for cellulitis (No. 152:1) have also increased for males from 13 in 1932 to 18 in 1934, and for females from 9 to 13. The rates for diseases of the ear and mastoid, fatal cases of which are almost entirely infective, have also risen from 35 for males and 26 for females in 1924 to 57 and 42 respectively in 1934.

At ages under 5 the erysipelas death-rate per 100,000 living was 9 in 1896–1900, 8 in 1901–5, 6 in 1906–10, 4 in 1915–20, and 3 in 1923, but then rose to 10 in 1933, with a slight improvement to 8 in 1934. In infants under 1 year the rate per 100,000 births fell from 33 in 1896–1900 to 11 in 1923, and then rose to 26 in 1932 and 40 in 1933, falling to 32 in 1934. At ages 5–25 there has been no increase since 1923, the rates being only 4 per million, whilst at ages over 25 standardized mortality has increased from 22 to 50 per

million for males and from 18 to 32 for females.

The notification rate, which rose from 32 per 100,000 in 1923 to 45 in 1929 and 1930 and then declined to 36 in 1932, has risen again to 45 in 1933 and to the high level of 51 in 1934 (Table 26). When the county rates are compared, there is considerable variation both in the present rates and in the extent of the recent increase compared with the rate of ten years previously (Table XLVI). The mean annual rate of prevalence, as measured by notifications, was 26 per cent. higher in the country as a whole in 1931-34 than in 1921-24. The county rates in the 4 years 1921-24 ranged from 2 per 100,000 in Radnor, 10 in Anglesey and 11 in Rutland, the Isle of Wight and Cardigan, to 44 in the West Riding of Yorkshire and 46 in Northumberland. In 1931-34 the range was greater, namely from 8 in Anglesey and 13 in Pembroke to 62 in Durham and 66 in Northumberland. In 1934 the highest rates for counties (with their associated county boroughs) were registered in Durham, Northumberland, Huntingdon, Warwick, Cumberland and London.

The percentage increase or decrease in notified prevalence from 1921–24 to 1931–34 is shown for each county in the last column of

Table XLVI. When the 24 counties whose average rate in 1931–34 exceeded that of ten years previously by 40 per cent. or more are grouped together according to their geographical position, they fall into four areas, namely (a) the 4 most northerly counties, Northumberland, Durham, Cumberland and Westmorland; (b) Lincolnshire (Lindsey and Holland), Norfolk, Suffolk East, Rutland, Huntingdon and Bedford; (c) the Welsh border counties of Denbigh, Flint, Montgomery, Shropshire, Radnor, Hereford and Monmouth, with Cardigan and Glamorgan and (d) Surrey, Sussex East and West, and the Isle of Wight. The counties registering a decrease are Berkshire, Cambridge, Suffolk West, Cornwall, Somerset, Anglesey, Caernarvon, Merioneth, Carmarthen and Pembroke.

Comparison with the behaviour of puerperal fever notification rates in the same table reveals some suggestion of association. For the country as a whole the percentage increase of 26 for erysipelas was matched by an increase of 33 per cent. for puerperal fever. Of the 34 counties in which the erysipelas rate increased to a greater degree than in England and Wales the puerperal fever rate also increased to a greater extent than in England and Wales in 29, whilst in the remaining 29 counties this only occurred in 18. Such association as there is between the distributions of rates in 1931–34 is indicated in Table XLVII where the counties are arranged according to a scale of prevalence of each disease simultaneously.

The only county combining a high erysipelas rate with a low puerperal fever rate is Durham, but there are several which combine a low erysipelas rate with a high puerperal fever rate, namely Cardigan, Hereford, Isle of Wight, Suffolk East and Sussex West. The counties in which both rates are high are Northumberland and the West Riding of Yorkshire, and those characterised by low rates for both diseases consist mainly of a number of Welsh counties and Cornwall, where notification may be less complete than elsewhere, an East Midland area comprising Cambridge, Ely, Rutland, Lincoln (Holland) and Suffolk West, and a South Midland group consisting of Buckingham, Berkshire, Wiltshire, Gloucester, Dorset and Somerset.

Table XLVI does not suggest any relation between the rise or fall during the ten years of erysipelas and of scarlet fever. Of 35 counties in which the scarlet fever rate was lower in the second period, 18 showed an increase in their erysipelas rates in excess of that in England and Wales, whilst of the 28 remaining counties (in which scarlet fever prevalence rose) 16 fell into that category. Distribution of the counties according to their rates for both diseases in 1931–34 shows that in no county was a high erysipelas rate combined with a low scarlet fever rate, and only in Monmouth was a low erysipelas rate combined with a high scarlet fever rate. The counties showing specially high rates of prevalence of both diseases were London, Durham, Northumberland and the West Riding of Yorkshire.

Table XLVI.—Case-Rates of Puerperal Fever, Scarlet Fever and Erysipelas. 1921-24 and 1931-34. Increase or decrease per cent.

	Pu	erperal Fe	ver.	S	carlet Fev	ver.	e ass	Erysipela	s.
COUNTY (including County Boroughs).		er 1,000 pirths.	Increase or decrease (-)	rate pe	e annual er 1,000 ing.	Increase or decrease (-)	rate pe	e annual er 1,000 ing.	Increase or decrease (-)
100 to 12.0 to 10.0 1974 San 100 to 10.0	1921-4.	1931-4.	of 1921-4 rate.	1921–4.	1931–4.	per cent. of 1921–4 rate.	1921–4.	1931–4.	per cent of 1921-4 rate.
ENGLAND & WALES Bedfordshire Berkshire Buckinghamshire Cambridgeshire Cheshire Cornwall Cumberland Derbyshire Devonshire Dorsetshire Durham Ely, Isle of Essex Gloucestershire Herefordshire	2·80 1·42 2·02 0·90 2·69 2·99 1·07 1·70 2·64 1·88 2·00 1·57 1·79 2·35 2·92 1·75	3·72 4·78 2·82 2·66 2·98 2·70 2·14 1·86 3·14 4·07 2·71 2·19 1·68 3·16 2·09 4·98	33 237 40 196 11 - 10 100 9 19 116 36 39 - 6 34 - 28 185	2·72 1·30 2·68 2·12 1·52 2·81 0·85 1·92 2·28 1·39 1·17 2·99 1·78 2·76 2·73 1·26	2·79 1·90 1·97 1·74 2·48 1·87 1·42 1·70 2·07 1·04 4·62 1·60 3·41 1·70 1·22	3 46 - 26 - 18 - 63 - 33 - 33 - 26 - 25 - 49 - 11 55 - 10 24 - 38 - 3	· 34 · 16 · 27 · 22 · 28 · 29 · 19 · 27 · 33 · 24 · 22 · 38 · 26 · 34 · 33 · 18	.43 .35 .25 .23 .19 .36 .15 .49 .39 .25 .62 .30 .41 .33 .28	26 119 - 7 5 - 32 24 - 21 81 18 4 14 63 15 21 0 56
Hertfordshire Huntingdonshire Kent Lancashire Leicestershire Lincolnshire	1·98 1·42 1·93 3·89 1·79	3·31 4·07 2·90 3·91 2·59	67 187 50 1 45	1·97 1·23 2·19 3·10 1·69	1·92 3·83 2·36 2·86 2·62	$\begin{bmatrix} -3 \\ 211 \\ 8 \\ -8 \\ 55 \end{bmatrix}$	·21 ·21 ·26 ·43 ·31	·29 ·37 ·35 ·52 ·42	38 76 35 21 35
Parts of Holland Parts of Kesteven Parts of Lindsey London Middlesex Norfolk Northamptonshire Northumberland Nottinghamshire Oxfordshire	0·52 0·46 1·27 3·55 2·97 1·48 2·96 1·85 2·04 2·76	1·92 3·19 3·76 4·26 4·39 2·03 4·67 4·78 2·61 4·60	269 593 196 20 48 37 58 158 28 67	1·31 0·94 1·19 3·94 3·54 2·55 3·66 2·99 1·83 2·68	1·92 2·18 1·60 3·87 3·31 1·94 1·98 4·86 1·95 1·48	47 132 34 - 2 - 6 - 24 - 46 63 7 - 45	·14 ·19 ·22 ·43 ·31 ·24 ·33 ·46 ·34 ·26	·28 ·26 ·35 ·58 ·37 ·35 ·42 ·66 ·42 ·36	100 37 59 35 19 46 27 43 24 38
Peterborough, Soke of Rutlandshire Shropshire Somersetshire Southampton Staffordshire Suffolk, East Suffolk, West Surrey Sussex, East Sussex, West Warwickshire Westmorland Wight, Isle of Wiltshire Worcestershire Yorkshire—	1·71 0·76 2·99 1·79 1·96 3·32 3·28 2·73 2·15 1·61 1·86 5·54 1·12 1·12 1·55 1·52	4·07 4·38 2·44 3·22 3·48 6·73 2·32 3·26 3·68 7·08 5·06 4·45 4·68 2·42 3·18	138 	1·57 1·41 1·95 1·65 2·64 2·98 1·72 0·95 2·63 1·76 1·85 2·87 2·28 2·11 1·88 2·22	1·62 0·73 1·67 1·24 2·39 2·15 2·75 1·67 2·39 1·71 2·75 2·82 1·68 0·99 1·63 2·56	3 - 48 - 14 - 25 - 9 - 28 - 60 - 76 - 9 - 3 - 49 - 2 - 26 - 53 - 13 - 15	·30 ·11 ·17 ·30 ·22 ·40 ·19 ·22 ·24 ·22 ·12 ·38 ·19 ·11 ·19 ·26	-92 -28 -26 -29 -30 -42 -30 -17 -34 -33 -26 -46 -33 -27 -24 -26	7 155 53 - 3 36 5 5 58 - 23 42 50 117 21 74 145 26 0
East Riding North Riding West Riding York, C.B.	2·48 0·97 3·58 1·20	2·56 4·39 4·78 3·42	3 353 34 185	1·21 2·82 2·59 2·71	1·97 3·31 3·22 2·99	63 17 24 10	·28 ·34 ·44 ·29	·34 ·44 ·51 ·40	21 29 16 38
Anglesey	0·77 2·93 0·87 2·95 1·94 1·81 1·45 2·39 0·95 1·92 1·93 3·65 1·19	1·70 2·64 2·31 4·72 2·78 3·99 4·10 6·16 1·66 2·36 3·78 1·66 3·90	121 - 10 166 60 43 120 183 158 75 23 96 - 55 228	1·41 1·18 1·18 1·53 2·11 1·99 2·46 3·10 1·38 3·00 1·58 0·91 1·69	0·85 1·34 0·81 1·31 1·45 2·03 1·90 3·17 0·72 4·71 0·66 1·64 1·40	- 40 14 - 31 - 14 - 31 - 14 - 31 - 2 - 23 - 28 - 57 - 58 80 - 17	·10 ·19 ·20 ·11 ·22 ·20 ·16 ·25 ·25 ·25 ·22 ·28 ·14 ·02	-08 -22 -16 -16 -21 -33 -29 -40 -22 -34 -41 -13 -22	- 20 16 - 20 45 - 5 65 81 60 - 12 55 46 - 7 1,000

Table XLVII.—Erysipelas and Puerperal Fever, 1931-34. Distribution of Counties (including associated County Boroughs).

	•05-	•20-	•35-	•50-	•65-
0		Rutland.			
1.5	Cambridge. Cornwall. Suffolk, West. Anglesey. Caernarvon. Pembroke.	Berkshire. Buckingham. Dorset. Ely. Gloucester. Lincs., Holland. Somerset. Wiltshire. Yorks, E. Riding. Brecknock. Carmarthen. Merioneth. Monmouth.	Cheshire. Cumberland. Kent. Leicester. Norfolk. Nottingham.	Durham.	
3.0	Percusal single	Devon. Hertford. Lincs., Kesteven. Soke of Peterboro' Shropshire. Southampton. Surrey. Sussex, East. Westmorland. Worcester. Denbigh. Flint. Radnor.	Derby. Essex. Huntingdon. Lincs., Lindsey. Middlesex. Stafford. Yorks, N. Riding. York C.B. Montgomery.	Lancashire. London.	
4.5	Cardigan.	Hereford. Isle of Wight.	Bedford. Northampton. Oxford. Warwick.	Yorks, W. Riding.	Northumberlan

16. Acute Poliomyelitis.—Deaths, including those from acute polioencephalitis, numbered 135, compared with 202 in the preceding year. The standardized death rate for males was 5 and for females the rate was 4 per million. The cases notified were 590 of poliomyelitis and 81 of polioencephalitis.

The death-rate at ages under 15 was 9 per million. This rate ranged from 9 to 16 in each of the periods 1911–20 and 1921–30, and was 13 per million in 1932 and 1933. The distributions of deaths according to age are compared in 1911 and 1926 when the rate reached 16 per million, in a pair of years 1920 and 1923 when the rate was 9 and in each of the last four years, in Table XLVIII.

An increase is noticeable in the proportion of deaths at adult ages over 25, which is greater than can be accounted for by the increasing proportion of persons living at these ages (51 per cent. in 1911, 59 in 1931). Although there is no evidence of any progressive change since 1911 in the age-distribution amongst children, the percentage of deaths at ages under 5 has declined since 1931.

Table XLVIII.—Acute Poliomyelitis and Polioencephalitis deaths at various ages per cent. of all ages, 1911, 1920 and 1923, 1926, 1931–34.

Year.	Rate per million	No. of deaths			Percent	tage at	differen	t ages.		
	at 0–15.	(all ages).	0-	1-	5-	10-	15-	25-	45 & up.	All
1911	16	224	9	35	23	12	11	6	4	100
1920, 1923	9	253	17	30	15	12	13	8	5	100
1926	16	235	8	33	18	9	21	8	3	100
1931	7	98	21	28	9	12	18	10	2	100
1932	13	178	6	27	20	15	16	11	5	100
1933	13	202	6	26	16	15	17	15	5	100
1934	9	135	4	21	19	16	15	15	10	100

Proportionate distributions according to age of the notified cases of poliomyelitis and polioencephalitis in London (extracted from the Public Health Reports of the County Medical Officer of Health) are shown below for 1926–29 and 1930–34, and for comparison the distributions of cases in Denmark in the periods 1920–25 and 1926–32, and in the epidemic years 1933 and 1934.

		No. of cases.	0-	5-	10-	15-	20-	25 & up.	All ages.
London	1926–29 1930–34		53 54	17 24	7	8 6	2	2 7	100
Denmark*	1920–25 1926–32 1933 1934		48 41 31 18	3	34 36 50 46	devices	18 23 19 36		100 100 100 100

* From Statistics furnished by the National Health Service of Denmark.

It is evident that, although there has been no recent change of any significance in the age-distribution of notified cases in London, yet in Denmark where major epidemics of the disease have occurred recently there has been a fall in the proportion of notified cases at ages under 5 and a corresponding increase at the later ages. A similar phenomenon has been noticed in New York†. This may be due to increased recognition during epidemics of the numerous aparalytic cases of the disease, especially amongst older children, which are almost impossible to identify at other times. The resulting drop in the fatality ratios of deaths assigned to poliomyelitis in Denmark to the notified cases, at ages 0-4, 5-14 and 15 and over,

during the epidemic year 1934 when compared with the ratios in 1933 is seen below:

escito de sen 1011s descito	1933.	-4. 1934.	5- 1933.	14. 1934.	15 and 1933.	d over. 1934.	1920-25.	All at 1926–32.	ges. 1933.	1934
Cases	112	845	176	2,168	68	1,698	530	527	356	4,711
Deaths	11	13	21	37	8	57	117	65	40	107
Ratio per cent.	9·8	1·5	11·9	1·7	11·8	3·4	22·1	12·3	11·2	2•3

There has been in progress during recent years in that country, coincident with increasing attention to the aparalytic manifestations of the disease, a fall in the fatality ratio, and from 1933 to 1934 that fall was more pronounced at ages under 15 than for adults.

For this reason also fatality ratios of deaths to notified cases, without distinction of age, tend to have an inverse relation to morbidity rates, and similar considerations may perhaps account for the regular seasonal fluctuation of the fatality ratio in England and Wales, shown in Table XLIX.

Table XLIX.—Acute Poliomyelitis and Polioencephalitis. Cases per day and deaths per 100 cases notified in each month, 1921–25, 1926–30, 1931–34. Ratio of Polioencephalitis to Poliomyelitis cases in each month, 1921–30.

bas 8 83	To a	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
			100 m		nie.		Notifica	tions pe	er day.				
447	1921–25 1926–30 1931–34	·86 1·31 1·00	·76 1·36 ·87	·71 ·99 ·68	·60 ·89 ·83	·83 ·82 ·84	·79 ·86 1·34	1·60 1·82 1·57	2·66 3·30 2·75	3·51 4·78 4·08	3·03 4·85 3·98	2·05 3·04 2·06	1·06 1·67 1·21
Acute polio- -myelitis and polio- encephalitis						Dea	ths per	100 not	ification	ns.			
	1921–25 1926–30 1931–34	40 31 33	42 29 45	58 40 44	57 40 38	37 43 35	46 40 30	24 21 22	16 18 18	15 16 18	20 17 14	21 19 19	36 29 37
	1921–25 1926–30	36 27	36 21	54 26	57 33	30 34	42 33	19 15	10 13	13 12	17 14	17 15	30 23
)	Ratio o	f polic	encepha	alitis to	poliom	yelitis c	ases.		
	1921–30	·18	·15	-17	·28	·25	•20	•13	•10	.08	·12	·10	.13

The morbidity rate, as measured by the average number of cases notified per day in each month, rises sharply from about 0.8 in May to about 3 in August and 4 in September, and begins to fall again sharply in November (see also Table 27). The fatality ratio, which ranges about 40 per cent. during the first six months, falls suddenly in July, reaching a level around 17 in August, September and October, and returns again to 30 or 40 per cent. in December. The sudden drop in July is no doubt partly due to the time lag between the

[†] New York Dept. of Health, Quarterly Bulletin, Vol. III, 1935, No. 4.

new cases arising and the deaths resulting from them, but increasing recognition of the slighter cases as the summer advances may also be reflected in the lowered ratio. There is at the same time a considerable decline in the ratio of cases described as polioencephalitis to those described as poliomyelitis, from about a quarter in the second quarter of the year to one-tenth or less. When poliomyelitis cases and deaths are analysed with exclusion of polioencephalitis, the fatality ratio manifests an even more pronounced fall in the summer than does the combined rate.

17. Encephalitis Lethargica.—Deaths attributed to this disease numbered 788, 356 of males and 432 of females, yielding standardized death-rates of 16 per million for males and 18 for females. The male rate is the lowest since 1923 (Table 8). The 411 notifications (Table 28) show a decline for the tenth year in succession, and are considerably less than deaths, yielding a fatality ratio of 1,917 deaths per 1,000 notifications, compared with 1,887 in 1933 and 1,463 in 1932. This ratio was 279 in 1924, and then rose in each successive year to 1,471 in 1931.

Table XLIV shows that mortality was highest in Wales II and North I, whereas in London mortality and prevalence were, as usual,

below the general average.

18. Cerebro-spinal Fever (Meningococcal Meningitis).—Deaths from this cause numbered 729. Of these 433 were of males and 296 of females, corresponding to standardized rates of 28.5 and 19.8 per million. These rates show a further decline from the high rates reached in 1931, the fall continuing at each age distinguished in Table L.

Notifications in 1934 numbered 1,094 (Table 28), this having been exceeded only in 1915, 1916, 1917, 1931, 1932 and 1933. The numbers in the preceding 5 years were 667, 674, 2,216, 2,136 and 1,695. The fatality ratio was 67 per 100 cases, the ratios in the 5 years preceding being 88, 94, 65, 57 and 56. In times of high prevalence, when attention is directed to the disease, notification statistics probably furnish a more complete record of the total number of persons attacked than at other times.

Prevalence was greatest from January to June (Table 27),

mortality being highest in January (Table 23).

The mortality distribution manifested, as in 1933, a higher rate in the towns than the rural districts, and in London than in the Outer Ring. Table XLIV also shows that, as in the two preceding years, both mortality and prevalence increased in general from South to North, mortality being highest in North I, followed by North III and North IV, and lowest in the East and remainder of South-East.

23–32. **Tuberculosis.**—The deaths assigned to tuberculous affections in the aggregate numbered 30,882—17,448 of males and 13,434 of females—2,377 less than those so classified in the previous year.

Table L.—Cerebro-spinal Fever, 1911-34: Mortality at Various Ages per Million Living and per cent. of that in 1915-17.

					Males.				F	emales.		
Y	ear.		All Ages*	0-5	5–15	15-25	25 and up*	All Ages*	0-5	5–15	15-25	25 and up
, 100 5000		seja		discon		N	fortality	rate per	million.			
1915–17† 1931 1932 1933 1934	::	::	69·8 54·7 46·4 35·2 28·5	148·2 218·7 209·6 172·9 135·3	45·3 51·2 36·0 26·7 23·8	135·3 54·1 42·6 28·5 22·0	35·2 17·5 13·6 8·8 7·8	31·6 37·2 31·8 27·3 19·8	122·7 172·6 153·0 139·5 107·3	36·5 45·8 31·5 27·6 17·9	24·8 17·4 16·3 12·9 7·7	10· 9· 9· 6· 4·
					M	ortality	rate per o	cent. of t	hat in 19	15 · 17.†		
1911-14† 1915-17† 1918 1918 1919 1920 1922 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1933			17 100 55 39 27 21 18 13 15 18 19 24 23 33 34 78 66 50 41	43 100 57 64 60 52 44 31 34 44 50 63 60 83 76 148 141 117 91	26 100 54 49 47 28 25 19 21 29 27 30 28 38 35 52 113 79 59	4 100 59 28 10 5 7 7 3 6 6 6 5 6 6 14 13 40 31 11 16	5 100 48 24 9 11 5 6 6 6 4 5 8 10 11 15 50 39 25 22	31 100 55 51 46 36 32 27 24 29 30 34 39 50 58 118 101 86 63	45 100 56 56 56 50 49 32 31 39 45 44 54 71 186 141 125 114 87	24 100 63 52 39 28 23 27 21 26 14 37 30 45 46 125 86 676 49	16 100 49 46 51 28 20 16 19 27 27 27 27 27 27 27 27 27 27 27 27 27	144 100 466 399 255 211 9 111 154 199 188 222 218 277 89 901 611 45

^{*} Standardized. † The rates used for 1911-14 and 1915-17 are mean annual rates for those years.

The standardized death-rate resulting from these figures, 740 per million persons (males 832, females 657), is the lowest yet recorded (Table 9), being 59 per million below the previous lowest rate recorded in 1933, the male rate being 69 per million lower and the female rate 50 per million lower than in that year.

The improvement on the preceding year was limited, as Table LI shows, to ages under 65 for males, and under 5 and 10-75 for

females.

Table LI.—Mortality from Tuberculosis (All Forms) per Million Population, 1912–14, 1932, 1933 and 1934.

	1 4 1 1 1	Ma	les.			Fema	ales.		-	Pers	ons.	
	1912-14	1932	1933	1934	1912–14	1932	1933	1934	1912-14	1932	1933	1934
All Crude Stand-	1,571	972	968	899	1,169	713	692	638	1,364	837	824	76
Ages ardized	1,542	913	901	832	1,174	727	707	657	1,349	815	799	74
0	2,081	833	701	642	1,717	666	584	555	1,900	750	643	599
5	572	239	236	219	580	247	211	231	576	243	224	225
10	447	216	188	184	687	278	288	232	568	247	237	208
15	939	727	675	603	1,226	1,075	1,020	955	1,084	901	847	779
20	1,501	1,203	1,189	1,094	1,381	1,343	1,313	1,253	1,439	1,275	1,252	1,175
25	1,816	1,116	1,150	1,043	1,403	1,034	1,065	982	1,599	1,074	1,107	1,012
35	2,189	1,273	1,308	1,150	1,374	752	764	664	1,767	991	1,014	887
45	2,384	1,496	1,529	1,461	1,185	574	539	520	1,762	1,002	997	95-
55	2,213	1,310	1,320	1,250	967	503	457	423	1,553	884	863	81
35	1,378	825	794	841	752	402	397	359	1,031	591	575	573
75 and up	586	354	331	391	440	281	221	221	498	309	263	287

Table LII.—Mortality from Tuberculosis in 1934, per cent. of that in 1912-14 and 1922-24.

		per cent. 12–14.		per cent. 912-14.	1934 per cent. of 1922-24.		
	Males.	Females.	Males.	Females.	Males.	Females.	
All Standardize		81 81	57 54	55 56	73 70	67 69	
0 5 10	. 57 . 65	57 68 77	31 38 41	32 40 34	54 59 55	57 59 44	
15 20	. 91 . 104	105 110 91	64 73 57	78 91 70	70 70 68	74 82 77	
35 45	. 79 . 73	75 68	53 61	48 44	66 84	64 65	
55 35 75 and up .	. 75	71 78 80	56 61 67	44 48 50	83 81 97	62 61 63	

In Table LII the mortality of the year under review is compared at each age with the rates of some 20 years earlier, in 1912–14, and with the rates of 1922–24. The mortality in 1934 is expressed in each instance as a percentage of the rate at the beginning of the period and the fall from 1912–14 to 1922–24 is also shown.

For children under 5 the relative fall was about the same since 1922–4 as in the preceding decade, whilst at 5–45 for males and at all ages over 5 for females the relative decline has been much greater in the second period. For males at ages over 45, however, the rate of improvement has not been maintained since.

It was pointed out in the Review for 1932 that the tuberculosis death-rate of young adult females had not declined since 1914 to any satisfactory extent, the rate at ages 20–25 for 1930–32 being about 2 per cent. below the level of 1912–14. The 1934 rate shows a fall to 9 per cent. below that level or 18 per cent. below the 1922–4 level.

The 25,682 deaths from respiratory tuberculosis form 83 per cent. of the total allocated to tuberculosis, and $5\cdot 4$ per cent. of those from all causes.

The trend since 1921 of mortality rates from tuberculosis of the respiratory system for young adults aged 15–25 and 25–35 may be compared in Table LIII with that of the equivalent average death-rate* at all ages up to 65 for the same sex.

Table LIII.—Phthisis Mortality Rates per 100,000 living at ages 15-25, 25-35 and Equivalent Average Rates at all ages under 65; 1921-1934.

	90.90		Males.			Females	of the sul
		15–25	25–35	0-65 Equivalent average rates.	15–25	25–35	0-65 Equivalent average rates.
1921		101	139	115	127	121	80
1922		103	143	116	124	117	78
1923		96	140	108	119	117	74
1924		96	136	109	121	115	74
1925		90	135	110	121	112	72
1921–25		97	139	112	123	117	76
1926		83	126	101	114	107	66
1927		84	123	102	116	112	69
1928		83	118	98	113	106	64
1929		85	119	104	117	109	66
1930		81	112	95	111	105	63
1931		84	111	96	110	103	63
1932		80	102	89	107	95	58
1933		79	105	90	105	97	58
1934		72	94	83	99	91	53

Males show a decrease in mortality risk since 1921–25 amounting to 26 per cent. at ages 15–25, compared with 32 at ages 25–35 and 26 per cent. in the equivalent average risk at all ages under 65. The corresponding rates of improvement for females have been 20 per cent. at 15–25, 22 at 25–35 and 30 at ages under 65. From 1926 to 1931 the rates for young adults aged 15–25 did not change appreciably for males, and improved to only a slight extent for females, but the last three years have witnessed a more satisfactory decline, from 84 to 72 and from 110 to 99 respectively. It may be that the arrested fall in phthisis mortality of young adults, which has been commented upon in recent Reviews, was an aftermath of the effects of the food shortage of 1916–18 upon children, resulting in a lowered average resistance to active tuberculosis of the lungs as these children reached the danger period of young adult life.

Mortality statistics of different regions and of groups of towns, classified according to different social indices, clearly show that the arrest which was evident up to 1931 was most pronounced in the industrial areas and in the towns where social conditions, as evidenced by a high average of persons per room, were least satisfactory. Thus it was found (Table XLII of 1932 Review) that when the areas with over 1 per room average density were grouped together, phthisis mortality of females aged 15–25 had increased from 1911 to 1930–32 by 25 per cent. in the county boroughs and 21 per cent. in the counties, whilst in London with a mean density about 1 per

^{*} Rate in a population containing equal numbers at each age, see page 2.

room it increased by 16 per cent. At densities of ·85–1 per room the towns showed no change and the counties an increase of 15 per cent., but at densities below ·85 per room both showed improvement of the order of 20 per cent. On the other hand, at ages 25–45 the fall in mortality was not confined to the better-housed areas, but occurred almost irrespective of density.

The distribution of phthisis mortality by regions and by class of

area as well as by sex and age is shown in Table LIV.

Table LIV.—Tuberculosis of Respiratory System: Mortality per 100,000 Living at different Ages in different Areas, 1934.

100,000) THA	mg :	at un	terei	If WE	es II	ı um	erem	Ale	cas, I	LJU4.	
57 1 25 1	England and Wales.	Greater London,	London Administrative County.	South-East, excluding Greater London.	North.	Midland.	East.	South-West.	Wales.	County Boroughs outside Greater London.	Other Urban Districts outside Greater London.	Rural Districts outside Greater London.
					MALE	s.						30.01
All Ages— Crude Standardized	76 67	87 74	102 87	67 58	79 70	73 64	59 54	64 57	76 71	96 84	64 57	50 45
0— 5— 15— 25— 35— 45— 55— 65— 75 & up	8 5 72 94 107 139 118 76 31	9 6 75 96 111 167 151 112 49	14 8 84 109 127 196 182 142 60	2 2 57 89 106 117 103 58 26	10 6 77 94 112 147 122 73 35	9 4 67 95 99 137 118 71 32	10 4 66 82 89 93 70 65 16	6 3 61 92 101 102 82 56 19	7 8 95 107 104 121 101 76 9	11 6 90 118 131 180 156 90 52	6 5 62 86 96 115 89 57 19	6 4 55 65 77 76 71 55 13
Table Tree Con-	Series S			1	FEMAL	ES.		2,30				
All Ages— Crude Standardized	52 51	51 48	54 50	44 43	54 54	53 52	46 46	44 44	74 76	61 60	48 48	44 45
0— 5— 15— 25— 35— 45— 55— 65— 75 & up	6 8 99 91 60 46 36 28 16	4 6 93 82 55 48 36 25 25	4 8 94 85 55 56 43 29 21	4 7 68 86 57 38 33 26 16	10 11 108 90 60 45 34 31 14	4 6 97 93 62 54 41 27 8	2 9 83 82 70 37 25 37 18	3 5 76 88 56 41 34 23 7	5 11 165 135 74 61 58 36 28	10 11 114 103 68 57 42 35 13	4 8 93 88 56 40 34 25 16	3 7 85 82 56 36 32 26 12

The relation of phthisis mortality to urbanisation is manifested by the contrast between the standardized rate for males from 84 per 100,000 in the county boroughs outside Greater London and 87 in London itself, and that of 45 in the rural districts. For females the effect of urbanisation is not so great, the rates being 60 in the county boroughs, 50 in London, and 45 in the rural districts.

The regional distribution indicates that for males the standardized rate is highest in Greater London, Wales and the North, whilst for females it is much higher in Wales than elsewhere, and below the general average in Greater London. For males this rate is lowest in the East and South-West and for females in the South-East outside Greater London. The Welsh rates are below the corresponding England and Wales rate for children under 5, and for males over 35, but show a large excess at ages 15–25, amounting to 32 per cent. for males and 67 per cent. for females, and at ages 25–35, amounting to 14 for males and 48 for females. The favourable position of the South-East excluding Greater London is also most manifest at ages 15–25, the male rate being 21 per cent. and the female rate 31 per cent. below the average for the country as a whole.

Table LV indicates the change since 1931 in phthisis mortality rates at 15–25 and 25–35, and in the equivalent average rates under

65, in each region and class of area.

The recent decline in the young adult rates has been as great in the towns as in the country districts, and has occurred in every region. The North, Wales and Greater London manifest the greatest relative fall for males aged 15–25, and the South-West and East show the greatest improvement for females of that age.

The ratios of male to female mortality in 1934 present consider-

able contrasts in the various regions, as shown below

	O	The state of the s			
N	Iale mor	tality p	er cent.	of fema	le.
15-	25-	35-	45-	55-	65-75
81	117	202	348	419	448
84	103	186	308	312	223
71	104	187	327	359	235
69	102	160	254		263
80	100	127	251	280	176
80	105	180	249	241	243
58	79	141	198	174	211
	15– 81 84 71 69 80 80	15— 25— 81 117 84 103 71 104 69 102 80 100 80 105	15— 25— 35— 81 117 202 84 103 186 71 104 187 69 102 160 80 100 127 80 105 180	15— 25— 35— 45— 81 117 202 348 84 103 186 308 71 104 187 327 69 102 160 254 80 100 127 251 80 105 180 249	81 117 202 348 419 84 103 186 308 312 71 104 187 327 359 69 102 160 254 288 80 100 127 251 280 80 105 180 249 241

In each of the years 1931, 1932, 1933 and 1934 the highest ratios at 25–35 and 55–65 have occurred in Greater London, whilst at 15–25 and 35–45 either Greater London or the South-East has given the highest figure and at 45–55 and 65–75 either Greater London or the North. The lowest ratios at 25–35, 35–45, 45–55 and 55–65 have been evident in the East or Wales.

Amongst counties of over 100,000 population the lowest crude death-rates from phthisis were those of Cambridgeshire, 337; Yorkshire, East Riding, 390; Derbyshire, 394; Lincolnshire, Kesteven, 403; Oxfordshire, 411; and Dorsetshire, 415.

The highest county borough rates were those of South Shields, 1,268; Gateshead, 1,098; Middlesbrough, 1,096; and Bootle, 1,081.

The Burton-upon-Trent rate, 475, was lowest.

The rapidity with which non-respiratory tuberculosis mortality in general continues to fall may be gathered from the fact that during the eleven years covered by Table 8 the standardized rate for each sex has fallen without interruption, from 252 to 163 for males, or by

35 per cent., and from 226 to 145 for females, or by 36 per cent., the percentage decline for the respiratory form of the disease in the same period being 26 for males and 28 for females. The proportion of non-respiratory to total (standardized) mortality was 23 per cent. in 1924 and 21 in 1934.

Table LV.—Phthisis Mortality at certain ages in 1934 per cent. of 1931—Regions and Density aggregates.

	jas un	MALES.	Cypsus	FEMALES.				
	15–25.	25–35.	0-65*.	15–25.	25–35.	0-65*.		
ENGLAND AND WALES	86	85	87	90	88	84		
Greater London Remainder of South-East	84 93 84 85 97 86 84	81 92 83 86 87 95 81	88 93 84 85 87 90 83	93 88 88 93 81 75 93	88 96 89 88 73 79 89	84 88 83 84 78 81 92		
County Boroughs Urban Districts Greater Rural Districts	86 81 93	92 82 77	86 85 87	88 89 89	89 89 84	84 85 84		

^{*} Equivalent average death rate in 1934 per cent. of 1931.

The standardized death-rate from tuberculosis of the intestines and peritoneum declined further (Table 8) to a new low record of 23 per million for males and females. The standardized rates for tuberculosis of the nervous system were 75 for males and 73 for females, compared with 75 and 71 in 1933.

To tubercular otitis media and mastoiditis 45 deaths were assigned in the quinquennium 1921–25, 50 in 1926–30 and 29 in the four years 1931–34.

Deaths assigned to No. 31 (1), tuberculosis of the adrenals, numbered 23 in 1934. "Addison's disease", if not specified as tuberculous, is classed to No. 68, diseases of the adrenals, and the numbers of deaths classed to each of these groups since 1921 have been:

1921- 1926- 1931 1932 1933 1934 No. 31 (1) Tuberculosis of M 19 21 12 10 11 11 16 7 11 6 13 adrenals. 79 No. 68 (part) "Addison's M 439 435 76 58 71 123 125 133 133 disease" (unqualified) F 623

During 1921–30 29 deaths were assigned to tubercular pericarditis in the residual group, and 11 in 1931–34, but it must be remembered that if phthisis is mentioned in conjunction with tuberculosis of another site the death is assigned to the former.

34. Syphilis.—Deaths assigned to this cause numbered 1,234, 838 of males and 396 of females. In the four years 1931–34 the deaths classed to congenital syphilis have totalled 412, 365, 296 and 261, and those classed to acquired or unspecified syphilis have numbered 1,034, 938, 1,025 and 973. Standardized mortality of males declined from 77 per million in 1871–80 to 58 in 1901–10, increased to 74 in 1917 and 1920, declined again to 39 in 1925, rose to 50 in 1928 and has again fallen to 36 in 1934. Female mortality followed a similar course, from 70 in 1871–80 to 45 in 1901–10, rising to 56 in 1920 and falling to 25 in 1925, followed by a temporary increase to 29 in 1927 and subsequent fall to 18 in 1934.

Standardized death-rates for syphilis, tabes dorsalis, general paralysis of the insane and aneurysm from 1911 to 1928 were set out in the Review for 1928 (Table XLIX) and this series is continued in Table LVI for 1911–20 and each year since.

Table LVI.—Standardized Mortality per million living from Syphilis and Diseases of Syphilitic Origin, 1911–34.

al the balance see	1911	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.
MALES. 34. Syphilis 80. Tabes Dorsalis 83. General Paralysis of Insane 96. Aneurysm	68 29 86 42	64 26 59 35	50 29 65 36	48 26 64 34	42 26 55 35	39 25 56 34	43 26 51 32	45 26 54 36	50 25 49 37	45 29 42 37	45 22 40 38	45 20 40 38	39 23 35 36	39 21 31 35	36 17 32 36
Total	225	184	180	172	158	154	152	161	161	153	145	143	133	126	121
FEMALES. 34. Syphilis	48 5 17 9	48 5 12 8	37 5 13 8	30 5 12 8	28 4 12 7	25 5 11 9	26 4 11 9	29 5 11 9	28 4 10 9	26 5 10 10	25 4 8 10	24 4 10 10	23 5 9 11	21 4 9 13	18
Total	79	73	63	55	51	50	50	54	51	51	47	48	48	47	4:

Expressing 1934 mortality rates as percentages of 1911–20, the extent of the improvement is indicated below.

	Syphilis.	Tabes.	G.P.I.	Aneurysm.	Total
Males	 53	59	37	86	54
Females	 37	60	47	144	53

The increase in female mortality from aneurysm contrasts with the favourable trend for the other syphilitic diseases.

Gummata or syphilitic tumours were mentioned in connection with 142 of the deaths of males and 91 of the deaths of females assigned to syphilis during 1931–33, these being distributed by age as follows:

	0-	15-	25-	35-	45-	55-	65 and	Allages
of the Day							IID	ide three
Brain	M 3	1	3	2	. 10	16	9	44
Diam)	F 1	2	3	5	16	9	2	38
Other ?	M 4	1	3	8	33	20	29	98
Brain { Other organs {	F 2	3	2	5	15	13	13	53

44 (1 and 2). Vaccinia and Sequelæ of Vaccination.—Five deaths have been assigned to the heading of Vaccinia in 1934, from the following causes. A male aged 6 with "broncho-pneumonia supervening on encephalitis following vaccination", a male aged 7 with "encephalitis accelerated by vaccination", a female aged 7 with "non-suppurative encephalitis", a male aged 18 with "encephalitis due to vaccination", and a female aged 20 with "post-vaccinal

encephalomyelitis".

Two deaths have been classed to the group "other sequelæ of vaccination", but neither was the result of vaccination against smallpox. In the title of this group "Vaccination" is interpreted in its wide sense to include the administration of vaccines for the prevention of diseases other than smallpox, the disease, if not smallpox, being specified by a footnote in all tables where such deaths appear under this heading. One of these two deaths was that of a male aged 13 attributed to "shock following the injection of a foreign protein" administered for protection against scarlet fever during an outbreak of that disease. The other death, of a male aged 30, was attributed to "toxæmia and heart failure due to effects of anti-rabic treatment" which had been carried out in India after a bite from a rabid dog.

The deaths of a male infant aged 3 months from gastro-enteritis and otitis media, of a female infant aged 4 months from pneumonia, and of a male aged 8 months from convulsions due to furunculosis and adenitis, all occurring within a fortnight of vaccination but without evidence of causal association, were assigned to gastro-enteritis, furunculosis and pneumonia respectively. In each of the above cases the vaccination or protective treatment included under

that term was mentioned on the death certificate.

Another death, stated to be due to pyelocystitis, of a male aged 5 months, found on inquiry to have been due to B. Coli infection and to have followed vaccination, but without evidence of causal association, was classed to cystitis.

44 (part of 6). Pink Disease.—The 68 deaths classed to the group of "other infectious or parasitic diseases" in 1934 consisted of 4 attributed to glandular fever, 3 to blackwater fever, 1 to acute infective polyneuritis, 1 to infective mononucleosis, 1 to acrodynia, 14 to erythrædema or erythrædema polyneuritica, and 45 to "pink disease". The disease of infancy and early childhood described by the synonyms pink disease, erythrædema, erythrædema polyneuritica, dermato-neuritis or polyneuritis, or acrodynia, was included from 1931 onwards in this group by a decision of the International Conference of 1929, although its ætiology was at that time, and still is, obscure. In 1927 it had been included in the group of other general diseases (No. 69:3) in the Annual Reviews, and in the "Nomenclature of Diseases, 1931" it was likewise placed amongst the group of "diseases due to disorders of nutrition or of metabolism." In 1923 a death was attributed to acrodynia and during the next 7

years 16 deaths were so described, but this name has rarely been seen on death certificates of recent years. Dermato-polyneuritis (or dermato-neuritis) under which synonym 9 deaths were described during 1925–30, has also ceased to appear. In 1924 2 deaths were ascribed to "erythrædema polyneuritis" (with mention also of "pink disease" on one) and erythrædema polyneuritica has continued in use since, "erythrædema" being a more usual description since 1926. Deaths attributed to "pink disease" have steadily increased since 1927, as indicated in Table LVII and when all forms of description are combined the annual deaths have risen continuously from 1 in 1923 to 59 in 1934.

Table LVII.—Deaths from Pink Disease, and its Synonyms. 1923-34.

	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.
Acrodynia Dermato-polyneuritis or neuritis Erythrædema polyneuritica or polyneuritis	1	2 2	1 1 2	5 1 3	2 2 4	1 2 1	4 2 2	1 1 8	_ _ 2		1 - 1	- 4
Erythrædema Pink disease	=	=	4	6 5	8	8	9	3 20	6 25	7 36	7 45	10 45
Total	1	4	8	20	20	21	28	33	33	43	54	59

The distribution of the deaths in 1931–34 by age and sex, distinguishing those in hospitals or nursing homes from those which occurred elsewhere, has been as follows:

45-53. Cancer.—The deaths ascribed to cancer during 1934 numbered 63,263—29,777 of males and 33,486 of females. For both

sexes these numbers are the highest yet recorded.

Of these deaths 55,232 were referred to carcinoma, 2,754 to sarcoma, and 5,277 to "cancer" not otherwise defined. These are the largest numbers yet recorded for carcinoma, but not for sarcoma, which of late years has accounted for a somewhat smaller proportion, now 44 per 1,000, of the total cancer deaths than heretofore. The number in the undefined group continues to fall year by year

The standardized death-rate for males in 1934 amounts to 1,046 per million, and that for females to 974. In 1928 the increase in female mortality was arrested and the rate decreased each year to 966 in 1932, but again shows a slight rise in 1933 and 1934. Table XLI,* in the 1927 volume, shows that the standardized

^{*} This table gives standardized death-rates from Cancer by Sex for each year 1851-1927.

rate for males first exceeded that for females in 1924, and since that date the excess has been maintained, increasing to 86 per million in 1932. The crude death-rate is seen from Table 7 to be still in excess for females to the extent of 56 per million living in 1934, compared with 105 ten years earlier, this being due to the greater age of the female population.

For sarcoma the crude rate is 68 per million as against 71, 68, 66, 69 and 68 in the five previous years. When standardized there is a considerable male excess, the rate being 62 4 for males and 44 · 2 for females in 1934.

The mortality from cancer as a whole is compared by sex and age in Table LVIII for England and Wales, with record of the degree of difference in sex mortality at the various ages.

At ages from 25 years up to 55 the female exceeds the male rate but from 55 years to the end of life the male rates are in excess. This female excess in middle age, greatest at 35–45, is associated with, and largely explained by, the special frequency at this age of cancer of the uterus and of the female breast, which together account for a larger proportion of the total deaths of women from cancer at each age between 25 and 65 than at all ages jointly (see "Text" Volume of the Review for 1929, page 57).

Table LVIII.—Mortality from Cancer (All Sites), 1934.

	Mort	ality per M	Iillion.	Sex Ratio.					
	Males.	Females.	Persons.	Males.	Females.	Persons.			
All Crude .	1,534	1,590	1,563	981	1.017	1,000			
Ages \Standardize	ed 1,046	974	1,003	1,043	971	1,000			
0—	50	35	43	1,163	814	1,000			
5—	20	18	19	1,053	947	1,000			
15—	46	37	41	1,122	902	1,000			
25—	126	154	140	900	1,100	1,000			
35—	433	734	596	727 -	1,232	1,000			
45—	1,654	2,098	1,893	874	1,108	1.000			
55—	4,674	4,139	4,390	1,065	943	1,000			
65—	10,113	7,571	8,711	1,161	869	1,000			
75—	14,208	11,754	12,707	1,118	925	1,000			

The percentage share of the breast and uterus in the total cancer mortality of females, in 1934, was:—

The mortality attributed to sarcoma, carcinoma and cancer undefined is distinguished in Table LIX, other details of the deaths being shown in Tables LXI and LXII. The rates for cancer undefined are lower than the average of the six preceding years at every age over 25, indicating increased precision in the statement

of the type of cancer. Sarcoma rates are lower than in 1928–33 at ages over 15 for males, and at 15–45, 55–65 and 75 and over for females. Carcinoma rates show an increase at all ages over 15 for males, and at all ages over 25 for females.

Table LIX also shows the trend of cancer mortality by sex and age since 1901-10.

TABLE LIX.—Cancer Mortality in 1911–20, 1921–30, 1933 and 1934 per cent. of that in 1901–10. Sarcoma, Carcinoma and Undefined: rates per million in 1928–33 and 1934.

	Mor	tality per	cent. of	the		Mo	rtality per	million l	iving.	
ouo u os l	32370	rate in 19	901–10.*		Sarco	ma.	Carci	noma.	Cancer undefined	
	1911–20	1921–30	1933	1934	1928-33	1934	1928–33	1934	1928-33	1934
icel ecel		1881	08.01	M	ALES.	REF	1 2000		-electiv	,
All ages— Crude Standardized	128 114	167 128	193 132	198 133	80 66	78 62	1,204 862	1,324 895	150 108	132
0	96 107 101 102 108 114 120 124	100 112 106 101 105 121 143 162	113 100 106 109 106 118 148 183	121 112 116 105 107 120 151 180	22 32 37 68 128 212 290 315	26 29 33 63 123 209 247 265	2 12 72 328 1,332 3,970 8,673 12,077	2 13 87 338 1,400 4,075 8,962 12,591	1 2 8 37 155 478 1,117 1,616	3 13 39 90 1,35
817 115 ·	and f	all.		FE	MALES.		81			Lita.
All ages— Crude Standardized	114 102	135 105	152 103	155 103	58 45	59 44	1,295 838	1,402 851	155 100	12
0	100 103 92 93 98 99 107 116	111 106 94 90 92 96 116 143	121 133 89 86 89 94 114 148	121 112 91 87 90 94 114 149	19 21 25 43 87 143 187 225	19 20 22 42 90 136 194 197	2 15 120 637 1,812 3,554 6,692 10,410	2 15 121 638 1,832 3,675 6,778 10,525	1 2 12 66 197 419 847 1,333	1 5 17 32 59 1,03

^{*} The rates per 100,000 at 1901-10, 1911-20, 1921-30 and 1931 were given in Table XLII of the Review for 1931. The percentage ratios in this table are based upon rates per million, that is to say, upon an additional significant figure, and therefore differ slightly from those given in previous years.

The crude death-rate at all ages for males in 1934 is 98 per cent. and the female rate 55 per cent. higher than the respective rates in 1901–10, but if standardized rates are compared these excesses are reduced to 33 and 3 per cent. respectively. These great differences in the rate of increase as shown by comparing crude and standardized rates emphasize the desirability of restricting comparison to rates corrected for the changing age of the population. The standardized figures take into account the rapidly increasing proportion of elderly

persons in the population and attempt to correct, though imperfectly owing to the wide divergence of the age constitution of the present population from that of the 1901 standard, the exaggerated impression conveyed when crude rates are compared. The equivalent average death-rates (E.D.R.) for each sex at ages under 65, that is to say the rates which would occur in populations consisting of equal numbers at each year of age up to 65, combined with the rates at 65–75 and 75 and over, provide a more complete picture of cancer mortality, unaffected by differences in age constitution between the populations which have to be compared. These equivalent average death-rates are readily calculated by finding the arithmetic mean of the death-rates at the 13 quinquennial age groups between 0 and 65. (See p. 2.)

The recent trend of the sex death-rates at the several age-groups over 25 and of the equivalent average rates is indicated below, the rates per million being expressed as percentages of the 1901–10 rate in each instance.

Males	1926	1927	1928	1929	1930	1931	1932	1933	1934
25—	108	108	113	111	102	107	106	106	116
35—	96	102	103	104	107	102	102	109	105
45—	106	104	105	102	106	106	101	106	107
55—	122	120	121	119	116	119	123	118	120
65—	145	149	149	149	152	153	155	148	151
75 and up	164	167	172	181	178	173	179	183	180
E.D.R. 0-65	116	114	116	113	112	114	116	114	115
Females									
25—	96	95	98	93	90	89	94	89	91
35—	88	90	93	87	88	87	86	86	87
45—	91	90	93	89	88	92	90	89	90
55—	97	94	94	93	94	93	93	94	94
65—	120	116	118	122	117	114	112	114	114
75 and up	142	148	152	156	157	149	148	148	149
E.D.R. 0-65	95	93	94	92	92	92	92	92	92

Comparison of the last few years with the preceding years indicates that for males the equivalent rate at ages under 65 has not shown any consistent change in the last 9 years, and for females, after a decline to 92 per cent. of the 1901–10 level by 1929, it has remained stationary for six years. At ages 65–75 the average male rate in the last triennium was the same as in the preceding one and at ages over 75 was only slightly greater, whilst the female rates at these ages have remained almost stationary since 1931.

Cancer mortality is analysed according to sex, age, region and class of area in Table LX. The standardized rate for each sex declines, as noticed in previous years, from a maximum in the county boroughs to a minimum in the rural districts, the range

Table LX.—Cancer (All Sites): Mortality per 100,000 Living in different Areas and at different Ages, 1934.

different Areas and at different Ages, 1934.															
11-11-11-11-11-11-11-11-11-11-11-11-11-	England and Wales.	Greater London.	London Admin. County.	South-East, excluding Greater London.	North.	Midland.	East.	South-West.	Wales.	County Boroughs outside Greater London.	Other Urban Dis- tricts outside Greater London	Rural Districts outside Greater			
	MALES,														
All Ages— Crude 153 155 176 161 151 146 161 170 144 159 150 147 Standardized 105 112 122 96 109 102 93 96 102 115 101 89															
0	5 2 5 13 43 165 467 1,011 1,421	5 1 4 13 52 181 500 1,069 1,530	4 1 4 15 59 196 557 1,157 1,614	4 1 5 11 39 146 418 893 1,505	4 2 4 13 44 172 506 1,073 1,381	5 3 6 12 38 159 456 1,030 1,325	13 1 4 6 34 138 394 943 1,310	3 5 5 15 42 157 369 914 1,441	7 3 2 17 42 165 446 960 1,382	5 2 5 13 47 185 529 1,125 1,430	6 3 5 12 38 155 445 991 1,407	5 2 4 12 37 133 371 849 1,352			
					FEMAL	ES.									
Il Ages— Crude Standardized	159 97	156 97	169 103	177 93	154 102	148 94	178 96	190 94	150 101	158 102	160 96	163 92			
0- 5- 15- 25- 35- 45- 55- 65- 75 and up	4 2 4 15 73 210 414 757 1,175	4 2 3 17 75 211 408 731 1,218	6 2 4 17 75 222 431 784 1,298	6 3 4 11 67 201 388 722 1,168	4 1 3 18 77 213 439 800 1,192	2 1 4 12 71 210 393 731 1,169	2 1 6 14 68 217 411 751 1,123	3 2 5 12 68 202 408 743 1,112	2 2 4 18 76 214 432 827 1,125	3 2 3 17 77 220 445 782 1,188	4 2 4 14 72 210 406 751 1,164	2 1 6 13 67 190 381 754 1,134			

according to urbanization, as thus measured, being greater for males, 115 to 89, than for females, 102 to 92. The London rates for males (122) and females (103) are in excess of those for the county boroughs.

These relations suggest that cancer may be more often certified in the towns because hospital and other facilities for its recognition are there greatest, but successful treatment, particularly of cancer of the breast and uterus, in so far as it reduces mortality, tends to affect the rates in the opposite sense.

Apart from Greater London, the North gives the highest standardized mortality for males and for females, whilst the East shows the lowest rate for males and the South-East excluding Greater London for females. The regional dispersion thus indicated is greater for males, 93–112, than for females, 93–102.

Cancer by Site.—The parts of the body affected by fatal cancer in 1934 are shown in Tables LXI and LXII in greater detail than that provided by the international classification, six out of its nine headings (Nos. 45-53) being sub-divided. Fuller details with regard to cancer of the uterus and of the skin than those shown in

Table LXI.—Sites and Forms of Fatal Cancer by Sex and Age, 1934.

Carcinoma	4,386	The state of the s	1 364	_
Carcinoma	4,386		1 364	The second
(arcinoma 25.709) 0 5 41 255 250 250 404 405	98		1,00%	443
Sarcoma 1,509 63 61 93 110 76 86 110 173 198 191 157 Cancer, N.S 2,559 4 2 13 20 38 45 115 186 318 409 494	441	2,826 55 292	1,195 29 140	392 9 42
45 \begin{bmatrix} \text{Lip} & \cdots & \cdots & \text{297} & 1 & \text{-} & \text{-} & 1 & \text{-} & 3 & 2 & 10 & 22 & 38 & 39 \\ \text{Tongue} & \cdots & \cdots & \text{1,108} & \text{-} & \text{-} & 3 & 2 & 7 & 24 & 70 & 165 & 213 & 283 \\ \text{Mouth} & \cdots & \cdots & \text{334} & \text{-} & \text{-} & 2 & 3 & 1 & 7 & 20 & 32 & 70 & 85 \\ \text{Tonsil} & \cdots & \cdots & \cdots & 238 & \text{-} & \text{-} & 5 & 2 & 4 & 7 & 11 & 40 & 51 & 38 \\ \text{Jaw} & \cdots & \cdots & \cdots & 409 & 1 & 4 & 1 & 4 & 4 & 10 & 16 & 20 & 54 & 61 & 79 \\ \text{Pharynx} & \cdots	69 176 55 48 74 70 42	47 111 38 23 53 45 27	40 42 16 9 23 8 13	25 12 5 - 5 3 -
Total 3,000 2 8 4 16 18 27 76 172 384 557 657	534	344		50
CEsophagus 1,761	316 1,046 12 53 9 11 125 447 564 220 50 166 93	11 35 6 8 77 369 359 128 31 82	151 66 10 38	2 4 1 23 40 39 27 5 15
Total 18,002 II 5 30 214 229 403 784 1,413 2,275 2,976 3,514	3,112	1,994	811	-
47 { Larynx	124 158 25	81	21	6
Total 3,252 I 5 18 48 73 144 294 458 600 594 459	307	183	51	17
50 Breast	12	3	2	
	174 439 7	115 289 4 26	44 147 2 17 5	18 39 1 8 1 8 1
Total 3,431 37 12 13 57 37 59 93 219 331 502 614				
52 Skin 627 I I 3 7 5 9 19 29 39 60 81	113	106	91	63
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	7 31	1 1	4 2	-
Total 1,412 21 37 79 72 47 63 96 154 184 191 196	6 132	7 8	4 3	13

Includes Palate, Cheek (internal surface), Salivary Glands, Gums.
 , Intestine undefined, Peritoneum, Omentum, Mesentery, Anus.
 , Pleura.
 Mediastinum.
 Includes Lymphatic Glands, Abdomen, Eye, Muscle, etc.

Table LXI.—cont.

	All 0- 5- 15- 25- 35- 40- 45 50 55 00 07																
	The second section of the second	5-	15-	25-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85-		
-	10 10 10 10 10 10 10 10 10 10 10 10 10 1						D	EATH	S OF	FEM	IALES	· · · · · · · · · · · · · · · · · · ·					
	All Sites	33,486	50	60	118	530	819	1,413	2,373	3,277	3,997	4,737	4,836	4,789	3 617	1,919	051
	Carcinoma	29,523	3	5 49	48	416		1,233		2,873					3,231		951
	Cancer, N.S.	0 - 10	42 5	49	65 5	76 38	58 56	70 110	104 210	138 266	151	136	126 375	121 386	61 325	36 170	865 12 74
	Lip	28 131		_		_		1	2		1	3	5	6	3	4	3
45-	Mouth	41 36	-	_		1	-4	1	6	9 7	18	26 8	16 6	17 3	14 6	11 5	6
	Jaw Pharynx		1	4	2 2	1 8 4	. 1	1 2	2 7	20	5 21	7 27	3 28	4 25	3 16	3 9	3 6
	Others (1)	37	_	1	1	2	2	_2	9	8 3	19	12 5	13 5	8 6	8 9	3	2
	Total	542	1	5	5	16	8	11	27	51	68	88	76	69	59	38	20
	Œsophagus	681	-	_		3	5	29	48	68	94	109	98	93	81	40	13
	Small intestine	83	N DUNCH COLUMN	1	5	59 2	85 4	109	230	425 8	592 9	827 6	993 15	1,017	766	369	163
	Hepatic flexure Splenic flexure	The second second	-	_	- 1	4	1	10	12 4	20 3	44	52 7	79 10	67 12	60	34	13 2
46-		766 3,118	_		1 1	19	3 19	1 22	10 37	7 63	7 87	11 110	17 131	17 106	15 103	6 45	2 23
	Rectum (excluding anus)	2,046	_	1	5 4	30 50	50 41	83 59	128 91	189 147	282 220	385 304	474 311	608 349	469 265	276 134	139
	Gall bladder		-	$-\frac{2}{}$	3	8 2	13	28 7	51 19	81 50	116 59	162 100	210 94	235 124	176 87	106	46 19
	Others (2)	779	8	1	3 5	1 8	13 9	19 19	37 45	62 38	114	151 121	144 122	137 126	98 107	36 60	26 30
	Total	16,356	9	5	29	188	248	388	716	1,161	1,708	2,345	2,698	2,909	2,240		549
47		246 680	-1	_1	-4	2 23	7 26	17 37	23	44	35	33	28	22	23	7	4
	(Others (4)	131	1	1	2	3	3	9	64 9	72 15	84 16	127 26	96 19	78 10	46 14	18 3	4
	Total	1,057	2	2	6	28	36	63	96	131	135	186	143	110	83		 8
48	Uterus	4,451	I		5	93	169	337	538	604	6						
						93					659	613	552	451	266	124	39
49	Ovary	1,519	_	4	18	43	60 8	118 10	178 22	240 35	219 42	212 51	168 77	139 60	82		10
	Others					_				_				_	60	31	17 —
	Total	1,936	_	4	19	46	68	128	200	275	261	263	245	199	142	59	27
50	Breast	6,687		_	I	91	221	395	653	842	901	943	818	720	571	327	204
52	Skin	460	_	-	4	8	5	10	14	22	37	38	41	57	76	80	68
(Brain, Meninges	120	8	8	4	11	10	10	10	202 2							
53	Thyroid	184	19	-11	2 4	11 4 7	10 3 7	10 2	16 13	18 16	17 20	7 39	34	3 25	4 15	_ 8	
000	Bladder, Urethra Bones (jaw excepted)	394	_	16	19	4 18	5	10	16 16	31 24	30 43	43 61	50 48	35 79	31 52	9 33	5 15
1	Others (5) and unspecified	632	10	9	20	16	17 22	23 22	19 49	36 66	41 77	40 71	40 87	52 80	22 56	13 37	3 10
97790	Total	1,997	37	44	49	60	64	81	129	191	228	261	263	274	180	100	36
	(1)	Include	s Pala	te CI	heek	linter	malo		C-1:			-				The state of the s	

(1) Includes Palate, Cheek (internal surface), Salivary Glands, Gums.
(2) ,, Intestine undefined, Peritoneum, Omentum, Mesentery, Anus.
(3) ,, Pleura.
(4) Mediastinum.
(5) Includes Lymphatic Glands, Abdomen, Eye, Muscle, etc.

the Table are also available. The cancer mortality distribution is shown by sex, age and site as well as by the nature of the growth to which the deaths were attributed, under the headings carcinoma, sarcoma and "cancer" not otherwise defined. Continuing the

Table LXII.—Forms of Fatal Cancer of each Site—1934.

		1	MALES.					F	EMALES			
	Numb	er of De	aths.	Perc	entag	e of	Numbe	er of De	aths.		entag Cance	
	Carcinoma.	Sarcoma,	"Cancer." Not otherwise defined.	Carcinoma.	Sarcoma.	"Cancer." Not otherwise defined.	Carcinoma.	Sarcoma.	"Cancer." Not otherwise defined.	Carcinoma.	Sarcoma.	"Cancer." Not otherwise defined.
All Sites	25,709	1,509	2,559	86	5	9	29,523	1,245	2,718	88	4	8
Lip Tongue	285 1,022 307 192 293 352 192	17 83 15 3	12 86 27 29 33 38 14	96 92 92 81 72 87 92	- - 7 20 4 1	4 8 8 12 8 9 7	27 113 37 28 113 77 33	1 1 7 50 4 4	1 17 3 1 14 11 —	96 86 90 78 64 84 89	1 2 19 28 4 11	4 13 8 3 8 12 —
Total	2,643	118	239	88	4	8	428	67	47	79	12	9
Gaphagus Stomach, Small intestine Cæcum Hepatic flexure Splenic flexure 46{ Sigmoid flexure. Large intestine (colon) Rectum (excluding anus) Liver Pancreas Others	1,616 6,101 77 249 39 87 634 2,242 2,981 1,014 217 871 368	6 13 1 - - - 6 13 1 3 62	145 472 16 25 5 7 39 152 209 137 30 72 92	92 93 73 91 89 93 94 94 93 87 88 92 70	0 12 0 - - 0 1 0 0 1 0 0 12	8 7 15 9 11 7 6 6 7 12 12 12 8 18	612 5,245 73 378 47 93 719 2,897 1,893 1,041 562 758 583	3 4 1 4 4 14 4 73	69 392 6 19 4 6 46 217 149 183 55 79 123	90 93 88 95 92 94 94 93 93 84 91 90 75	0 5 - 0 0 0 1 1 9	10 7 7 5 8 6 6 7 7 15 9 16
Total	16,496	105	1,401	92	0	8	14,901	107	1,348	91	I	8
47 { Larynx	827 1,785 130	1 101 48	85 209 66	91 85 53	0 5 20	9 10 27	222 574 62	3 40 34	21 66 35	90 84 47	1 6 26	9 10 27
Total	2,742	150	360	84	5	II	858	77	122	81	7	12
48. Uterus					_	_	4,033	72	346	90	2	8
49 { Ovary Others	=	=				=	1,303 392 —	8 -	175 17 —	85 94 —	3 2 -	12 4
Total	-	-	-	-	-	-	1,695	49	192	88	2	10
50. Breast	50	_	3	94		6	6,199	30	458	93	0	7
Kidney, suprarenal Bladder, urethra, ureter Testis Penis	145 885 1,392 79 186 65	216 7 4 52 — — 279	41 88 243 17 7 4	36 90 85 53 96 94	54 1 0 35 — — 8	10 9 15 12 4 6					111111	
52. Skin	565	50	12	90	8	2	394	53	13	85	12	3
53 Brain, meninges Thyroid . Kidney, suprarenal Bladder, urethra, ureter Bones (jaw excepted) . Others	14 65 — 59 323	109 346 352	18 2 — 26 98	10 97 — 14 42	77 — 80 45	13 3 - 6 13	16 180 103 359 56 301	85 3 165 3 290 244	19 1 40 32 13 87	13 98 33 91 16 47	71 2 54 1 80 39	16 0 13 8 4 14
Total	461	807	144	33	57	10	1,015	790	192	50	40	10

practice of many years past, every practicable effort is made, with the co-operation of certifying practitioners, to assign the deaths to the organs primarily affected, in order to obtain as true indications as possible of the incidence of the disease. It is well recognized, however, that for certain organs, especially the liver and lung, commonly affected secondarily to such a degree that the symptoms dominate any that may arise from the primarily affected organ, ascertainment of the latter may prove impracticable. Such exceptions are becoming more rare, due no doubt to improvement in diagnostic methods, an encouraging sign justifying the inclusion, in the notes to certifying medical practitioners which accompanies the book of death certificates, of the request that "the seat of primary occurrence should be returned in all cases where known."

The distribution of cancers of each individual site, according to the nature of the growth, is given in Table LXII. The percentage of cancers with nature undefined is, amongst the organs distinguished, highest for the liver, prostate, ovary and brain. The percentage of all cancers defined as sarcoma ranges from 80 for the bones, 74 for the brain, 54 for kidney or suprarenal and 35 for the testis to less than 1 per cent. for the digestive tract and female breast.

The facts as to cancer mortality distribution by sex, age and site contained in Table LXI are summarized for each site in Table LXIII, which compares total mortality in 1934 with the rates for other recent periods for the same sex and site. In this table the tendency to increase of mortality merely in consequence of increase in the proportion of persons at risk falling within those ages at which cancer chiefly occurs, as well as the tendency to female excess for the same reason, has been allowed for by standardization, so that all the rates quoted may be compared with one another.

The chief increases in 1934 over the previous year are, for males—lung 8.5 per million, lip 1.8, tongue 1.7, kidney and suprarenals 1.7, esophagus 1.6, and for females—lung 2.7, ovary and Fallopian tube 2.6, rectum and anus 2.5, uterus 1.3.

The sites showing at least 25 per cent. increase in mortality from 1911–20 to 1934 are, for males, the lung (493 per cent.), prostate (112), pancreas (98), kidney and suprarenals (74), intestine (43), gall bladder (42), testis (33), pharynx (29) and larynx (28), and for females, the lung (190), ovary and Fallopian tube (95), pancreas (79), gall bladder (47), kidney and suprarenals (42), and intestine (30). Those showing a decline are the tongue, mouth, jaw, liver, mesentery, skin and mediastinum in both sexes, pharynx, uterus, rectum and rodent ulcer in females, and lip, æsophagus and scrotum in males.

Standardized rates for all ages combined such as those shown in Table LXIII might fail to give any indication of a prolongation of

Table LXIII.—Cancer Mortality: Rates per Million Population (Standardized) for the more important Sites for each Sex 1901–10, 1911–20, 1921–30, 1930, 1931, 1932, 1933 and 1934.

		1:	784	Sites.	1	.ip.	To	ngue.	Mout	h and	J.	aw.
							A 100000 WILLIAM	A TOTAL SPACE	To	nsil.	KER STORY	
				942	12.8	0.8	43.1	4.4	? 101	2	22.6	6.9
			897	959	12.6	0.7	50.8	4.3	23.5	3.0	25.1	7.5
			1.004	986	11.5	0.7	46.1	3.8	28.3	3.6	20.8	6.
			1,031	987	11.3	0.7	40.6	3.5	29.3	3.8	16.7	5.
			1,034	974	10.7	0.5	38.1	3.6	29.4	3.5	16.5	5.
			1,052	966	10.3	0.6	37.6	3.4	21.2	2.4	16.6	5.
	10.00		1,035	973	8.7	0.7	35.7	3.6	20.1	2.4	15.2	4.
			1,046	974	10.5	0.8	37.4	3.7	19.5	2.2	14.4	5.
			Ph	arynx.		phagus.		mach.	Liv	ver.		bladde
			3	?	51.2	14.6	167 · 2	133.0	?	?	?	?
			10.8	3.0	60.6	16.5	186 · 4	139.0	87.1	98.0	6.0	11.
			12.6	3.0	64.2	18.1	221 · 1	155.5	61.0	60.9	8.8	16.
			11.8	3.2	61.8	18.6	233 · 7	162.8	47.7	45.4	9.5	17.
			13.0	3.1	62.8	18.7	231 · 3	155.5	47.0	42.7	9.2	16.
			14.7	3.4	62.5	19.5	233 · 3	153-8	45.7	38.9	10.8	16.
			12.8	3.4	57.8	18.3	229 · 2	156.7	45.5	36.8	9.6	16.
			13.9	2.8	59.4	19.4	230 · 3	157-1	40.6	34.3	8.5	17.
				tery and	Inte	stine.		um and		y and	Uter	rus.
				oneum.	63.5	72.3	79·8	nus. 55·9	Fallopia	an Tube.	1922	
			8.2	15.8	96.8	109.2	93.6	59.3		19·2 24·3		174
••			6.0	12·0 8·1	125.4	129.9	105.5	59.8		36.0		157
			5.4		136.9		1105.5	59.8		42.3	State Object Co.	143
			4.9	6.6		138.4					-	
											7	139 · 137 ·
											-	134.
												135
		••							Coro		Otho	
					Roder		2 10	ems.	3010	tum.		SKIII
					6.7		6.6	STATE OF THE PARTY OF				10.
									2.7			10.
									2.3	150/201		9.
												9.
												11.
												9.
								MADE NO.		_		8.
••	••							creas				dder.
			Lai	yna.	2.	b.		Or Cas.			2.0	addi.
			7	?	10.2	7.0	14.5	11.8			?	7
									9.1	7.2	28.2	9.
									11.7	8.9	30.5	11.
			31.6	8.5	40.2	13.9	29.4	23.8	13.0	8.7	31.8	11.
							28.8	21.6	13.9	9.5	34.2	11.
			30.7	7.2	57.0	17.2	32.0	23.1	13.7	10.1	32.0	11.
			30.8	7.1	66.8	17.6	32.4	24.7	14.1	10.3	32.5	12.
			30.7	7.3	75.3	20.3	33.0	23.5	15.8	10.2	33.6	10.
			Pros	state.	Te	stis.	Bo	ones.				
			11.8		- ?					4.5	100 A	
			26.5	_	4.9	-	15.7		9.2	4.6		
			47.7	_	5.8	_	17.6	13.5	12.6	5.8	-	
			54.9	-	6.7	-	17.3	12.0	13.1	5.3		
			56.4		5.9	-	16.5	11.7	11.4	4.6		
					00							
•		10 3 3 5 7 X	58.5		6.8	-	16.8	13.3	9.8	4.0		
			58·5 57·4	_	6.8	=	16·8 16·4 17·6	13·3 13·0 12·2	9·8 9·8 8·8	4·0 4·1 4·1	3 572	
				. 4 · 6 . 3 · 9 · 4 · 2	4-6 6-3 3-9 6-0 4-2 5-5 Breast. 1-5 158-4 1-6 170-8 1-8 189-1 2-3 194-5 2-3 200-2 1-8 196-6 2-0 197-9 1-9 197-9 1-9 197-9 1-9 137-9 23-9 6-0 31-3 7-1 31-6 8-5 31-7 7-9 30-7 7-2 30-8 7-1 30-7 7-3 Prostate. 11-8 — 26-5 47-7 — 56-4 —	4-6 6-3 136-8 3-9 6-0 138-9 Breast. 1-5 158-4 7 1-6 170-8 6-7 1-8 189-1 8-4 2-3 194-5 9-1 1-8 196-6 8-0 2-0 197-9 7-2 1-9 197-9 7-9 Larynx. 2 3-9 6-0 12-7 31-3 7-1 25-2 31-6 8-5 40-2 31-7 7-9 51-2 30-8 7-1 66-8 30-7 7-2 57-8 30-8 7-1 66-8 30-7 7-3 75-3 Prostate. 11-8 - 7 26-5 - 4-9 47-7 - 5-8 54-9 - 6-7	4-6 6-3 136-8 133-9 3-9 6-0 139-4 140-5 4-2 5-5 138-9 141-5 Breast.	4-6 6-3 136-8 133-9 113-5 3-9 6-0 139-4 140-5 4-2 5-5 138-9 141-5 4-6 170-8 6-7 4-3 6-6 1-6 170-8 6-7 4-3 6-6 1-8 189-1 8-4 4-9 6-4 2-3 194-5 9-1 4-6 6-3 1-8 196-6 8-0 4-2 6-0 1-9 197-9 7-2 3-9 5-7 1-9 197-9 7-9 4-1 6-8 Larynx	4-6 6-3 136-8 133-9 113-5 59-8			

life by improving resort to or results of treatment of cancer of certain sites over a period of time, unless permanent cures were being effected. For this reason Table LXIV has been prepared to compare the actual registered deaths in successive age groups during the two years 1933–34 from cancer of each site with the number which would have occurred if the estimated population at risk at each age during 1933–34 had been subjected to the mean mortality rate of the decade 1911–20 at that age. The actual deaths are then expressed as percentages of the calculated deaths, so that the excess or defect

from 100 denotes the percentage increase or decrease since 1911–20 in the risk of being certified as dying from cancer of the site in question at the specified age.

If improved application of treatment of cancer of certain sites during the last 18 years has resulted in an increased postponement of death from those particular forms of cancer, this should be reflected in a deficiency of deaths below the expected number at ages before 55 or 65, and an excess of deaths at later ages. Such an effect, if present, may be superimposed upon other changes such as a decreasing incidence of malignant change in the organ in question, increasing recognition of it when it occurs or more accurate certification of it after decease. Another factor affecting the figures is a transfer to the site of the primary growth of deaths which were previously attributed, owing to less accurate certification, to the site of a secondary growth. The combined effects of these transfers to higher age groups or to other sites may be deduced from Table LXIV, where the excess or defect of deaths up to age 55, at 55–65, up to and after 65, and at all ages, is given for each site.

The mean age at death in 1933–34, calculated from Table LXIV by the simple, but sufficiently accurate method of multiplying the registered deaths in successive columns by 2, 3, 4, 5, 6, 7, 8 and 9, and dividing the resulting figure by one-tenth of the deaths at all ages, is also given in Table LXV and the excess or defect from the mean age at death if the same population had been subject to 1911–20 rates of mortality at the several ages.

Cancer without distinction of site manifests an increase for males of 13 per cent. at ages under 25, 10 at 25–35, 5 at 35–45, a slight decrease at 45–55 and increases of 5, 25, 46 and 58 per cent. at subsequent age groups. For females an increase of 24 per cent. at 0–25 is followed by decreases of 2, 6, 8 and 5 per cent. in the four decennial age periods between 25 and 65, with increases after age 65 of 7, 25 and 47 per cent. (See also Diagram 3.) This is equivalent to an excess during 1933–34 of 841 deaths of males under 65 and 7,204 after 65, and to a deficiency of 2,235 deaths of females under 65 and an excess of 3,951 after 65. The mean ages at death, 64·1 and 63·2, have increased since 1911–20 by 1·3 and 1·2 years for males and females respectively after allowing for the effect of the changed age distribution of the population at risk.

Cancer of the *liver* registers a decline of 51 per cent. for males and 63 per cent. for females, evident at every age, and the *mesentery* and peritoneum show almost as great a fall. It is probable that the whole of the apparent change for these sites, namely the fall of 7,448 deaths below expectation, is attributable to more accurate description of the primary site, so that the bulk of this total should really be added to the expected deaths from cancer of the stomach, intestines, pancreas, gall bladder, rectum, female breast

Testis.

Bones (males).

and generative organs. The apparent excess for these organs is as follows:—

OWS.					
Excess.			Male.	Female.	Total.
Stomach		1.0	2,393	1,456	3,849
Intestine	••	•	2,404	2,398	4,802
Pancreas, gall bladder		••	1,095	1,180	2,275
Rectum			1,020	—57	963
Female breast, uterus,	ovary	:: <u>_</u>		862	862
Total of above	1.	.,	6,912	5,839	12,751
Deficiency.					
Liver	e vitor		2,529	4,350 \	7.440
Mesentery, peritoneum			119	$4,350 \ 450 $	7,448

From the above figures it is evident that more than one-half of the apparent increase in deaths attributed to cancer of the digestive tract could be explained by more accurate description of cancer of the liver and peritoneum, and this must be borne in mind when considering the apparent changes for these sites. It is also evident from Diagram 3 that there has been no apparent change in the aggregate male mortality risk from cancer of the stomach, intestine, peritoneum, pancreas and liver at ages under 65, but from 65 onwards there has been an apparent increase reaching 90 per cent. at ages over 85.

Sites other than the liver and peritoneum can be classified from Table LXV into 5 groups according to the kind of apparent change in mortality since 1911–20. It will be noticed that the first group consists entirely, and the second mainly, of "accessible" sites, whilst the last group, registering apparent increase alike in early and late life, consists mainly of the "inaccessible" sites.

(1) Sites showing less deaths than expected before and after 65.

Lip (males).
Jaw.
Mouth and tonsil (females).
Skin cancers other than rodent ulcer, penis and scrotum.
Uterus.

(2) Sites showing less deaths than expected before 65 but an excess after 65.

Tongue.
Mouth and tonsil (males).
Pharynx.
Œsophagus (males).
Stomach (females).
Rectum (females).
Mediastinum.
Bladder (females).
Penis and scrotum.
Rodent ulcer.

(3) No appreciable change.. Lip (females).

(4) Sites showing more deaths than expected before 65 but less after 65.

Œsophagus (females). Stomach (males). Intestine. Rectum (males).

(5) Sites showing excess of deaths over expectation before and after 65.

Pancreas.
Gall bladder.
Kidney.
Breast.
Larynx.
Lung.
Ovary and Fallopian tube.
Bladder (males).
Prostate.
Bones (females).

The indications given by Tables LXIII to LXV as to the mortality changes since 1911–20 for these sites will now be considered in turn.

Lip.—The standardized rate for males fell from $12\cdot 6$ per million in 1911–20 to $8\cdot 7$ in 1933, but increased to $10\cdot 5$ in 1934. The rate for females ranges between $0\cdot 5$ and $0\cdot 8$ per million. Each age group of persons over 35 shows a fall, and the mean age at death, $70\cdot 7$ years, is not appreciably different from its expected value.

Jaw.—Male standardized mortality has fallen from $25 \cdot 1$ per million in 1911–20 to $14 \cdot 4$ in 1934, and the female rate from $7 \cdot 2$ to $5 \cdot 3$. The decline has been greatest at 45-55 and then progressively slighter at more advanced years, the mean age at death having increased by 2 years more than can be accounted for by population changes.

A declining incidence of cancer of these two sites must be the main cause of these changes, assisted perhaps by increased resort to treatment for lip cancers.

Skin.—Cancer of the skin, other than rodent ulcer, but including malignant growths of the penis or scrotum, registers a decline in the male standardized rate from 17.6 in 1911-20 to 15.0 in 1934, and in the female rate from 10.9 to 8.4. The improvement is evident at each age between 25 and 85 for males and at each age under 85 for females, and the mean age at death has advanced about a year in excess of expectation for males. Lower incidence of skin cancer or more effective treatment of it, or both, probably account for the reduction in mortality at almost every age.

Uterus.—The rapid decline in mortality from uterine cancer from 174.4 in 1911-20 to 156.4 in 1926, and then continuing in

every year to 134.5 in 1933, was interrupted by a slight increase in 1934. Combining 1933–34, the fall amounts to 24 per cent. at 25–35, 26 at 35–65, 14 at 65–75 and 6 per cent. at 75 and up, and the mean age at death, 58.5 years, has advanced by about one year in excess of expectation. The change is depicted in Diagram 3. Analysis of 1930–32 mortality by marital condition (Review for 1932, p. 72) showed that whilst at ages under 45 mortality had declined from 1911–20 to 1930–32 to a greater degree amongst the married than the single, between 45 and 75 the relative improvement was almost. the same in each group of women (about 25 per cent. fall at ages 45–65 and 13 per cent. at 65–75).

Table LXIV.—Deaths from Cancer of Various Sites at different Ages in 1933-34 compared with the numbers expected had the mean rates during 1911-20 been operative; also actual deaths as percentages of the expected deaths.

	0-	25-	35-	45-	55-	65-	75-	85 and Up.	All Ages.
Lip { Both sexes. { Expected deaths Registered deaths Ratio per cent	- 1	1 3 —	10 6	57 34 60	162 114 70	256 218 85	223 175 78	53 41 77	762 592 78
Tongue Males. Expected deaths Registered deaths Ratio per cent	_1	8 3 —	103 19 18	591 194 33	1,082 733 68	846 866 102	261 299 115	16 25 156	2,908 2,139 74
Females. Expected deaths Registered deaths Ratio per cent	<u>-</u> 1		23 17 74	49 30 61	76 74 97	79 76 96	44 51 116	9 8 —	288 256 89
Mouth and Both Expected deaths Registered deaths Ratio per cent	13	14	62	284	544	431	168	19	1,536
	4	15	27	117	443	469	206	23	1,304
	—	—	44	41	81	109	123	121	85
Jaw { Both sexes. { Expected deaths Registered deaths Ratio per cent	28	29	88	329	614	561	212	25	1,886
	22	23	47	139	313	405	186	26	1,161
	79	79	53	42	51	72	88	104	62
Pharynx { Both sexes. { Expected deaths Registered deaths Ratio per cent	12	12	49	189	333	245	74	8	922
	11	10	28	129	329	347	108	10	972
	—	—	57	68	99	142	146	—	105
Males. Expected deaths Registered deaths Ratio per cent	1 1	9 6 —	94 38 40	653 315 48	1,347 1,236 92	1,061 1,318 124	311 480 154	18 34 189	3,494 3,428 98
Females. Expected deaths Registered deaths Ratio per cent	_1 _	20 7 35	114 65 57	233 223 96	299 400 134	268 374 140	139 211 152	20 30 150	1,094 1,310 120
Males. { Expected deaths Registered deaths Ratio per cent	9	118	502	1,691	3,577	3,542	1,120	66	10,625
	10	165	605	2,034	3,921	4,430	1,737	116	13,018
	—	140	121	120	110	125	155	176	122
Females. { Expected deaths Registered deaths Ratio per cent	8	100	458	1,399	2,832	3,257	1,462	158	9,674
	10	110	413	1,287	2,801	4,011	2,207	291	11,130
	—	110	90	92	99	123	151	184	115
Males. { Expected deaths Registered deaths Ratio per cent	23	47	176	686	1,604	1,730	660	45	4,971
	10	24	83	249	664	936	432	44	2,442
	43	51	47	36	41	54	65	98	49
Females. { Expected deaths Registered deaths Ratio per cent	19	47	240	890	2,048	2,400	1,125	120	6,889
	17	12	84	248	585	930	572	91	2,539
	89	26	35	28	29	39	51	76	37

^{*} Summation of expected and registered deaths in the previous columns. The ratio is equivalent to the ratio between standardized death-rates in 1933-34 and 1911-20 based upon the mean population of 1933-34 as standard.

Table LXIV.—cont.

		Lauto		TA.							
		ALB CONTRACTOR	0-	25-	35-	45-	55-	65-	75-	85-	All Ages.
Gall bladder -	Males.	Expected deaths Registered deaths Ratio per cent		2 1 —	9 9	46 60 130	98 144 147	125 194 155	56 94 168		340 517 152
Gan bladder -	Females.	Expected deaths Registered deaths Ratio per cent	_ _1 _1	4 5 —	20 26 130	107 133 124	251 303 121	294 440 150	133 255 192	16 40 250	825 1,203 146
Mesentery and	Males.	$ \begin{cases} $	12 22 —	18 14 78	27 15 56	55 41 75	97 56 58	86 41 48	23 11 48	- ²	320 201 63
Peritoneum.	Females.	Expected deaths Registered deaths Ratio per cent	9 20 —	17 10 59	59 42 71	153 61 40	243 102 42	213 89 42	98 28 29	12 -	804 354 44
Intestine	Males.	Expected deaths Registered deaths Ratio per cent	23 23 100	71 88 124	237 240 101	709 782 110	1,658 2,047 123	1,947 3,031 156	787 1,536 195	58 147 253	5,490 7,894 144
ntestine	Females.	$ \begin{cases} $	16 21 131	95 116 122	320 392 123	1,009 1,048 104	2,063 2,234 108	2,598 3,469 134	1,377 2,357 171	176 415 236	7,654 10,052 131
Rectum and	Males.	$ \begin{cases} $	17 18 106	70 68 97	197 193 98	676 640 95	1,698 1,864 110	1,883 2,415 128	735 1,078 147	57 77 135	5,333 6,353 119
anus.	Females.	Expected deaths Registered deaths Ratio per cent	12 12 —	73 85 116	223 195 87	613 470 77	1,120 1,043 93	1,319 1,336 101	639 766 120	87 122 140	4,086 4,029 99
Pancreas	Males.	Expected deaths Registered deaths Ratio per cent	3	20 19 95	54 72 133	169 312 185	333 549 165	266 625 235	84 249 293	4 24 —	935 1,853 198
Pancreas	Females.	Expected deaths Registered deaths Ratio per cent	3 7 —	11 11 —	45 66 147	144 207 144	290 508 175	279 560 201	112 289 258	11 49	895 1,697 190
	Males.	Expected deaths Registered deaths Ratio per cent	<u>-</u>	_ _1	4 7 —	15 15 100	23 32 139	26 37 142	17 14 82	_ 2 2	87 108 124
Breast	Females.	Expected deaths Registered deaths Ratio per cent	3 5	157 170 108	1,125 1,220 108	2,706 3,008 111	3,087 3,722 121	2,526 2,942 116	1,430 1,782 125		11,338 13,238 117
	Males.	Expected deaths Registered deaths Ratio per cent	_1	3 4 —	7 4 —	19 19 100	67 51 76	113 129 114	123 145 118	34 56 165	
Rodent ulcer-	Females.	Expected deaths Registered deaths Ratio per cent	_1	<u>-</u>	4 1	19 11 58	33	91 66 73		75	314
Penis, Scrotum.	Males.	Expected deaths Registered deaths Ratio per cent.	=	8 1 —	26 17 65	54	121	142 164 115	106	19	48
	Males.	Expected deaths Registered deaths Ratio per cent	8 10 —	13 8 —	36 22 61		170	281 275 98		64	83
	Females.	Expected deaths Registered deaths Ratio per cent	8 8 —	12 14 —	28 27 96	68		CHANGE ACTIVITIES TO		68	64
Larynx $$	Males.	Expected deaths Registered deaths Ratio per cent	2 	6 2 —	49 36 73	243	676	396 597 151	106 212 200	18	
	Females.	Expected deaths Registered deaths Ratio per cent	_1 _	16 5 31		120		62 110 177	29 56 193	8	37 47 12

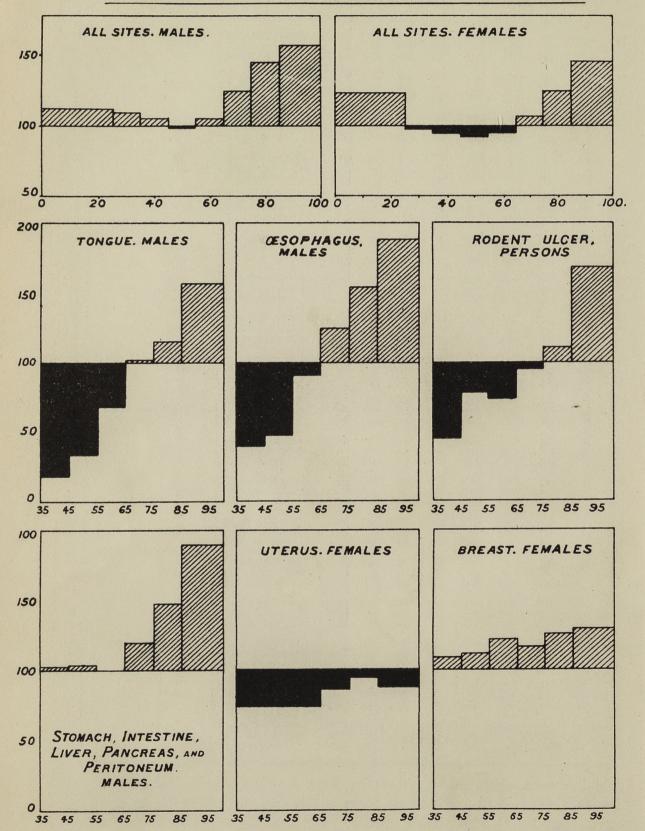
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Table LXIV.—cont.

			1			i					
			0-	25–	35-	45-	55-	65-	75-	85-	All Ages.
Lung (or	Males.	Expected deaths Registered deaths Ratio per cent	20 33 165	36 93 258	66 380 576	1,104	227 1,365 601	148 712 481	27 178 659	1 8	676 3,873 573
pleura)	Females	Expected deaths Registered deaths Ratio per cent	13 13	14 39 —	47 108 230	252	136 389 286	100 317 317	27 111 411	2 6	441 1,235 280
Kidney and	Males.	Expected deaths Registered deaths Ratio per cent	56 83 148	14 21 —	34 65 191		250	96 145 151	29 52 179	_ 2 _ 2	461 759 165
suprarenal.	Females.	Expected deaths Registered deaths Ratio per cent	48 65 135	12 16	31 47 152		119 161 135	95 152 160	40 67 168	- ⁴ 7	419 609 145
Bladder	Males.	Expected deaths Registered deaths Ratio per cent	6 1 —	94	45 49 109	229	475 528 111	631 707 112	253 338 134	25 34 136	1,614 1,890 117
Bladder	Females.	Expected deaths Registered deaths Ratio per cent	2 3 —	4 7	23 27 117	83	186 175 94	237 293 124	132 182 138	19 36 189	685 806 118
Prostate	Males.	Expected deaths Registered deaths Ratio per cent	4	3 3 —	8 11 —	77 114 148	382 650 170	697 1,528 219	343 884 258	24 74 308	1,538 3,268 212
Testis	Males.	Expected deaths Registered deaths Ratio per cent	19 27 142	48 66 137	42 66 157		32 40 125	32 33 103	19 14 74	- ²	230 297 129
Uterus	Females.	Expected deaths Registered deaths Ratio per cent	11 14 —	253 192 76	1,355 1,005 74	2,284	3,412 2,518 74	2,236 1,930 86	789 752 95	79 69 87	11,216 8,764 78
Ovary and Fallopian Tubes.	Females.	Expected deaths Registered deaths Ratio per cent	27 47 174	68 100 147	194 342 176	429 787 183	443 844 191	253 579 229	80 192 240	5 22 —	1,499 2,913 194
Bones	Males.	Expected deaths Registered deaths Ratio per cent	103 118 115	53 55 104	64 58 91	121 149 123	201 229 114	167 160 96	61 56 92	- ⁴ 6	774 831 107
	Females.	Expected deaths Registered deaths Ratio per cent	80 91 114	38 41 108	52 72 138		170 149 88	148 164 111	79 65 82	11 11 —	698 713 102
Mediastinum -	Males.	Expected deaths Registered deaths Ratio per cent	14 11 —	21 13 62	50 46 92	102 109 107	171 159 93	110 131 119	23 35 152	_ 1 _ 2	492 506 103
Mediastinuii 4	Females.	Expected deaths Registered deaths Ratio per cent	7 9 —	9 6 —	29 22 76	63 42 67	90 81 90	67 67 100	22 35 159	- ² 1	289 263 91
All other	Males.	Expected deaths Registered deaths Ratio per cent	138 159 115	108 98 91	195 163 84	534 389 73	909 680 75	724 663 92	252 272 108	22 19 86	2,882 2,443 85
All other Sites.	Females.	Expected deaths Registered deaths Ratio per cent	97 125 129	93 80 86	243 186 77	544 464 85	865 701 81	913 823 90	499 476 95	83 70 84	3,337 2,925 88
All sites	Males.	Expected deaths Registered deaths Ratio per cent	490 555 113		2,166 2,272 105	7,741 7,601 98	16,417 17,157 105	16,322 20,377 125	6,171 9,002 146	545 863 158	
All sites	Females.	Expected deaths Registered deaths Ratio per cent		1,072 1,047 98	4,741 4,434 94	12,160 11,166 92		17,873 19,086 107	8,737 10,884 125	1,246 1,837 147	64,505 66,221 103

Tongue.—Standardized male mortality from this cause reached 50.8 in 1911-20, but has fallen since to 35.7 in 1933, with a slight increase to 37.4 in 1934. This change in the rate at all ages gives

Diagram.3. MORTALITY RISK FROM CANCER IN 1933-34 EXPRESSED AS PERCENTAGE OF THAT IN 1911-20 AT THE SAME AGES.



an inadequate impression of what has been occurring, as Diagram 3 shows. On passing up the scale of age a decrease in mortality risk by 82 per cent. at 35–45 gives place by progressive stages to an increase by 56 per cent. at ages over 85, reflected also in an addition of 4 years to the mean age at death in excess of that caused by increasing average age of the population. Superimposed on a declining incidence of lingual cancer in males, there has probably been for this site an increased average delay of the fatal issue by earlier or more frequent resort to treatment. (See Diagram 3.) The female rate remains about one-tenth of that for males.

Table LXV.—Deaths from Cancer of Various Sites in 1933-34 in Excess or Defect of the Numbers expected had the mean rates during 1911-20 been operative. Mean age at death.

		in	1933-34 al	bove or be	istered dea low number death-rate	er	Mean age	at death
Site.	Sex	Up to 55	55-65	Up to 65	After 65	All ages.	Actual 1933–34.	Excess or defect from expected
All Sites Lip Tongue Mouth, tonsil Jaw Pharynx Esophagus Stomach Liver Gall-bladder Mesentery, peritoneum Intestine Rectum and anus Pancreas Breast Rodent ulcer Penis, scrotum Skin, other than above Larynx Lung (or pleura) Kidney, Suprarenal Bladder Prostate Testis Uterus Ovary and Fallopian tub Bones Mediastinum	 M. F. M. F.	+ 101 - 1,232 - 20 - 4 - 487 - 33 - 192 - 18 - 191 - 52 - 70 - 14 - 397 - 73 + 494 - 145 - 566 - 835 + 13 + 34 - 20 - 105 + 93 + 137 - 41 - 159 + 88 + 4 + 412 - 3 - 13 - 36 - 50 - 1 - 59 - 6 + 1,337 + 236 - 59 - 6 + 1,337 + 236 - 11 - 59 - 6 + 1,337 + 236 - 114 + 61 + 53 + 99 - 62 - 1,205 + 558 + 39 + 34 - 29	+ 740 - 1,003 - 33 + 5 - 349 - 257 - 44 - 7 + 3 - 111 + 101 + 344 - 31 - 1,463 + 46 + 52 - 41 - 1,463 + 46 + 52 - 41 - 141 + 389 + 171 + 166 - 77 + 216 + 218 + 9 + 635 - 16 - 13 - 33 - 151 + 42 - 44 - 31 - 141 - 389 + 171 + 166 - 176 - 177 + 216 - 42 - 43 - 111 + 218 + 9 + 635 - 16 - 13 - 13 - 15 - 16 - 17 - 17 - 18 - 18 - 18 - 19 -	+ 841 - 2,235 - 73 + 1 - 836 - 35 - 285 - 27 - 448 - 77 - 11 - 508 + 28 + 838 - 176 - 1,506 - 2,298 + 86 - 61 - 246 + 482 + 308 + 125 - 236 + 375 + 306 + 13 + 1,047 - 19 - 26 - 78 - 89 - 34 + 25 + 24,475 + 489 + 25 + 2,475 + 489 - 34 + 92 + 25 + 2,475 + 489 - 34 + 106 - 2,099 + 959 + 959 + 959 + 959 + 959 + 13 - 20 - 38	$\begin{array}{c} +7,204\\ +3,951\\ -96\\ -2\\ +67\\ +3\\ +99\\ -19\\ -141\\ -40\\ +110\\ +28\\ +442\\ +188\\ +1,555\\ +1,632\\ -2,052\\ +118\\ +292\\ -58\\ -204\\ +1,922\\ +2,090\\ +895\\ +179\\ +543\\ +496\\ +853\\ +60\\ -39\\ -91\\ +853\\ +60\\ -39\\ -91\\ +81\\ +722\\ +305\\ +72\\ +87\\ +170\\ -91\\ +34\\ -353\\ -353\\ +455\\ -10\\ +22\\ +345\\ -10\\ +344\\ +345\\ -10\\ +344\\ +$	+ 8,045 + 1,716 - 169 - 32 - 186 - 46 - 589 - 136 + 216 + 2,393 + 1,456 - 2,529 - 4,350 + 177 + 378 - 119 - 450 + 2,404 + 2,204 + 1,020 - 57 + 918 + 802 + 1,900 + 41 - 124 - 128 - 125 + 412 + 1,900 + 41 - 124 - 128 - 125 + 412 + 1,170 + 410 - 2,452 + 1,1730 + 1,1730		+ 1·3 + 1·2 + 0·4 + 4·0 + 2·8 + 3·4 + 2·1 + 2·9 + 3·3 + 3·2 + 0·7 + 2·0 + 1·9 + 2·2 + 1·4 + 1·8 - 4·0 + 2·2 + 1·4 + 1·4 + 2·3 - 1·3 + 1·2 - 0·1 + 1·2 + 1·3 + 1·3

Mouth, tonsil and pharynx.—Standardized mortality for cancer of the mouth and tonsil, which was increasing up to 1930–31, has recently declined, but the male rate for the pharynx has increased since 1911–20 by $3\cdot 1$, against a fall of $4\cdot 0$ for mouth and tonsil. For both sites mortality has decreased remarkably at ages under 55 but has increased at ages over 65, and the mean age at death has advanced by 3 to $3\frac{1}{2}$ years in excess of expectation. Later incidence of cancer of these sites must surely be indicated by these changes.

Esophagus.—No important change has occurred in the male standardized rate since 1911–20, whilst the female rate has increased by 18 per cent., but there has been a remarkable change in the age distribution of the deaths of both sexes. The male deaths at ages under 65 in 1933–34 numbered 508 less, and deaths at ages 65 and over numbered 442 more than if the rates had remained constant at each age, whilst deaths of females were 73 in defect at ages under 55 and 289 in excess at ages over 55. (See Diagram 3.) This change, with its resultant advancement of the mean age at death by over 3 years in excess of expectation, probably reflects a postponement of the incidence of cancer of this site to later ages, rather than to prolongation of life after incidence.

Stomach.—Standardized mortality increased for males from 186 in 1911–20 to 237 in 1929 and has remained since between 229 and 234. The female rate, only two-thirds of that for males, has followed a similar course, but whilst the apparent male risks have increased at every age, the risk to females has fallen between ages 35 and 65. The whole of the increase is explicable by transfer from cancer of the liver and by improved diagnosis and certification in other directions.

Rectum and Anus.—Standardized mortality of males rose from 94 in 1911–20 to 113 in 1932 and 111 in 1933–34, but the female rate has remained remarkably constant, about 59. At ages 25–55 for males and 35–65 for females a slight fall has occurred, exceeded in the one case and balanced in the other by increases at advanced ages, these increases being no doubt apparent rather than real.

Bladder.—Cancer of this organ registers an increase since 1911–20 for each sex at every age over 35, except at 55–65 for females, but the standardized rates have shown no tendency to increase in recent years.

Penis and Scrotum.—The standardized rate was $9\cdot 1$ in 1934 compared with $8\cdot 0$ in 1933 and $9\cdot 0$ in 1911–20. A decrease of deaths before age 65 has been balanced by an increase at later ages, with an addition of $3\cdot 4$ years to the mean age at death, in excess of expectation. Postponed incidence of this form of cancer, due perhaps to precautionary measures, or delayed death by more effective treatment, or both combined, are no doubt responsible for this.

Rodent ulcer mortality increased up to 1928–29, but of recent years has tended to decline. A transfer of deaths to more advanced ages is again noticeable (see Diagram 3), particularly for females whose mean age at death has increased by nearly 4 years more than can be accounted for by changes in the population, a result probably attributable to improved treatment, preventive and curative.

Testis.—The mean age at death, 46 years, is lower than for any other site, the next sites in order for males being the bones, peritoneum and kidney. Standardized mortality was 4.9 per million in 1911–20 and 6.5 in 1934, a considerable increase having occurred at each age up to 65.

Bones.—For this group mortality changes have been small, a slight increase having been registered since 1911–20 at ages under 65 for males and under 55 for females.

Intestine.—The standardized rate for males rose from 97 in 1911–20 to 139 in 1933–34, and for females from 109 to 141. At ages below 65 the apparent increase amounts to 18 per cent. for males and 9 per cent. for females, but becomes greater at higher ages. Transfer from cancer of the liver, and increasing precision of certification are no doubt the main factors concerned.

Pancreas, gall bladder.—Deaths attributed to cancer of these sites increased rapidly to the middle of 1921–30, but have mounted more slowly since. The percentage increase has been greater at advanced than at earlier ages.

Kidney and Suprarenal.—Standardized mortality of males rose from $9 \cdot 1$ in 1911-20 to $15 \cdot 8$ in 1934, and the female rate from $7 \cdot 2$ to $10 \cdot 2$ per million. This apparent increase has occurred at every age.

Breast.—The increase in female mortality from breast cancer amounted to 8 per cent. from 1901-10 to 1911-20, and 11 per cent. in the next decennium, with a further 5 per cent. rise to 1934, but there has not been any consistent change since 1928. Many cases of breast cancer followed after removal by secondary cancer of the liver were formerly certified under the latter description and the transfer of such deaths with improved certification doubtless accounts for part of the rise in the breast rate. Probably there has been an increasing incidence of breast cancer coincident with declining fertility. The increase from 1911-20 to 1933-34 has been 10 per cent. at ages under 55, and 20 at 55 and upwards (see Diag. 3). In so far as treatment only delays the fatal issue in many cases, a more extensive resort to such treatment must tend to increase the rates at later ages at the expense of those at earlier ages. It was shown in the Review for 1932 (Table LII and p. 72) that whilst mortality at ages 35-55 had increased from 1911-20 to 1930-32 by about 10 per cent. in married and single alike, at ages over 55 the increase had been much greater amongst the married than the single.

Larynx.—The rise in the standardized rate until 1921-30 has not been sustained in recent years. Since 1911-20 there has been

a decline at ages under 55 for males, and under 45 for females, but at higher ages increases have occurred which become rapidly greater in extent with advancing age. It is difficult to account for this except by postponement of onset of this form of cancer by lessened intensity of some of the causes, whatever they may be, as in the

case of the esophagus.

Lung.—Mortality attributed to cancer of the lung continues to mount rapidly year by year. The male rate was $12 \cdot 7$ in 1911-20, $25 \cdot 2$ in 1921-30 and $75 \cdot 3$ in 1934, and the corresponding female rates $7 \cdot 0$, $9 \cdot 6$ and $20 \cdot 3$ per million. The increase to 1933-34 at ages under 35 amounts to 125 per cent. for males and 93 per cent. for females, but at the higher age groups it ranges from 130 to 311 per cent. for females. Whilst the magnitude of the increase in both sexes suggests that improved means of diagnosis is partly responsible, the greater relative increase for males than for females requires some other explanation.

Ovary and Fallopian tube.—Mortality attributed to cancer of these sites continues to increase and has almost doubled since 1911–20, this increase being evident at every age though relatively

greater at ages over 65.

Prostate.—Standardized mortality increased from 26.5 in 1911-20 to 58.5 in 1932, and has fallen since to 56.2 in 1934. The proportionate amount of increase to 1933-34 is 48 per cent. at 45-55, 70 at 55-65, 119 at 65-75, 158 at 75-85 and 208 per cent. at ages 85 and over, the mean age at death being 70.3 years.

54. Tumours not returned as malignant.—As in other recent years all deaths from tumours not definitely stated to be malignant have been assembled in Table LXVI. These numbered 3,236, the tumour being returned as benign in 1,905 instances, and its nature in the remaining 1,331 being unstated. The classification differs from that in use prior to 1931, as explained in the Review for 1931.

"Adenoma" of the prostate is classed to diseases of the prostate, No. 137, rather than to these headings because this condition seems to be scarcely distinguishable from that described as prostatic hypertrophy. Benign tumours other than adenoma or the varieties of it shown in Table LXVI are classed to No. 54 (2 only in 1934) and tumours of unstated nature to No. 55. Mortality attributed to prostatic diseases is seen from Table 8 to have increased rapidly in the last decade, the standardized rate being 114 per million in 1924 and 160 in 1934. In 1934 a total of 6,208 deaths was assigned to No. 137, diseases of the prostate, No. 51, cancer of the prostate, and Nos. 54, 55, other or ill defined tumours, and of these deaths 26·4 per cent. were attributed to cancer, 5·7 per cent. to benign tumours and 67·9 per cent. to other conditions, chiefly hypertrophy.

Deaths attributed to non-malignant conditions have increased in recent years rather more rapidly than those attributed to cancer. The proportions calculated on the above basis for 1922–24 were $29 \cdot 1$, $4 \cdot 4$ and $66 \cdot 5$ per cent. respectively.

Table LXVI.—England and Wales, 1934; Deaths attributed to Tumours not returned as malignant.

All Ages. 0- 15- 35- 45- 55- 65- 75 & Up.																
Part affected.	All A	ges.	0-		15-	-	35	-	45-	-	55	-	65	-	75 &	Up.
Tare anececu.	M.	F.	М.	F.	М.	F.	М.	F.	M.	F.	М.	F.	М.	F.	M.	F.
Tumours classed with other disease of organ affected.																
In 137. Prostate	352 331 7 3 1 10					= = = = = = = = = = = = = = = = = = = =			1 1 - -		49 45 2 2 —		145 136 3 — 6		156 149 1 1 1 4	
Tumours not classed with other disease of organ affected.																
54a and 55a. Female genital organs. Ovary . Cyst Cystadenoma Endometrioma Fibroid Other benign Nature unstated		259 5 5 11 2 7		1 1 - -		20 1 —	HILL	36 1 4 3 1 1		48 2 - 3 - 2		39 - 2 1 1		$ \begin{array}{c c} 58 \\ \hline 1 \\ \hline 2 \\ \hline 1 \end{array} $		57 - 1 - 2
Uterus Fibroid Endometrioma Myoma Polypus Other benign Nature unstated		388 3 12 6 8 5				28 1 1 1 -		99 1 4 2 2 —		152 1 2 1 5 1		46 - 2 1 -		30 4 - 2		$\begin{bmatrix} \frac{33}{1} \\ \frac{-}{1} \end{bmatrix}$
Pelvis Non-malignant Nature unstated	=	4	=	_	=	=	=	2	=	=	=	2	=	-	-	=
Vagina Non-malignant	-	2	-	-	-	-	-	-	-	1	-	-	-	1	-	-
Broad ligament Cyst Other benign	-	3 5	=	=	-	2 1	=	2	-	2	-	-	-	1	=	=
54b and 55b. Other sites. Brain	1 11 25 1 163 2 3 11 439	3 6 15 3 129 3 6 19 446	-2 5 -15 - 1 44	2 3 1 - 26 - 1 42	-3 8 -40 -1 3 74	1 1 5 	-3 3 -29 1 1 1 67	$ \begin{array}{c c} - \\ 4 \\ 1 \\ 20 \\ 1 \\ - \\ 3 \\ 71 \end{array} $	1 1 2 1 42 1 1 —————————————————————————	1 2 36 1 2 2 111	1 6 - 34 - 1 3 100	1 1 1 - 15 - 3 6 103		- 2 - 7 - 3 48		- - 1 - - 1 9
Pituitary gland Adenoma	13 - 1 17	9 3 3 8	$\frac{1}{\frac{1}{1}}$	$\left \frac{1}{1} \right $	5 - 3	3 1 1 3	2 - 3	1 1 1	2 - 5	3 1 —	$\begin{bmatrix} 2 \\ - \\ 3 \end{bmatrix}$	1 - 2	1 - 2	$\begin{array}{ c c }\hline 1\\\hline 1\\1\\1\\\end{array}$		=
Pineal body Non-malignant Thyroid Cyst Other benign	3 1	1 3 1	1 	- 1 -	- <u>-</u>		- - 1	- -		1 -		- - 1	2	1	=	1 -
Spinal cord Angioma	3 6 3 4	3 2		$\left \frac{1}{1} \right $	- - -	-	- 2 -	=	1 1 1	$\frac{-}{2}$	$\begin{bmatrix} 1\\2\\-1 \end{bmatrix}$		1 2 1 1 1	$-\frac{1}{1}$		
Eye Glioma Other benign		2 1 1	1 1 —	1 -	=	=	=	=		=		=				
Ear Polypus Other benign	3		=	=	2	1	=	=	1	=	-	=	=	=	=	-
Nose Polypus Other benign		7	=	-	-	3	1	1	1	1	2	=	-	=		2
Larynx Papilloma Other benign Nature unstated	1	3	=	=	=	=	=	=	1	_	1 2					- 1
Pharynx Non-malignant Mediastinum Non-malignant Nature unstated	1	$\frac{3}{32}$	1 - 2	-		- - 2		1	1 26	- - 5	29		$\begin{vmatrix} -1 \\ -1 \end{vmatrix}$	1 12	- -	7 7

Table LXVI.—continued.

Per		All	Ages.	0	-	15	5-	38	5-	45	5	55	5-	65	-	75 8	& Up.
Part	affected.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Tumours not cle	assed with other disease ffected—continued.					,								-			
Lung	Non-malignant Nature unstated	- 69	2 26	=	_	<u></u>	1 3	<u></u>	<u></u>	<u></u>	<u></u>	${27}$	7	15	1 6	$-\frac{1}{4}$	<u>-</u>
Parotid	Mixed tumour Other benign Nature unstated	5 1 1	5 1 1	<u>-</u>	=	=	=	<u>-</u>	=	-	_	2 	2 _	2	<u></u>	1 1 1 1	$\begin{vmatrix} 3 \\ -1 \end{vmatrix}$
Œsophagus	Non-malignant Nature unstated	3	1 2	=	=	=	-	=	-	=	_	_	1	$\left\ \frac{1}{1} \right\ $	=	_	<u></u>
Stomach	Other benign Nature unstated	3 2 4	1 3 6		_	-	-	<u></u>	=	_	<u></u>	1 1 -	$\frac{1}{1}$	$\frac{1}{3}$	2 2	$-\frac{1}{1}$	- - 3
Intestine	Other benign Nature unstated	2 5 19	1 3 19		=	 	1	<u>-</u>	- - 1	$\frac{2}{2}$	$-\frac{1}{2}$		1 1	- 1 5	— 1 4	- - 8	- 1 11
Rectum	Other benign Nature unstated	1 1 1 1	4 2 —	_ _ _	_	=	_	=	=	=	$\begin{bmatrix} -1 \\ -1 \end{bmatrix}$	-	1 1 -	- 1 -	2 _	$-\frac{1}{1}$	1
Liver	Non-malignant Nature unstated	1 6	2	1	=	<u></u>	1	_	1	-	=	$\left\ \frac{1}{1} \right\ $	=	$-\frac{3}{3}$	_	<u></u>	<u></u>
Pancreas	Cyst Nature unstated	2 3	11 3	_	=		1 1	_	_	1_1	3 1	<u></u>	3	1 2	3	_	1
Kidney	Other benign Nature unstated	2 4 10	1 5 9	_		<u></u>	$\begin{bmatrix} -2 \\ 1 \end{bmatrix}$	<u>-</u>	=	$\left\ \frac{-}{2} \right\ $	1 1 1 1	1 3 5	$-{2}$	$\left\ \frac{-}{1} \right\ $	1 3	$\frac{1}{1}$	<u></u>
Bladder	Papilloma Polypus Other benign Nature unstated	110 1 2 8	43 2 - 3			<u>1</u>	1	1 - -	1	11 —	1 —	19 2	9 - 1	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	15 1 —	39 1 1 3	16 1 - 2
Spleen	Nature unstated	3	-	1	-	-	-	-	-	-	-	1	-	1	-	-	-
Prostate	Non-malignant Nature unstated	2 1	=	=	=	_	_	=	=	-	-	1	_	1 _	-	<u></u>	=
Breast	Non-malignant Nature unstated	=	2 2	=	=		=	-	=	=	2	=	-	=	_	_	2
	. Non-malignant	1	4	-	1	-	-	-	1	-	-	-	-	1	1	-	1
Spine	Other benign Nature unstated	$\begin{bmatrix} -2\\ 9 \end{bmatrix}$	3 1 6	_ 1 _	1 _	$\left \frac{-}{2} \right $	$-\frac{1}{1}$	-	$\frac{1}{2}$	$\left\ \frac{-}{2} \right\ $	_	$\begin{bmatrix} -1\\ 1\\ 3 \end{bmatrix}$	<u>-</u>	${2}$	=		1 -
Neck	Non-malignant Nature unstated	1	_1	=	=	=	=	=	=	1	=	1 1	1	1	=	1	=
Thorax	Non-malignant Nature unstated	1 6	<u></u>	=	_	=	=	=	=	=	=	${2}$	=	1 3	=	<u></u>	<u></u>
Abdomen .	Other benign Nature unstated	1 2 10	2 5 24	<u>-</u>		1 1 -	<u>-</u>	- -	<u></u>	<u>-</u>	1 1 2	<u>_</u>	<u>-</u> 5	- 1 1	1 1 6	<u>-</u> 5	2 10
Other sites .	Non-malignant Nature unstated	36 10	47 10	6 2	6	6	5 1	4	5 1	6	9	6 4	7 4	7	10 3	1 2	5 1
Site not stated.	. Non-malignant Nature unstated	2	4	1	_	_	1	-	1	=	_	-	2	1 _	=	-	=
Total (54 an	d 55)	1166	1718	89	93	161	191	128	281	244	423	280	294	168	245	96	191
" t	enign tumours	1518 811 707	1718 1094 624	89 38 51	93 49 44		191 115 76	128 50 78	281 200 81		423 292 131	329 142 187	294 152 142	313 218 95	245 155 90	252 205 47	191 131 60

Deaths assigned to *uterine fibroid*, myoma, fibroma or fibromyoma as cause numbered 400 in 1934. These do not represent the whole of the deaths in whose causation such tumours were concerned, as may be seen from the numbers, given below, of deaths assigned during 1931–33 to other associated causes by the operation of the rules of precedence for local diseases.

		1931.	1932.	1933.
Assigned to No. 54a		 390	406	384
Assigned to other cause-groups		 100	86	77
including Heart diseases	150 35	28	20	19
Intestinal obstruction		25	27	24
Appendicitis		 3	5	3
Diabetes		 4	2	4
Exophthalmic goitre		 3	7	4

Some of the deaths from "intestinal obstruction" were due to paralytic ileus following operations for fibroids.

The standardized rate of mortality classed to the uterine tumours as cause has increased during the last 10 years from $16 \cdot 7$ per million in 1922-24 to $19 \cdot 1$ in 1932-34 as shown below.

Rates per million women living at ages :-

	15—	35—	45—	55—	65—	75 and up.	All ages.
1922-24	3.0	32.7	54.8	23.8	34.8	47.8	16.7
1932-34	3.5	35.6	60.1	19.5	27.6	62.8	19.1

There has been a 10 per cent. increase at ages under 55 and a 20 per cent. decrease at 55–75. These changes are probably indicative of greater incidence of fibroids prior to age 50 with the declining birth-rate, the increase of 31 per cent. at ages over 75 being due perhaps to more complete description of cause of death at these ages.

Ovarian cysts were assigned as the cause of 259 deaths in 1934, and the numbers classed to other causes associated with ovarian cyst during 1931–33, were:—

White part is problement and superfusions	1931.	1932.	1933.
	er d e		
Assigned to No. 54a	. 306	270	269
Assigned to other cause-groups	. 87	81	73
including Heart diseases	. 37	28	38
Intestinal obstruction	. 23	16	11
Appendicitis	. 3	5	2
Diabetes	. 1	7	3
Exophthalmic goitre	A 40	2	14.0 <u>01</u>

Standardized mortality directly due to ovarian cyst was 12.7 per million in 1932-34 compared with 11.4 a decade earlier, but the rate for undefined tumours of the ovary, consisting no doubt

largely of cysts, decreased in the same period by 0.9. The changes at separate ages are shown below.

Rates per million women living at ages:

0— 15— 35— 45— 55— 65— 75 and All 12.3 16.7 25.0 56.7 79.3 11.4 1922-24 1932-34 $3.7 \quad 11.8 \quad 16.6 \quad 23.1 \quad 45.6 \quad 104.5 \quad 12.7$

No appreciable change has occurred at ages under 55, but the rates at 55-75 register a decline. The increase, probably only apparent, at ages over 75 accounts for the whole of the increase in the standardized rate.

Adenoma of the thyroid is not included in this table, but is

classed to No. 66 (a). Simple goitre.

Deaths ascribed to pituitary tumour have increased from 7 in 1913 to 54 in 1934. Deaths from tumour of the lung increased from numbers ranging between 11 and 21 during 1912-19 to 83 in 1932, 74 in 1933, and 97 in 1934. Like lung cancer, which has also increased rapidly (Table LXIII), they affect males much more than females. The ratios of malignant to benign tumours of the mediastinum, lung, and abdominal organs suggest that large proportions of those returned as of unknown nature were probably malignant.

59. Diabetes.—The deaths allocated to this disease numbered 6,471, 2,496 of males and 3,975 of females, corresponding to standardized death-rates of 91 for males and 115 for females. This rate has been in excess for females in each year from 1923 onwards, whereas before that date excess for males was an invariable rule,

though its amount had long been decreasing.

The trend of diabetes mortality since 1861-70 was discussed in the Review for 1933. At ages under 45 male standardized mortality increased until 1891-1900, remained stationary until 1912, and then rapidly increased to 1915. The rates of the next 5 years, relating to civilians only, were greatly influenced by selection, but from 1920 to 1922 the rate was again rising. The introduction of insulin in 1923 was accompanied by a drop from 41 per million in 1922 to 26 in 1924 and a further gradual fall has occurred to 20 in 1934. At ages 45-55 male mortality behaved similarly; it remained stationary, about 160 per million, from 1891-1900 to 1913, fluctuated during 1914-20 and had not quite regained its former level by 1922. The following years witnessed a drop from 143 to a mean level of 88 in 1926–28 and 91 in 1931–34 (Table LXVII).

Mortality of females at ages under 45, steadily increased until 1901-10, when the standardized rate was 32 per million, and fluctuated about that level during the next decade. With the use of insulin the rate fell from 34 in 1922 to 25 in 1924 and has remained between 21 and 25 since, being 21 in 1934. At ages 45-55 the rate was steadily rising up to 1913, then rapidly declined during 1915-18

but increased again almost as quickly in the succeeding years to 1923. The fall which then occurred has not been so well maintained as at the earlier ages; the introduction of insulin interrupted for several years the upward trend of registered mortality at this age period, just as food restriction and other factors had done in 1915-18.

There is no reason to suppose from the behaviour of the deathrates in the pre-insulin period or from other evidence that the rate of incidence of new cases of diabetes at ages under 55 has undergone any diminution during the past 10 years. On the contrary there is reason to believe that it has increased to some extent. Assuming a constant incidence rate, the deaths which would have occurred at ages under 55, had no change in therapy taken place, may be calculated by applying the 1920-22 death-rates to the

Table I.XVII - Mortality from Diabetes in 1920-22 and in subsequent

Table LA	. VII.—	-MOI	іапц		years		1320	-aa a	nu m	SUUSC	quen
	Stand	ardized :	Rates.	and the		equ 1	i ted	600.0		1 1100	75
	All ages	0-55	55 and up	0-	15-	25-	35-	45-	55-	65-	and up
			DEATH	-RATES	PER M	IILLION	LIVING	G.			
Males:— 1920-22	93·7 88·1 92·4 92·3 91·0	47·9 29·5 28·9 28·5 27·2	477·5 580·3 625·6 628·2 627·0	14 12 10 13 10	42 22 21 26 22	60 30 30 30 27	69 38 45 36 32	133 97 93 80 94	309 315 320 325 331	661 821 897 888 889	77: 1,16: 1,31: 1,32: 1,29
Females:— 1920-22	90·1 110·9 112·4 114·3 114·9	43·1 33·4 32·5 33·5 30·7	483 · 9 762 · 0 783 · 3 793 · 0 821 · 4	16 11 13 12 10	35 26 20 25 18	48 31 29 30 28	62 45 46 48 44	124 121 118 118 123	355 473 485 470 490	656 1,097 1,143 1,178 1,204	63 1,21 1,21 1,27 1,34
	MORTA	LITY C	F LATE	ER YEA	ARS PE	R CENT	OF T	HAT II	N 1920-	-22.	
Males:— 1923 1924 1925 1926 1927 1928 1930 1931 1933	96 92 87 92 94 97 101 99 94	79 72 67 68 67 63 73 65 62 60 59	110 108 104 112 116 126 125 128 122 131	79 64 79 93 79 93 86 71 86 71 93	79 69 52 67 74 60 60 57 52 50 62	80 63 72 60 68 55 60 63 50 50	87 75 62 70 58 55 90 59 55 65 52	74 83 70 68 63 68 79 74 73 70 60	104 104 93 105 107 107 106 109 102 104 105	113 105 106 112 116 136 130 130 124 136 136	114 122 120 124 133 140 150 154 150

population at the corresponding ages in the year in question. These expected deaths of both sexes in the years 1931, 1932, 1933, and 1934 are compared below with the actual deaths registered.

				0	
		Under 45	45–55	Under 55	Deficiency under 55
1001 (Expected		1,112	630	1,742	under 33
1931 Expected Actual		702	540	1,242	500
1932 Expected Actual		1,116	634	1,750	
Actual		691	527	1,218	532
1933 Expected Actual		1,117	637	1,754	
Actual	••	723	501	1,224	530
1934 Expected Actual		1,118	641	1,759	-0.
[Actual		626	549	1,175	584

There has been an annual deficiency of 500 to 600 deaths from the calculated number, and it is reasonable to conclude that these represent minimal estimates of the deaths which would have occurred at ages under 55 under pre-insulin conditions but which were postponed by insulin either (a) to some age over 55, or (b) to some age under 55 with assignment of death to some cause other than diabetes. With regard to the latter eventuality, the death of a diabetic who has been receiving insulin will usually have mention of diabetes as a contributory cause and will be assigned to diabetes in classification except when the associated cause is an infective condition, acute intercurrent disease or general disease such as cancer. Prolongation of life of young adults means a greater risk of dying before 55 from those causes which take precedence over diabetes in classification, and some fraction of the 500-600 deaths must be so accounted for, but these are probably more than offset by an increased incidence which the basis of calculation has not allowed for.

If this is so, the number of deaths in defect, 584 in 1934, can be regarded as the excess of deaths postponed from the age group 45–55 to the group 10 years older over the deaths postponed from the group 10 years younger to the group 45–55. The expected deaths at 45–55 numbered 641, of which 584 or 91 per cent. were on this assumption postponed to an age group 10 years older, and from this it follows that the average lengthening of life of the diabetics who in the pre-insulin period would have died before 55 has been about 9 years. This estimate is an average for all diabetics in the population who would have died before 55, whether insulin treated or not.

At ages 55–65 mortality steadily increased up to 1915 for both sexes, declined abruptly in the period of food restriction, and was again rising from 1920 to 1922 (Review for 1933, Diagram 4). From 1923 onwards the male rate at 55–65 has not appreciably changed whilst the female rate increased by 35 per cent. in excess of 1920–22 by 1929, and has fluctuated about that level since. Male mortality

at ages over 65, which had not regained the 1911–14 level by 1922, remained stationary until 1925 and then rose rapidly to 1928, with a further increase since at ages over 75, though not at 65–75. The rise in the female rates at these ages has been sustained with few interruptions since 1918.

The reasons for the continuous increase in death-rates attributed to the senile form of diabetes, due in part to rising incidence perhaps but in greater part to increasing recognition of the condition and mention of it on death certificates, has been frequently commented upon. Having regard to (a) the steep upward trend of registered diabetes mortality at ages over 55 from 1861-70 to 1915, when the period of food restriction resulted in a profound and prolonged interruption in this trend, (b) the transfer of deaths from earlier ages owing to postponement of the fatal issue by insulin therapy, and (c) the fact that for various reasons the new therapy is less frequently applied to diabetics of advanced age, it is not surprising that registered mortality at ages over 65 continues to increase. It was shown in the Review for 1933 that, if the death-rates at 55-65, 65-75 and over 75 had increased year by year since 1920-22 by the same mean annual increments as were operative during the undisturbed period from 1901-10 to 1915, the expected deaths at ages over 55 in 1933 would have been 4,487. The actual deaths registered numbered 5,054, an excess of 567 which was approximately equal to the deficiency calculated above at ages under 55. The recent trend of the mortality rates could therefore be adequately explained by a transfer of deaths up the age scale (sufficient to postpone about 500 deaths in each year from before 55 to after that age), superimposed upon a resumption since 1921 of the pre-1915 trend of mortality rates at the various ages.

71(a). Pernicious Anæmia.—The progress of mortality since 1927, when a new and effective treatment came into use for this disease is revealed in Table LXVIII, where annual rates at various ages are expressed in terms of the corresponding rates in the triennium preceding 1927. The actual rates in greater detail of age in each year from 1922 to 1931 were shown in the Review for 1931, Table XLVIII. In 1934 the standardized rates, which had been increasing since the sudden fall registered in 1928, were below those of 1932 and 1933, an improvement being noticeable at each separate age between 25 and 75. The greatest relative decline in mortality has occurred at ages 25–45 for both males and females.

As for diabetes, the new remedies are in general only effective in prolonging life so long as treatment is continued, and unless the patient eventually dies of some acute or general disease to which precedence is given in the classification of deaths due to joint causes, or without mention being made on the certificate of the pernicious anæmia, the expected effect on the mortality statistics would be a temporary reduction in annual deaths at each age,

followed by a gradual return to the original total with a higher average age distribution. This assumes a constant incidence of new cases, whereas there is reason to believe that the number of recognised cases of pernicious anæmia and other blood diseases is increasing. The total deaths registered in the 9 years 1926 to 1934 have numbered 2,780, 2,655, 1,854, 1,955, 2,150, 2,226, 2,591, 2,428, 2,385, which indicates a return by 1932 almost to the 1927 level, and this suggests that any absolute reduction in the fatality of pernicious anæmia brought about by the new remedies was being balanced by an increased incidence or recognition of the disease. Since 1932, however, there has been a decline in the total deaths.

Table LXVIII.—Mortality from Pernicious Anæmia per Million living in 1931, 1932, 1933 and 1934 and per cent. of the rate for 1924–26 in each year 1927 to 1934.

		420		MAI	LES.				F	EMA	LES		
		All Ages*	0-	25-	45-	65-	75 and up	All Ages*	0-	25-	45-	65-	75 and up
	e Ball Sada a	este al	MC	RTA	LITY	PE	R MILI	LION L	IVIN	IG,			
1931		34	3	13	98	311	301	43	5	27	134	328	231
1932		39	5	13	111	368	339	49	5	29	149	379	235
1933	• •	35 34	3 5	13	104	317	322 325	46	5	30 26	130	367	326
		MOI	RTAL	ITY	PER	CEN	T. OF	1	IN 1		1		
1927		98	84	91	96	106	114	97	86	90	98	98	109
1928		65	102	59	55	77	92	67	77	56	64	78	91
1929		70	78	59	58	86	133	67	66	53	64	84	109
1930	• •	76	74	69	71	85	121	72	45	63	68	84	138
		74	70	54	64	89	149	74	58	58	74	91	115
		85	106	53 56	72 68	106	167 159	84 79	56 47	61 64	83 72	106	163
1931 1932 1933		76											

* Standardized.

Comparison of the age distribution of the 2,585 deaths in 1925 with that of the 2,591 deaths in 1932 reveals a transfer of deaths up the age scale during the interval, resulting in a decrease of 318 deaths at ages under 55 and an increase of 331 at ages over 65. The average lengthening of life of which this is a sign can be estimated by applying the 1921–26 death-rates to the population at each age in each of the following years, finding from the resulting calculated deaths the expected mean age at death, and comparing these values with the actual mean ages at death from pernicious anæmia in the corresponding years,

Table LXIX indicates that from 1926 to 1934 the rise in actual mean age was greater than the expected rise by 3·1 years for males and by 3·9 years for females. Provided, therefore, that the age-distribution of incidence has not changed in the interval there has been a mean lengthening of life since 1926 for the whole population of pernicious anæmia cases, however treated and of all ages amounting to 3 to 4 years.

Table LXIX,—Pernicious Anæmia—Actual and Calculated Mean Ages at Death, 1921 to 1934.

		Males.			Females.	
	Actual.	Calculated.	Difference.	Actual.	Calculated.	Difference.
1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1931 1932 1933 1934	55·9 55·6 55·9 57·4 57·0 56·9 58·5 58·0 59·8 59·4 60·9 60·8 61·1 61·0	56·2 56·3 56·4 56·5 56·7 56·8 57·0 57·1 57·2 57·4 57·5 57·6 57·7	$ \begin{array}{c} -0.3 \\ -0.6 \\ -0.4 \\ +1.0 \\ +0.5 \\ +0.2 \end{array} $ $ \begin{array}{c} +1.7 \\ +1.0 \\ +2.7 \\ +2.2 \\ +3.5 \\ +3.3 \\ +3.5 \\ +3.3 \end{array} $	53·5 54·7 54·2 54·8 55·2 55·5 55·9 57·1 58·6 58·7 59·8 60·0 60·5	54·3 54·4 54·5 54·6 54·6 54·9 55·1 55·2 55·9 55·7 55·8 55·9 56·0	$ \begin{array}{c} -0.8 \\ +0.3 \\ -0.3 \\ +0.2 \\ +0.6 \\ -0.6 \end{array} $ $ \begin{array}{c} +1.0 \\ +2.0 \\ +2.7 \\ +3.0 \\ +4.1 \\ +4.5 \end{array} $

The international group No. 71a, with heading "Pernicious Anæmia," on which all these statistics are based, includes also aplastic, essential or hæmolytic anæmias, Addison's anæmia and "progressive" or "profound" anæmias whose cause cannot be ascertained. At ages under 10 true pernicious anæmia is unusual and almost all the deaths belong to one or other of the alternative varieties mentioned above. This also applies to a considerable proportion of the deaths at 10–20.

Agranulocytosis (Agranulocytic Angina).—The deaths attributed to this condition, alone or in association with other causes, numbered 2 in 1930, 3 in 1931, 7 in 1932, 31 in 1933 and 39 in 1934, the classification being in some instances to causes such as pulmonary tuberculosis or lobar pneumonia with agranulocytosis as a contributory or associated cause.

Pending a clearer definition of the disease as an established clinical entity, the deaths were classed until the end of 1934 to sub-groups 115(3) or 115(4) when it was described as angina, or

with the unclassified anæmias in No. 71 b(2) when described as agranulocytosis. Since the two descriptions are now regarded as synonyms, the angina being secondary to the blood condition, and since the latter is not characterised by "anæmia" in the usually accepted meaning of the term but by an aleukæmia affecting the granular leucocytes, from 1935 onwards a new subgroup to comprise both descriptions, with title No. 72 b(2) aleukæmia (agranulocytosis), will be introduced into Tables 6, 7, 21 and 23, and No. 72b aleukæmia (lymphadenoma) will be designated 72 b(1).

Table LXX classifies the 82 deaths attributed wholly or in part to the condition in England and Wales during 1930–34 by sex and age, with distinction of those described as (AA) agranulocytic angina or agranulocytosis with mention of a throat lesion, and those described as (A) agranulocytosis without mention of a throat lesion. Further details of the causes stated on the certificates of deaths included in this table were given in the Review for 1933, p. 88.

Table LXX.—Agranulocytosis: Deaths attributed to the Condition (alone or in association with Other Causes), by Sex and Age, 1930-1934.

A—Agranulocytosis without mention of a throat lesion. AA—Agranulocytic angina, or agranulocytosis with throat lesion.

	19	30.	19	31.		193	32.			19:	33.			193	34.		То	tal.
	M.	F.	М.	F.	М		I	7.	М	.	1	·	M		1	7.	M.	F.
	Α.	AA.	Α.	AA.	A.	AA.	A.	AA.	Α.	AA.	A.	AA.	Α.	AA.	A.	AA.		
0 1 5 10 15 20 30 35 40 45 55 60 70 80 All ages		1 - 1	1	- - - 1 - - - - - - - - - - - - - - - -	1	1		1 1 2		- - 1 1 - - - 1 - - 1 - - - 1	-1 -1 -1 -1 		- - - 1 - - 1 - 1 - - 1 - - - - - - - -		1 - 2 3			

75. Alcoholism.—This heading in the International List of causes of death excludes organic disease attributed to alcoholism, so, in order to obtain as complete information as possible with regard to mortality from over-indulgence in alcohol, all the deaths in certification of which any mention of alcohol appears are assembled

Table LXXI.—Deaths from or associated with Alcoholism; Deathrate per Million from the Combined Causes and from Cirrhosis of Liver not returned as Alcoholic, 1921-1934.

		-		Numi	ber of	Deaths	3.				Death =	oto ===		
	Alcoh		I	Return	ed as o	connect	ted wit	h alco	holism		Death rate per million persons.			
	No. 75. Cirrhosis of liver 124 (a) M. F. M. F.				He dise 90-	ases	Viol dea 163-	ths	Otl		Returned as alcoholism or associated	Cirrhosis of liver not returned as		
	M.	F.	M.	F.	М.	F.	М.	F.	M.	F.	therewith.	alcoholic 124 (b).		
1921	127 117 104 94 95 76 84 74 85 49 40 61 43 33	55 47 47 33 55 39 24 34 49 45 41 34 30 19	100 103 98 90 87 82 162 210 175 144 162 115 115	54 47 54 57 49 50 101 110 83 71 99 62 77 84	41 41 22 36 25 31 40 54 69 46 45 42 52 38	17 14 12 8 19 20 22 34 38 25 35 19 19 22	61 52 46 44 34 36 37 30 41 35 24 18 24	11 16 16 7 6 17 14 10 11 10 2 4 10 9	125 125 106 120 90 90 176 205 206 147 136 99 79 97	56 59 57 53 48 58 92 102 75 45 45 45 35 50	17 16 15 14 13 13 19 22 21 16 16 12 12	47 46 42 42 44 44 41 40 38 36 36 32 26 28		

in Table LXXII. These numbered 494 in 1934, compared with 484 in 1933 and 542 in 1924.

After 1926 the change in the form of the medical certificate produced a temporary disturbance, consisting, as Table LXXI indicates, in a sudden increase in deaths attributed to various causes with mention of alcoholism. Violent deaths with associated alcoholism were not so affected, but deaths attributed to heart diseases with mention of alcoholism increased from 51 in 1926 to 107 in 1929, and have since declined to 60. The death-rate per million due to cirrhosis of the liver with mention of alcohol increased from 3 in 1926 to 8 in 1928, and has since fallen to 5 in 1933 and 1934 (Table 7), and the rate for cirrhosis without mention of alcohol has declined continually from 44 in 1926 to 28 in 1934. Deaths attributed to causes other than violence, heart disease or cirrhosis of the liver, with mention of alcoholism, increased from 114 in 1933 to 147 in 1934.

The number of deaths attributed solely to alcoholism without mention of other causes, 52, is the lowest recorded.

90–95. **Heart Diseases.**—The number of deaths allocated to this cause, 108,962, 52,718 of males and 56,244 of females, was as usual larger than for any other item in the list of causes.

These numbers are equal to crude death-rates per million of 2,716 for males and 2,671 for females. When standardized, the revised rates are considerably reduced to 1,897 for males and 1,565 for females, but still remain in this form the highest in any year for males and in any year except 1929, 1931 and 1933 for females (Table 8).

As pointed out in previous Reviews the recent increase of crude mortality (Table 7) from heart diseases is due, among other causes, to the increasing age of the population and to more frequent record

Table LXXII.—Deaths from or connected with Alcoholism—1934.

		All	Ages.	Und	ler 25		25-	33	5-	45	5-	5	5-	6	5-	75	5-
	Merchanist Commission	M.	F.	M.	F.	M.	F.	М.	F.	M.	F.	M.	F.	М.	F.	M.	F.
75.	Deaths attributed solely to alcoholism,	33	19		_	1	1	6	5	14	4	10	6	2	1		2
Deaths	attributed to other causes in nation with alcoholism—																
11. 23.	Influenza	3	4	-	-	-	-	-	-	2	-	-	-	1	1	-	-
34.	tory system Syphilis	3 4	_	-	=		_	1 1		1 2	=	1 1	_	_	_	=	
36. 38.	Septicæmia	1	1	_	-		=	1 1	1		_	=	_	_	_	=	=
45-53. 54 (a)		2	<u></u>	-	_	_	_		=		1	1	_	-		1	=
58. 59.	Gout Diabetes	3 2	- 2			-	_		_	1	1	2	<u></u>	1	_	_	_
69 (2) 70. (a)	Obesity	1	1	=	_			_	_		1	- 1		_	=	_	_
71a. 79.	Pernicious anæmia Meningitis	_	1		_	_	_	_	_	_	_		<u>-</u>	_	1	-	_
82.	Cerebral hæmorrhage, apoplexy, etc.	6	1	10 mg/s		1		-			1	3		1		1	_
85. 87 (b)	Epilepsy	7	11		_	$-\frac{1}{1}$	_	-	_	<u></u>	1 3	4	7	<u> </u>	_	_	1
87 (b) 87 (c) 87d.	Paralysis agitans	1 1	_	_	_	_	_	_		_	_	1		1	_		=
90. 92.	Pericarditis	1 5		_	_	=	_	<u> </u> -	_	_	<u></u>	1 2	_	1	_	<u> </u>	1
93a.	Acute myocarditis	8	1 5	_	_	<u> </u>	_	2	<u>-</u>	<u> </u>	$\frac{-}{1}$	3	$-\frac{1}{2}$	_	1 1	<u></u>	_
93 b (2)	Cardiovascular degeneration Other or unspecified myo-	4	1	_	-	-		2		-	_	2	1.	-	-	_	-
93 c	cardial disease	12	10	-	2000	1		-	1	4	1	6	4	1	4	-	-
94.	as acute or chronic Diseases of the coronary	5	1	-	_	-	-	_	-	1	-	1	-	3	_	-	1
	arteries	3	1 1							1.			-	2			1 _
97. 99.	Arterio-sclerosis Other diseases of the	6	4		-	-		-	-	2	1	2	2	2	1	-	-
101.	arteries Axillary abscess	2 1			Ξ		_	<u> </u>	_		=	=	=	2		=	=
106. 107.	Bronchitis	3 6	- 2		_	_	_	$\frac{1}{2}$	_	1 1	_	1 3		1	$\frac{-}{1}$	=	1
108. 115 (1)	Lobar pneumonia Dental sepsis	17	2 7			1	_	3	2	7	3	5 1	2	1	_		=
115 (3) 115 (4)	Diseases of the tonsils Ulcerative pharyngitis	3		_	=		_	1	=	1	_	1	=	_	_	1	_
117a. 117b.	Gastric ulcer Ulcer of the duodenum	1 3		=	=	-			_	3	_				_	1	_
118 (1) 119 & 1	Inflammation of the stomach	3	7	-	_	1	-	_	1	_		1	3	1	1	-	2
122a (1)	Gastro-enteritis	1 2		_	_			_	_	1		1		1		-	=
122a (2) 122 (b)	Inguinal hernia	1	<u>-</u>			_		_	_	1			<u></u>	_	_	=	=
123 (2) 124 (a)	Diverticulitis	1 125	- 84	_	_	_	3	14	<u>-</u> 8	1 24		51	<u>-</u>	29	22	7	5
127 (1) 128.	Suppuration of gall bladder Acute pancreatitis	<u> </u>	1	_	_		_	_	=	=	_	1	1	_	=	_	_
131. 137.	Chronic nephritis Adenoma of prostate gland	8	5				_	_	_	6	2	2	1	=	2	-	_
139 <i>a</i> (2) 152 (2)	Pyosalpinx	-!	1 1	_	_	_	_	=	1	_	_	-	<u> </u>	_	_	=	=
163-171. 186 (pt.)	Suicide	5 5	- 5	=	_	1 2	_	2	_	2	_	1	3	1		=	=
186 (pt.)	Injury by crushing (vehicles, railway, etc.)	4	_			_		1	_	_		2		1	_	_	_
	Other violence	3	4	1	_	_	_	î	_	_	3	1		_	1	_	_
	TOTAL	310	184	1	-	10	4	40	20	79	49	114	58	53	39	13	14

of myocardial degeneration in certification of the deaths of old people. The introduction of the new form of death certificate has led to more frequent statement of this or other forms of heart disease as a subsidiary cause, and by the operation of the rules of selection of joint causes this often results in the death being transferred to the heart group as a consequence.

Table LXXIII shows how the rates for 1934 have been affected by increasing mention of myocarditis or myocardial or cardio-vascular degeneration as a cause of death of persons over 65, and what, but for them, would have been the course of recent mortality from diseases of the heart. This has been done by ascertaining and deducting from the standardized death-rate from all heart diseases (Table 8) that portion of it for which chronic myocardial disease (other than fatty heart) at ages over 65 was responsible in each year 1921–34, that is to say, the deaths at this age in the

Table LXXIII.—Deaths in Standard Million from Heart Diseases at all ages, and from senile myocarditis at ages over 65 in 1921 and 1931-34; also the mortality in each year 1922-34 per cent. of that in 1921.

	, keinistrig	Males.			Females.	
	All Heart Diseases.	"Senile Myo- carditis" (see text).	Col. 1 less col. 2.	All Heart Diseases.	"Senile Myo- carditis" (see text).	Col. 4 less col. 5.
	(1)	(2)	(3)	(4)	(5)	(6)
1921 1931 1932 1933 1934	1,203 1,845 1,848 1,896 1,897	154 746 779 818 820	1,049 1,099 1,069 1,078 1,077	1,107 1,592 1,560 1,616 1,565	145 646 661 705 703	962 946 899 911 862
	Rates	for subseq	luent years	per cent.	of those for	1921.
1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934	108 101 105 110 108 117 123 153 142 153 154 158 158	129 136 165 203 219 259 296 450 421 484 506 531 532	105 95 97 96 92 97 97 109 101 105 102 103 103	110 102 107 110 107 118 122 150 134 144 141 146	129 134 158 192 210 248 285 427 388 446 456 486 485	107 97 99 98 92 98 97 108 96 98 93 95

standard million derived from the three groups 93b (2), 93 (b) (3) and 93 (c), corresponding to No. 90 (7) prior to 1931. The rates for the years 1922 to 1930 were shown in detail in Table L of the Review for 1931

The crude death-rate from heart disease has increased since 1921 by 90 per cent., but the standardized rate has increased by 58 per cent. for males and 41 per cent. for females. When further allowance is made for the disturbing influences mentioned above, the increase is seen to have been only 3 per cent. for males and there has been a decrease of 10 per cent. for females.

Table LXXIII also shows how rapid has been the increase for each sex of mortality ascribed to senile myocarditis, the rates for 1934 being about five times those of 1921. Its contribution to total heart disease mortality has increased from 13 per cent. in 1921 to 47 per cent, in 1934.

Table LXXIV compares the death-rates at different ages in 1934 with those of ten years earlier for pericarditis, endocarditis and valvular disease, and angina pectoris. Pericarditis mortality has fallen for each sex at every age under 75, the extent of the decline amounting to about one-third at ages 45 to 75. At ages under 5 this cause contributes about 40 per cent. of all heart disease deaths of boys and 30 per cent. for girls.

Table LXXIV.—Pericarditis, Valvular and Coronary Disease. Mortality per million living by Sex and Age: 1924 and 1934.

		90. Per	icarditis	·.		, 92. E d Valvu			94. Angina pectoris Coronary Disease.					
	Ma	Males. Females.			Ma	les.	Fen	nales.	Ma	les.	Females.			
	1924.	1934.	1924.	1934.	1924.	1934.	1924.	1934.	1924.	1934.	1924.	1934		
0	. 10	8	9	6	19	12	16	13				1_		
5 15	. 7	8 4 3	9 8 5	4	94	96	103	122	_	-	_	-		
	6	5	3	2 2	147	161	185	196		-	-	-		
0.5	-	6	5	4	220 375	176	249	241	2	8	-			
4.	17	10	9	6	755	281 605	406 766	346 588	20 83	83	7	2		
E CONTRACTOR OF THE CONTRACTOR	20	13	11	9	1.750	1,367	1,708	1,133	264	415	19 86	8		
	. 41	27	25	16	4,354	3,044	4.067	2,839	532	2,464	200	35		
7.5	. 19	23	21	22	7,323	5,698	7,436	5,356	661	3,541	329	1,09		
All ages (standa					200		100							
dized)	. 9	7	7	5	548	428	555	433	53	248	19	19995		

Endocarditis and valvular disease of all forms have been combined in the table in order to eliminate as far as possible the effect of the changes in the international list and of transfers from one group to another. The effects of the introduction of the new form of death certificate on the one hand and of the diminishing size of the group of "undefined heart disease" on the other must be borne in mind, but both these factors must have operated in the direction of increasing rather than decreasing the deaths assigned to this large group. The fall in the mortality since 1924, amounting to 22 per

cent. in the standardized rate for each sex, is the more difficult to account for. The decline is evident at every age except 5-25, 1934 mortality expressed as a percentage of 1924 being as follows:

0— 5— 15— 25— 35— 45— 55— 65— up. .. 63 102 109 80 75 80 78 70 Females 81 118 106 97 85 77 66

Table LXXV analyses for 1934 and ten years previously, the deaths classed to those groups of heart disease which have not been subject to great changes in certification and nomenclature, that is to say after excluding the groups specified at the foot of the table. The contribution to this total made by malignant endocarditis has slightly increased since 1924, whilst other acute endocarditis has diminished. The contributions of aortic and mitral disease, alone or in combination, have each increased whilst that of other or unspecified valvular disease has declined, this being indicative of more precise description of the lesion. Aortic disease at ages 15-45 contributes, however, a smaller proportion of deaths than in 1924.

Table LXXV.—Proportionate mortality* assigned to various groups of Heart Diseases, by Sex and Age, 1924 and 1934

	List Nos.	Group.				1924							1934			
1924.	1934.	Слопр.	All Ages	. 0-	5-	15-	45-	65-	75 & up.	All Ages	0-	5-	15-	45-	65-	75 d
87 88 (1) 88 (2) 90 (1) 90 (2) 90 (3) 90 (4)	90 91 (1) 91(2), 92(4)† 92 (1) 92 (2) 92 (3) 92 (4)\$, (5)	Males. Pericarditis Malignant endocarditis Other acute endocarditis Aortic disease Mitral disease Aortic and mitral disease Other endocarditis and valvular disease	13 35 18 137 225 31	164 164 127	91 160 14 283 28	141 64 109 208 47	23 6 169 208 32	135 234 26	4 3 117 256 25	254 45	138	127 101 9 317 62	136 36 88 299 54	188 238 47	8 1 163 246 42	14 25 30
88 (3) 90 (5) 90 (6) 90 (8)	93 (a), (c)† 93 b 1 95 b 1 95a	Acute myocarditis Fatty heart Dilatation of heart Disordered action of heart	13 84 26 30	18	320 20 6 9 3	306 48 31 11 15	386 7 102 25 29	4	9 81 43	311 20 71 9 79	138	334 3 — 3	226 85 26 5 26	10 94 9	9	5:
		Total of above* Rate per million living	1000 777	1000					1000 8856	1000 715	1000				1000	
87 88 (1) 88 (2) 90 (1) 90 (2) 90 (3) 90 (4) 88 (3)	90 91 (1) 91(2), 92(4)† 92 (1) 92 (2) 92 (3) 92 (4)§, (5) 93 (a), (c)†	Females. Pericarditis Malignant endocarditis Other acute endocarditis Aortic disease Mitral disease Aortic and mitral disease Other endocarditis and valvular disease Acute myocarditis	9 29 16 51 320 21 401	340 21 340 43 86 21	70 113 135 5 330 32 299 16	14 108 61 33 337 28 330 33	7 21 5 55 312 20 417	5 5 3 53 315 19 428 6		7 33 13 61 336 32 316 18	300 300 167 — 100 33 —	31 119 98 14 395 59 274	8 122 50 29 385 37 230	7 18 4 59 344 30	4 9 2 75 310 29 339	3 2 78 314 30 358
90 (5) 90 (6) 90 (8)	93 b 1 95 b 1 95a	Fatty heart Dilatation of heart Disordered action of heart	86 20 37			34 4 18	103 17 38	103 22 40	89 36 50	83 6 95		10	72 29 2 36	9 112 5 93	108 7 113	63 11 134
		Total of above* Rate per million living	1000 870	1000 26	1000 113		1000 1383			1000 810	1000	1000	ALC: U		1000 3721	

Per mille of deaths comprising the total (viz. from heart disease other than coronary or cardiovascular or myocardial egeneration, or "myocarditis" at ages over 45 or undefined heart disease).
 At ages under 45 for endocarditis or myocarditis not distinguished as acute or chronic.
 At ages 45 and over for endocarditis not distinguished as acute or chronic.

Another change in the medical terminology of heart disease is reflected in the rise in the standardized death-rate attributed to "disordered action of the heart," now separately classified in the International List as group No. 95 (a), from 6 per million for each sex in 1919 to 39 for males and 45 for females in 1934. This increase has occurred at every age (Table LXXV), and is doubtless partly at the expense of "heart disease (undefined)" for which the standardized rates have fallen since 1922 from 271 to 73 for males and from 250 to 63 for females, partly derived from "dilatation" which has declined at every age and partly from "valvular disease" unspecified.

The progressive rise since 1920, commented on in previous Reviews, in the standardized mortality assigned to diseases of the coronary arteries and angina pectoris, No. 94, continued in 1933. For males this rate has risen from 32 in 1920 to 248, and for females from 13 to 94, and the degree of relative increase tends to become greater as age advances for females, though not for males. Part of this has been due to the transfer, since mid-1927, of deaths due to atheroma and sclerosis of the coronary arteries from the arteriosclerosis group, as pointed out in the Review for 1928 (p. 100), but the increase since 1928, more than doubling the rate for each sex in 6 years, represents a real change in the frequency with which death is attributed to coronary disease.

The standardized rates of mortality classed to angina pectoris, cardio-vascular degeneration, arterio-sclerosis, cerebral vascular lesions and abnormalities of blood pressure (almost entirely hyperpiesis) are brought together below for 1922 and years at triennial intervals to 1934

				Males.			Females.					
		1922.	1925.	1928.	1931.	1934.	1922.	1925.	1928.	1931.	1934	
94.	Coronary disease, angina											
	pectoris	44	55	101	168	248	17	19	35	59	94	
93 b (2).	"Cardio-vascular degenera-											
0= (0)	tion "	(18)*	(21)*	(34)*	215	255	(16)*	(20)*	(26)*	144	168	
97 (3).	Arterio-sclerosis without	278*	015+	000+	100							
97 (1) (2)	Arterio-sclerosis with cerebro-	2/8+	315*	360*	192	170	138*	161*	191*	110	101	
01 (1) (2).	vascular lesion	118	136	221	220	228	78	91	161	165	176	
82.	Cerebro - vascular lesions without mention of arterio-	***	100	221	220	220	76	31	101	103	170	
	sclerosis	624	580	445	436	398	607	554	457	421	397	
102.	Abnormalities of blood											
	pressure	-	2	4	4	7	-	1	2	3	6	
To	tal of above	1,082	1,109	1,165	1,235	1,306	856	846	872	902	942	

* Note.—During 1921–30 cardio-vascular degeneration, sclerosis, atheroma or hypertrophy, or cardio-arterial degeneration were all assigned to a group of deaths from "other or unspecified myocardial disease" (No. 90 (7)), and the numbers of deaths attributed to these causes and included in that group in 1922, 1925

	1922.	Males. 1925.	1928.	1922.	Females. 1925.	1928.
				_		
Cardio-vascular disease included in group 90 (7)	382	470	847	467	590	839
Per cent of total in that group	6.7	5.1	5.7	06-7	5.5	4.9

By applying these percentages to the standardized death-rates for the group as a whole, the estimated figures in parentheses in the table are obtained. From 1931 onwards the group entitled cardio-vascular degeneration (No. 93 b 2) has included deaths from myocardial degeneration in association with arterio-sclerosis, involving a transfer from No. 97 (3), and these two groups must be considered in conjunction for comparison with earlier years.

The total standardized rate from this group of vascular causes has increased since 1922 for both sexes, but how much of the continued rise can be accounted for by increasing mention of these causes on death certificates in conjunction with bronchitis and other causes is at present difficult to say. The more rapid rise of the male rate than the female, resulting in a 21 per cent. increase since 1928 compared with 10 per cent., suggests that it may be an aftermath of the war, caused by the attaining to ages 50 to 65 of a population not only inferior in average physique owing to elimination of the fittest during 1914-18, but which was subjected during those years to quite abnormal stress.

117. Ulcer of the Stomach and Duodenum.—The number of deaths from these causes was 4,316, 3,241 of males and 1,075 of females. Of the males 33 per cent. and of the females 21 per cent. were classed to ulcer of the duodenum.

The changes in the crude death-rate between 1911 and 1926. were depicted in Diagram 5 of the Review for 1926, p. 97. Standardized mortality of males, which increased from 76 per million in 1911-20 to 130 in 1927, has declined slightly since 1931, to 116, 122 and 123 in 1932, 1933 and 1934. The female rate, which fell from 50 in 1911-20 and remained about 36 during the next decade, has also registered a further decline to 32 in 1933 and 33 in 1934.

When the death-rates per million at various ages in 1932-34 are compared with 1911-20, the increase in male mortality is perceived to have been limited to ages over 35. At 15-25 there has been a fall of 27 per cent. and at 25-35 a decline of 5 per cent... but from 35 onwards the increase becomes absolutely and relatively larger with advancing age.

	0-	15-	25-	35-	45-	55-	65-	75
Males $\begin{cases} 1911-20 \\ 1932-34 \end{cases}$	 2	26 19	73 69	130 173	195 375	243 460	258 500	and up 212 478
Females $\begin{cases} 1911-20 \\ 1932-34 \end{cases}$	 3	36 6	55 12	84 36	104 86	122 133	126 193	115 231

The percentage change in female mortality risk has been, in successive decennia of age from 15-25 onwards, -83, -78, -57. -17, +9, +53, and at 75 and over +101.

These changes are indicative of a progressive postponement of death from this cause to later ages, especially amongst females.

The regional distribution of mortality at each decennium of age from 35 to 75 is revealed in Table LXXVI. Whilst male mortality at 35-55 is greatly increased by an urban environment, no effect of urbanization upon the female rates is to be observed at these ages, but at 55-65 the effect appears for each sex. Greater London has the highest rates at ages 45-75 for both sexes except that for females at ages 45-55 Midland I is highest. At 35-45 North I and II for females, and the Northern regions generally for males, have the greatest mortality.

Table LXXVI.—Peptic Ulcer; Mortality per million living at ages 35-75 in Regions, 1932-34.

		Ma	les.			Fem	ales.	
	35-	45-	55-	65–75	35-	45-	55-	65–75
England and Wales	173	375	460	500	36	86	133	193
Greater London	171	468	633	738	33	102	167	273
Remainder of South-East	153	338	465	516	32	80	109	183
North I	193	279	362	454	60	79	117	133
" II	209	325	350	435	44	61	132	147
" III	193	416	439	451	31	72	117	202
" IV	189	404	415	397	34	76	120	148
Midland I	166	365	454	489	41	114	151	208
" II	169	372	458	461	34	76	147	154
East	163	264	392	389	37	91	115	194
South-West	130	246	364	436	39	91	115	149
Wales I	176	347	340	317	33	56	156	156
", II	152	307	338	438	34	87	86	198
County Boroughs outside	203	421	467	459	36	83	140	177
Urban Districts Greater	171	353	413	476	37	82	125	164
Rural Districts) London	127	235	348	395	38	83	99	179

121. **Appendicitis.**—Deaths numbered 2,985 compared with 3,054 in 1933 and 3,014 in 1932. Standardized mortality, 78 per million males and 58 per million females, has undergone no appreciable change since 1911–20 when the rates were 81 and 58 respectively.

Although the total mortality risk has changed so little, there has been, as for peptic ulcer, considerable modification of the distribution of deaths according to age.

For children under 15 and adults aged 25–35 the risk has declined since 1911–20 by 12 to 14 per cent., and at 15–25 it has fallen by 39 per cent. for males and 34 per cent. for females. This improvement has been balanced by a large increase in mortality rates at later

ages, indicating that a postponement of death from appendicitis to later ages has been in progress during the last 18 years, and this probably arises in the main from a postponed incidence of the disease in a severe form.

The regional distribution at three groups of ages reveals no association with urbanization at ages 5–25, nor at 45–65, but at 25–45 mortality of each sex declines with increasing urbanization (Table LXXVII). Wales I gives the highest rates for males aged 5–45, and the South-East and Midland I at ages 45–65, whilst for females the East and Wales I are first at 5–25, Wales II and I at 25–45 and South-East outside Greater London at 45–65.

Table LXXVII.—Appendicitis: Mortality per million living at ages 5-25, 25-45 and 45-65 in Regions, 1932-34.

	landin.	Males	n Protest 200 Village San		Female	s.
	5-	25-	45-65	5-	25-	45-65
England and Wales	74	60	123	53	41	93
Greater London. Remainder of South-East North I	66 69 77 80 77 80 70 71 56 74 112 81	61 72 70 70 64 54 51 49 53 43 77 61	136 143 95 115 117 114 142 99 115 117 100 72	52 49 43 56 42 62 59 41 68 48 64 49	32 42 34 36 46 46 39 36 42 41 54	101 109 76 69 103 95 86 65 98 84 89
County Boroughs Urban Districts Rural Districts London	77 75 76	54 62 66	118 121 119	50 56 56	37 44 51	92 94 85

140–150. The Puerperal State.—Deaths and their Classification. The number of deaths assigned to diseases of pregnancy, childbirth and the puerperal state was 2,748 (Tables 6, 21 and LXXVIII), of which 394 or 14·3 per cent. were assigned to abortion, 242 or 8·8 per cent. to ectopic gestation and other accidents and toxemias of pregnancy, and the remainder to diseases and accidents of childbirth at full term.

In addition 100 deaths from criminal abortion were assigned to various forms of violence, e.g., suicide, murder, etc., in accordance with the verdicts recorded by the coroners' juries (Tables 25 and LXXVIII), and 747 deaths of pregnant or parturient women who suffered from various non-puerperal diseases (Table LXXIX) were

classified to those diseases. The assignment of deaths, attributed to a non-puerperal cause in association with pregnancy or the puerperal state, to the puerperal group on the one hand or to the non-puerperal cause on the other is carried out in accordance with rules of precedence outlined in the Manual of the International List of Causes of Death.

It should be remembered that the 747 deaths defined by this process as "not classed to pregnancy but returned as associated therewith," or in shorter terminology as "classed to non-puerperal causes," resulted in large part from risks to which the general population of women was exposed and a large proportion of them would have occurred if these women had not been pregnant. Every pregnant woman is exposed to about the same hazards of dying from non-puerperal causes as if she had not been pregnant, and if she does so die the fact of pregnancy or recent parturition is usually mentioned on the death certificate on the grounds that notwithstanding that normal childbearing is a physiological process it is difficult to assert categorically that in the presence of some serious disease it did not, by diminishing the reserves of strength or by some other means, render recovery more difficult. The introduction of the new form of certificate in 1927 undoubtedly resulted in a more complete recording of associated childbearing, since this might in many instances be regarded as "contributing to death but not related to the immediate cause," though neither "primary" nor "secondary" in the terminology of the old form of certificate.

A study of the trend of deaths before and after 1927 leads to the conclusion that about one-fifth of the deaths now classed as associated with childbearing would have escaped recognition as such in the death registers prior to the introduction of the new certificate; and this should be born in mind when comparing recent rates with those prior to 1927.

A detailed discussion of this and many other factors which must be taken into account when comparing statistics of maternal mortality with those of years prior to 1931, or with those of other countries, was included in the Review for 1933, pp. 96–113, to which reference should be made before drawing conclusions from such comparisons.

Table LXXVIII gives in full detail of civil condition, age and cause, the deaths of women registered during 1934 which were classed to pregnancy and childbearing, that is to say to International groups 140–150, and to criminal abortion amongst the violent causes (Nos. 171, 175, 194, 195). The analysis contained in this table and its predecessors was summarized for each year 1924–33 in Table LXXI of the Review for 1933, and reference may be made to that table in order to compare the deaths of married, single or widowed women from specific causes during 1934 with those registered in previous years. The totals of 162 deaths of single women and 25

of widowed women agree closely with the previous 5-year averages, 163 and 25 respectively.

Table LXXIX gives in similar detail of age, and by civil condition for the total, the causes to which the deaths classed as associated with, though not due to, pregnancy or childbearing were assigned, those associated with abortion being also distinguished at the foot of the table. The total of 747 consisted of 33 single, 705 married and 9 widowed women, compared with average numbers during 1929-33 of 43, 786 and 7 respectively. The decline from 828 in 1933 is accounted for by influenza associated with childbearing, to which cause 31 were assigned compared with 129. Chronic nephritis accounted for 71 (55 in 1933) and in the case of 21 of these a preference for the puerperal cause as the more important was expressed by the certifying practitioner. In 20 of the 32 deaths classed to acute yellow atrophy, and in 14 of the 83 deaths assigned to lobar pneumonia, preference was expressed for the puerperal cause by the order of statement. Deaths assigned to intestinal obstruction numbered 49 (40 in 1933), including 23 following Cæsarean section, and in the case of 34 of these the puerperal cause was placed first in the order of causation by the certifier.

The effect of the operation of the rules of preference upon the distribution of deaths between Tables LXXVIII and LXXIX was discussed in the Review for 1933, and the conclusion was reached that complete reliance upon the order of statement on the certificate of death rather than upon the rules of selection defined in the Manual of the International List of Causes of Death would not affect the totals assigned to puerperal and non-puerperal causes to any appreciable extent, although it would result in considerable transfers between the sub-groups making up the totals. The causes most affected would be puerperal sepsis, on the one hand, and the non-puerperal causes mentioned above, namely intestinal obstruction, acute yellow atrophy, lobar pneumonia and chronic nephritis, on the other, to all of which the rules give an unduly high order of preference.

No national statistics are available of the frequency with which Casarean Section is resorted to, but the deaths with mention of the operation, whether assigned to puerperal or non-puerperal causes, were increasing until 1931 (Table LXXX). In 1921–23 and succeeding triennia to 1930–32 they averaged 103, 117, 142 and 164 per annum, and in 1933 numbered 170 and in 1934 161.

All deaths classified as caused by or due to abortion are brought together in Table LXXXI under the various headings, with corresponding figures for previous years for which the information is available.

It should be noted that abortions resulting from other complications of pregnancy are still classed to Nos. 143, 146, 147 and do not appear under any of the "abortion" headings unless there is some other associated condition causing the death to appear in Table LXXIX.

Table LXXVIII.—Deaths of Women classed to Pregnancy and Childbearing, 1934.

1.00 inner a kan keneratang		Civ	il Cond	lition.				Ages.			
Cause of Death.	All Ages.	Single.	Married.	Widowed.	15-	20-	25-	30-	35-	40-	45 and up- wards
Single Married Widowed Streptococcal infection Gas gangrene Septic phlegmasia alba dolens, phlebitis and thrombosis. Infective endocarditis Septic pneumonia Septic pneumonia Septic intoxication, sapræmia Pelvic peritonitis Peritonitis Salpingitis Metritis Endometritis Parametritis Entysipelas Pyæmia Pelvic cellulitis Pelvic abscess Other specified septic conditions "Puerperal fever" 141. Abortion not returned as septic Single Married Widowed (1) Hæmorrhage following abortion. Single Married Widowed (2) Without record of hæmorrhage. Single Married Widowed 142. Ectopic gestation Single Married Widowed 143. Other accidents of pregnancy Single Married Widowed 144. Puerperal hæmorrhage Single Married Widowed 44. Puerperal hæmorrhage Single Married Widowed Widowed Widowed 45. Pierpenancy "(unqualified) 46. Post partum hæmorrhage Single Married Widowed Widowed Widowed Pregnancy Single Married Widowed Widowed Post partum hæmorrhage Songle Married Widowed	295	30 30	258	7 - 7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	5 3 2	30 8 22 - - - - - - - - - - - - -	79 11 65 3 -1 39 2 2 - 16 3 2 5 1 - 31 - 31 - 21 - 2 - 15 3 12 - 2 - 15 3 12 - 2 - 15 3 12 - 2 - 15 3 12 - 2 - 16 - 43 2 41 - 21	95 8 84 3 6	50 49 1 4 - 1 2 27 1 2 - 5 1 - - - - - - - - - - - - -	32 32 1 1 1 1 1 1 1 1 1	4 -4 -1 -1 -1 -1 -1 -1 -1 -1 -2 -2 -2 -2 -2 -2 -3 -4 -1
Adherent or retained placenta. Accidental hæmorrhage	57 16	1	55 15	$-\parallel$	i -	8 -	18 4	7	12 2	3	— —

Table LXXVIII.—continued.

		Civil	Condi	tion.				Ages.			
Cause of Death.	All Ages.	Single.	Married.	Widowed.	15-	20-	25-	30-	35-	40-	45 and up- wards
145. Puerperal sepsis not returned as	917	41	870	6	18	167	281	242	136	65	8
post-abortive. Single Married Widowed (a) Puerperal septicæmia and	_ _ _ 917	41 — 41	870 - 870	_ 6 6	7 11 — 18	15 151 1 167	10 270 1 281	3 237 2 242	5 131 — 136	62 3 65	- 8 - 8
pyæmia. Single	=	41	870		7 11	15 151 1	10 270 1	3 237 2	5 131	62 3	8
Streptococcal infection	65 1 5 8		63 1 5 8 3	2 -	1	12 - 1 1	22 1 2 1 1	15 — — 4 1	$\frac{10}{-1}$	5 - 2 1	
Septic phlegmasia alba dolens, phlebitis, throm- bosis.	29	3	26	-	1	4	9	î	9	5	
Septic pneumonia Septic endocarditis Toxic myocarditis Septicæmia Sepsis	9 5 3 319 96 67	1 - 14 2 2	8 5 3 303 94 65	_ _ _ 2 _	3 1 2	2 1 -65 17 8	3 1 1 98 35 14	4 1 1 84 27 20	1 47 9 16	2 - 19 7 6	$\begin{bmatrix} -\\ -\\ 3\\ -\\ 1 \end{bmatrix}$
Septic intoxication, sapræmia. Pelvic peritonitis Peritonitis	17 93	*2	15 86	<u></u>	-3	3 10	5 33	*7 25	- 19	2 3	
Salpingitis Metritis Endometritis Parametritis	3 3 44 14	4	3 40 14		= - 1	9 2	2 1 7 5	1 2 14 6	-	- 3 -	
Perimetritis Erysipelas Pyæmia Pelvic cellulitis	1 5 22 29 8	1 2	1 5 21 26 8	_ _ _ _	- - 3 1	3 4 9	- 6 8 1	1 2 6 6 5	- 4 1 1		
Other specified septic conditions. "Puerperal fever" (b) Puerperal tetanus	59	3 -	8 56 —	 - -	3 —	12 —	23	7 —	7 -	5 -	- 2 -
146. Puerperal albuminuria and convulsions.	414	27	386	1	21 8	91	105	91	67	35	4
Single Married Widowed	=	27 —	386	1	13	8 83 —	102 —	85 1	66	33	4
147. Other toxæmias of pregnancy Single Married Widowed	126 — —	11 11 —	114 - 114 -	1 - 1	5 3 2 —	23 6 17	35 1 34	26 26 —	26 25 1	11 1 10	=
Chorea Toxæmia of pregnancy Puerperal toxæmia Uncontrollable vomiting	76 4 44	2 5 - 4	70 4 40	_ _ _ _	$ \begin{vmatrix} 1 \\ 2 \\ - \\ 2 \end{vmatrix}$	$\begin{array}{ c c }\hline & 1\\ 15\\ \hline & 7\\ \hline \end{array}$	21 1 13	13 2 11	17 1 8	8 - 3	-
148. Puerperal phlegmasia alba dolens, embolism and sudden death.	158	6	151	1		12	42	38	37	27	1
Single	50		151 - 50			11 -3	$\begin{array}{ c c }\hline 41\\\hline -12\\\hline \end{array}$	36 1 17	37 14	25	1
septic. Single Married Widowed (b) Puerperal embolism and	_ _ 108	- - 6	50 - 101	- - - 1	=	3 - 9	$\begin{array}{ c c }\hline 12\\\hline 30\end{array}$	17 - 21	$\begin{array}{ c c }\hline -\\\hline 14\\\hline -\\\hline 23\end{array}$	-	1 -
sudden death. Single	-	6	101	=		1 8	1 29	1· 19	23	21	

^{*} Including 1 divorced woman.

Table LXXVIII,—continued.

the forest the second s		Ci	vil Cor	ndition	-			and the late	Ag	es.			
Cause of Death.	All Age		Warring	Widowed		15-	20	- 25	5- 3	0-	35-	40-	45 and up- ward
149. Other accidents of childbirth. Single Married Widowed Contracted pelvis Craniotomy Instrumental delivery Malpresentation Version Abnormal feetus Difficult and prolonged labour Casarean section (reason unstated).† Rupture of uterus Rupture of vagina Laceration of cervix Laceration of vagina Laceration of perineum Inversion of uterus Sub-involution of uterus Rigid os uteri Rigid cervix uteri Adherent and retained placenta Precipitate labour Stillborn Multiple birth 150. Other or unspecified conditions of the puerperal state Single Married Widowed (1) Puerperal insanity Single Married Widowed (2) Puerperal diseases of the breast Single Married Widowed (3) Childbirth (unqualified) Single Married Widowed (4) Childbirth (unqualified) Single Married Widowed (5) Childbirth (unqualified) Single Married Widowed Widowed (a) Childbirth (unqualified) Single Married Widowed Widowed (b) Puerperal diseases of the breast Single Married Widowed (c) Puerperal diseases of the breast Single Married Widowed (a) Childbirth (unqualified) Single Married Widowed (b) Puerperal diseases of the breast Single Married Widowed (c) Puerperal diseases of the breast Single Married Widowed (a) Childbirth (unqualified) Single Married Widowed (b) Puerperal diseases of the breast Single Married Widowed (c) Puerperal diseases of the breast Single Married Widowed (a) Childbirth (unqualified) Single Married Widowed (b) Puerperal diseases of the breast Single Married Widowed (c) Puerperal diseases of the breast Single Married Widowed (c) Puerperal diseases of the breast	544 11 889 299 1 1 11 1 1 3 5 5 3 14 5 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1	0	11	8 6 6 2 2 1 1 - 2 3 3 1 1 - 2 2 1 1 - 1 1 - 1 1 - 1 1 - 1 1 - 1 1 - 1 1 - 1 1 - 1 1 - 1 1 - 1 1 - 1 1 - 1 1 - 1 1 1 - 1 1 1 - 1 1 1 - 1 1 1 - 1 1 1 1 - 1	3	1 3 6 8 1 1 2 2 2 2 2 1 1 1 1	7 1 1 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 - 3 - 7 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3	-	32 30 2 6 - - - - - - - - - - - - -	
Total	2,748	*163	2,561 2,561	24 — 24		28	408 49 358 1	738 42 692 4	702 27* 668 7	510 10 496 4	27	93 6 79 8	33 1 32 —
Criminal abortion (see Table 25) Single Married Widowed	100	29 29 —	64 	7 - 7	-	5 4 1	16 10 6	30 8 22 —	27 6 16 5	17 1 15 1	-	3 2 1	2 - 2

* Including 1 divorced woman.
† In addition, Cæsarean section was stated to have been performed in the cases of 97 deaths included under other headings in this table—ante partum hæmorrhage 1, placenta prævia 6, accidental hæmorrhage 3, puerperal albuminuria and convulsions 16, toxæmia of pregnancy 4, contracted pelvis 33, malpresentation 9, abnormal foetus 2, difficult and prolonged labour 18, ruptured uterus 1, uterine inertia 1, contraction ring 1, rigid os uteri 1, twin pregnancy 1.

Table LXXIX.—Deaths of Women not classed to Pregnancy and Childbearing, but returned as associated therewith, 1934.

						Ages.			
	Cause of Death.	All Ages.	15-	20-	25-	30	35-	40-	45 and up- wards.
7 8 11 15 17	Measles	1 9 31 1 1		1 3 —	1 2 9 —	1 9 - 1 1	5 3 1	5 —	
23 24-32 34 35 (2) 36 (a) 45-53 54 (b) 56 57 (2) 66 (a) 66 (b) 70 (b) 71 (a) 72 (a) 82 (b) 84 (b) 85 87 (b) 89 (b) 91 (1) 91 (2)	Tuberculosis of respiratory system Other forms of tuberculosis Syphilis Gonorrheea Septicæmia Cancer Tumours of female genital organs & 55 (b) Tumours of other sites Rheumatic fever Rheumatoid arthritis Diabetes Hypopituitarism Adenoma of thyroid gland Exophthalmic goitre Hæmophilia Pernicious anæmia (1) Splenic anæmia Lymphatic leukæmia Pneumococcal meningitis Cerebral hæmorrhage (2) Cerebral thrombosis Psychosis Epilepsy Polyneuritis Mastoiditis Malignant endocarditis Other acute endocarditis	59 18 2 1 3 13 23 4 8 1 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 4	19 4 — 1 — 1 — 1 — 1 — 1 — 1 — 1 — 1 — 1 —	17 4 — — — — — — — — — — — — — — — — — —	9 3 2 1 -7 111 -2 -2 -3 -5 	11 3 — 1 4 5 1 2 — 1 1 — 3 — 4 1 1 — 1 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	1	
92 (1, 93 (a) 93 (b) 93 (b) 94 95 99 100 (1	Mittal varve disease 3, 4, 5) Other or unspecified valvular disease Acute myocarditis (1) Fatty heart (3), 93 (c) Other or unspecified myocardial disease Coronary embolism Other diseases of the heart Other diseases of the arteries) Varix) Other diseases of the veins Bronchitis Broncho-pneumonia Lobar pneumonia Pneumonia (not otherwise defined).			7 - 2 - 2 - - 1 7	15 1 2 -3 -3 1 	8 — 6 — 4 — 3 3 3 26 3	10 10 1 5 9 	5 -2 9 1 3 -1 1 1 -2 7	2

Table LXXIX,—continued.

-Alab (Olmeral) francisco				A	iges.	land)		
Cause of Death.	All Ages.	15–	20-	25-	30-	35-	40-	45 and up-wards.
110 (1) Empyema 111 (2) Pulmonary embolism 112 Asthma 114 (b) (1) Gangrene of lung 115 (1) Diseases of the teeth and gums 115 (3) Diseases of the tonsils 116 (4) Streptococcal pharyngitis 117 (a) Ulcer of stomach 119 & 120 (a) Diarrhœa and enteritis 119 & 120 (b) Ulceration of intestines 121 Appendicitis 122 (b) Intestinal obstruction 125 (1) Acute yellow atrophy 125 (2) Other diseases of liver 126 (1) Cholethisasis with cholecystitis 127 (1) Cholecystitis without record of 129 Peritonitis without stated cause 131 Chronic nephritis 133 (a) Pyonephrosis 133 (b) Polycystic kidneys 134 (a) Renal calculi 135 (a) Cystitis 157 (c) Congenital malformation of	2 2 2 1 5 6 2 2 4 4 2 9 49 32 2 1 1 1 2 7 1 1 1 1 1 1 1 1 1 1 1 1 1			1 	1 — — — — — — — — — — — — — — — — — — —	1 1 1 1 2 2 2 2 1 2 - 12 8 - - 1 15 - - 1 1 1 1		
heart	8		1	1 2	3	1	1	
Total	747*	23	98	174	184	179	78	11
Single Married Widowed	33 705 9	8 15 —	3 95 —	9 164 1	3 180 1	5 169 5	5 71 2	11
Associated with abortion (included above) Single Married Widowed	64 64 —	2 - 2 -	6 -6 -	17 17 —	16 16 —	15 15 	8 - 8 -	3

^{*} Of these 747 deaths, 218 were stated to be associated with pregnancy, 64 with abortion, 46 with premature delivery, 17 with delivery at full term, and 402 with childbirth. Cæsarean section was stated to have been performed in the case of 55 of these deaths, of which 21 were attributed to ileus following Cæsarean section and assigned to No. 122 (b) above.

Such abortions, which are secondary to a toxemia or some other morbid condition of pregnancy, even if they could all be ascertained by special inquiry, are in a class by themselves and there would seem to be little justification for adding them to Table LXXXI.

Deaths known to have resulted from criminal abortion numbered 100, including 29 single women. This is the highest number yet recorded, the average in the preceding 5 years being 73, including 20 single women. Post-abortive sepsis had 295 deaths, the highest

number save in 1930, the average in 1929–33 being 257. The increase was entirely amongst the married, 258 of the deaths being those of married women compared with an average of 221 in 1929–33. These post-abortive sepsis deaths comprised 24·3 per cent. of the total assigned to puerperal sepsis, compared with an average of 23·4 in the preceding 5 years.

Table LXXX,—Deaths with Mention of Cæsarean Section, 1921–1934.

10000		Assig	gned to Pu	erperal Ca	uses.		Assigned	to non-p	uerperal	Total with mention
	Placenta prævia.	Contracted pelvis.	Albumin- uria, etc.	Other specified.	Reason not stated.	Total.	Intestinal Obstruction.	Other Causes.	Total.	of Cæsarear Section.
1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934	4 5 1 7 9 6 5 9 15 11 14 13 10 6	19 9 8 39 31 40 24 40 55 43 54 46 51 33	3 9 8 6 8 16 10 16 9 8 16 10 9	13 25 35 32 30 56 46 17 25 41 38 39 42	50 20 33 4 10 5 2 2 2 8 5 10 9	89 68 85 88 90 97 97 113 104 92 135 116 125	5 7 5 11 11 10 8 11 11 23 16 22 21 23	18 13 18 13 18 12 23 24 35 27 32 30 24 32	23 20 23 24 29 22 31 35 46 50 48 52 45 55	112 88 108 112 119 119 128 148 150 142 183 168 170 161

Table LXXXI.—Deaths attributed to, or associated with, Abortion, 1926-34.

Old List No.	New List No.		1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934
Part of 146	140 141	Post-abortive sepsis Abortion not returned as septic:—	222	215	224	238	300	229	262	257	295
Part of 143c		(1) Hæmorrhage following abortion.	72	72	47	51	59	97	105	108	94
143a		(2) Without record of harmorrhage.	86	82	77	67	65	21	12	13	5
199, 202	VI (Table 25).	Criminal abortion (inquest cases).	51	47	57	67	67	79	69	85	100
	20).	Total attributed to abortion.	431	416	405	423	491	426	448	463	494
		Associated with abortion but not classed to it.	?	3	83	182*	77	77	90	97	64
		Total attributed to, and associated with, abortion.	?	3	488	605	568	503	538	560	558

^{*} The excessive number of deaths associated with abortion but not classed to it in 1929 was partly due to the influenza epidemic of that year and partly to the allocation to abortion rather than to childbirth for that year only of 63 deaths said to be associated with premature delivery without definition as to length of gestation.

Many medical certificates contain no statement as to whether the sepsis followed abortion or delivery at term, and it was ascertained by a sample inquiry in 1932 that about 4 per cent. of such deaths were post-abortive sepsis. There were in 1934 563 sepsis deaths having no statement as to duration of pregnancy, compared with 637, 670, 537, 512, 515 in the five years 1929 to 1933, and the post-abortive sepsis totals should therefore be increased by addition of 4 per cent. of these numbers. The effect of this correction upon the mortality rates from abortion and from puerperal causes excluding abortion in each year since 1929 is noted below Table LXXXIII.

To non-septic abortion 99 deaths were assigned, a smaller number than in any year for which records are available, the average for • 1929-33 being 120. Deaths known to have been associated with abortion also fell to 64, from 97 in 1933.

Rates of Mortality.—Maternal mortality rates should properly be based upon the number of pregnancies, but this number cannot be ascertained owing to the absence of statistics of abortions and of multiple births. It is, therefore, necessary to choose between some approximation to this number, such as the registered annual births, and the total living population of women of the specified class whether pregnant or not. In the Reviews for years 1921-30, crude death rates per million women of all ages were shown in

Table LXXXII.—Mortality of Women in or associated with Childbirth per Thousand Children born alive, 1891-1934.

-	pe	1 21100	DUZZU C.	TIAME OAL	NOIH W	210, 20	701 100		
Year.	Classification in use from 1911 onwards.					Total Mortality from or associated			
	Puerperal Sepsis.	Other Puerperal causes.	Total Puerperal Mortality.	* Non- puerperal causes.	Puerperal Sepsis.	Other Puerperal causes.	Total Puerperal Mortality.	† Non- puerperal causes.	with
1891-95 1896-1900 1901-05		=	=		2·60 2·12 1·95	2·89 2·57 2·32	5·49 4·69 4·27		_ 5.56
1906-10 1911-15 1916·20	1·42 1·51	2·61 2·61	4·03 4·12	0·99 1·68	1·56 1·50 1·59	2·18 2·31 2·29	3·74 3·81 3·88	1·26 1·21 1·92	5·00 5·02 5·80
1921–25 1926–30	1·40 1·73	2·50 2·54 2·44	3·90 4·27 3·87	1·14 1·24	1 · 48 1 · 78	$2 \cdot 21 \\ 2 \cdot 23 \\ 2 \cdot 15$	3·69 4·01 3·67	1·35 1·50	5·04 5·51 4·91
1911 1912 1913 1914 1915	1·39 1·26 1·55 1·47	2·59 2·70 2·62 2·71	3·98 3·96 4·17 4·18	0·97 0·91 0·95 1·09	1·47 1·34 1·63 1·56	2·31 2·37 2·32 2·38	3·78 3·71 3·95 3·94	1·17 1·16 1·17 1·38	4.95 4.87 5.12 5.27
1916 1917 1918 1919	1·38 1·31 1·28 1·67 1·81	2·74 2·58 2·51 2·70 2·52	4·12 3·89 3·79 4·37 4·33	0·94 0·95 3·81 1·93 1·13	1·47 1·39 1·35 1·76 1·87	2·40 2·27 2·20 2·36 2·25	3·87 3·66 3·55 4·12 4·12	1·19 1·18 4·05 2·18 1·34	5·06 4·84 7·60 6·30 5·46
1921 1922 1923 1924 1925	1·38 1·39 1·30 1·39 1·56	2·54 2·44 2·52 2·51 2·52	3·92 3·81 3·82 3·90 4·08	1·08 1·35 1·00 1·16 1·07	1·46 1·46 1·38 1·48 1·62	$2 \cdot 25$ $2 \cdot 12$ $2 \cdot 22$ $2 \cdot 22$ $2 \cdot 24$	3·71 3·58 3·60 3·70 3·86	1·29 1·58 1·22 1·36 1·29	5·00 5·16 4·82 5·06 5·15
1926 1927 1928 1929 1930	1·60 1·57 1·79 1·80 1·92	2·52 2·54 2·63 2·53 2·48	4·12 4·11 4·42 4·33 4·40	1·02 1·32 1·20 1·49 1·19	1 · 64 1 · 63 1 · 85 1 · 83 1 · 96	2·23 2·20 2·30 2·24 2·19	3·87 3·83 4·15 4·07 4·16	1·27 1·60 1·47 1·75 1·43	5·14 5·43 5·62 5·82 5·59
931 932 933 1934	1.66 1.61 1.83 2.03	2·45 2·60 2·68 2·57	4·11 4·21 4·51 4·60	1·44 1·16 1·43 1·25	1·71 1·68 1·90 2·10	2·22 2·33 2·42 2·30	3·93 4·01 4·32 4·39	1·62 1·36 1·62 1·45	5·55 5·37 5·94 5·85

Table 5 for each puerperal cause, but from 1931 rates based upon the total births registered in each year have been substituted (Table 7). Rates of mortality from combined puerperal causes per 1,000 live births have been given in the text of the Reports since 1902, and in Table LXXXII such rates are given from 1891-95 according to the classification in use prior to 1911, and from 1911 onwards according to both the old and revised systems.

The changes in the classification of causes in 1911 involved certain transfers of puerperal mastitis, phlegmasia alba dolens and nephritis deaths, which necessitate tabulation of the dual

series of rates for comparison with earlier years.

Reliable statistics of stillbirths have been available since 1928, and as the total births, i.e., live and still births, provide a closer approximation to the number of women exposed to the risk of dying from puerperal conditions than do live births alone, maternal mortality rates have been calculated since that year on both bases, and will continue to be so calculated for a sufficient period to enable statistical continuity to be assured. It will be observed from Table LXXXIII that while the rates on the wider basis are naturally lower than those based on live births the relative changes from year to year remain practically unchanged.

Table LXXXIII. Mortality of Women in or associated with childbirth, 1928-34.

		1928.	1929.	1930.	1931.	1932.	1933.	1934
Per 1,000 Live { Births.	Puerperal sepsis Other puerperal causes Total puerperal mortality Non-puerperal causes†	1·79 2·63 4·42 1·20	1·80 2·53 4·33 1·49	1·92 2·48 4·40 1·19	1·66 2·45 4·11 1·44	1·61 2·60 4·21 1·16	1·83 2·68 4·51 1·43	2·03 2·57 4·60 1·25
Per 1,000 Live and Still-births.	Puerperal sepsis Other puerperal causes Total puerperal mortality Non-puerperal causes† Puerperal causes other than abortion Non-puerperal causes, excluding deaths associated with abortion.	1·72 2·52 4·25 1·15 3·74 1·03	1·73 2·43 4·16 1·43 3·63 1·25	1·84 2·38 4·22 1·14 3·59 1·03	1·59 2·35 3·95 1·38 3·42 1·27	1·55 2·49 4·04 1·11 3·45 0·97	1·75 2·57 4·32 1·37 3·70 1·21	1·95 2·47 4·41 1·20 3·78 1·10
Per 1,000,000 women aged { 15-45.	Abortion (including criminal) Non-puerperal causes associated with abortion.	42 9	43* 12§	50* 8	43* 8	46* 9	47* 10	51*

Note,—Criminal abortion deaths are not included in any of the above rates except where specified.

For a discussion of the relative advantages of, and fallacies inherent in, the different rates used as measures of mortality risk in childbearing, reference should be made to the Review for 1933, pp. 113-116.

Table LXXXII shows that the annual rate of total puerperal mortality (which excludes criminal abortion) ranged from 3.87 to 4.37 per 1,000 live-born children during 1911-20; and from

^{* 747} deaths in 1934 (Table LXXIX). † 747 deaths in Table LXXIX, and 122 from puerperal nephritis and albuminuria in 1934

NOTE.—Criminal abortion deaths are not included in any of the above rates except where specified.

† Associated with pregnancy or child-bearing.

* If corrected for puerperal sepsis deaths having no statement as to duration of pregnancy (see text) the estimated rates for 1929 to 1934 are raised to 46, 53, 46, 47, 50 and 53, and the residual rates in the line above are decreased by about 0-04 per 1,000.

§ Corrected in accordance with the note below Table LXXXI.

3.81 to 4.42 in the next decade. The years 1928–30 were characterized by higher rates for puerperal sepsis than had been recorded for many years, save in 1920, and the total rate in consequence averaged 4.38 in that period, but in 1931 it fell to 4.11 and has increased year by year since to 4.60 in 1934. The apparent increase of recent years has probably exceeded the actual owing to a more complete statement of mention of pregnancy or childbirth on death certificates resulting from the increased attention being paid to the statistics of maternal mortality.

Mortality classed to non-puerperal causes associated with childbearing ranged from 0.91 to 1.09 during 1911–17, was very high owing to influenza in the years 1918–19, and was again enhanced from the same cause in 1922, 1927 and 1929. During the four years 1923–26 before introduction of the new death certificate the rate averaged 1.06, and in 1930–34 it has averaged 1.29, but as already pointed out an increase of about one-fifth in this rate has probably resulted from the fuller information invited by the new certificate.

Table LXXXIII summarizes the mortality rates in each year since 1928, based upon each 1,000 live births or alternatively upon each 1,000 live and still-births, whilst for deaths resulting from or associated with abortion rates per million women aged 15–45 are also given. When abortion deaths are excluded the rate from other puerperal causes (Nos. 142–150) per 1,000 live and still-births is seen to have declined year by year from 3·74 in 1928 to 3·42 in 1931 and increased again in more recent years to 3·78 in 1934. The residual rate for non-puerperal causes excluding deaths associated with abortion has merely fluctuated according to influenza prevalence between 1·03 and 1·27.

Deaths from abortion, including criminal cases, per million women aged 15–45, reached 51 in 1934 (or, if corrected for the puerperal sepsis deaths having no statement as to duration of pregnancy, 53 per million), the highest rate in the period for which this figure can be ascertained. The combined mortality rate due to and associated with abortion, thus based upon the number of women at risk, has fluctuated between 51 and 58, but without any consistent trend, since 1928, the successive annual rates being 51, 55, 58, 51, 55, 57 and 58.

Table LXXXIV compares the mortality per 100,000 live births in 1934 with that in 1926–30, 1931, 1932 and 1933 from the constituent headings of the group of puerperal causes other than abortion, and where possible, with that in 1911–20. Placenta prævia, phlegmasia alba dolens and "other accidents of child-birth" registered a fall in 1934. The combined rate for albuminuria and the "other toxæmias," shows little change from the mean rates during 1926–30. Puerperal sepsis not returned as abortion registered 153 per 100,000 live births compared with 137 in 1926–30 and 129 in 1931–33.

Table LXXXIV.—Puerperal Mortality from various Causes, per 100,000 Live births, 1911–20, 1926–30, 1931, 1932, 1933, and 1934.

List No.	The same and the s	1911- 20	1926– 30.	1931.	1932.	1933.	1934
142 143 144 <i>a</i> <i>b</i> 146 147 148 149 150(1) (2) (3)	Ectopic gestation Other accidents of pregnancy Placenta prævia Other puerperal hæmorrhage Puerperal albuminuria & convulsions Other toxæmias of pregnancy Puerperal phlegmasia alba dolens, embolism and sudden death Other accidents of childbirth Puerperal insanity Puerperal diseases of breast Childbirth (unqualified) Total non-septic causes other than abortion.	9 ? 55 { 79 ? 37 ? 4 1 ? ? 246	13 3 24 26 79 8 29 41 3 1 6	12 4 22 24 59 21 29 47 2 2 4	14 3 25 22 61 25 32 47 4 2 6	16 4 24 23 64 24 30 54 2 3 5	15 5 18 26 69 21 26 49 4 3 4
145	Puerperal sepsis not returned as abortion.	?	137	130	119	139	153

Mortality rates from each cause at three ages of the mother, based upon the estimated numbers of live and still-births at those ages calculated from Census data, were given in Table LXXV of the Review for 1933 relating to each year 1924–33. The total rates excluding abortion are estimated on a like basis for 1934 to be 290 per 100,000 live and still-births at ages 15–25, 354 at 25–35 and 527 at 35–55, the increase over 1933 being confined to ages 25–35.

Table LXXXV gives similar rates at the three ages for causes other than abortion in married women based upon estimated legitimate births, and for abortion in married and single women based upon the respective estimated populations. Puerperal hæmorrhage and phlegmasia alba dolens rates in the married are lower than in 1930–32, but the combined rates for the toxæmias (146, 147) and the puerperal sepsis rates have increased at each age.

Criminal abortion deaths tend to increase at each age, but the total mortality from abortion per million living was lower in 1934 than in the preceding years at ages 15–25 and 35–45, but higher at 25–35, in married and single alike.

The specific age rates for the abortion and other than abortion components of puerperal sepsis cannot be calculated separately prior to 1931, but the combined rates for both forms of puerperal sepsis per 100,000 total births at the stated age have been as follows in the eleven years 1924 to 1934.

	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934	
All ages	134	150	154	151	172	173	184	159	155	175	195	
15–25	110	133	131	118	139	146	139	141	119	139	148	
25-35	122	136	146	141	160	167	179	150	151	163	202	
35-45	182	190	193	201	238	216	242	207	198	246	220	

Table LXXXV.—Mortality of Married Women at Separate ages from Various Puerperal Causes other than Abortion (per 100,000 Births—live and still); and of Married and Single Women from Abortion (per 1,000,000 living), 1930–32, 1933 and 1934.

List No.		Deaths of Legitin	of Married nate Live	Women per and Still Bi	Women per 100,000 and Still Births.			
No.		All ages.	15–25.	25-35.	35-45			
142-150	Diseases of pregnancy, childbirth, etc., 1930-32 1933 1934		255 291 290	318 325 344	482 519 506			
142	Ectopic gestation	12 14 13	2 3 6	11 15 11	22 22 24			
143	Other accidents of pregnancy (not abortion) $\begin{cases} 1930-32\\ 1933 \dots \\ 1934 \dots \end{cases}$	3 4	2 5 3	2 2 4	5 2 5			
144	Puerperal hæmorrhage	47 45 43	21 19 17	39 39 35	89 84 86			
145	Puerperal sepsis not returned as post abortive $\begin{cases} 1930-32\\ 1933&\\ 1934& \end{cases}$	124 131 146	109 112 128	121 125 149	143 161 150			
146	Puerperal albuminuria and convulsions $\dots \begin{cases} 1930-32\\ 1933\dots\\ 1934\dots \end{cases}$	56 60 65	54 61 76	48 51 55	74 79 77			
147	Other toxemias of pregnancy $\begin{cases} 1930-32\\ 1933\\ 1934 \end{cases}$	20 21 19	17 27 15	19 16 18	25 28 27			
148	Puerperal phlegmasia alba dolens, em-	29 29 25	16 16 9	27 23 23	49 57 48			
149	Other accidents of childbirth \dots $\begin{cases} 1930-32\\ 1933\dots\\ 1934\dots \end{cases}$	42 50 45	27 39 28	40 46 39	59 72 76			
150	Other or unspecified conditions of the $\begin{cases} 1930-32\\ 1933 \dots\\ 1934 \dots \end{cases}$	10 10 10	6 7 8	10 8 11	16 15 11			
	Deaths assigned to other causes but associa- 1933 ted with Nos. 142-150 1934	118 108	75 81	103 91	189 169			

				of Married lion living		Deaths of Single Women per Million living.				
			15–25.	25–35.	35-45.	15-25.	25–35.	35–45.		
140	Post-abortive sepsis $\begin{cases} 1930 \\ 1933 \\ 1934 \end{cases}$	3	55 46 50	53 49 65	36 38 35	7 4	6 17	7		
141	Abortion not returned as 1936 1933 1934	3	10 14 8*	22 18 17	25 26 19	1* 1*	4* 3*	2*		
-	Criminal abortion	3	12 17 15	14 13 17	5 6 7	4 - 5	11 12	2*		
-	Total of above $$ $\begin{cases} 1930 \\ 1933 \\ 1933 \end{cases}$	3	77 77 73	89 79 99	66 70 62	12 10	20 32	9 2*		
() - (,	Deaths assigned to other causes but associated with No. 140-141		17 17	21 14	15 10	-	4*	2*		

^{*} These rates are based upon less than 5 deaths.

Regional distribution.—Deaths from abortion other than criminal, and from the residual groups of septic and other causes excluding abortion, were distributed amongst the different types of area as follows:—

		Greater London.	Boroughs.*		Rural districts.*
140. Post-abortive sepsis141. Abortion, not septic145. Puerperal sepsis not returned as abor-	99	68	117 34	districts. 76 41	* 34 21
tion 142-4, 146-50. Other	917	112	287	296	222
causes	1,437	187	471	489	290
	* Outside	Greater I	ondon.)		

In the county boroughs as a whole there occurred one abortion death to every 5 other deaths classed to childbearing, and the county boroughs having more than 2 abortion deaths and for which this ratio exceeded 1 to 4 have been printed in italics in the list which follows.

The 155 abortion deaths in the county boroughs (including those within the boundary of Greater London) were thus located:—Barnsley 1, Birkenhead 5, Birmingham 11, Blackburn 1, Blackpool 1, Bolton 1, Bootle 3, Bournemouth 1, Bristol 3, Burnley 3, Bury 2, Chester 2, Coventry 4, Croydon 2, Derby 3, Doncaster 1, East Ham 1, Gateshead 3, Gloucester 1, Grimsby 1, Halifax 1, Ipswich 1, Kingston-upon-Hull 7, Leeds 2, Leicester 3, Liverpool 10, Manchester 8, Middlesbrough 4, Newcastle-on-Tyne 1, Norwich 1, Nottingham 2, Oldham 4, Oxford 1, Plymouth 6, Portsmouth 4, Preston 1, Rotherham 1, St. Helens 1, Salford 4, Sheffield 15, Southampton 2, Southport 1, Stockport 1, Stoke-on-Trent 6, Sunderland 3, Wakefield 2, Wallasey 1, West Ham 1, West Hartlepool 1, Wigan 1, Wolverhampton 2, Worcester 1, Cardiff 4, Merthyr-Tydfil 1, Swansea 1.

Table LXXXVI gives an analysis of deaths of married and other women classed to abortion (excluding criminal) during 1926–30 according to age and type of area, and of married women according to regions as then defined. The death rates of married women per million living, from this cause, were maximal at 35–40 in London and rural areas, at 30–35 in the large towns and at 25–30 in the small towns. Rates were lower in the rural districts than the county boroughs at each age from 20 to 45 and were highest in London at 20–25 and 30–45. The North gave rates above those of England and Wales at each age whilst the rates in Wales were still higher.

The deaths in the county boroughs in 1934 from causes other than abortion (Nos. 142–150), and, in parentheses, the calculated numbers derived by applying the rate in all county boroughs (3·75 per 1,000) to the number of live births in the town in question, were as follows:—Barnsley 4 (5), Barrow-in-Furness 11 (3), Bath 1 (3),

Table LXXXVI.—Deaths classed to Abortion, 1926–30, by Age, Civil Condition, Class of Area and Region, and Death rates of Married Women per Million.

	No. of deaths registered.												Death rates per million living.				
15- 20- 25- 30 35- 40- 45- All Ages.										25-	30-	35-	40-44				
Married Women. England and Wales London A.C. County Boroughs Other Urban Districts . Rural Districts . North . Midlands South (inc. London) Wales .	7 1 2 1 3 3 1 3 1 3 -	150 24 54 50 22 56 35 41 18	397 50 163 143 41 167 110 87 33	510 70 203 164 73 212 135 116 47	498 73 186 151 88 191 133 129 45	255 36 90 77 52 96 78 58 23	33 3 15 8 7 14 9 6	1,850 257 713 594 286 739 501 440 170	65 88 68 62 51 72 }56	80 89 97 81 45 102 66 104	89 112 104 79 67 110 73 127	88 120 97 74, 81 101 77	48 63 50 40 50 54 42 68				
Single, Widowed and Divorced. England and Wales London A.C County Boroughs Other Urban Districts Rural Districts	35 3 15 10 7	97 21 34 26 16	67 17 24 15 11	51 7 20 15 9	44 4 18 16 6	22 4 10 3 5		316 56 121 85 54	400			HIII	11111				

Birkenhead 8 (9), Birmingham 42 (59), Blackburn 6 (5), Blackpool 5 (5), Bolton 6 (8), Bootle 2 (6), Bournemouth 8 (5), Bradford 23 (15), Brighton 4 (7), Bristol 22 (21), Burnley 14 (4), Burton-on-Trent 1 (3), Bury 6 (3), Canterbury 0 (1), Carlisle 0 (3), Chester 3 (3), Coventry 3 (9), Croydon 9 (12), Darlington 5 (4), Derby 8 (8), Dewsbury 3 (3), Doncaster 2 (4), Dudley 3 (4), Eastbourne 5 (2), East Ham 2 (7), Exeter 3 (4), Gateshead 11 (9), Gloucester 1 (3), Great Yarmouth 2 (3), Grimsby 5 (6), Halifax 8 (4), Hastings 3 (3), Huddersfield 15 (5), Ipswich 4 (5), Kingson-upon Hull 23 (22), Leeds 32 (27), Leicester 11 (13), Lincoln 3 (3), Liverpool 41 (66), Manchester 40 (43), Middlesbrough 6 (10), Newcastle-on-Tyne 26 (18), Northampton 7 (4), Norwich 10 (7), Nottingham 9 (16), Oldham 10 (6), Oxford 3 (4), Plymouth 7 (12), Portsmouth 15 (15), Preston 19 (6), Reading 4 (5), Rochdale 7 (4), Rotherham 8 (5), St. Helens 10 (8), Salford 15 (12), Sheffield 29 (28), Smethwick 7 (5), Southampton 9 (10), Southend 6 (6), Southport 2 (3), South Shields 7 (8), Stockport 6 (7), Stoke-on-Trent 17 (17), Sunderland 18 (14), Tynemouth 5 (5), Wakefield 7 (3), Wallasey 4 (5), Walsall 3 (7), Warrington 5 (5), West Bromwich 7 (6), West Ham 8 (16), West Hartlepool 7 (5), Wigan 5 (5), Wolverhampton 7 (8), Worcester 3 (3), York 6 (5), Cardiff 23 (13), Merthyr Tydfil 1 (4), Newport 5 (6), Swansea 16 (10).

Social Class.—A separation of the live births to married women into groups according to the social grade in which the occupation of the husband was placed for statistical purposes was carried out in the Census year 1931, and a similar classification was made of the deaths from childbearing during 1930–32. Class I, being a small group comprising only 10,974 births, has been combined with

Class II for the purposes of Table LXXXVII and the small number of wives of men without any stated occupation have been omitted.

The resulting rates per 1,000 live births for each social class indicate that the risk attaching to childbearing tends to decline in passing from Class I–II to Class V, though it appears to be somewhat higher in Class IV than III. The risk to married women in Classes IV and V combined is 4.02 per 1,000 live births or slightly less than for all classes, whereas for Classes I and II combined it is considerably above average.

Table LXXXVII.—Mortality per 1,000 Live Births from Pregnancy, Childbirth and the Puerperal State, of Married Women according to Social Class of Husband, 1930–32.

Class.	All causes (140-150).	Other than abortion (142-150).	accidents	Puerperal hæmorr- hage. (144).	Puerperal sepsis (145).	Albumin- uria, toxæmias (146, 147)	Phlegmasia alba dolens (148).	Other Accidents of childbirth (149).
III. Profes ional III. Skilled IV. Semi-skilled V. Unskilled	4·44 4·11 4·16 3·89	3·94 3·55 3·60 3·32	0·17 0·15 0·16 0·12	0·50 0·44 0·48 0·60	1.45 1.33 1.21 1.16	0·81 0·81 0·84 0·68	0·40 0·30 0·32 0·26	0·52 0·42 0·46 0·40
All Married Women	4.13	3.57	0.15	0.49	1.29	0.79	0.31	0.44

Puerperal sepsis risks diminish progressively in passing from Class I-II to V, but puerperal hæmorrhage risks increase from III to V. The rate for puerperal albuminuria, convulsions and other toxæmias is lowest for the unskilled class, notwithstanding that in that class the greatest degree of poverty and malnutrition is presumably to be found. Amongst the other classes it shows no important variation. The risks from ectopic gestation and other accidents of pregnancy other than abortion, and from phlegmasia alba dolens and "other accidents of childbirth" are maximal in Class I-II and minimal in Class V.

Before drawing inferences from the rates in Table LXXXVII it is necessary to remember that the mortality risk from some of the causes there mentioned is higher at a first pregnancy than at subsequent pregnancies, or may be otherwise influenced by the number of previous confinements, and furthermore that the average size of family is not the same for married women in the different social classes. In a class where a higher proportion of the confinements are first pregnancies, the average mortality risk may be greater on that account, and the apparent excess of mortality rate in classes I–II may arise partly from that cause.

The distribution throughout the country of the mortality ascribed to childbirth is outlined in Table LXXXVIII. Sepsis mortality was higher in the rural districts than the towns, a reversal of the order of the preceding year. The London rate was the lowest in the table.

The rate was highest in Wales I, North III and II coming next in order.

Mortality from non-septic causes was highest in the small towns and lowest in London, the latter rate being the lowest in the table, as in 1931, 1932 and 1933. Wales registered the highest rates, followed by North III and I. The range of regional variation was, as usual, less for septic than non-septic causes.

Puerperal fever notification.—The records of cases of puerperal fever and pyrexia notified are collated with those of births and of deaths from this cause in Table LXXXVIII. The proportion to live births of puerperal fever cases notified is 41 per 10,000. This rate rose from 30 in 1927 to 40 in 1930, and fell to 35 in 1932 and 36 in 1933, and may have been affected by the compulsory notification of "puerperal pyrexia," which was in force throughout the period, having commenced on October 1, 1926. "Fever" and "pyrexia" notifications combined in the five years from 1930 to 1934 totalled 127, 128, 123, 136 and 141 per 10,000 live births. The records of notifications under both headings will be found in Tables 28–29 in full detail of locality. As in the previous year the highest fever rates were recorded for Wales I, North III and Greater London, the pyrexia rates being highest in Greater London, North IV and III.

Table LXXXVIII—Distribution throughout England and Wales of Mortality of Women in Childbirth, distinguishing Septic and Other Causes, and of Prevalence of Puerperal Fever and Pyrexia, 1934.

		Per 1,0	00 Live	Births.		Per	1,000 Li	ive and	Still Bi	rths.	er" ths.
		Deaths,		Ca	ses.		Deaths.	d of	Cas	ses.	erperal Fever" per 100 Deaths.
reittet kan omnet Vikologische sowit ek Dien som ein	Sepsis.	Other causes.	Total.	"Fever."	" Pyrexia."	Sepsis.	Other causes.	Total.	"Fever."	"Ругехіа."	" Puerperal Fever Cases per 100 Deatl
England and Wales South-East Greater London Remainder of South- East North North I ", III ",	2.03 1.75 1.55 2.07 2.14 1.97 2.44 2.46 1.96 2.15 2.18 2.10 1.85 1.57	2.57 1.99 1.63 2.53 3.03 3.15 2.68 3.31 2.91 2.25 2.03 2.69 2.22 2.60 4.08	4·60 3·74 3·18 4·61 5·17 5·12 5·12 5·72 4·87 4·41 4·79 4·17 6·98	4·13 4·33 4·50 4·07 3·94 3·38 3·94 4·85 3·67 3·98 4·22 3·50 3·69 3·17 5·56	9-97 10-67 11-79 8-95 10-27 7-89 8-45 10-90 11-36 9-24 10-19 7-37 9-16 10-09 7-51	1.95 1.70 1.50 2.00 2.04 1.89 2.33 2.34 1.87 2.06 2.09 2.02 1.78 1.51	2·47 1·92 1·58 2·45 2·90 3·02 2·56 3·16 2·77 2·16 1·95 2·58 2·13 2·50 3·86	4·41 3·62 3·07 4·45 4·94 4·91 4·89 5·50 4·65 4·22 4·04 4·60 3·91 4·00 6·61	3.97 4.19 4.35 3.93 3.76 3.24 3.77 4.63 3.50 3.82 4.05 3.36 3.56 3.04	9·57 10·32 11·41 8·65 9·81 7·56 8·07 10·39 10·84 8·86 9·77 7·07 8·82 9·68 9·71	204 247 291 196 184 171 162 198 187 185 194 167 200 202 202
Wales I	3·12 2·24 2·04 2·18 2·26	4·02 4·27 2·55 3·11 2·75	7·14 6·51 4·60 5·29 5·02	6·17 3·66 5·13 3·43 3·09	7·97 6·10 11·79 8·77 6·74	2·95 2·12 1·96 2·09 2·17	3·80 4·06 2·45 2·97 2·64	6·75 6·18 4·40 5·06 4·81	5.84 3.48 4.91 3.28 2.96	7·54 5·79 11·29 8·38 6·47	198 164 251 157 136
Greater Admin. County London Outer Ring	2·26 1·34 1·74	2·75 1·46 1·79	5·02 2·80 3·54	3·09 4·56 4·45	6·74 13·58 10·08	2·17 1·29 1·69	2·64 1·41 1·74	4·81 2·71 3·42	2·96 4·41 4·30	6·47 13·15 9·75	13 34 25

^{*} Excluding Greater London.

The fever rate was lowest in the South West, and the pyrexia rate in Wales II.

The proportion of puerperal fever cases to sepsis deaths is lowest in North II and in Wales II, and highest in Greater London and the South West, the range of variation in the regions being from 162 to 291 cases notified per 100 deaths. In London the ratio was 341.

The mean rates of notification of puerperal fever per 1,000 live births in 1921–24 and 1931–34, and the percentage changes in the interval, are given for each county in Table XLVI. The largest percentage increases are shown by Lincoln (Kesteven), Yorkshire (N. Riding), Isle of Wight, Westmorland, Sussex West, and Lincoln (Holland). Seven counties show decreases, viz., Pembroke, Gloucester, Suffolk West, Cheshire, Brecknock, Warwick and Ely. The distribution of the counties according to 1931–34 rates of puerperal fever on the one hand and of erysipelas on the other is given in Table XLVII.

186. Crushing by Motor Vehicles (not on railways).—Apart from 461 deaths on railways and 67 caused by aircraft, there were 6,112 accidental deaths attributed to mechanically-propelled vehicles in 1934, 4,536 of males and 1,576 of females. The rate of mortality per million persons was 151 compared with 147 in 1933, 141 in 1932, 147 in 1931 and 159 in 1930. In Table LXXXIX, the allocation of deaths to the different types of mechanically-propelled road vehicles is shown. The deaths classified as "Others" in 1934 are made up as follows:—

Motor cab, 26; motor char-a-banc, 47; motor tractor, 5; steam roller, 5; other or undefined motor, 5, and collisions involving a motor vehicle without statement as to which of the vehicles caused the death, 1,495.

Table LXXXIX.—Deaths, and Death Rates per Million Living, caused by various Types of Road Motor Vehicles in each year—1928-34.

	Deaths.								Rate per Million Living.						
The second	1928.	1929.	1930.	1931.	1932.	1933.	1934.	1928.	1929.	1930.	1931.	1932.	1933.	1934	
Electric tram Motor car Motor van, lorry, etc.	101 1,550 938	1.660	1.643	1.688	1.646	1.773	1 889	2·6 39·2 23·8	41.0	41.9	10.0	1·3 40·9 27·6	40 0	10	
Motor omnibus Motor cycle Others	1,007	1,162 1,095	1,286 1,375	1,083	983 1.432	965	875	14·1 26·4 25·5 131·6	29.3	32.3	27.1	24.5	23.9	21.0	

Lack of specification of the vehicle causing death in the last group renders the analysis of Table LXXXIX less complete than it would otherwise have been. It is regrettable that the distinction between the occupants of vehicles and pedestrians or cyclists cannot always be made from the records of death certification, nor do the records furnish the information necessary for a satisfactory analysis of deaths according to the locality in which the accident occurred.

Deaths attributed to the motor omnibus have fallen progressively since 1930, the total registered deaths in the causation of which this type of vehicle was concerned (alone or in collision with some other vehicle) being 852, 699, 595, 559 and 537 in the five years 1930 to 1934. The same applies to the motor cycle, for which the corresponding totals have been 2,091, 1,797, 1,783, 1,727, 1,621, but for the motor car this total, after remaining almost stationary during 1930–32, rose sharply in 1933 and 1934 (2,219, 2,257, 2,291, 2,527, 2,700).

Pedal cycles are known to have been concerned in or responsible for the following accidental deaths:—

		1929.	1930.	1931.	1932.	1933.	1934.
Pedal cycles alone	M	207	258	235	308	345	399
Pedal cycle in collision with other		47 232	61 294 34	84 309 35	95 431 49	105 544 64	152 627 99
at solution the transport of the transport	M	23 439 70	552 95	544 119	739 144	889 169	1,026
Total	P	509	647	663	883	1,058	1,277

The recent rapid increase of such deaths continued in 1934, the excess over the previous year being particularly great for females.

Table XC compares the mean annual death rates per million living due to accidents caused by all forms of road motor vehicles at various ages in 1934 with those in the three triennial periods 1925–27, 1928–30 and 1931–33. The male rate at all ages is about three times the female rate. This excess is present at each age, but the ratio of male to female risk increases with age to a maximum exceeding 7 at 20–25, then declines to about 2 at ages over 55.

Table XC.—Death rates per Million living from All Accidents caused by Road Motor Vehicles, by Sex and Age. 1925–27, 1928–30, 1931–33 and 1934.

		Ma	les.		Females.							
	1925–27.	1928–30.	1931–33.	1934.	1925–27.	1928–30.	1931–33.	1934				
0	107 195 102 151 233 146 112 134 170	142 250 132 231 365 221 147 166 239	143 242 106 238 393 228 142 160 228	135 229 107 251 414 234 155 192 228	55 92 26 32 30 22 23 36 75	87 129 40 50 57 31 83 57 95	88 133 37 52 55 33 33 53 104	95 126 38 70 58 32 31 49 100				
5 and over	301 490	400 738	395 711	405 753	140 179	190 276	186 260	185 355				
All ages	159	226	225	224	48	71	72	7,5				

From 1925-27 to 1928-30 the male rate at all ages rose by 42 per cent. and the female rate by 48 per cent. The changes which took place in the mean rates from 1928-30 to 1931-33 were, however, remarkably slight, the female rates remaining almost unchanged at each age under 45, whilst the male rates showed a rise for young adults balanced by a fall for boys of school age and men over 35.

In 1934 the mortality of boys under 10 and girls aged 5–10 declined in comparison with 1931–33, but there was an increase for female children under 5 and rates for both sexes at 10–15 were virtually unchanged. Males ages 15–55 and over 65, and females aged 15–25 and over 75 registered increases, the last-mentioned amounting to 36 per cent., but there was little change at other ages. As indicated in the Review for 1933, there are three ages of maximal risk, depending upon the fact that the death rates are the resultants of the combined risks to pedestrians, cyclists and occupants of motor vehicles, which are unfortunately inseparable. These three ages of maximal risk are the age of commencing pedestrian activity uncontrolled by experience, 5–10, the age of great motor driving activity not fully restrained by a sense of responsibility, 20–25, and old age with its physical inability to escape many traffic dangers.

Table 25 analyses according to sex and age the accidental deaths caused by each type of vehicle, and from that table it can be ascertained that the proportion of male to female deaths varies considerably according to the vehicle causing death and according to age, the percentage ratios being as follows:—

		All Ages.	0-5.	5–15.	15–25.	25-45.	45–65.	65 and over.
Motor car		188	133	170	275	332	184	135
Motor bus		187	88	191	218	306	185	154
Motor van, lorry Pedal cycle		244 262	182	225	473	513	245	154
Motor cycle		373	157	280	352 605	463 814	286 194	130 196
Collisions between	pedal	812137210	and restal		000	014	134	190
cycle and other veh	icle	633	3	450	472	670	1,320	1,275

Male excess of deaths is greatest for collisions involving a pedal cycle, motor cycle accidents coming next, and is least for motor car and bus accidents. At ages under 15 years the greater risks taken by boys than girls in street play are reflected in these figures. At 5–15 the male excess is greater than at 0–5 for most vehicles, fatalities in which pedal cycles were involved being 3 or 4 times as frequent for boys as for girls, whilst those due to other vehicles were about twice as frequent. The much greater participation of young adult males in the driving of motor cycles and commercial vehicles, and in the riding of pedal cycles, results in male deaths numbering 5 to 8 times the female deaths at 15–45, after which age the contrasts become gradually less except for collisions involving pedal cycles (in which the rider is generally the victim).

199, 200. Ill-defined Diseases.—These headings in the International List of Causes of Death, to which 1,250 deaths have been

Table XCI.—Replies to Inquiries respecting Indefinitely Certified Causes of Death, 1934.

CATCHERT SECURED IN	Ca		n Deam, 1994.
Subject of Inquiry.	Replies received.	Replies amplifying previous information.	Deaths allocated as the result of inquiry to certain headings.
Croup	10	9	Diphtheria 1, Laryngismus stridulus 1, Laryngitis 2.
Membranouslaryngitis	5	5	Diphtheria 2. Laryngitis 2.
Pyæmia, septicæmia, etc.	141	112	Diseases of the teeth and gums 3, Diseases of the tonsils 11, Puerperal sepsis 2, Diseases of the skin 20.
Tuberculosis	118	117	Tuberculosis of the respiratory system 62, Tuberculosis of central nervous system 6, Tuberculosis of intestines and peritoneum 5, Tuberculosis of other bones and joints 10, Tuberculosis of skin and subcutaneous tissues 1, Tuberculosis of lymphatic system 4, Disseminated tuberculosis 10, Other forms of tuberculosis 3.
Cancer (part or organ not stated).	1,209	1,162	Part or organ stated in 1,144 cases.
Cerebral tumour (P.M. cases).	267	258	Tuberculosis of central nervous system 7, Syphilis 3, Cancer 111, Glioma 66.
Tumour of other sites	765	634	Syphilis 3, Cancer 420.
Rheumatism	694	694	Rheumatic fever 234, Chronic rheumatism 2, Rheumatoid arthritis 6, Rheumatic heart disease 435.
Encephalitis	211	181	Influenza 12, Polioencephalitis 4, Encephalitis lethargica 89, Syphilis 2, Other forms of encephalitis 41.
Basal or basic meningitis.	26	25	Cerebro-spinal fever 9, Tuberculosis of central nervous system 5, Meningitis—other forms 5.
Posterior or post basal or post basic meningitis.	33	28	Cerebro-spinal fever 19, Tuberculosis of central nervous system 1, Meningitis—other forms 5.
Cerebro-spinal menin- gitis	118	114	Measles 1, Influenza 2, Cerebro-spinal fever 96, Tuberculosis of central nervous system 2, Meningitis—other forms 9.
Spinal sclerosis	11	11	Tabes dorsalis 1, Other diseases of the spinal cord 3, Disseminated sclerosis 4.
Paraplegia	30	18	Tabes dorsalis 1, Other diseases of the spinal cord 5, Disseminated sclerosis 2.
General paralysis (outside asylums).	14	12	General paralysis of the insane 9.

Table XCI—continued.

	1	able X	CI—continued.
Subject of Inquiry.	Replies received.	Replies amplifying previous information.	Deaths allocated as the result of inquiry to certain headings.
Paralysis	7	6	Syphilis 1, Paralysis agitans 1, Disseminated sclerosis 1.
Aortitis, arteritis and endarteritis.	133	125	Syphilis 58, General paralysis of the insane 1, Aneurysm 1, Arterio-sclerosis 11.
Fibroid phthisis	64	62	Tuberculosis of respiratory system 45, Chronic interstitial pneumonia 7.
Hæmoptysis	20	18	Tuberculosis of respiratory system 10, Aneurysm 1.
Stomatitis	16	16	Thrush, aphthous stomatitis 5.
Stricture of œsophagus	18	17	Cancer 8.
Hæmatemesis	34	29	Cancer 4, Ulcer of stomach or duodenum 14.
Pyloric stenosis, ob- struction, etc.	55	55	Cancer 14, Ulcer of stomach or duodenum 26.
Jaundice	32	25	Cancer 3, Biliary calculi 8.
Peritonitis	102	72	Influenza 1, Tuberculosis of intestines and peritoneum 1, Cancer 1, Ulcer of stomach or duodenum 7, Appendicitis 16, Hernia 1, Intestinal obstruction 4, Diseases of the female genital organs 9.
Pemphigus of infants	60	55	Syphilis 8.
Hydrocephalus	51	50	Encephalitis lethargica 1, Tuberculosis of central nervous system 3, Congenital hydrocephalus 27.
Violence	418	408	Precise form of suicide 112, Drowning 1, Injury by fall 49, Injury in mines and quarries 23, Injury by crushing 68.
Syncope, Heart Failure.	112	104	Influenza 1, Syphilis 1, Rheumatic fever 1, Diseases of the heart 57, Arterio-sclerosis 6,
Operation	660	628	Bronchitis 10, Nephritis 4. Cancer 49, Tumours of female genital organs 44, Ulcer of stomach or duodenum 43, Appendicitis 18, Hernia, Intestinal obstruction 54, Biliary calculi 74, Other diseases of the gall bladder 32, Diseases of the prostate 38, Diseases of the female genital organs 42, Congenital malforma-
Other indefinite forms of certification.	2,538	2,303	tions 8, Violence 10.
Total	7,972	7,353	

allocated, exclude the ill-defined diseases of infancy and old age, 158 and 162 (b). In the more comprehensive sense resulting from their inclusion, the deaths from ill-defined causes in 1934 numbered 18,028, or 3.78 per cent. of the total, as compared with 3.89 in 1933, 4.19 in 1932 and 9.67 in 1911.

Inquiries sent to medical practitioners and coroners requesting further information as to indefinitely certified deaths amounted to 8,649, and to these 7,972 replies were received, with results to classification, some of the most important of which are set out in Table XCI.

The total additions to certain definite headings resulting from these inquiries were as follows:—To influenza, 48; to encephalitis lethargica, 91; to cerebro-spinal fever, 127; to tuberculosis of the respiratory system, 152; to other forms of tuberculosis, 107; to venereal diseases, 129; to cancer, 671; to diseases of the spinal cord, 21; to general paralysis of the insane, 13; to disseminated sclerosis, 10; to arterio-sclerosis, 50; to ulcer of stomach and duodenum, 131; to appendicitis, 69; to biliary calculi, 102; to chronic nephritis, 70; to diseases of the prostate, 81; to puerperal sepsis, 68; to congenital malformations, 67.

In addition to the foregoing, 2,003 inquiries were addressed to medical practitioners who had initialled statement "B" on the back of the new form of medical certificate, thereby indicating the possibility of their being in a position to furnish additional information respecting the certified cause of death as the result of a P.M. or laboratory examination which was not available at the time of signing the certificate. Of the 1,788 replies received to these inquiries, 875 amended the original certification.

Anæsthetics.—The usual annual statement of deaths during or connected with the administration of an anæsthetic is continued. This is obtained by secondary tabulation of these deaths, since the primary tabulation, represented by Table 21, classified all such deaths to the disease or injury on account of which the anæsthetic was administered.

The total number of deaths in Table XCII, 814, is 46 more than in 1933, and is the largest number yet recorded. During the years for which fully comparable figures can be stated these deaths first increased slowly from 276 in 1911 to 366 in 1920, declined to 336 in 1922, rose to 446 and remained about that level to 1925. They then increased rapidly to 730 in 1929, and have risen further in the last three years.

For the years before 1911 the record is contained in the tables of accidental deaths, but certain causes—strangulated hernia and cancer—were at this time preferred in tabulation to the anæsthetic used. In 1934 the 814 deaths included 112 associated with cancer, and 58 with hernia. So for comparison with the years prior to 1911 the number of deaths should be reduced to 644. But during 1901–10 the deaths ranged from 133 (1901) to 234 (1910).

Table XCII.—Deaths under or connected with the Administration of various Anæsthetics, according to Sex and Age—1934.

Anæsthetic.			-2						A	ge.							
Amostnetic.			All Ages.	0-	1-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	16
Chloroform		$\dots \begin{Bmatrix} M. \\ F. \end{Bmatrix}$	34 34	- 1	5 2	2	2	1 1	1 6	2 4	2 7	1 2	3	-	3	8 2	-
Chloroform and ether		$\cdots \begin{Bmatrix} M, \\ F. \end{Bmatrix}$	104 76	1 1	6 7	6	4 3	1 7	8	6 9	9 7	9 8	1 5	9 8	7 3	21	1
Chloroform, ether and ethyl cl	hloride	{M. F.	5 2	-	1	-	2	-		-	-	-	- 1	-	1	1 1	1
Chloroform and ethyl chloride		F.	1	_	1		_	_	_	-					-	•	١
Chloroform, ether and evipan		F.	1	-	_	-	_	-	_	_	1	_	-	-	-	-	-
Chloroform, ether and stovain	e	{M. F.	1 1	-	1.1	-			-	-		-		-	-	-	-
Chloroform and avertin		M.	1		_						_	1				1	1
Ether		{M. F.	135 117	9	18 13	8	11 2	2 5	6	8	5 9	8 6	5 10	3 5	6 9	25 13	1
Ether and ethyl chloride	•••	{M. F.	35 34	4 2	10 7	3 5	- 1	1 1	1	1 3	1 2	1	1 2	1 5	2 3	4 2	-
Ether and atropine	11 -	м.	1	-	_		-		1	2	-	_	-	-	-	_	1
Ether and avertin	i ka di	$\dots \begin{Bmatrix} M. \\ F. \end{Bmatrix}$	2 2	-	-	-	1	1 1	-		-	-	- 1	1		-	-
Ether and evipan	••.	F.	1	-	-	_	-	_	_	_	_		-	-		1	1
Ether and nembutal		F.	2	-	_	-	-	_	_	1		-	1	-		-	1
Ether and percaine		{M. F.	1	-	-	-	-		-	-	10.1	-	-	-	1	-	-
Ether and stovaine	0.225	F.	1	100	-					loo!				-	1		
Ethyl chloride		{M. F.	13	1	7 2	2 2	-	1 -	-		-	-	11		1	1	1
A.C.E. mixture		M.	4	_	1	1	1	_	_	1	-		-		-	-	ı
Nitrous oxide		{M. F.	33 35	-	1 3	- 2	- 2	- 1	2	- 1	2 2	4 3	2 1	5	6 5	9	-
Avertin		{M. F.	3 6		-	1 -		- 1	-	- 2	- 1		- 1	-	1	2	
Cocaine		M.	1					1	-	_	1	-	1	-	-	1	1
Cocaine and adrenalin		{M. F.	1 1	-	_	-	-	_	1	-		-	-	-		-	
Drenocaine		M.	1	-	-		- 1	1 1	-	-	1	-	-	-	-	-	1
		F.	1							-	-	-	_	1	-	-	
	estal	м.	1	-	-	-	-	_	_	-	-		-	-	-	1	
Evipan	n be	{M. F.	5 8		1	1	- 1		-		- 1	1	1	-	-	1	1
Nembutal	****	F.	1	(T)		-	-	-	-	-	-	-	1 -	1	1	2	1
Neocaine	1	м.	1	7	-	-	-	-	-	-	-	-	+	-	-	-	1
Nepenthe		м.	1	-	1	-	-	-	-	-	-	-	-	-	-	1	-
Novocaine		$\dots \begin{Bmatrix} M. \\ F. \end{Bmatrix}$	18 7	1 -		1 -	1.1	-				2	-	-	2	6 3	
Novutox		F.	1	-	-	-	-	-	-	1	-	-	-	-	1	-	1
Pantocaine		м.	1	-	_	_				-					1		

Table XCII—continued.

eg 15, ball			da/III a							A	ge.				14	10		
Anæ	sthetic.			All Ages.	0-	1-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	65-
Percaine			{M. F.	18	-	-	-	-	-	-	-	2	-2	-	1 1	1 -	6 6	10 6
Planocaine			F.	1	-	-	-	-	-	-		-	-	-	-	+	-	1
Spinocaine			$\dots \left\{ _{F.}^{M.}\right.$	4 3	-			-		-	-	-			2	-	3 -	1
Spinocaine and evipar	ı		M.	1	-	-	-	-	-	-	-	-	-	-	1-	-	-	1
Stovaine		1	$ \left\{ \begin{matrix} M. \\ F. \end{matrix} \right.$	7 10	 -	-	-	-	-	-	- 1	1		-	1	1 -	2 4	3 3
Stovocaine			м.	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Vinethane		1	M.	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Kind not stated		1.5	$\cdots \begin{Bmatrix} M . \\ F. \end{Bmatrix}$	6 4	-	1	- 1	-	2 -	-	1-	1	-	1	-	1-1-	1 -	2 -
Total			$ \left\{ _{F.}^{M.} \right.$	440 374	15 6	51 37	24 32	21 11	9 17	20 21	18 32	19 35	27 21	16 24	16 29	32 24	91 46	81 39

Subject to allowance, on the scale indicated by this reduction, for the more comprehensive nature of the figures from 1911 onwards, the records of the present century may be compared as in Table XCIII.

The increase since 1911–15 is very general in its application to sex and age, but is relatively greater at ages over 55, and least for males aged 25–45.

Prior to 1921 deaths of males were in excess of those of females at almost every age; but in each year since, except 1923, females have been in excess at 25–45 and in a few years at 15–25 and 45–55 also.

The anæsthetic agents recorded on death certificates have altered considerably in recent years, as may be seen from Table XCIV. A further increase is recorded in 1934 in the deaths associated with ethyl chloride in combination with ether, which numbered 69, and in the number associated with nitrous oxide, which reached 68. The increasing employment of cocaine derivatives is reflected in the very rapid rise in the number of deaths associated with this group of anæsthetics, from 38 in 1931 to 98 in 1934.

It need scarcely be pointed out that these fatalities depend upon the extent to which the various agents are used as well as upon the risk attaching to them. But unfortunately the deaths associated with each type of anæsthetic cannot be collated with the number of its administrations. It is not even possible to say whether, or to what extent, the rapid increase in the number of these deaths implies increased mortality under anæsthetics. The number of administrations is known to be increasing very rapidly, but cannot be estimated. The deaths tabulated, moreover, can only be those under, not those caused by, anæsthesia. It is impossible from certification to distinguish between deaths from operation under anæsthesia and deaths due to the anæsthetic itself.

Of the 814 deaths in 1934 shown in Table XCIII, 658 (81 per cent.) were classed to the 22 headings enumerated in Table XCV, the remainder being of very varied causation. The composition of this list changes little from year to year.

Table XCIII.—Deaths under or associated with Anæsthesia 1901-34.

					Males								F	emale	es.			
Year.	All	0-	5-	15-	25-	35-	45-	55-	65-	All	0-	5-	15-	25-	35-	45-	55-	65-
Yearly average: 1901-05* 1906-10* 1911-15 1916-20 1921-25 1926-30 1921 1922 1923 1924 1925 1925 1926 1927 1928 1929 1929 1929	95 125 167 188 229 361 204 185 262 245 249	14 26 30 36 40 56 30 29 45 51 43	20 20 23 25 28 47 29 21 37 30 25	9 12 14 25 20 30 16 16 29 21	13 16 20 27 18 26 16 9 17 25 23	16 18 28 22 27 37 19 27 38 21 28	11 16 24 20 36 50 34 30 35 42 39	7 9 16 19 37 62 30 35 34 39 45	4 8 10 13 24 53 30 18 27 16 29	53 77 116 119 169 288 133 151 184 184 193	6 7 14 11 20 29 16 16 22 26 22	9 14 17 16 17 29 23 15 23 11	7 9 15 14 17 29 16 12 14 30 15	11 18 16 21 30 44 24 29 23 29 43	8 11 22 22 29 51 21 31 32 31 32	8 10 18 17 25 49 19 26 32 21 29	3 4 10 7 17 34 11 12 23 18 23	2 3 5 9 12 23 3 10 15 18 15
1926	306 328 384 414 375 413 416 425	57 43 63 66 51 60 66 67	43 51 41 61 41 51 49 47	23 25 30 31 39 44 37 44	29 20 23 25 34 36 29 22	34 30 43 43 34 41 45 42	39 42 55 63 52 51 58 56	43 70 67 64 68 73 68 78	38 47 62 61 56 57 64 69	250 268 272 316 332 310 333 343	32 24 29 35 27 27 24 35	22 28 21 35 39 40 40 39	29 29 27 27 33 23 33 47	35 46 44 52 45 60 60 50	44 47 45 52 66 55 58 44	51 40 44 50 58 43 42 48	23 35 33 43 35 38 36 47	14 19 29 22 29 24 40 33

Deaths in later periods compared with those of 1911-15 taken as 100.

Yearly average:																		
1911-15	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100	100	10
1916-20	113	120	109		135	79		119	130		79	94	93	131	100	94	70	18
1921-25	137	133	122		90	96	150	231	240		143	100	113	188	132	139	170	24
1926-30	216	187	204	214	130	132	208	388	530	248	207	171	193	275	232	272	340	46
1931	247	200	222	314	180	146	213		570		193	235	153	375	250	239	380	48
1932	249	220	213	264	145	161	242	425	640		171	235	220	375	264	233	360	80
1933	254	223	204	314	110	150	233	488	690		250	229	313	313	200	267	470	66
1934	263	220	196	207	185	154	200	569	810	322	307	253	253	419	205	294	460	78

^{*} Excluding deaths from cancer and strangulated hernia—see page 138.

The numbers of deaths reported from different classes of institutions, etc., in various regions of the country are stated in Table XCVI, in which, as place of occurrence is evidently of more interest for these deaths than place of residence, they have been tabulated by area of registration.

Since most of these deaths occur in institutions to which patients are drawn from wide areas, it is not surprising to find that the ratio of anæsthetic deaths to resident population is highest in Greater London, 28 to each million, and lowest in the Midland, South-West and Welsh regions, where the ratio is 14 to each million.

Status Lymphaticus and Anæsthetics.—The deaths from status lymphaticus primarily classified to diseases of the thymus (67) in Table 21 reached a maximum of 202 in 1929, but then fell somewhat precipitately to 138 in 1930. In the last 4 years they have numbered 143, 154, 153 and 133. In addition to these 133 deaths, there were

Table XCIV.—Deaths under or associated with the Administration of Various Anæsthetics in each year, 1922 to 1934.

OI Various	T.A.V	TOP STITLE	emca	ш	caul	1 ye	aı,	TORK	100	190	T.	Shiell'
2010 22 10 3	Sex.	Average 1922–24.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.
Anæsthetics of the Methane series:—		1		1	-2.5		60 F-1	1-10		1	24	22
Chloroform (alone) {	M. F.	49 31	43 40	54 47	48 53	75 36	63 41	51 37	58 37	52 36	52 31	34 34
Ether (alone) {	M. F.	57 44	61 52	105 67	101 72	118 108	142 121	126 130	134 114	130 118	134 115	135 117
Chloroform and ether {	M. F.	70 49	91 57	89 78	100 69	120 80	116 93	115 87	126 79	103 68	91 87	104 76
A.C.E. mixture {	M. F.	7 5	11 3	9 8	9 2	5	3 6	1 3	10	3 5	4	4
Ether and ethyl chloride {	M. F.	1	7 3	10 7	15 17	9 7	12 13	16 16	28 10	24 19	31 26	35 34
Other mixtures, in- cluding chloroform or ether.*	M. F.	3	5 2	4 7	4 7	6	8	5	2 8	8	6	11
Ethanesal {	M. F.	1 2	1	=	=	=	=	-	<u>-</u>		=	
Ethyl chloride (alone) {	M. F.	2 2	5 6	4 3	8 6	6 3	7 3	6 4	3 11	7 7	8 4	13
BarbituricAcid group— { Nembutal, Evipan	M. F.	=	=	=	_	=	=	=	-3		1 1	5 9
Avertin (alone) {	M. F.	-	_		——————————————————————————————————————		1 1	1 1	2 3	5 4	5	3 6
Avertin with cocaine {	M. F.	=	F	_	_	_	F	=	1	2	=	when'y
Nitrous oxide {	M. F.	8 4	5 4	9 6	13 19	18 12	27 11	23 18	21 22	36 27	34 24	33 35
Opium or Morphine and their preparations with atropine, hyoscine or co-	M.	-	1		1	-		1	-	1	. —	
caine derivative.	F.	-	_	-		-	_	1	1	1	.:-	
Cocaine and its prepara- tions and substitutes (without any of above):—				386	er of the second	and the same of	School annual	halagid into yan			.,	C. (Sees)
Stovaine {	M. F.	2	5	3 6	5	2 3	3 6	3	2 2	6	5	10
Novocaine {	M. F.	2 2	2 2	2	5 3	9	12	10 11	6 4	20 9	18	18 7
Percaine{	M. F.		=	=	_	-	1	1 2	7 6	10	11 13	18 18
Others {	M. F.	1	1	2 3	4	2 4	7 4	3 2	7 4	8 5	18 10	13 7
Miscellaneous or unspeci- fied, including combina- tions of, or containing the	М.	27	15	15	16	14	13	12	7	3	7	7
above, not distinguished.	F.	27	18	17	14	10	9	12	5	2	. 3	4
Total {	M. F.	231 173	249 193	306 250	328 268	384 272	414 316	375 332	413 310	416 333	425 343	440 374

^{*} Including combinations of chloroform or ether with morphia, atropine, nembutal or cocaine derivatives or substitutes.

Table XCV.—Classification of Deaths under or associated with Anæsthesia, 1934.

	Cause to which Death was assigned.	Males.	Females.	mana and	Cause to which Death was assigned.	Males.	Females.
24-32	Non-respiratory	8	7	121	Appendicitis	41	41
	tuberculosis.			122 a	Hernia	44	14
45-53	Cancer	66	46	122 b	Intestinal obstruc-	23	13
54 a	Non-malignant tu-	-	14	COLUMN TO SERVICE SERVICE	tion.	992	916
	mours of Female			126	Biliary calculi	4	7
00.1	Genital Organs.			127 (pt.)	Diseases of the gall	1	6
66 b	Exophthalmic goitre	-	15	1000 0000	bladder.	ET &	建设的
89 b	Diseases of the mas-	10	13	129	Peritonitis	5	4
101	toid sinus.			137	Diseases of the pros-	14	-
104	Diseases of the nasal	3	5		tate.	1000	
110.1	fossæ and annexa.			138 (pt.)	Circumcision	7	-
110:1	Empyema	6	6	140-150	Childbirth and abor-	-	47
115:1	Extraction of	11	17		tion.		
(pt.)	teeth.	-		154	Acute infective os-	2	2
115:3	Diseases of the ton-	26	14	or adams	teomyelitis.	83 4	
110	sils.	00		157	Congenital malfor-	14	6
117	Ulcer of the stomach	33	6		mations.		
DEME S	or duodenum.			163–198	Violence	43	14

Table XCVI.—Deaths under Anæsthetics Registered in 1934. Distribution by Part of Country and Place of Occurrence.

ti amico	1) 1991 110 D	Greater London.	South- East excluding Greater London.	North.	Midland.	East.	South-West.	Wales.	England and Wales.
Hospitals	{M. F.	87 73	52 34	103 102	44 31	21 8	10 11	14 16	331 275
Public Assistance Instituti	ions $\{F.\}$	35 25	8 9	21 17	6 7	sa <u>m</u> or	2 1	1 1	73 60
Mental Hospitals	$\cdots \begin{Bmatrix} M. \\ F. \end{Bmatrix}$	2	1 —	Ξ	=	工	=	=	3
Nursing Homes	$ \left\{ egin{matrix} M. \\ F. \end{matrix} ight.$	7 4	5 1	5		-1	_1	1_	15 12
Elsewhere	$\ldots \left\{_{F.}^{M.}\right.$	3 3	2 5	8 13	3 3	上	1 2	1 1	18 27
Total	{M. F.	134 105	68 49	132 137	53 43	22 8	14 14	17 18	440 374

in 1934 57 deaths under anæsthetics in the case of which record was made of the presence of this condition but which have been referred in tabulation to the condition occasioning the administration of the anæsthetic.

The sex and age distribution of these was as follows:—

	All Ages.	0-	5–	10-	15-	20-	25-	35-
Males Females	34 23	17 8	7 5	2	2 4	2 3	4 2	<u> </u>

Standardized Mortality of the County Boroughs and Administrative Counties in 1931–1934 compared with 1911–1914.

The method of standardization of local death rates to correct for peculiarities in the sex and age constitution of their populations described on pages 4-8 has been applied to the mean mortality in 1931-1934 of each county borough and administrative county, and the resulting standardized ratios have been expressed in percentage form in column 14 of Table XCVII and column 9 of Table XCVIII. The average of the crude death rates of the 4 years, multiplied by the comparability factor given in column 13 of Table 17 (Part I 1934) gives the mean adjusted death rate in 1931-34. When divided by the average of the crude death rates for England and Wales in the 4 years, the resulting ratio of the local adjusted rate to the national rate may be conveniently termed the standardized ratio for 1931-1934, and 100 times this ratio is the value shown in the Tables. A precisely comparable series of percentage ratios for 1911-1914 has been calculated by dividing the average of the standardized death rates as tabulated in the annual reports of those 4 years by the average of the standardized rates for England and Wales and multiplying by 100, the resulting values being given in column 12 of Table XCVII and column 7 of Table XCVIII. For the county boroughs a third series of ratios between local and national standardized mortalities, which is comparable with the other series, has been calculated for 1921-1924, this series being shown in column 13 of Table XCVII.

Table XCVII.—Standardized Mortality in 1931-34 and 1921-24 compared with 1911-14; social classification of male population, housing density and latitude, and mortality corrected for these factors in each County Borough.

County Borough.	de.	us per room,	occupied males, 1 14 up, 1931.		(pe	ortion or er mill ial Cla	of these) in ss:—	e	of adjusted to mal death rate, -33.	ited ratio on of regression ula.*	calculated ratio.	adj pe	ean loousted in cent.	of ate	cent. decline in O.R. since 1911-14.
	Latitude	Persons 1931	No. of aged	I	п.	III.	IV.	v.	Ratio of national 1929–33	Calculated basis of formula.	Actual	1911– 14.	1921- 24.	1931– 34.	Per cent S.D.R.
The production of the second	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Barnsley	53 54 51 53 52 53 53 53 53 50 53 50 51 53	0·91 0·89 0·69 0·89 0·83 0·82 0·67 0·85 0·95 0·64 0·88 0·79 0·81 0·85	24,517 24,174 20,125 47,865 333,470 41,261 31,006 60,590 24,615 31,115 98,882 45,230 128,445 34,029	12 12 31 22 16 16 31 15 9 47 14 30 21 13	71 86 149 98 112 115 203 102 65 191 130 146 125 98	510 517 560 462 549 548 512 522 422 563 495 537 504 583	251 166 100 121 161 126 102 172 142 75 201 119 117 158	157 219 161 297 162 193 152 188 362 124 160 168 233 149	1·24 1·11 0·84 1·16 1·05 1·16 1·30 0·86 1·17 0·93 0·95 1·23	1·17 1·18 0·93 1·16 1·06 1·09 0·98 1·12 1·23 0·84 1·13 0·96 1·03 1·09	106 94 90 98 99 106 110 108 106 102 104 97 92 113	134 112 84 119 118 124 107 123 137 74 119 93 100 136	127 102 88 109 102 123 117 121 118 93 121 95 97 134	123 116 88 116 105 119 110 120 136 89 119 96 96 127	34 25 24 29 35 31 25 29 28 13 28 25 31 33

^{*} Based upon the three variables, persons per room, proportion of occupied males in classes IV and V and latitude

Table XCVII .- continued.

County Borough.	ıde.	ns per room, 1.	f occupied males, d 14 up, 1931.		(pe	rtion o r mille al Clas			ntio of adjusted to national death rate, 1929–33.	alculated ratio on basis of regression formula.*	Actual per cent. of calculated ratio.	adji per nat	ean locusted recent.	ate of	cent. decline in R. since 1911-14.
A CONTRACTOR OF THE SECOND SEC	Latitude	Persons 1931.	No. of aged	I	II.	III.	IV.	v.	Ratio nati	Calculated basis or formula.	Actua	1911- 14.	1921- 24.	1931- 34.	Per S.D.1
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Burton-upon-Trent Bury Canterbury Carlisle Chester Coventry Croydon Darlington Derby Dewsbury Doncaster Dudley Eastbourne East Ham Exeter Gateshead Gloucester Great Yarmouth Grimsby Halifax Hastings Huddersfield Ipswich Kingston-upon-Hull Leeds Leicester Lincoln Liverpool Manchester Middlesbrough Newcastle-upon-Tyne Nortingham Oldham Oxford Plymouth Portsmouth Preston Reading Rochdale Rotherham St. Helens Salford Sheffield Smethwick Southampton Southend-on-Sea Southport South Shields Stockport Stoke-on-Trent Sunderland Tynemouth Wakefield Wallasey Walsall Warrington West Harm West Hartlepool Wigan Wolverhampton Worcester York Cardiff Merthyr Tydfil Newport (Mon.) Swansea	52 53 51 53 52 53 53 53 53 53 53 53 53 53 53	0.76 0.84 0.72 0.95 0.85 0.95 0.91 0.75 1.02 0.75 1.00 0.69 0.93 0.73 1.23 0.75 0.81 0.90 0.70 0.91 0.69 0.87 0.69 0.74 0.89 0.72 0.96 0.76 0.75 0.81 0.90 0.71 0.94 0.82 0.80 0.72 0.85 0.91 1.13 0.70 0.71 0.84 0.82 1.04 1.22 1.08 0.72 0.88 0.72 0.88 0.72 0.88 0.72 0.88 0.75 0.85 0.91 1.13 0.94 0.87 0.82 0.80 0.72 0.88 0.75 0.85 0.91 1.10 0.87 0.72 0.84 0.88 0.87 0.90	16,721 19,640 8,011 17,806 13,706 61,041 75,800 23,676 47,538 18,355 21,712 20,132 15,945 49,805 20,959 39,342 17,175 17,290 32,436 33,037 17,350 32,436 33,037 17,350 32,436 33,037 17,350 32,436 33,037 17,350 32,436 33,190 31,782 40,517 22,793 267,670 257,368 46,206 93,190 31,782 40,527 87,849 49,617 25,224 69,646 79,156 39,271 31,811 31,329 24,347 25,224 69,646 79,156 39,271 31,811 31,329 24,347 36,062 75,501 178,559 28,771 58,516 35,339 22,629 35,407 42,704 92,173 58,458 21,081 19,657 30,161 34,399 27,480 27,140 97,892 26,665 44,755 16,358 28,754 72,622 24,932 30,013 55,195	15 18 24 22 29 11 11 12 13 18 11 14 13 18 18 11 14 19 13 18 18 18 16 16 17 20 16 16 16 17 20 16 16 17 20 16 16 16 16 16 16 16 16 16 16	90 112 135 104 119 96 169 107 92 109 104 136 156 93 143 73 117 136 104 136 157 132 126 102 132 126 102 132 126 103 103 103 103 104 103 104 105 107 107 108 109 109 109 109 109 109 109 109	451 481 493 496 501 550 578 516 568 481 5559 586 523 485 502 4450 361 481 509 523 414 509 523 414 517 568 496 607 559 513 530 574 602 490 454 490 454 497 509 488 494 477 530 488 4894 488 4894 477	134 202 155 149 126 209 68 155 154 259 158 155 101 109 118 190 143 145 252 190 106 188 133 129 156 160 155 131 134 183 186 109 95 98 119 188 188 189 199 188 189 199 199	311 186 192 228 226 133 143 202 172 138 161 227 142 202 182 241 220 251 268 177 177 155 198 302 181 133 185 305 196 339 231 125 169 176 190 159 188 162 244 239 236 245 214 170 230 113 124 219 236 158 169 176 190 159 188 162 244 211 204 239 236 245 214 170 230 113 124 219 236 158 169 187 324 212 340 318 147 171 193 231 2290 260	1.02 1.18 0.93 1.11 1.18 1.03 1.01 1.27 1.00 1.22 0.83 0.95 0.91 1.24 1.00 0.85 1.10 1.20 0.85 1.11 1.03 1.11 1.03 1.01 1.21 1.03 1.01 1.21 1.03 1.01 1.21 1.03 1.01 1.21 1.03 1.01 1.02 1.03 1.04 1.03 1.04 1.09 1.00	1.08 1.12 0.98 1.21 1.11 1.08 0.94 1.18 1.02 1.22 1.05 1.17 0.89 1.07 0.93 1.36 1.00 1.17 1.14 0.91 1.11 0.98 1.11 0.98 1.11 0.98 1.11 1.12 1.30 1.30 0.96 0.99 1.18 1.17 1.19 1.10 1.30 1.30 1.30 1.30 1.30 1.30 1.30	94 105 95 92 106 95 94 88 99 104 93 89 98 91 100 95 94 105 93 103 109 105 94 110 115 104 92 94 108 121 93 104 111 110 93 108 94 109 109 109 109 109 109 109 109 109 109	98 123 86 121 111 96 82 104 97 130 118 119 76 85 100 131 98 100 116 85 114 97 115 121 104 95 117 133 150 124 98 95 113 139 85 107 98 132 123 122 140 136 122 141 143 130 122 144 122 17 17 19 99 81 19 10 105 118	98 128 86 120 115 92 90 112 97 126 105 109 83 91 95 131 95 120 92 117 84 121 90 94 128 139 124 90 89 108 140 87 102 92 122 128 139 124 90 131 15 132 132 122 113 120 133 108 100 93 91 115 132 132 132 132 132 132 132 132 132 132	101 120 91 113 116 102 90 103 101 126 98 119 92 128 103 98 109 122 90 119 92 115 120 105 101 134 128 133 122 137 110 104 126 137 110 104 126 137 110 104 128 133 112 137 110 104 111 126 137 110 104 111 126 137 110 104 111 111 111 111 111 111 111 111	24 26 25 21 21

^{*} Based upon the three variables, persons per room, proportion of occupied males in classes IV and V and latitude

Although these columns show what changes have occurred in the standardized mortality of each town or county expressed as a percentage of the national rate, they do not indicate directly the amount of fall in the death rate and column 15 has therefore been added to Table XVCII and column 10 to Table XCVIII, giving the percentage decline in the standardized death rates during the 20 years from 1911—1914 to 1931–1934.

Administrative Counties.—The range above and below the national rate is indicated in Table XCIX. In 1911–1914 there were 8 counties with standardized mortality 3 or more per cent. above the national rate, these being in descending order, Durham, Lancashire, London, Yorkshire West Riding, Glamorgan, Staffordshire, Caernarvon and Merioneth. These counties comprised more than 40 per cent. of the total population of the administrative counties and this fact exaggerates the asymmetry of the distribution about the national rate taken as 100, although most of the asymmetry arises from the much lower rates in the administrative counties as a whole than in the county boroughs. The 7 counties having a percentage standardized ratio less than 78 were, in ascending order, Surrey, Sussex East and West, Hertford, Berkshire, Southampton and Isle of Wight.

In 1931–1934 the distribution has become less asymmetrical about the national rate of 100 owing to the contrast between the town and county mortalities having diminished, with convergence of each towards the national average. The 8 counties with a standardized ratio 9 or more per cent. in excess of the national rate are, in descending order, Glamorgan, Durham, Lancashire, Carmarthen, Merioneth, Monmouth, Yorkshire West Riding and Caernarvon. Comparing these with the first 8 in 1911–1914 it is perceived that London and Staffordshire have given place to Carmarthen and Monmouth, the other 6 being the same. The 8 counties with a percentage standardized ratio less than 86 are Surrey, Norfolk, Cambridge, Hertford, Berkshire, Oxford, Suffolk East and Sussex West.

The rate of decline in the standardized death rates during the 20 years has ranged from 29 to 12 per cent. and if the counties are arranged in descending order of the amount of improvement the first 8 are London (29), Durham and Staffordshire (28), Cheshire, Lancashire, Lincolnshire (Holland), Yorkshire, North and West Ridings (27), whilst the last 9 are Peterborough, Shropshire, Sussex West, Anglesey, Glamorgan and Pembroke (19), Sussex East (18), Montgomery (17) and Westmorland (12).

County Boroughs.—Table XCIX demonstrates in unmistakable fashion the effect of public health and social welfare measures during the last 20 years in diminishing the contrasts between the mortality risks in the good and the bad towns. In 1911–1914 the standardized ratios of the 83 towns now classed as county boroughs

Table XCVIII.—Standardized mortality in 1931-34 compared with 1911-14, social classification and housing density, in each Administrative County.

Administrative County.	County. Persons occupied males, aged 14		Proportion of these (per mille) in Social Class:—					Mean local adjusted rate per cent. of national rate in :—		cent. decline in S. since 1911-14.	
dy dyddiaeth yr	1000	up, 1931.	I.	II.	III.	IV.	v.	1911-	1931 - 34.	Per ce	
10 200 1 40 200 E	1	2	3	4	5	6	7	8	9	10	
dedfordshire	0·71 0·71	75,735 69,409	19 26	141 135	471 468	197 191	173 180	84 77	90 85	23	
Berkshire	0.71	93,664	30	149	505	158	159	78	86	2	
ambridgeshire	0.67	45,266	24	167	417	227	166	82	84	20	
heshire	0.76	224,681	28	170	455	157	190	98	99	2	
ornwall	0.67	99,783 66,814	22 18	217 186	384 412	200 227	177 157	91	95	2	
Derbyshire	0.84	212,100	14	116	493	239	138	95	100	2	
Devonshire	0.67	141,574	28	227	414	187	144	84	89	2	
Oorsetshire	0.70	78,678 306,517	26 10	153 70	441 459	212 313	167 148	79 116	87 116	2	
Cly, Isle of	0.73	26,856	13	198	282	340	167	82	89	2 2	
ssex	0.79	390,966	23	135	506	155	181	80	86	2	
loucestershire	0.72	107,580	20	161	446	212	161	84	91	2	
Ierefordshire	0.72	35,692 130,714	21 36	229 145	341 509	263 134	146 176	85 76	94	2 2	
Hertfordshire	0.69	19,078	15	176	346	303	160	79	88	2	
Kent	0.73	388,381	31	134	489	165	181	83	88	2	
ancashire	0.82	610,289	17	126	486	199	172	112	113	2	
eicestershire	0.75	102,749 31,458	16 14	148	484 271	236 384	117	86 85	91	2 2	
, Kesteven	0.73	38,117	25	164	381	305	125	81	89	2	
Lindsey	0.73	88,943	16	185	342	275	182	83	91	2	
ondon	0.98	1,461,041	27	106	530	126	211	108	106	2	
liddlesex	0.80	545,465 107,999	38	157	562 324	93	149	81 78	88	2 2	
Vorthamptonshire	0.71	75,260	15	135	513	209	128	82	87	2	
Northumberland	1.03	136,029	21	114	451	305	109	100	105	2	
Nottinghamshire	0.80	151,641	15 23	120 163	505 398	252 238	109	91	98	2	
Oxfordshire	0.71	42,790 17,834	18	134	482	202	163	78 85	85 95	1	
Rutlandshire	0.68	5,866	18	177	351	315	139	80	87	2	
hropshire	0.79	82,383	19	184	383	257	157	86	96	1	
omersetshire	0.69	129,443	30	194	422	206	154	82	88	2	
outhampton taffordshire	0.71	164,593 238,947	12	1114	482	214	156	103	86	2	
uffolk, East	0.69	67,861	19	149	383	303	146	79	85	1 2	
" West	0.70	35,779	17	150	353	332	149	83	87	2	
urrey	0.71	300,178 82,705	56 40	161	536	105	143	73 76	81 86	1	
West	0.67	67,225	35	151	479	171	163	76	85		
Varwickshire	0.76	122,694	24	152	465	218	142	86	91	1	
Vestmorland	0.71	20,972	25	263	379	190	144	85	104		
Vight, Isle of	0.61	26,357 105,478	21	130	501 438	156 259	149	77 80	86		
Vorcestershire	0.79	102,814	16	141	463	200	180	88	95	1	
Yorkshire, East Riding	0.71	55,421	25	218	335	271	152	81	90	1	
" North Riding West Riding	0.77	111,698 523,729	13	186	370 491	244 260	178	97	98		
Anglesey	0.70	15,513	22	269	324	237	147	95	109		
Brecknockshire	0.78	19,859	21	212	431	234	102	96	105	1 5	
Caernarvonshire	0.68	39,067	28	198	402	257	114	103	109	1	
Cardiganshire	0.65	16,664 60,791	30	378	292 426	196	105	100	108		
1.11.	0.81	52,872	22	172	426	239	147	99	112		
Plintshire	0:80	37,018	23	164	439	162	212	100	102		
Glamorganshire	0.85	262,622	15	84	534	257	110	106	119		
Merionethshire	0.70	14,307	27	256	322	285	110	103	110		
Monmouthshire Montgomeryshire	0.87	119,462 16,125	12 19	91 363	540 258	239 246	118	102	110		
Pembrokeshire	0.76	28,445	22	259	316	259	114	96	101		
Radnorshire	0.68	7,165		380	257	235	104	82	89		

ranged from 74 to 150 per cent. of the national mortality but by 1921–1924 the range had contracted to 83–140 and by 1931–1934 to 87–137. Since the effects of the climatic, racial and selective factors in producing the differences in mortality risks between the large towns cannot be supposed to have changed to any important

Table XCIX.—Distributions of Administrative Counties and County Boroughs according to standardized percentage mortality ratios.

		Adminis Coun		County Boroughs.*				
		1911–14.	1931–34.	1911–14.	1921–24.	1931–34.		
73- 78- 83- 88- 93- 103- 108- 113- 118- 123- 128- 33- 38- 43-		7 17 13 4 5 8 5 2 1	1 17 15 5 7 6 8 2 1 —	2 2 6 	5 10 10 10 8 6 6 9 12 5 7 3 2			
48- To	otal	62	62	83	83	83		

* As constituted in 1934.

extent in the interval, this narrowing of the range must be attributed in the main to the effects of public hygiene and amelioration of the conditions of life in the towns where mortality was worst in 1911–1914. In considering Table XCIX it must be remembered that the rates are expressed as percentages of a diminishing national rate, namely, 14·47 per 1,000 in 1911–1914, 10·97 in 1921–1924, and 9·72 in 1931–1934. The distributions of the 83 county boroughs according to their mean annual standardized death rates per 1,000 living, shown below, reveal the change in the amount of variation since 1911–1914 more clearly:—

Whilst 54 of the towns had rates of 14 per 1,000 and upwards 20 years previously, not one county borough gave an average rate as high as 14 for the 4 years 1931–1934, and whereas only one gave

a rate below 10 in 1911-1914 there were no less than 31 such in 1931-1934. The 8 towns giving the highest and lowest rates respectively in the three periods were, in descending order:—

	Highest rates.	ared long or closed and
1911-14.	1921–24.	1931–34.
Middlesbrough.	Oldham.	Wigan.
Liverpool.	Middlesbrough.	Salford.
Wigan.	Wigan.	Oldham.
Stoke-on-Trent.	Burnley.	Bootle.
St. Helens.	Salford.	Liverpool.
Oldham.	Stoke.	Middlesbrough.
Bootle.	Sunderland.	South Shields.
Burnley.	South Shields.	Merthyr Tydfil.
	Lowest rates.	
1911–14.	1921–24.	1931–34.
Hastings.	Northampton.	Ipswich.
Oxford.	Norwich.	Canterbury.
Bath.	Bath.	Hastings.
Reading.	Oxford.	Croydon.
Croydon.	Canterbury.	Bournemouth.
Southend.	Reading.	Bath.
Eastbourne.	Ipswich.	Eastbourne.
Bournemouth.	Eastbourne.	Oxford.

In each period the 8 highest rates were found in the industrial towns of the North, or in South Wales, and the 8 lowest in towns of the South of England or Midlands. The favourable positions of Oxford, Ipswich and Northampton (which in 1931–1934 followed Ipswich in order) are examples of what it is possible to achieve in towns which are partly industrial. The rate for Oxford is slightly lowered by inclusion in the population at the 1931 census of university students, only a small proportion of whose deaths during a year would be credited to Oxford, but this factor cannot lower the index by more than 1 per cent. and after allowing for it Oxford still maintains a rate superior to Bournemouth or Hastings.

That the improvement in the chances of survival has been much greater in the less favourably circumstanced industrial towns during the last 20 years than in the more happily situated group can be seen from the percentage fall in the standardized death rates in column 15 of Table XCVII. The 8 northern towns which registered the highest mortality in 1911–1914, shown above, had in that period an average standardized death rate of 19·2 per 1,000, but in 1931–1934 their rate had fallen to 12·9, that is to say, by 33 per cent. On the other hand, for the 8 southerly towns which registered the lowest mortality in 1911–1914 the average standardized death rate declined from 10·9 to 8·8, that is to say, by 19 per cent. To express this change in another way, whereas 20 years ago the 8 towns with

highest mortality carried an average mortality risk 76 per cent. in excess of that in the 8 towns with lowest mortality, the contrast as thus measured is now only 47 per cent.

The percentage rate of decline in standardized mortality from 1911–1914 to 1931–1934 ranged from 13 for Bournemouth to 40 for Doncaster. The 7 towns which have registered 35 per cent. or more improvement are Doncaster, Middlesbrough, Walsall, Birmingham, Sheffield, St. Helens and Stoke, and those showing less than 20 per cent. improvement are Bournemouth, East Ham Southend, Eastbourne and Reading.

Relation between Mortality in the County Boroughs and Distribution of Social Classes, Housing Density and Situation, 1929-33.

The Review for 1932 (pp. 32-38) contained an analysis of mortality at various ages during 1930-1932 in the county boroughs and county aggregates of urban and rural districts when these were grouped according to the average density of persons per room in 1931 (Table XXVIII). Mortality at ages under 15 and over 65 was also analysed when the county boroughs were grouped according to two factors, geographical position by latitude and proportion of the population living at densities exceeding two per room (Table XXVII). It was evident that other factors were involved in producing the wide differences in the mortality rates of the towns, and it has now become possible to extract from the census data another index of the social conditions within each county borough and administrative county. In the Decennial Supplement for 1921, Part II, occupations were classified into five social groups denoted by I (upper and middle class), II (intermediate), III (skilled workers), IV (semi-skilled), V (unskilled workers), and a similar classification has been used for the purpose of the analysis of occupational mortality and fertility in 1930-1932. Table 16 of the Census of England and Wales 1931, "Occupation Tables," enumerates all males over 14 in the population of each county borough and administrative county who were described at the census as following each occupation, whether actually employed at the moment or not, and by assigning every occupation to the social class to which it has been assigned it is possible to calculate the proportionate distribution per 1,000 of all occupied males over 14 years of age according to social class in each town and county. These distributions of the total population of all males over 14 are given in columns (3)-(8) of Table XCVII, and although they refer only to males over 14 they provide a good indication of the relative social grading of the entire population of the area concerned. It must be emphasised that no account is taken of the degree of unemployment at the time, the classification being based upon the usual occupations of the male population.

The proportion per 1,000 in class V ranges from 113 in Southendon-Sea to 362 in Bootle, and the proportion in classes IV and V combined ranges from 196 in Southend to 520 in Grimsby, amongst the county boroughs. Either of these proportions might be conveniently used as an index of social distribution but the best single figure by which to express the average social grading of local populations at a given time is probably the latter, and this index (per unit) is denoted below by S. In order to obtain a measure of standardized mortality which is not greatly influenced by accidental annual fluctuations the average crude death rate in the five years 1929–1933 has been multiplied by the comparability factor for the county borough in question and divided by the average crude death rate of England and Wales in the same years, giving the standardized ratio (or ratio of adjusted to national death rate) shown in column (9) of Table XCVII. The correlations between the following factors:

M=standardized mortality ratio 1929-33,

L=latitude zone in which the town is situated,

H=housing density index, or mean number of persons per room, S=social index, or proportion (per unit) of males over 14 years of age whose occupation places them in social classes IV and V,

have been evaluated by treating the 83 towns as units and the values of the correlation coefficients with their probable errors are:

values of the correlation coefficient	CIIICO VV	Ten enem probabi	corrors are.
		Crude	Co-efficient
		Correlation	when other
		Coefficient.	two factors
760 - 202 - 302		1	are constant.
Mortality with latitude	rML	·651 ± ·053	$\cdot 375 \pm \cdot 064$
Mortality with housing index	γ_{MH}	$\cdot 771 \pm \cdot 030$	\cdot 510 \pm \cdot 055
Mortality with social index	$\gamma_{\rm MS}$	$\cdot 685 \pm \cdot 039$	$\cdot 290 \pm \cdot 068$
Latitude with housing index	$\gamma_{ m LH}$	$\cdot 549 \pm \cdot 052$, Jane
Latitude with social index	$v_{\rm LS}$	\cdot 519 \pm \cdot 054	-
Housing index with social index	γ_{HS}	$\cdot 669 \pm \cdot 041$	

When each town is weighted in proportion to its population the first three coefficients are slightly modified to ·72, ·70 and ·67 respectively. The three factors evidently have about the same degree of association with mortality.

The calculation of the second order coefficients is based on the assumption that the correlation between the various factors is of a simple linear character, that is to say, that the relations between them would be represented graphically by straight lines. The correlation tables do not suggest that this assumption is wide of the truth. For none of these factors does the correlation disappear when the effect of the other two has been eliminated, notwithstanding the high degree of correlation between the three factors themselves. Each factor still reveals an independent correlation with mortality of the order ·3 to ·5, the housing index retaining a correlation as high as ·51. Although the housing and social indices are to a large extent alternative measures of the material well-being of the population, as shown by their high inter-correlation of ·67, it is evident that they also comprise some factors which are distinct

and different, and, therefore, fairly high residual correlations with mortality remain in each instance after the other factor has been made constant.

In Table C the county boroughs have been distributed according to latitude on the one hand and according to housing density on the

Table C.—Proportion, per 1,000 Occupied Males over 14 years of Age, in social classes IV and V (and, in italics, in Class V) in the County Boroughs, distributed according to Latitude and Average Density of Persons per Room (1931).

Persons per room,	Degrees of North Latitude.								
	50°-	51°-	52°-	53°-	54°-	55°-	All lati-tudes.		
.55	214 130	261 161	314 163	239 140			274 152		
·70	292 184	293 189	328 169	362 200	_	_	320 181		
·85,	283 188	370 229	353 159	388 227	373 216	· —	380 221		
.00		483	379 218	421 189	426 272	422 236	431 250		
·15	18 <u>1.</u> 19			_	422 221		422 221		
all densities	279 178	346 224	332 169	384 219	415 243	422 236	362 208		

other, and the proportion of the aggregated male populations of each group who were in classes IV and V at the census is shown and also the proportion in class V only. With increasing density per room the proportion in classes IV and V per 1,000 males rises from 274 for the towns with less than ·7 per room to about 430 in the towns with average densities exceeding 1 per room. As one passes northwards the proportion rises from 279 in the most southerly towns to about 400 in the industrial North. The northward increase is much less evident, however, within any group of towns of similar housing density as may be seen by following the numbers along each horizontal line. On the other hand, the increase with housing density remains very pronounced for towns of similar latitude as may be seen by following the numbers down each vertical column.

Table CI shows the percentage standardized mortality ratios for the county boroughs when distributed in the same way as in Table C. Table CII gives the mortality ratios for the northern and

southern county boroughs (using 53 degrees N. as dividing line) when grouped according to their housing density on the one hand, and according to the social index S on the other. By following the

Table CI.—Ratio of Adjusted to National Death rate (standardized mortality ratio) in 1929–33 in the County Boroughs distributed according to Latitude and Average Density of Persons per Room.

919 (2011) (N		Degrees of North Latitude.							
Perso per room		50°-	51°-	52°-	53°-	54°-	55°-	All latitudes.	
·55- ·70- ·85- ·1·00- ·1·15-		•85 •97 1•08	·84 ·92 1·08 1·09	·98 1·04 1·05 1·18	1·03 1·07 1·23 1·29	1·08 1·24 1·29	- - 1·12	.95 1.01 1.19 1.22 1.29	
All densiti	les	•97	1.00	1.04	1.21	1.23	1.12	1.13	

ratios along each horizontal line it is perceived that the dependence of mortality upon the social class distribution is not so evident when the effects of northerliness and housing density have thus been

Table CII.—Ratio of Adjusted to National Death rate (standardized mortality ratio) in 1929–33 in (a) Northern and (b) Southern County Boroughs distributed according to the Proportion of their Male population in Social Classes IV and V, and according to their Average Density per room in 1931.

P	ersons		Per mille of occupied males aged 14 and up in social classes IV and V at census of 1931.							
1	oom.		140-	220-	300-	380-	460-	All		
		(a)	County b	oroughs n	orth of la	titude 53°	N.			
.55-			.97	1.08		_		1.03		
.70-			_	.96	1.10	1.07	1.10	1.07		
.85-			_		1.23	1.22	1.22	1.22		
1.00-			-		_	1.24	1.32	1.26		
1 · 15_		Sandrian.	O Microslat	9 0 -	- Table	1.29	_	1.29		
	14	(b)	County 1	oroughs s	outh of la	titude 53	° N.			
.55-			.86	.96	-88	.95	_	.93		
.70-			.89	.95	1.02	1.02	_	1.00		
.85-			_	1.08	1.05	1.14	-	1.07		
1.00-			_	_	1.15	1.22	1.09	1.1		

almost eliminated. When the ratios are followed down each vertical column, however, an increase in mortality accompanies an increase in housing density in fourteen instances out of sixteen, and the association remains very evident even after eliminating in this rough manner most of the effects of the differing situations of the towns and differing occupations of their populations. The evidence furnished by the correlation coefficients also supports the conclusion that high housing density is a factor which unfavourably affects the mortality in a town even after allowing for the social grouping based upon occupations which is inevitably bound up with housing conditions.

From the correlation coefficients given above it is possible to calculate a regression formula by means of which one can estimate the standardized mortality ratio to be expected in a county borough after taking into account its northerliness, the distribution of its population by sex, age and social class, and the density at which the population is housed. This formula is as follows:—

$$M = \cdot 48 \text{ H} + \cdot 45 \text{ S} + \cdot 033 \text{ L}' + \cdot 447$$

where H= mean number of persons per room, S = proportion in social classes IV and V of all occupied males over 14 and L' is the number of degrees of latitude in excess of 50 degrees North (omitting all fractions of a degree). The standardized ratios of local to national mortality which would be expected on the basis of this formula are given in column (10) of Table XCVII and the mortality actually observed is expressed as a percentage of this calculated mortality in column (11). The variations from town to town which still remain may be regarded as having considerably greater significance from the point of view of hygiene and preventability than had the much wider variations in the original standardized ratios in Table III. The range of variation which remains after thus correcting for housing density, social classification and geographical situation, is shown below.

					Mortality p	er cent.
				djusted	of that cal	
				tality ratio	by regre	
			(per cen	t. of national). formu	la.
83—				4	1	
88-				6	11	
93—	ord.	No.		9	22	
98-				8	19	
103—	•			7	16	
108-				13	9	
113—				8	4	
118-				10	1	
123-		BO.		7		1997
128-		1001		7		
133-		THE S	38-7	3		
138—14	2	2321	61-1	1	<u></u>	
			Total	83	83	

The variance, or square of the standard deviation, of the percentage mortality ratios of the county boroughs has been reduced from 194 to 52 by the process of correcting for the three factors, and the corrected mortality indices now range from 85 for Tynemouth and 88 for Darlington, York and West Ham to 115 for Manchester, 117 for Merthyr Tydfil and 121 for Oldham. The first ten and last ten county boroughs when arranged in descending order of the corrected index are:—

Highest.	1 7337	Lowes	t.
Oldham	(121)	Carlisle	(92)
Merthyr Tydfil	(117)	Newcastle	(92)
Manchester	(115)	Gateshead	(91)
Burnley	(113)	Bath	(90)
Salford	(113)	East Ham	(89)
Rochdale	(112)	Ipswich	(89)
Wigan	(112)	Darlington	(88)
Portsmouth	(111)	York	(88)
Blackpool	(110)	West Ham	(88)
Liverpool	(110)	Tynemouth	(85)

It is noteworthy that after thus making the calculated allowance for the combination of factors known to have an unfavourable influence upon their mortality rates the Northumberland and Durham towns occupy a more favourable position than do the Lancashire towns. A tendency to geographical grouping in the corrected mortality indices is shown by such facts as these:-(1) the ports and seaside towns in the western half of England and Wales, including the South Coast towns westward from Southampton, have mostly indices over 100 whilst those in the eastern half have mostly indices under 100; (2) the bulk of the Lancashire and West Riding towns have indices over 100; (3) the towns in the South-East quadrant of England all have indices under 100. In this connection it should be remembered that whilst correction for latitude has been made, any gradient of mortality which there may be from East to West remains unaffected by such correction. It would seem that such a gradient probably does exist even after allowing for the effects of the distribution of industry, and it may be that differing rainfall is here concerned. Furthermore, no account has been taken of the employment of women in industry and this may affect the mortalities of the Lancashire and West Riding towns unfavourably.

Relation between Mortality in the Administrative Counties and Distribution of Social Classes, 1931–1934.

Table XCVIII gives in columns (3) to (7) the distribution of occupied males at ages over 14 in the five social classes at the 1931 Census, and in column (9) the standardized percentage mortality ratio, or mean adjusted death rate per cent. of the national rate, in 1931–1934 for each administrative county. The proportion in

classes IV and V per 1,000 in all classes ranges from 242 in Middlesex to 508 in the Holland division of Lincolnshire. The 9 counties with highest proportions are, in descending order, Lincolnshire (Holland), Isle of Ely, Norfolk, Suffolk West, Huntingdon, Durham, Lincolnshire (Lindsey), Rutland and Suffolk East. With the exception of Durham these comprise an eastern group of agricultural counties having high proportions of agricultural labourers in their population, and since that occupation is placed in social class IV but is nevertheless characterised by a very low mortality it is not surprising to find that the average standardized ratio for the 9 counties is as low as 90 compared with the average for all counties of 95.

The 9 counties with lowest proportions in social classes IV and V are, in descending order, Devon, Sussex East, Buckingham, Isle of Wight, Hertford, Cardigan, Nottingham, Surrey and Middlesex, and these also have a mean mortality ratio of 90. It is evident that the administrative counties do not exhibit any such general relation between the social distribution of their populations and mortality as was found for the county boroughs. The correlation between a social classification based on occupations and mortality is a phenomenon characteristic of town dwellers and in mixed populations consisting of dwellers in rural districts and small towns it is not clearly seen.

Comparison of Mortality at various Ages in England and Wales, Scotland, Canada, South Africa and several Foreign Countries.

Table CIII compares the infant mortality rates per 100,000 live births, mean death rates per 100,000 living at 1-4 and 75 upwards, and equivalent average death rates at 5-34, 35-64 and 65-74 in 1930-32 for England and Wales and 10 other countries, and also in Germany in 1933 and England and Wales in 1934. The rates for Scotland, Italy and Germany have been calculated from the official life tables and those for the other countries by aggregating the deaths in the triennium and dividing by the estimated mean population at the same age, the latter being obtained by distributing the total estimated mean population in 1930-32 in the same proportions by age as were recorded at the Census of 1930 or 1931. The equivalent average death rates are the simple averages of the death rates at quinquennial age groups between the limits of age named, and are therefore corrected for differences in age distribution between the populations, being equivalent to death rates standardized on a hypothetical standard population consisting of equal numbers of males or of females at each age within the specified limits (see p. 2).

The lowest infant mortality rates in 1930–32 were in Norway (males 52, females 40), and next in order were Holland (55, 42), Sweden (61, 47), England and Wales (72, 55), South Africa (73, 59), Finland (80, 67), Canada (92, 73), Scotland (93, 73), Italy (115, 102), Portugal (151, 135).

At the pre-school period 1-4 years, Norway again had the lowest rates, followed in order by Sweden, Holland, Canada, England and Wales, South Africa, Finland, Scotland, Hungary, Italy,

Table CIII.—Death-rates at 0-1, 1-4 and over 75 years, and equivalent average death-rates at 5-34, 35-64 and 65-74, in various Countries, 1930-32 (and in Germany, 1933) compared with England and Wales.

	0-1 years	1-4	5-34	35–64	65–74	75 and over
	100,000 live births.	per 100,000 living.	Equiv	valent av s per 100 living.*	erage ,000	per 100,000 living.
MERCHANEL LANGUAGE ESTA	le. Sond		MAI	ES.	Education 1	200
England & Wales 1930–32 ,, 1934	7,186 6,537	755 691	276 263	1,365 1,331	6,047 5,849	14,986 14,139
Scotland 1930–32 Canada ,, South Africa . ,,	9,346 9,157 7,332	1,025 658 768	303 277 286	1,453 1,106 1,450	6,352 4,656 5,299	15,971 12,523 12,994
Finland ,, Holland ,, Hungary ,,	8,001 5,503	849 527 1,554	551 198 464	1,710 949 1,514	5,696 4,765 6,006	11,222 13,180 15,974
Italy ,, Norway ,, Portugal ,,	11,532 5,194 15,129	1,664 348 2,375	355 351 478	1,285 1,034 1,575	5,400 4,025 6,006	14,978 12,336 15,638
Sweden, ,, Germany 1933	6,100 8,499	406 502	302 244	1,063	4,398 5,548	12,989 15,427
England & Wales: Rural districts, 1930-32	-	-	254	1,088	5,079	14,235
The second second second			FE	MALES.		
England & Wales 1930–32 ,, 1934	5,455 5,144	677 626	250 245	1,005 953	4,467 4,395	12,866
Scotland 1930–32 Canada ,, South Africa . ,,	7,304 7,300 5,858	954 579 755	290 281 244	1,170 1,008 1,036	4,904 4,095 4,375	14,027 12,113 11,700
Finland, ,, Holland, ,, Hungary ,,	6,699 4,246 ?	811 446 1,504	489 192 485	1,105 945 1,254	4,462 4,495 5,418	11,613 12,678 15,03
Italy ,, Norway ,, Portugal ,,	10,225 4,023 13,543	1,653 308 2,328	349 299 418	1,034 860 1,030	4,752 3,432 4,450	14,10: 11,60- 14,12:
Sweden ,, Germany 1933	4,676 6,766	384 439	292 217	1,011	4,036 4,938	12,727
England & Wales: Rural districts, 1930-32	1 10 12 10	30-2	236	921	4,067	12,56

* See page 2.

Portugal. The Norwegian rates were less than half those in England and Wales, and the Swedish rates little more than half, and these facts go to support the conclusion reached from recent studies of the association between mortality at this age and overcrowding, that a large reduction of the mortality of these young children below the present level in England and Wales is still possible of achievement by the mitigation of environmental evils.

For males of the school and young adult ages 5–34 years, Holland had the lowest rate, England and Wales and Canada sharing second place, and then in order South Africa, Sweden, Scotland, Norway, Italy, Hungary, Portugal, Finland. For females of the same ages the order was Holland, South Africa, England and Wales, Canada, Scotland, Sweden, Norway, Italy, Portugal, Hungary, Finland.

At 35–64 Holland again had the lowest rate for males, followed by Norway, Sweden, Canada, Italy, England and Wales, South Africa, Scotland, Hungary, Portugal, Finland. For women Norway with the lowest rate was followed by Sweden, Holland, England and Wales, Canada, Portugal, Italy, South Africa, Finland, Scotland, Hungary.

At 65-74 Norway had the lowest mortality for each sex, England and Wales being 10th in order for men and 7th in order for women, whilst at ages 75 upwards, Finland had the lowest rates, England and Wales being 8th in order for men and 7th for women. The much lower mortality levels at 65-74 in Norway and Sweden throw doubts on the prevalent belief that little or no improvement in death rates at ages over 65 can be looked for in the future in England and Wales. It is true that the Scandinavian rates at ages over 50 have for long compared very favourably with this country, where the "stress of civilisation" doubtless takes a greater toll. Norway and Sweden are more rural in character, but male mortality at 65-74 in the rural districts of England and Wales in 1930-32 was 26 per cent. in excess of the rate for Norway as a whole, 15 per cent. in excess of the Swedish national rate and 7 per cent. above that of Holland. The corresponding rural rate for females was also in excess of the national rates of the first two countries.

Both in 1930–32 and 1934 England and Wales registered lower infant mortality rates than did Germany in 1933, but at each subsequent age period up to 75 for males, and at 1–4 and 5–34 for females, the German death rates were lower. At 5–34 the German rates in 1933 were below those of any country in the table in 1930–32, except Holland.

Medical Certification.

Information bearing upon the extent to which death registration and burial take place on the strength of the certificate of a medical attendant who has actually seen the body after death has appeared under the above title in each text portion of the Statistical Review since 1928 inclusive. For a full statement of the aspects of certification affecting this matter, reference should be made to the 1928 section when the records were examined in some detail or to the quinquennial repetition of the full enquiry made last year (1933).

According to present intention the next complete analysis will fall due in 1938, the intermediate years' records being limited to a simple summary of the cases in which the body was or was not seen after death without reference to date or place of death or to the time which had elapsed since the deceased was last seen by a medical attendant.

The appropriate summary of the deaths registered in 1934 is shown in the following table:—

Summary of Certification of Deaths registered during the Year 1934.

point, adding the management of the — typeson	Registered Medical Practi-	Iedical Coroner's P.M.		Total Deaths Registered.		
	tioner.	without Inquest.	by Coroner.	Number.	Percentage	
(1)	(2)	(3)	(4)	(5)	(6)	
Seen after death Not seen after death	214,045 216,448	41,581	4,736	260,362 216,448	54·6 45·4	
	430,493	41,581	4,736	476,810	100.0	

NOTE—(1) All deaths subject to inquest or port-mortem by coroner are shown in column 3; of all other deaths, those certified by a registered medical practitioner are shown in column 2 (whether they were referred to a coroner or not), and those not certified by a registered medical practitioner (which are automatically referred to a coroner) are shown in column 4.

(2) Cases in which no statement was forthcoming as to whether they were or were not seen after death have been included with the "not seens" if they were not referred to a coroner. They amounted to 1.5 per 1,000 of the total deaths registered in 1934.

The above statement shows that in 1934 the proportion of "seen" cases was 54.6 per cent. of the total deaths registered, the position in this respect having improved more or less steadily and continuously from the figure of 51.0 per cent. recorded in 1928.

Of the apparently large numbers returned as "not seen," the vast majority of the deceased persons were, of course, seen alive by the medical attendant on the day of death or within a very short period before death. From the full examination made last year it was shown that if the numbers seen within one day of death were added to those seen after death, as conforming to a standard which satisfies reasonable requirements, they would embrace 93·1 per cent. of the total deaths, while if those seen within two days of death were added the proportion would be increased to 96·6 per cent., both percentages showing an advance over the corresponding 1928 figures.

POPULATION.

The total population of England and Wales as at the 30th June, 1934, has been estimated at 40,467,000 persons, 19,412,000 being males and 21,055,000 females.

The current year's total is 117,000 in excess of the corresponding mid-1933 estimate and represents an estimated rate of growth of 0.29 per cent. per annum during the past year, a figure which may be compared with the 10-year increases of 5.53 per cent. and 4.93 per cent. recorded in respect of the decennia 1921–31 and 1911–21 respectively. (See General Tables Volume Census, 1931, Table I.)

The method adopted in arriving at the current estimates is that which has been used with apparent success in past periods and consists of taking the 1931 Census as a starting point, adding the births and immigrants and deducting deaths and emigrants between the date of the Census and the 30th June, 1934. Of the elements entering into the computation, the records of births and deaths are believed to be precise and complete, so that such estimation error as may be inherent in the final result may be regarded as attaching almost wholly to the allowances included in respect of migration. For the latter, recourse is had to the statistics of migration periodically compiled by the Board of Trade and to departmental records of the movements of the Defence Forces; these are incomplete however, in that they afford no guide to the passenger traffic between the several countries of the United Kingdom nor to the possible effect on the home population of changes in the personnel of the mercantile marine, the allowance for which is a matter of judgment based upon past experience qualified as may seem to be required by current conditions. The error to which the population estimates are subject is one which may be expected to grow in degree as the preceding census becomes more remote.

The mid-1934 population estimate of 40,467,000 is some 515,000 in excess of the 1931 census figure, of which excess about 365,000 may be assigned to natural increase, leaving 150,000 to be ascribed to the miscellaneous movements summed up in the term migration. It is of interest to observe (from Part II of the Statistical Review Table S) that the net balance of migration which for several decades has, on the whole, been consistently outward in character, appears since about 1930, to have shown a definite inward tendency, thus affording some numerical compensation for the lowness of the level to which the numbers of births have fallen.

Age Distribution.—The estimated sex-age distribution of the national population, shown in Table 1 of Part I of the Tables section of this volume, has been obtained from the corresponding 1933 distribution by the survivorship method customarily adopted for the purpose; this briefly consists of (1) obtaining the year's deaths arising from the population at each age in 1933, and treating the survivors as the population at the next higher age in 1934, (2) completing the table by the addition of the

population aged 0-1, represented by the survivors at the middle of 1934 of the births occurring between the middle of 1933 and the middle of 1934, and (3) adjusting the results of these two operations in respect of the balance of population movement in accordance with such age statistics as are available in respect thereof.

The average ages of the mid-1934 population according to the estimated age distribution are $32 \cdot 4$ and $34 \cdot 2$ for males and females respectively, figures which compare with averages of $31 \cdot 8$ and $33 \cdot 5$ in 1931 or $29 \cdot 9$ and $31 \cdot 2$ in 1921.

Local Populations.—The 1934 estimates of the populations of all Boroughs, Urban Districts and Rural Districts in England and Wales are shown in Table 17 of Part I and Table E of Part II of the Tables section of the current Annual Review.

As for the country as a whole, so for each of the component areas within the country the present mid-year estimate has been obtained by estimating the local movement which has taken place since the date of the 1931 census and modifying the 1931 position in respect of such movement. It may be mentioned that the local estimates purport to represent the resident populations of the several areas and are, in this respect, different from census populations as generally understood in this country, which consist simply of the persons enumerated in the several areas on census night, whether resident in the area of enumeration or not.

The principles and procedure governing the identification of the basic 1931 resident population and the estimation of the changes in that population which have taken place since 1931 are similar in all general respects to those adopted for the purpose of the 1932 estimates and for their fuller discussion reference may be made to the population section of the text portion of the Annual Review for 1932.

Non-Civilian Populations.—The merging of non-civilian and civilian deaths in the local mortality records from 1932 onwards has rendered unnecessary the identification of civilian apart from total populations, and the former, shown prior to 1932 in footnotes to Tables 17 and E, are accordingly now omitted.

Institutions.—In the Census classification of population according to residence, the populations of institutions, e.g., Public Assistance Institutions, Infirmaries, Hospitals, Mental Institutions, etc., were dispersed to their home areas where it was anticipated that they would be discharged within a period of six months; otherwise they were retained in the Institution area. This convention is reflected in the current population estimates but is not precisely identical with the procedure in the areal classification of deaths where it is customary to transfer all institution deaths to former area of residence (if known) irrespectively of the time spent in the Institution.

Local Age Distributions.—Sex and age distributions for large geographical regions of the country, which formerly appeared in the text portion of the Review, are now shown in Table 2 of Part I. The populations at ages under five were obtained by the survivorship method (see page 160), and for later ages the predetermined total populations, obtained as described in the preceding section, were distributed in accordance with the recent census age and sex distribution of the unit, the resulting figures being thereafter modified to allow for the slight change between the date of the Census and the middle of the year 1934 in the age distribution of the total population of the country.

United Kingdom and Irish Free State.—The populations of each of the countries of the United Kingdom and of the Irish Free State, as estimated by their respective Registrars-General, are shown for each year from 1895 in Table A.

MARRIAGES.

The marriages registered in England and Wales during the year 1934 numbered 342,307, corresponding to a rate of 16·9 persons married per 1,000 of the population of all ages and conditions. The number so registered is 24,116, or 7·58 per cent. more than the number registered in 1933, and apart from the year 1915 and the years immediately following the war, 1919 and 1920, is the largest number in any year since the commencement of civil registration in 1837. The rate of 16·9 in 1934 is noteworthy in being considerably higher than any of the rates recorded in the years 1922 to 1933, during which they fluctuated from 14·3 to 15·8, about a mean of 15·4. (See Tables B and C.)

The preference for the third quarter, noticeable in the records since the beginning of the present century, was maintained in 1934, the marriages in this period being $31 \cdot 9$ per cent. of the total, while the fourth, formerly the outstanding favourite, ranks second out of the four. The rate for the first quarter, $11 \cdot 8$ persons married per 1,000 population, shows a material increase over the rate for the first quarter of 1933, $8 \cdot 9$, and approximates to the rates of 40 or 50 years ago. The proportion of marriages contracted in the first quarter was only $17 \cdot 2$ per cent. of the total.

In the following table (CIV) the marriages of a series of years are compared with the unmarried population at all ages over 15. By eliminating the progressively falling proportion of children under 15 from the population at risk, the rates of recent years are scaled down slightly in relation to those of earlier periods, but the principal interest of the table is in showing the difference in the course of the rates as between the two sexes. The actual difference between the male and female ratios is of course due to the inequality of the numbers of unmarried men and women in the population, and since the former have always been in a

minority—which has been unduly exaggerated as a result of the war—it is their numbers which primarily determine the marriage-ability of the population, so that, from one point of view, the male ratios may be regarded as providing the better indexes to the variations which have occurred from time to time in the incidence of marriage. In Table C (Part II), the series is taken back to 1894.

Table CIV.—Annual Number of Marriages of Men and Women per 1,000 Unmarried Population of each Sex aged 15 and over, 1871–1934.

NOTE.—For the census years 1871 to 1931 the annual numbers of marriages have been taken as the average of the three years about each census. From 1920 the rates for individual years are shown.

Jan 1	Year.	Bachelors, Widowers, Spinsters and Widows.	Bachelors and Widowers.	Spinsters and Widows.
1871		 57.2	62.3	52.9
1881		 51.5	56.0	47.6
1891		 49.8	54.6	45.7
1901	1000	 48.7	53.5	44.7
1911	0000	 46.3	50.8	42.5
1921	130.0	 54 · 1	62.7	47.6
1931		 46.7	53.3	41.5
920	100	 61.7	71.5	54.7
921		 52.1	60.4	45.8
922		 48.2	55.8	42.5
923		 46.6	53.9	41.1
924		 46.6	53.6	41.2
925		 46.2	53.3	40.9
926		 43.4	50.0	38.3
927	Sept. 1.	 47.5	54.8	41.9
928		 46.4	53.7	40.9
929		 47.7	55.2	41.9
930		 47.8	55.6	42.0
931	M. (14)	 46.8	53.4	41.6
932	1000	 46.1	52.6	41.1
933		 48.1	54.9	42.8
934		 52.2	59.6	46.4

Fluctuations of the general Marriage-rate in different Sections of the Country.—In Table CV comparison is made of the year's marriages and marriage-rates in large geographical sections of the country, and an analysis of the rates in regions and counties is shown in Table F.

The determination of marriage-rates for localities is not wholly satisfactory. In a large proportion of cases the district of registration is the district of residence of only one of the parties and in some

cases of neither. This difficulty, however, is probably of less moment in comparisons between large sections of the country than between smaller adjacent localities.

Among males, the highest frequencies occur in Midland I and North III. Among females the highest places are occupied by Wales I and North I. The lowest frequency, for both males and females, is recorded in Wales II.

Table CV.—Marriage-rate per 1,000 Unmarried Population aged 15 and over in Geographical Sections of the Country.*—1933 and 1934.

	Ratio of un- married males		te per 1,00 dation age				Ratio of longland and (taken a	l Wales r	
Area.	per 1,000 un- married	19	33.	19	34.	19	33.	19	34.
England and Wales.	females aged 15 and over (Census 1931).	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females
England and Wales	778	54.9	42.8	59.6	46.4	1,000	1,000	1,000	1,000
South-East	711	56.3	40.2	60.9	43.4	1,026	939	1,022	935
North	796	55 · 1	44.0	59.7	47.6	1,004	1,028	1,002	1,026
North I	959	54 · 1	52.1	57.3	55.1	985	1,217	961	1,188
North II	866	48.1	41.9	52.4	45.4	876	979	879	978
North III	794	57.9	46.2	62.2	49.5	1,055	1,079	1,044	1,067
North IV	736	55.5	41.0	60.8	44.9	1,011	958	1,020	968
Midland	807	56.3	45.6	62.4	50.5	1,026	1,065	1,047	1,088
Midland I	826	57.1	44.7	61.6	50.2	1,018	1,044	1,054	1,082
Treet	878	50.6	44.6	54.9	48.3	922	1,103	921	1,041
South-West	743	51.5	38.4	54.7	40.8	938	897	918	879
Wales	986	49.0	48.5	52.4	51.8	893	1.133	879	1,116
Wales I	1.060	51.5	54.9	54.7	58.1	938	1,283	918	1,252
Wales II	833	42.3	35.4	46.6	38.9	770	827	782	838

* For the constitution of the several sections, see page 13.

From the analysis in Table F it will be seen that, among the counties there compared, the 1934 marriage-rate is highest in London, where it exceeds the mean for the country by 20·7 per cent., followed in order by Staffordshire, Warwickshire and Lancashire, with excesses ranging from 2·4 to 8·3 per cent. The lowest rates occur in Wales where the counties of Cardigan, Montgomery and Radnor all return lower rates than any among the English counties.

The City of London returns a rate nearly five times as high as the average, and of the Metropolitan Boroughs several have high rates, notably Holborn and Westminster, where rates more than twice the average are found. Such rates give support to the belief that many persons who usually live in the provinces or abroad come to London to be married. At the census of 1931 these three areas returned higher proportions of population living in hotels, boarding-houses, etc., than any of the other

Metropolitan Boroughs. Only three of the Metropolitan Boroughs—Bethnal Green, Lewisham and Stoke Newington—have rates which are lower than the average for England and Wales. Among the county boroughs distinguished, the highest rates occur in West Bromwich, Reading and Oldham, and the lowest in Oxford, Barrow-in-Furness and Southampton.

Marriage rates by ages, which provide a more exact statement of the incidence and intensity of marriage than the aggregate rates just considered, are shown in Table CVI. The rates for 1871 to 1931, being based on enumerated populations, are liable to rather smaller errors than those for 1932 to 1934 which are based on post-censal estimates of population.

It will be observed from the last column of Table CVI, which compares the actual marriages of each year with a standard number, viz., those expected according to the age rates of 1921, and which makes allowance, therefore, for the changing age constitution of the unmarried population, that of the four sections distinguished, bachelors, widowers, spinsters and widows, the 1934 frequencies are lower than those of 1921, except that for spinsters, the percentages to the 1921 frequencies being, in order, spinsters 108·0, bachelors 89·0, widowers 86·5 and widows 72·7. On this basis of comparison the marriage frequency among bachelors is higher than in 1891 but lower than in previous years; that for widowers lies between the ratios of 1901 and 1911; that for spinsters lies between the ratios of 1871 and 1881; while that for widows is higher than in 1932 and 1933 but lower than in any of the earlier years shown in the table.

From the age analysis shown in the earlier columns of Table CVI, it will be seen that the 1934 rates for all four sections have decreased as compared with those for 1921 in all age-groups from 20 to 55 (except for spinsters, aged 20-35), and that the decrease among bachelors, widowers and widows is continued into the final group, age 55 and over. The only noteworthy increase occurs among spinsters under 35 years of age. The maintenance of the marriage-rate of young spinsters at a point well in excess of the corresponding rates of pre-war years has been a feature of the returns of recent years. With both bachelors and spinsters, the rates for the age period 25-35, at which practically one-half and one-third respectively of the marriages of these classes take place, are higher than those of any pre-war year shown in the table, while for bachelors the excess extends to all higher ages. For both classes the rates show an increase over those of 1933 at all ages under 55 years.

Widowers' and widows' rates as compared with 1921 show a consistent fall in all the age divisions identified except widows at 15–20 where the numbers are insignificant. Widowers' rates are largely in excess of the corresponding bachelors' rates, except under 20 years of age, so that it may be said that re-marriages in

Table CVI. — Annual Marriage-rate per 1,000 Bachelors, Widowers, Spinsters and Widows respectively at each of several Age Periods, 1871–1934.

Note.—Prior to 1921 the annual numbers of marriages have been taken as the average of the three years about each Census.

Year.		Annual ma	arriage-ra		00 in each		Marriage- rate per 1,000 popula- tion over	Ratio to corresponding rate	Marriage- rate which would have resulted had the 1921	Ratio of actual marriage rate (Col. 8) to rate
EVO bestere	15	20—	25—	35—	45	55 and over.	in each class.	for 1921.	age rates been in opera- tion.	in previous column (10).
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
- gurelitan	C 75000	enia 1	0 1003	BA	CHELOR	RS.	(77725)		21(22.773)	dans.
1871 1881 1891 1901 1911 1921	6·0 4·6 3·1 2·5 2·2 3·4 3·3	122·4 106·8 94·7 85·9 74·8 94·4 72·3	119·3 112·4 122·4 123·7 120·6 161·1 140·3	43·3 40·5 43·4 44·2 44·4 61·6 52·7	15·3 14·3 15·2 14·6 14·9 19·7 18·1	3·2 3·0 3·5 3·3 3·9 5·5 5·7	61·7 55·7 54·8 54·7 52·6 62·5 56·2	987 891 877 875 842 1,000 899	62·3 62·4 63·8 66·6 69·2 62·5 67·7	990 893 859 821 760 1,000 830
1932 1933 1934	3·4 3·4 3·6	69·7 70·4 75·0	136·9 142·2 153·2	51·1 51·3 54·7	16·9 18·3 19·0	5·2 5·4 5·4	55·5 58·2 63·7	888 931 1,019	68·7 70·2 71·6	808 829 890
	".0	randi	Siling	W	DOWER		1 -			
1871 1881 1891 1901 1911 1921 1931	11·5 30·6 14·1 — 14·3 62·5	229-0 192-9 153-4 132-6 121-6 163-7 98-1	288·5 246·5 231·7 201·7 171·2 229·3 179·8	181.5 157.8 151.1 134.1 117.9 155.2 122.3	88·3 76·9 74·7 65·3 59·4 73·5 65·4	15·9 16·0 15·5 13·5 12·7 15·8 14·8	65·8 58·2 53·4 44·4 36·9 44·6 33·1	1,475 1,305 1,197 996 827 1,000 742	56·0 56·0 53·7 51·0 47·4 44·6 38·5	1,175 1,039 994 871 778 1,000 860
1932 1933 1934	Ξ	103·9 95·3 96·5	177·6 177·2 181·9	124·3 125·6 128·1	62·7 64·9 66·7	14·0 14·2 14·3	31·8 31·9 32·1	713 715 720	38·1 37·6 37·1	835 848 865
4400000					PINSTER			1 1111		1 101
1871 1881 1891 1901 1911 1921	26·8 21·5 16·2 12·9 11·2 14·8	133·7 121·9 112·4 104·9 97·7 114·4 106·9	85·9 80·6 85·7 88·6 91·1 100·0 97·2	30·4 26·3 26·4 25·3 24·4 25·6 22·3	11.9 10.4 10.3 9.1 8.5 8.9 8.3	1.7 1.6 1.7 1.5 1.8 2.0 2.2	63·1 56·9 54·4 53·0 50·6 54·2 51·9	1,164 1,050 1,004 978 934 1,000 958	55.8 55.8 57.1 58.6 58.0 54.2 53.9	1,131 1,020 953 904 872 1,000 963
1932 · · · 1933 · · · 1934 · · ·	17·7 18·7 20·3	105·1 109·2 118·6	96·4 101·2 110·1	22·1 22·5 24·4	7·8 8·1 8·3	2·1 2·3 2·1	51·6 54·3 59·4	952 1,002 1,096	54·1 54·5 55·0	954 996 1,080
ret iller			11,7736		WIDOWS					
1871 1881 1891 1901 1911 1921 1931	55·4 56·6 49·3 54·9 30·0 36·1 57·1	170·5 155·3 150·4 140·7 151·2 191·4 140·8	125.5 114.5 114.3 115.9 114.1 120.3 93.0	55·7 50·2 50·3 48·9 48·9 50·6 33·2	20·8 18·6 17·8 15·6 15·6 17·6 13·6	2.6 2.6 2.4 2.1 2.1 2.5 2.2	21·1 18·2 16·3 14·4 12·5 18·0 8·7	1,172 1,011 906 800 694 1,000 483	19.6 18.5 16.8 15.6 13.6 18.0	1,077 984 970 923 919 1,000 744
1932 · · · 1933 · · · 1934 · · ·	14·3 45·5 83·3	153·2 137·7 158·4	84·8 87·0 89·8	31·9 32·2 33·1	12·3 12·2 13·0	2·1 2·1 2·1	8·0 7·9 8·0	444 439 444	11·4 11·2 11·0	702 705 727

the case of males are relatively more frequent than first marriages. As compared with 1933, all of the rates are higher, except that for widows at 55 years and over, which remains the same.

Comparison of the rates for spinsters and widows shows that the latter have the advantage in all age groups except at 25–35 and 55 and over. The age analysis serves to call attention to the misleading nature of the comparison suggested by the aggregate marriages per 1,000 population shown in column 8 of Table CVI; owing to the concentration of the single population at the younger ages where marriages are numerous, and the widowed population at the later ages where they are few, the aggregate rate for the single of each sex appears to be vastly in excess of that of the widowed, whereas, if allowance be made for the difference in their age constitutions, the relative positions are modified and, for all age-groups among males and nearly all age-groups among females, are in favour of the widowed.

Table CVII shows how the proportions of first marriages and re-marriages have varied from 1918 to 1934. In 1934 there was a higher proportion of first marriages, and consequently, a lower

Table CVII.—Proportions of First Marriages and Re-marriages in 1,000 Marriages, 1918–1934.

		ACT F.	1,	WI DOO	arriage	s, 1918	8-1934	• paped	1 (500)	
			М	en.	Wo	men.	Bachel mar	ors who		vers who
13 (s) 13 (s) 13 (s)	Year.		Bachelors,	Widowers.	Spinsters.	Widows.	Spinsters.	Widows,	Spinsters.	Widows.
1918 1919 1920	A. Da	in	901 897 907	99 103 93	894 875 894	106 125 106	837 816 839	64 81 68	57 59 55	42 44 38
1921 1922 1923 1924 1925			911 913 915 916 916	89 87 85 84 84	909 920 929 932 937	91 80 71 68 63	855 866 875 880 884	56 47 40 36 32	54 54 54 53 53	35 33 31 31 31
1926 1927 1928 1929 1930			917 918 921 920 923	83 82 79 80 77	940 942 943 946 949	60 58 57 54 51	887 890 893 894 897	30 28 28 26 25	53 52 50 51 51	30 30 29 29 27
1931 1932 1933 1934			924 925 926 930	76 75 74 70	950 953 954 956	50 47 46 44	900 903 904 909	24 22 22 21	50 50 50 47	26 25 24 23

proportion of re-marriages, than in any of the previous years. An increasing trend in the proportion of first marriages is observable for both sexes, and especially for women, since 1919.

Tables L and K, which now appear in Part II of this Review, continue the series shown in previous issues of the Text Volume (Tables LXXXVI and LXXXVII in the volume for 1930). They classify by age the marriages of a number of years, the former giving the mean ages of the persons married in each of the possible combinations and the latter extending the analysis into a number of age-groups. Table K shows that, during the last 45 years or so, the modal age of marriage has tended to increase steadily. In each of the four sections the proportion marrying under 21 years of age has decreased. For bachelors, the most popular age has passed from 21-25 to 25-30, for widowers, from 35-40 to 50-55, and for widows from 35-40 to 40-45; while for spinsters, although the modal group has not changed—being throughout 21-25—the position of the mode has risen within the group. The distribution for 1934 as shown in Table K, and the average ages shown in Table L fluctuate in no significant way from the data of the previous few

Table G shows that more men married at age 25 and more women at age 22 than at any other age. Table J shows the ages of husbands and wives in combination. Among those under 25, for whom the data are given by single years of age, there is a tendency for brides to be about a year younger than bridegrooms.

Marriages of Minors.—Of the males married during the year, 13,382, or 3.91 per cent., were under the age of 21, and of the females 52,368, or 15.30 per cent., as compared with 4.08 per cent., and 15.79 per cent. last year respectively (see Tables M and CVIII). The male rate is lower than any recorded, and is only about

Table CVIII.—Minors Married per 1,000 Marriages at all Ages, 1876-1934.

Year.		Husbands.	Husbands. Wives. Year. Husband		Husbands.	Wives.	
Year. 1876-80 1881-85 1886-90 1891-95 1896-1900 1901-05 1906-10 1911-15 1916-20 1921-25 1926-30		77·8 73·0 63·2 56·2 51·2 46·3 40·3 39·2 42·6 43·3 42·5	Wives. 217 · 0 215 · 0 200 · 2 182 · 6 168 · 0 153 · 1 139 · 4 136 · 6 133 · 3 143 · 9 150 · 5	1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930		Husbands. 46.8 48.2 44.4 42.5 40.4 40.6 43.3 41.4 43.5 41.8 42.6 43.5	142·9 149·2 144·4 142·9 140·3 142·3 147·5 146·1 151·5 151·7 155·3
1918 1919	••	42·6 43·7	129·0 129·4	1932 1933 1934		43·6 40·8 39·1	$160 \cdot 4$ $157 \cdot 9$ $153 \cdot 0$

half of that shown for 1876–80. Females, who have always greatly outnumbered the males in this class—in the present year the ratio is nearly 4 to 1—naturally show the highest rates and the greatest changes in the rate; they formed 18.8 per 1,000 of the unmarried and widowed females aged 15–21 in 1911, were 26.6 in 1920, and are now 29.7, while the corresponding rates for males were 5.5, 8.8 and 7.3 per 1,000 respectively (see Table CIX).

Table CIX.—Annual Marriage-rate per 1,000 Unmarried and Widowed Persons in the age-group 15–21 in 1901, 1911, 1921, 1931 and 1927–34.

	V		Males.	F	Partio to 1921. Per Cent. 92 80 100 106 92 94		
	Year.	Rate.	Ratio to 1921. Per Cent.	Rate.			
1901		6.7	87	21.6	00		
1911		 5.5	71	18.8			
1921		7.7	100	23.4			
1931		 6.7	87	24.8			
1927		6.0	78	21.6	00		
1928		 6.2	81	22.1			
1929		6.2	81	23.0			
1930		 6.4	83	24.0	98		
1931		 6.7	87	24.8	103		
1932	1000	6.8	88	25.4	106		
1933		6.8	88	27.1	109		
1934		7.3	95	29.7	116		

Comparative figures are shown in Table CIX for certain years back to 1901, before which the age-group 15–21 was not identified in the population returns; an indication of the trend of youthful marriage-rates in earlier periods may be gained from Table CVIII.

The proportions of males and females marrying under age are summarised for regions in Table CX, and the numbers are stated in Table M. Much of the variation there shown is but a reflex of the incidence of the general marriage-rate (Table CV), and regard must necessarily be had to the latter in considering how far the former provides evidence of local custom regarding early marriage. In 1934 the three areas in which the proportion of male minors marrying was highest were, in order, Midland II, North III, and North IV. For females, the corresponding areas were Wales I, North I, and East. As between 1933 and 1934, increases are recorded for both sexes and in all regions, except for males in North II and Wales I.

Divorces and Remarriages of Divorced Persons.—The annual numbers of marriages dissolved or annulled are shown in Table O and again in Table CXI in terms of the persons involved, for each of the past fourteen years and for each quinquennium back to 1876–80.

Table CX.—Marriage-rate of Minors per 1,000 Unmarried Population aged 15–21 in Geographical Sections of the Country, 1933 and 1934.

			raon ar	10 1994	50				
DEED CHETALE		19	33.		E30	193	34.	学校建立	
Area.	Unm	per 1,000 parried ion 15–21.	to Eng Wale	local rate land and s rate as 1,000.	Unm	per 1,000 per 1,000 parried ion 15–21.	to Engl Wale	Ratio of local rate to England and Wales rate taken as 1,000. Males. Females. 1,000 1,000 863 889 1,123 1,047 1,041 1,330 1,027 1,088 1,164 1,088 1,164 916 1,110 990 1,055 960 1,205 1,047	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
England and Wales.	6.8	27.1	1,000	1,000	7.3	29.7	1,000	1,000	
South-East	5.7	23.9	838	882	6.3	26.4	863	889	
North I North II	7·8 7·1 7·8	28·8 36·7 31·7	1,147 1,044 1,147	1,063 1,354 1,170	8·2 7·6 7·5	31·1 39·5 32·3	1,041	1,330	
North III North IV	8·4 7·8	29·8 25·1	1,235 1,147	1,100 926	8·5 8·5	32·3 27·2	1,164	1,088	
Midland Midland I Midland II	7·4 7·1 7·9	27·0 25·8 29·3	1,088 1,044 1,162	996 952 1,081	8·1 7·7 8·8	29·4 28·5 31·1	1,055	960	
East	6.8	31.4	1,000	1,159	7.5	34.8	1,027	1,172	
South-West	5.6	25.9	824	956	6.3	30.2	863	1,017	
Wales I Wales II	7·1 8·0 4·3	34·4 38·6 22·5·	1,044 1,176 632	1,269 1,424 830	7·1 7·7 5·4	38·1 42·9 24·8	973 1,055 740	1,283 1,444 835	

During the year 1934, 4,199 divorces and 88 annulments were obtained, the number of persons involved being twice these figures, or a total of 4,287 of each sex.

The number of divorces is higher than that in any previous year, and is substantially higher than the number in 1933, which was itself a record.

From Table CXI it will be seen that the number of persons who on remarriage described themselves as divorced shows an increase and is greater than the corresponding figure recorded for any earlier year. In view of the increasing numbers of divorces, an increasing trend in such marriages is to be expected. The numbers may understate the facts owing to misdescription of status in the registers.

In Table P are given certain particulars concerning the marriages in respect of which suits for dissolution or annulment were commenced during the year. 3,855 petitions were filed at the Principal Registry in London and 1,043 at 38 District Registries. In respect of

the petitions filed at the Principal Registry in London it will be seen that the most frequent duration of marriage at the date of the commencement of the proceedings is from 5-10 years with an average of 235 for each of those years of duration, but the maximum is not of particular significance, for this period only

Table CXI.—Annual Number of Persons Divorced, and of Divorced Persons who Remarried, 1876–1934.

		Persons	1000	Annu	al Numbe	r of Divor	ced Person	as who ren	narried.	ng w
Pe	eriod.	Number of Per Divorced.	Total.	Men.	Women.	Divorced men marrying spinsters.	Divorced men marrying widows.	Divorced men and women inter- marrying.	Divorced women marrying bachelors.	Divorced women marrying widowers.
1876-80 1881-85 1886-90	::	554 671 707	104 128 169	56 68 80	48 60 89	42 53 65	12 12 11	4 6 8	31 42 65	15 15 20
1891-95 1896-1900 1901-05 1906-10 1911-15 1916-20 1921-25 1926-30	Average	744 980 1,126 1,247 1,312 3,115 5,467 6,716	214 345 509 693 820 1,264 3,050 3,917	110 172 262 356 411 683 1,708 2,128	104 173 247 337 409 581 1,342 1,789	89 138 205 276 330 525 1,316 1,662	15 24 38 53 50 127 295 270	12 20 38 54 62 62 194 392	75 126 181 253 309 439 976 1,225	23 37 47 57 69 111 269 368
1921 1922 1923 1924 1925	:: :	7,044 5,176 5,334 4,572 5,210	2,878 3,374 3,008 2,903 3,088	1,592 1,913 1,679 1,627 1,729	1,286 1,461 1,329 1,276 1,359	1,182 1,457 1,307 1,267 1,367	330 360 279 275 229	160 192 186 170 266	939 1,062 1,002 931 944	267 303 234 260 282
1926 1927 1928 1929 1930		. 8,036 . 6,792	3,124 3,576 4,125 4,427 4,331	1,710 1,924 2,268 2,408 2,330	1,414 1,652 1,857 2,019 2,001	1,325 1,509 1,764 1,886 1,826	231 244 302 307 267	308 342 404 430 474	995 1,133 1,299 1,357 1,342	265 348 356 447 422
1931 1932 1933 1934	:: :	7,788 8,084	4,668 4,824 5,068 5,545	2,517 2,537 2,747 3,026	2,151 2,287 2,321 2,519	1,963 2,011 2,135 2,378	299 259 318 321	510 534 294 327	1,456 1,539 1,571 1,662	440 481 456 530

accounts for 30 per cent. of the cases, there being 17 per cent. of shorter duration, while in 53 per cent. the marriages have subsisted for 10 years or more. Forty-two per cent. of the marriages in question were childless, and in a further 30 per cent. there was one child only. These figures are substantially similar to those recorded in 1931 to 1933.

Buildings in which Marriages may be Solemnized.—At the end of the year 1934 the numbers of churches or chapels of the Established Church and of the Church in Wales and of registered buildings in which marriages could be legally solemnized, were as follows:—

ws :—			Increase per cent. since
Established Church and Church		in 1934.	1921.
in Wales	16,515	43	2.2
All other religious denominations	20,937	231	15.6
Total	37,452	274	9.3

The number of these buildings belonging to the various denominations is shown for the several geographical regions in Table N, which thus provides some indication of the relative strength of the various religious bodies in different parts of the country.

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, be certified as such to the Registrar-General, certification for public religious 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 the 31st December, 1934, and the number of buildings registered for the solemnization of marriages are shown in Table CXII.

Table CXII.

Three Bir (1867), Walley, Tra	Buildings		Increase or decrease ()
	certified to the Registrar- General as	Buildings registered for the	per cent. since 1921 in the
Denomination.	meeting- places for	Solemnization of	number of buildings
	Religious	Marriages.*	certified for Religious
	Worship.		Worship.
Roman Catholics	1,972	1,820	26.4
Methodist Church‡	14,281	8,660	2.3
Congregationalists	3,507	3,235	4.3
Baptists	3,404	3,073	6.8
Calvinistic Methodists	1,386	1,109	6.7
Presbyterians	468	464	4.5
Unitarians	184	196	— 1988
New Church	60	63	9.1
Catholic Apostolic Church	62	50	-11.4
Countess of Huntingdon's Connexion	45	40	- 4.3
Salvation Army	1,465	351	29.0
Society of Friends	421	† 10	- 2.3
Jews	310	†	19.7
Other Denominations	5,305	1,876	59 · 1
All Denominations	32,870	20,937	12.0

^{*} Of these buildings nearly 1,000 were certified before 1852, as Places of Meeting for Religious Worship, to some other authority than the Registrar-General and therefore are not included in the preceding column.
† It is not necessary for buildings to be registered for the solemnization of Quaker or Jewish marriages. Under section 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 1934, the number of such buildings which had

been brought under the operation of the Act, and so remained, was 6,776 out of the total of 20,937. The numbers of these buildings, and the denominations to which they belonged, were as follows:—

4,442 Methodist Church.

978 Congregationalists.

700 Baptists.

164 Calvinistic Methodists.

492 Other Denominations and Unsectarian.

6,776 All Denominations.

Manner of Solemnization.—The classification of marriages, according to the method of solemnization which was shown in the Annual Reports of the Registrar-General for each year up to 1914, has since been carried out in respect of every fifth year, that is, for 1919, 1924, 1929, and 1934. The data for 1934 appear in Table F1 on pp. 64, 65 of Part II of this Review, and are expressed in the form of proportions per 1,000 marriages in Table CXIV of this volume. Table CXIII supplies comparative material for each fifth year back to 1844.

Civil marriages in England and Wales (see Table CXIII), which in 1844 were only 2.6 per cent. of the total, have shown almost continuous increases since then, and have now reached 28.4 per cent.; the marriages with religious ceremonial showing a corresponding decrease. In London a much more rapid increase in the proportion of civil marriages is recorded—from 1.3 per cent. in 1844 to 38.8 per cent; in 1934. The figures for 1934 continue the trends observable for many years, but with a somewhat higher rate of increase.

Marriages celebrated in 1934 according to the rites of the Church of England and of the Church in Wales and Monmouthshire, which numbered 176,703 and 6,420 respectively, together represent 53.5 per cent. of the total marriages, and continue the decline which has been taking place since 1844. Marriages in the churches of other protestant denominations formed 4.8 per cent. of the total in 1844: the rate rose to a maximum of 13.2 in 1909, and has now fallen to 10.9. Roman Catholic marriages, on the other hand, which were 1.7 per cent. in 1844, and remained steady at about 4.2 from 1869 to 1914, have since increased regularly to 6.5. The proportion of marriages according to the rites of the Society of Friends is the same in 1934 as it was in 1844-0.4 per 1,000 total-and in each of the intervening years shown in Table CXIII (except one) has been 0.3 or 0.4 per 1,000. Jewish marriages, which were 1.3 per 1,000 in 1844, rose to a maximum of 7.0 in 1904, and after minor movements, are now 6.5.

Table F1 (Part II) and Table CXIV show respectively the numbers and proportions of marriages according to the registration county and the form of religious ceremony, and thus supplement the

record the marriages in each case.

† Includes Wesleyan Methodist, Primitive Methodist and United Methodist Churches.

information provided in Table N regarding the distribution of the several religious bodies. Of the 2,233 Iewish marriages contracted in 1934, 1,603 or 71.8 per cent. were registered in London, 239 or 10.7 per cent. in Lancashire, 121 or 5.4 per cent. in Yorks (West Riding), and 108 or 4.8 per cent. in Middlesex, these four registration counties

Table CXIII.—England and Wales and London—Marriages: Manner of Solemnization, 1844-1934.

							Of 1,	000 Marria	ges.							
					Englar	nd and	Wales.							Londo	n.	
				With	n Relig	rious C	eremonial.						Not	accordi	ng to	
	É	Accord	ing to hed Cl in V	the rite	es of the	he rch	tl	t according ne rites of t Established Church.	he				the Estal	rites of olished (the Church.	
Year.	Special Licence.	Licence.	Banns,	Superintendent Registrar's Certificate.	Not Stated.	Total in Established Church or Church in Wales.	Before Registrar. Before Author. Before Author. Before Approx.	Before Registrar. Other Christian Denominations. Ised Person.	Society of Friends.	Jews.	Civil Marriages.	According to the rites of the Established Church.	Roman Catholics.	Other Christian Denominations, including Society of Friends.	Jews.	Civil Marriages.
1844 1849 1854 1859 1864 1869 1874 1879 1884 1889 1894	0·1 0·1 0·1 0·1 0·1 0·1 0·1 0·2 0·3 0·1 0·1	113 118 132 121 110 98 87 78 60 48 41	643 639 658 643 629 627 637 624 628 632 630	12 18 24 25 24 23 19 18 17 16 13	139 93 26 23 19 15 4 3 2 2 2	907 868 840 812 782 763 747 723 707 698 686	17 30 49 46 48 41 40 41 43 42 42 41 41	48 61 75 87 99 105 113 116 116 119 113 11 101 30	0·4 0·4 0·3 0·4 0·3 0·3 0·3 0·3 0·3 0·3 0·3	1·3 1·6 1·8 1·9 1·9 2·3 2·5 2·9 4·1 5·0 6·4 7·0	26 39 48 65 81 95 105 120 131 140 148	943 930 898 897 884 881 870 845 816 788 759	19 24 49 43 49 35 33 36 38 38 37	17·1 20·2 22·0 26·7 31·6 35·1 39·1 39·2 39·1 44·3 42·4	7·4 8·1 8·4 9·2 8·7 7·9 9·2 9·9 12·1 16·7 21·5	13 18 23 24 27 41 49 70 95 113 140
1909 1914 1919 1924 1929 1934	0·1 0·2 0·2 0·1 0·1 0·1	28 42 124 54 40 28	579 536 469 520 520 505	6·0 4·4 2·0 1·8 1·1 0·9	0·9 0·8 1·8 1·8 0·5 0·5	583 597 578 562 535	42 46.6 0.4 50.6 1.4 52.5 2.5 57.0 3.0 61.1 3.9	92 40 72 50 63 52 62 60 53 61 47 62	0·4 0·3 0·4 0·3 0·3 0·4	6·8 6·7 5·0 6·7 6·7 6·5	205 241 231 238 257 284	559 565 544 517 469	40 43 55 55 60 69	48·3 41·4 33·3 41·5 39·5 37·6	34·3 26·5 33·1 35·6 37·1	322 317 324 348 388

thus accounting for 93 per cent. of the total. Most of the Jewish marriages are concentrated in a small number of areas: of the 1,603 in the County of London 772 were contracted in Stepney, 243 in Hackney, 136 in the City of London, 93 in St. Marylebone, 82 in Poplar, and 54 in Bethnal Green. Of the 121 in the West Riding, 104 took place in Leeds, and of the 239 in Lancashire, 186 took place in Manchester and Salford.

Marriages according to the rites of the Established Church show widely differing proportions. In England they vary from 756 per 1,000 in Rutlandshire, 683 in Westmorland, and 665 in Herefordshire and Shropshire, to 483 in Durham, 469 in London and 468 in Cornwall: while in Wales, which has an all over proportion of 313 per

1.000, they vary from 602 in Radnorshire to 162 in Merionethshire. Of the other churches, the Roman Catholics are relatively strong in the regions North I and North IV and weak in the East and South-West; the Methodists are strong in the South-West and in North III; the Congregationalists and Baptists exhibit the greatest strength in Wales, and the least in North II; and the Calvinistic Methodists are confined almost entirely to Wales, the highest rates being recorded in the north-western counties.

Civil marriages are relatively more frequent in Wales than in England. As in 1929, high proportions are reached in Glamorgan and Carmarthen (44 and 41 per cent.) respectively; and in six other Welsh counties the proportion exceeds 30 per cent. The figure for London (39 per cent.) is somewhat lower than that found in some of the Welsh counties, but is higher than in any of the other English counties, of which only seven—Surrey, Sussex, Hampshire, Berkshire, Middlesex, Warwickshire and Yorks, East Riding—have a proportion of over 30 per cent.

Some evidence as to the extent of illiteracy is to be found in Table FI in the numbers of persons who signed the marriage register by making a mark. The following table shows how the numbers have decreased since 1914.

Signature by Mark.

Year.		Man only.	Woman only.	Both Parties.
		———	———	Dotti Tarties.
1914	 	2,322	2,819	537
1919	 	2,463	2,433	520
1924	 	995	1,041	215
1929	 	774	776	141
1934	 	463	427	84

LIVE BIRTHS.

The live births registered during 1934 numbered 597,642, corresponding to a birth-rate of 14.8 per 1,000 of the population living. (Tables B and C.)

The number of births is 17,229 more than those of 1933, an

increase of 2.97 per cent.

The current rate of 14.8 per 1,000 is the lowest so far attained in the records of this country, excepting 1933. The recent fall in the rate had been showing signs of diminution in immediately preceding years, and it might have been inferred from the rates for 1929 and 1930-16.3 in both—that the particular phase of movement associated with post-war adjustments was drawing to a close. The 1931 returns, however, showed a further decline to 15.8, and this was followed by 15.3 in 1932 and 14.4 in 1933. As explained on pages 187-189, the present rate of recruitment is well below that which is necessary if a diminution of the total population is to be avoided in the future.

Table CXIV.—Marriages—Mode of Solemnization, 1934.

					1,000 Mar eligious Co		al.		
		Acco	ording to Church	the rite	s of the E	Stablish			
Area (Registration Counties).	Total.	Special Licence.	nce.	15.	Superintendent Registrar's Certificate.	Not stated.	Total in Established Church or Church in Wales.	Before Registrar.	Before Authorised Person.
		Spec	Licence.	Banns.	Supe Regi Certi	Not	Tota	Befo Regi	Befo Auth Pers
England and Wales. Regional Summary.	716	0.1	28	505	0.9	0.5	535	108	66
South East North North I North II North III North IV Midland Midland I Midland II East South West Wales I Wales II	662 767 711 741 759 797 744 745 742 746 754 623 601 691	0·2 0·0 0·0 0·0 0·1 0·1 0·1 0·2	19 32 28 48 23 36 27 25 30 31 48 42 37 55	517 485 455 511 534 462 573 581 557 604 532 270 269 272	0·4 2·0 3·2 1·2 1·0 2·2 0·2 0·2 0·7 0·1 1·3 1·1	0·5 0·3 0·1 0·1 0·2 0·4 0·8 0·9 0·7 1·0 1·3 0·1 0·4	536 519 486 560 558 501 601 607 589 637 582 313 308 330	81 148 156 106 82 191 53 53 63 103 243 222 306	29 96 68 73 114 100 89 84 100 45 70 66 70 55
condon courrey Kent Coussex Hampshire Berkshire Giddlesex Hertfordshire Buckinghamshire Dxfordshire Buckinghamshire Dxfordshire Huntingdonshire Bedfordshire Combridgeshire Cossex Couffolk Worfolk Worestershire Worestershire Worcestershire Worcestershire Worcestershire Worcestershire Worfolk Workshire Condonsine Worthinghamshire Derbyshire Cheshire Lancashire Workshire, West Riding Workshire, West Riding Workshire, North Riding Durham Worthumberland Comborland Commouthshire Commou	612 686 723 685 657 694 639 724 722 736 751 819 729 746 720 764 748 703 767 821 725 750 798 787 774 697 731 846 758 757 765 805 768 775 775 775 775 775 775 775 775 775 77	0·4	13 21 20 24 31 29 15 21 33 44 25 36 28 30 17 25 36 29 35 47 75 50 34 56 70 22 25 17 28 40 42 35 28 30 50 28 30 50 28 30 50 28 30 50 50 50 50 50 50 50 50 50 50 50 50 50	454 552 610 562 501 568 489 584 577 590 551 655 553 600 590 613 596 595 586 499 391 603 570 605 590 602 626 551 534 740 599 583 547 524 451 462 502 608 347 253 173 290 459 311 459 322 131	0·8 0·2 0·2 0·3 0·4 0·7 0·1 0·3 1·2 0·4 0·3 0·2 0·1 0·3 1·2 0·4 0·3 0·2 0·1 0·3 0·4 0·4 0·4 0·8 0·5 4·2 1·3 5·2 0·8 1·4 0·7 1·6 6·4 2·7 1·6 5·2	0·5 0·3 1·0 0·7 0·2 0·4 0·9 0·6 1·6 2·2 2·7 0·4 1·2 0·5 2·6 2·7 0·7 0·8 1·3 0·7 3·8 4·5 0·6 0·3 0·6 0·2 0·6 0·7 0·7 0·7 0·7 0·7 0·7 0·7 0·7 0·7 0·7	469 573 632 587 532 598 505 607 611 635 578 694 582 633 608 640 634 627 624 548 468 654 665 665 665 665 665 665 665	88 85 59 76 84 64 82 85 75 68 46 101 79 80 81 73 91 148 113 72 65 87 53 51 39 63 65 58 41 65 130 202 82 71 143 151 166 104 102 269 201 205 205 205 205 205 205 205 205	18 26 33 20 40 31 44 30 33 31 127 25 68 29 37 34 37 46 109 72 86 106 24 68 75 113 107 98 114 58 78 78 48 99 46 61 77 14 23 78 61 63 63 63 63 63 63 63 63 63 63

Table CXIV.—Marriages—Mode of Solemnization, 1934.

	Taul		Of 1	,000 Ma	rriages.		tode (of Sol	emnization, 1934.
N	lot accor	ding to	With Re	s of the	Establ		urch	D	
- 10.00 00.00 10.0	e Introduction	C	red Plac	ch in W	ales.	Bernelle.	1		RESIDENCE DELL TROOT
					12301				
Roman Catholics.	Methodist Church.	Congregationalists.	Baptists.	Calvanistic Methodists.	Other Denominations.	Society of Friends.	Jews.	Civil Marriages.	Area (Registration Counties).
65	53	21	18	4	14	0.4	6.5	284	England and Wales.
52 109 109 75 59 144 41 48 27 16 22 47 55 26	21 82 80 73 90 80 56 49 70 52 91 39 34 53	15 21 6 10 22 27 18 16 23 17 23 70 65 85	13 10 6 5 13 11 17 14 23 18 27 81 90 54	1 0 1 0 0 -58 33 133	10 21 22 14 12 27 10 10 10 6 11 13 15	0·4 0·4 0·2 0·1 0·4 0·6 0·4 0·3 0·4 0·4 0·0 10·4	14·9 3·7 1·3 1·7 4·1 4·7 0·5 0·7 0·0 0·2 — 1·0 1·3 0·2	338 233 289 259 241 203 256 255 258 254 246 377 399 309	Regional Summary. South East. North. North I. North III. North IV. Midland. Midland I. Midland II. East. South West. Wales I. Wales II.
69 55 31 39 41 28 56 35 26 38 16 4 24 16 39 11 15 25 22 31 9 14 29 29 20 58 30 55 34 33 19 22 32 87 155 59 48 40 40 40 40 40 40 40 40 40 40	10 21 20 17 35 27 23 40 26 54 51 59 39 25 25 40 58 42 68 59 32 47 27 48 55 59 99 80 90 62 88 91 88 89 18 89 18 89 18 89 18 89 18 89 18 89 18 89 18 89 18 89 18 89 18 89 18 89 18 89 18 89 18 18 18 18 18 18 18 18 18 18 18 18 18	8 14 16 18 18 12 15 24 12 14 47 25 21 13 25 20 9 34 18 13 17 19 18 24 18 19 18 24 19 10 10 10 10 10 10 10 10 10 10	8 10 16 11 12 14 16 25 22 12 45 43 38 35 17 30 13 27 16 21 8 51 23 21 6 7 14 16 34 8 7 14 13 9 11 13 5 7 7 4 4 4 143 65 110 133 75 164 188 35 10 40 63 33 45	1	10 10 9 11 12 6 12 9 8 9 12 2 4 5 11 11 6 11 10 14 5 9 12 7 7 13 9 12 7 7 13 9 12 7 7 12 8 10 10 10 10 10 10 10 10 10 10 10 10 10	0·1 1·0 0·1 1·0 0·1 1·0 0·1 1·1 0·3	37·1 0·7	388 314 277 315 343 306 361 276 278 264 249 181 271 259 271 254 280 236 252 297 233 179 275 202 213 226 303 269 154 242 273 275 295 201 216 217 217 217 218 218 219 219 219 219 219 219 219 219	London. Surrey. Kent. Sussex. Hampshire. Berkshire. Middlesex. Hertfordshire. Buckinghamshire. Oxfordshire. Northamptonshire. Huntingdonshire. Bedfordshire. Cambridgeshire. Essex. Suffolk. Norfolk. Wiltshire. Dorsetshire. Cornwall. Somersetshire. Gloucestershire. Herefordshire. Shropshire. Staffordshire. Worcestershire. Warwickshire. Leicestershire. Rutlandshire. Lincolnshire. Nottinghamshire. Derbyshire. Cheshire. Lancashire. Yorkshire, West Riding (with York). Yorkshire, Fast Riding. Yorkshire, North Riding. Durham. Northumberland. Cumberland. Westmorland. Monmouthshire. Glamorganshire. Carmarthenshire. Pembrokeshire. Cardiganshire. Brecknockshire. Radnorshire. Montgomeryshire. Flintshire. Denbighshire. Merionethshire. Caernarvonshire. Anglesey.

The birth-rate in this country attained its highest values since the commencement of civil registration during the period 1865-1880, when it exceeded 35 per 1,000 population, and from that time it diminished by gradual and practically continuous stages to 23·8 in 1914; the present rate of 14·8 per 1,000 is considerably less than half the maximum figure of 36·3 recorded in 1876.

The recent history of the birth-rate in this country may be compared with those of other countries of which particulars are at hand by reference to Table Q. The record extends over the period from 1911 to 1934 (for earlier years, see the Registrar-General's Annual Report for 1910) and covers therefore not only the years of the war period itself when the movements were quite abnormal, but a number of earlier and later years. Of the countries for which 1934 returns are available, England and Wales, Scotland, Northern Ireland, Denmark, Germany, Roumania and the United States of America record increases in their birth-rates as compared with 1933, while four remain the same and the remaining 12 show decreases. Two only of these countries, Austria (13·5 per 1,000 population) and Sweden (13·7) have lower rates than that of England and Wales (14·8).

In all the countries listed except France, Spain, Portugal, and Japan the recent rates show a large fall in comparison with pre-war experience, a fall which in respect of England and Wales is the more serious since the position of this country in relation to that of others was already a low one before the war. The case of France is somewhat exceptional in that the current rate is not much lower than it was before the war, so that instead of being outstandingly the lowest in the series as formerly, it now ranks above England and Wales, Austria, Belgium, Norway and Sweden. The rise of the birth-rate in Germany from 14·7 in 1933 to 18·0 in 1934, after a series of falls, is a feature of some interest. Apart from this the increases recorded are all small, and while they may suggest that minimum rates have now been passed, may, with equal likelihood, indicate merely temporary breaks in the downward progress.

The crude birth-rate, or ratio of births to population of all ages, is a convenient form of statement when the object in view is to record the aggregate effect of all the various factors governing reproduction. It sums up the effects of all the influences governing the rate at which the 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. The number of births in the country, however, depends mainly upon the number of married women at the reproductive ages, and as they form less than one-eighth of the total population the variation of their numbers and ages over a period of time may be different from that of the whole population, in which case the crude birth-rates form but an imperfect measure

of the changes in fertility, *i.e.* of the rate of reproduction in proportion to the opportunity of reproduction. In the absence of any knowledge of the constitution of the general population the crude rate is often used as an index of fertility, but always on the implied assumption of a fixed proportion of potential mothers, an assumption which may reasonably be made only in respect of short periods of adjacent years.

In order to exclude the effect of changing age-constitution of the population, and so obtain a better statement of variations of fertility, a method of standardization was introduced in the Statistical Review (Text) for 1922, and has been in use since then. A description of the method, together with a series of fertility rates calculated for England and Wales in 1921 and 1931 were given in the Registrar-General's Statistical Review for 1932 (Text, pp. 135, 136).

Summarized comparisons based on these fertility rates are given in the last column of Table CXV for groups of three years about each census from 1871 to 1931, and for the individual years 1931 to 1934. The results are contrasted in that table with the more familiar comparisons given by the crude birth-rates whether calculated per 1,000 total population or per 1,000 married women between ages 15 and 45. Thus, in 1870-72, 2,148 legitimate births were recorded for every 1,000 that would have occurred under the standard fertility rates, the 1931 experience being in the aggregate less than half of that of 60 years before. From 1871 the rates diminished steadily and progressively to 1,592 in 1910-12. Since 1920-22 the even more rapid drop, commented upon in dealing with the crude rates, is shown by the further reductions in the index, from 1,460 to 1,000 in 1931. It will be observed that over the earlier years shown in the table the decrease in fertility was overstated by the crude rates, and that since 1920-22 the tendency has been in the other direction.

Illegitimate Births.—The live births registered during 1934 include 25,785 of illegitimate children, an increase of 377 on the number in 1933, coincident with the increase of 17,229 in total births. Illegitimate births have thus increased by 1·5 per cent., and legitimate births by 3·0 per cent. As a result of these changes, the proportion of illegitimate to total births has fallen from 4·38 per cent. last year to 4·31 per cent., figures which compare with the minimum of 3·95 per cent. recorded for the period 1901–1905 and the maximum of 6·26 per cent. in 1918.

In addition to the crude rate comparison, an attempt has been made in Table CXV to allow for the age distribution of the potential mothers in respect of illegitimate as well as legitimate births in the manner referred to above. The rates for illegitimate fertility are of much less authority than the rates for legitimate fertility.

Seasonal Distribution of Births.—The number of births registered in each quarter of the year and their frequency per 1,000 population are shown in Table D. Since 1923 the highest rate has occurred in

every case in the second quarter. This contrasts with the experience of 1841 to 1890 when the highest rates usually occurred in the first quarter. The lowest rate is recorded consistently in the fourth quarter.

Table CXV.—Birth-rates and Fertility, 1870-1934.

	Births per 1,000 Total Population.	Ratio to 1931.	Births per 1,000 Married Women, 15–45.	Ratio to 1931.	Ratio of Actual Births to those which would have occurred had the Standard age rates been operating.
Legitimate Live Births. 1870-72 1880-82 1880-92 1890-92 1910-12 1910-12 1920-22 1930-32	33·3	2,205	292·5	2,380	2,148
	32·3	2,139	286·0	2,327	2,117
	29·4	1,947	263·8	2,146	1,983
	27·5	1,821	235·5	1,916	1,797
	23·4	1,550	197·4	1,606	1,592
	21·7	1,437	178·9	1,456	1,460
	15·1	1,000	122·4	996	999
1931	15·1	1,000	122·7	1,000	1,000
	14·6	967	118·0	962	964
	13·8	914	110·4	900	905
	14·1	934	112·7	919	926
Andrewski som som state og sta	Births per 1,000 Total Population.	Ratio to 1931.	Births per 1,000 Unmarried Women, 15–45.	Ratio to 1931.	Ratio of Actual Births to those which would have occurred had the Standard age rates been operating.
Illegitimate Live Births. 1870-72 1880-82 1890-92 1900-02 1910-12 1920-22 1930-32	1.96	2,800	17.0	2,982	2,886
	1.65	2,357	14.1	2,474	2,375
	1.31	1,871	10.5	1,842	1,755
	1.12	1,600	8.5	1,491	1,419
	1.03	1,471	7.9	1,386	1,363
	1.04	1,486	8.1	1,421	1,430
	0.71	1,014	5.8	1,018	1,002
1931	0·70	1,000	5·7	1,000	1,000
1932	0·67	957	5·6	982	974
1933	0·63	900	5·4	947	936
1934	0·64	914	5·6	982	970
Intole ne 602 X E	Births per 1,000 Total Population.	Ratio to 1931.	Births per 1,000 total Women, 15–45.	Ratio to 1931.	Ratio of Actual Births to those which would have occurred had the Standard age rates been operating.
All Live Births. 1870-72 1880-82 1880-82 1900-02 1910-02 1910-12 1920-22	35·3	2,234	153·7	2,387	2,179
	34·0	2,152	147·7	2,293	2,128
	30·7	1,943	129·7	2,014	1,972
	28·6	1,810	114·8	1.783	1,779
	24·5	1,551	98·3	1,526	1,581
	22·8	1,443	91·1	1,415	1,459
	15·8	1,000	64·3	998	1,000
1931 · · · · · · · · · · · · · · · · · · ·	15·8	1,000	64·4	1,000	1,000
	15·3	968	62·6	972	964
	14·4	911	59·4	922	906
	14·8	937	61·5	955	928

The seasonal distribution of births is thus consistent with the seasonal distribution of marriages, the frequency of which, as has already been noted (p. 162) is a maximum in the third and a minimum in the first quarter.

The degree of association between the frequency of marriages and that of births some nine to twelve months afterwards tends to increase with the progressive reduction in the size of families, and the consequent increase in the proportion of first-born children in the total.

Birth-rates of Different Parts of the Country.—The birth-rates, total and illegitimate, of individual administrative areas tabulated in Table E are summarized in Table CXVI for the geographical regions, and their sub-divisions.

The method for comparing the fertility of England and Wales in different years by the use of standard fertility rates applies equally well to the comparison of fertility in different sections of the population of which the sex, age and marital condition constitution is known, and the crude rate comparisons are supplemented in this table by the addition of a series of figures in which variations in birth-rates due solely to differences in the age and marital condition proportions of the several populations, as far as possible, have been eliminated.

Table CXVI shows for each of the specified divisions of the country the crude birth-rates of 1933 and 1934, the ratio of the crude rate to that of the country as a whole, and the corresponding ratio obtained by the use of the standard fertility rates of 1931.

The birth changes which have occurred between 1933 and 1934 in the geographical regions and types of area shown in the table are in general consonance with the movement in the country as a whole. Comparison of the 1934 crude rates for the several areas shows that the highest for all births are found in North I and II, and the lowest in the South-West and South-East. Crude rates for illegitimate births are highest in North II and Wales II, and lowest in Midland I.

The ratios shown in column (2) are based upon the crude rates and reflect therefore not only differences of fertility but also the varying incidence of sex, age and marital condition in the populations from which they arise. When the latter factors are eliminated as in column (4) of Table CXVI, the process may result in altering materially the relative position of an area; for instance, the ratio for Wales II rises from 966 (crude) to 1,182 (standardized) while Midland II falls from 1,000 to 947. If the areas be examined from the point of view of urbanization the change from the crude to the standardized comparison is also notable. By the crude rates the position of rural areas is distinctly understated, since from the point of view of fertility alone they are shown to be the most productive of all areas.

The extent of illegitimacy in different classes of area and parts of the country may be gathered from the right half of Table CXVI. Except for a wider range of variation generally the distribution is not significantly different from that of all births.

Table CXVI.—Birth-rates by Geographical Regions, 1933 and 1934.

The state of the s			of the ser			-	nate Births.	
	Total	England as 1,000	hs per would the peen	that taken	Total	ngland 1,000	Births which had the s been	taken taken
	1,000	for E	Births which we had rates b	with /ales	1,000		ual hose red h	with ales,
Region.	per 1	ite for taken).	1 - B +	red nd W	r 1,	ate for taken	144	hed W bu
	e pe	Ra es, ates)	occurred d age	mpa nd a	p. De	Rate es, tak ates).	0	mpa nd a
	-rat	o to Wal	o of o of dard	ngla 0000.	-rate	Walo	of 1,000 d have dard a	nglan 000.
	Birth-rate Population.	Ratio to Rate i and Wales, take (Crude Rates).	Ratio of 1,000 of have oc Standard operating.	Ratio compared with for England and Wales, as 1,000,	Birth-rate per Population.	Ratio to Rat and Wales, t (Crude Rates).	Ratio of per 1,000 would hav Standard operating.	Ratio compared with for England and Wales, as 1,000.
10 100 100 100 100	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
AND SELECTION ASSESSMENT	1		1933.	1	1-1-1-1	30 0	1	
England and Wales	14.4	1,000	906	1,000	0.63	1,000	936	1,000
Regional Summary— South-East Greater London Remainder of South-	13·5 13·5 13·7	938 938 951	851 822 900	939 907 993	0·62 0·60 0·64	984 952 1,016	869 789 1,020	928 843 1,090
East. North North I	15·0 17·2	1,042 1,194	941 1,052	1,039	0.65	1,032 1,095	963 1,158	1,029 1,237 1,517
North II North III	16.0	1,111	1,049	1,158	0.89	1,413	1,138 1,420 930	1,237 1,517 994
North IV	14.4	1,000	918	1,013	0.59	937	835	892
Midland	14·7 14·8 14·5	1,021 1,028 1,007	905 928 864	999 1,024 954	0·57 0·56 0·58	905 889 921	855 833 900	913 890 962
East	14:4	1,000	963	1,063	0.81	1,286	1,366	1,459
South-West	13.4	931	904	998	0.60	952	987	1,054
Wales I Wales II	15·4 15·7 14·3	1,069 1,090 993	993 963 1,096	1,096 1,063 1,210	0·67 0·58 0·91	1,063 921 1,444	1,101 977 1,409	1,176 1,044 1,505
Density Summary of all Areas outside Greater London—	123		ben n		307 3			is been
County Boroughs Other Urban Districts Rural Districts	15·0 14·1 14·7	1,042 979 1,021	931 891 985	1,028 983 1,087	0·67 0·57 0·67	1,063 905 1,063	962 891 1,172	1,028 952 1,252
			1934.	a period				
England and Wales	14.3	1,000	928	1,000	0.64	1,000	970	1,000
Regional Summary— South-East Greater London Remainder of South-	13·9 13·9 13·9	939 939 939	871 842 917	939 907 988	0·63 0·61 0·67	984 953 1,047	909 810 1,095	937 835 1,129
East. North	15·5 17·4	1,047 1,176	965 1,058	1,040 1,140	0·65 0·66	1,016 1,031	996 1,126	1,027
North I North II North III North IV	16·5 14·9 14·9	1,115 1,007 1,007	1,079 895 949	1,163 964 1,023	0·87 0·64 0·61	1,359 1,000 953	1,424 994 878	1,468 1,025 905
Midland Midland I Midland II	15·2 15·4 14·8	1,027 1,041 1,000	930 958 879	1,002 1,032 947	0·57 0·55 0·60	891 859 938	873 837 943	900 863 972
East	14.8	1,000	983	1,059	0.81	1,266	1,402	1,445
South-West	13.6	919	921	992	0.65	1,016	1,085	1,119
Wales I Wales II	15·6 16·1 14·3	1,054 1,088 966	1,009 983 1,097	1,087 1,059 1,182	0·65 0·59 0·82	1,016 922 1,281	1,109 1,031 1,301	1,143 1,063 1,341
Density Summary of all Areas outside Greater				jebna	A TO	Lings		
London— County Boroughs Other Urban Districts Rural Districts	15·5 14·5 15·0	1,047 980 1,014	960 909 1,006	1,034 980 1,084	0·68 0·59 0·67	1,063 922 1,047	1,003 934 1,206	1,034 963 1,243

The highest rates occur as a rule in the rural districts. It will be seen that whereas for all births the rural aggregate rate is 8.4 per cent. above the mean, for illegitimate only it is 24.3 per cent. above.

Sex Proportions at Birth.—Births of males in England and Wales in 1934 numbered 306,874 and those of females 290,768; the proportion of male to female births was 1,056, 1,049, and 1,055 to 1,000 for legitimate, illegitimate, and total births respectively. The corresponding proportions for total births in each year from 1894 onwards and in groups of years since the commencement of registration are shown in Table C (Part II). The extreme range since 1838 has been from 1,032 per 1,000 in 1898 to 1,060 in 1919. During this period the highest ratio recorded prior to the war was 1,054 in 1843 and 1844. The current ratio of 1,055 is exceeded only by that of 1,060 in 1919.

The extent to which different classes of area or portions of the country contribute to the preponderance of male births is shown in Table CXVII. The only areas which show a decrease between 1933 and 1934 are North I, North II, and Wales II. In 1931 the

Table CXVII.—Male Births per 1,000 Female Births, 1931-1934.

compared to los		1250	T. Xaliga		1931.	1932.	1933.	1934.
England and Wa	ales		v		1,049	1,050	1,046	1,055
Regional Summa	ry—							
South-East	e.H	edilibe	to be	30 a. v	1,047	1,046	1.044	1,058
Greater Lon	don		10.00	100.00	1,048	1,052	1,047	1,061
Remainder of	of Sou	th-East			1,046	1,036	1,039	1,053
North				•	1,045	1,050	1.048	1,052
North I	124				1,050	1,054	1,065	1,058
North II				1940.2	1,072	1,036	1,055	1,044
North III					1,041	1,046	1,050	1,052
North IV					1,040	1,054	1,039	1,052
Midland					1,054	1,053	1,042	1,061
Midland I					1,052	1,048	1,040	1,063
Midland II	GNO.	99.00			1,058	1,064	1,047	1,059
East		dt.no			1,029	1,040	1,038	1,056
South-West		0			1,073	1,057	1,046	1,047
Wales					1,056	1,057	1,059	1,051
Wales I					1,060	1,054	1,044	1,058
Wales II				9171797	1,043	1,066	1,103	1,031
Density Summar	y of	all Ar	eas o	utside	Greater			
London—								
County Boroug	ghs		H. Old		1,043	1,047	1,044	1,061
Other Urban I	Distric	ts		20.1	1,057 .	1,050	1,052	1,045
Rural Districts	S		9		1,048	1,052	1,039	1,054

highest ratio, 1,073, occurred in the South-West, and the lowest, 1,029, in the East; in 1932, the highest, 1,066, in Wales II, and the lowest, 1,036, in the South-East (excluding Greater London) and in North II; while, in 1933, the highest, 1,103, was in Wales II,

and the lowest, 1,038, in the East. The inconsistency of some of these ratios is illustrated by Wales II which was the highest in 1932 and 1933 and the lowest in 1934, and by the South-West which fell from 1,073 in 1931 to 1,057 in 1932 and to 1,046 in 1933. A similar inconsistency is revealed when the figures are analysed according to degree of urbanization. The ratio for the county boroughs was highest in 1934, lowest in 1931 and 1932; for the urban districts, highest in 1931 and 1933, lowest in 1934; for the rural districts, highest in 1932, lowest in 1933.

STILLBIRTHS.

Stillbirths registered in England and Wales as a whole are shown for each year in Part II of the Statistical Review, Table B, and for each quarter in Table D. The numbers occurring in metropolitan and county boroughs, and in the aggregates of urban and of rural districts in administrative counties are shown in Part I, Table 18, to which is prefixed a summary for the several larger regions into which the country is divided.

In England and Wales the stillbirths registered during 1934 numbered 25,209 in all, 13,690 being males and 11,519 females; the numbers representing 40, 43 and 38 per 1,000 total births or 42, 45 and 40 per 1,000 live births respectively. The total compares with the figure of 25,084 recorded last year.

Prior to 1st July, 1927, the date on which stillbirth registration became operative in this country under the Births and Deaths Registration Act, 1926, the only record of stillbirths in England and Wales was that obtained from notifications received by Medical Officers of Health. These were published in the successive reports, from 1919 onwards, of the Chief Medical Officer to the Ministry of Health and were summarised in the 1927 Statistical Review, (Text p. 128).

The distribution of the total according to sex, legitimacy and geographical incidence in 1933 and 1934 is summarised in rate form in Table CXVIII: in this Table columns have been included from which comparisons may be made between the incidence of stillbirths on the one hand and that of live births or of infant mortality on the other. Wherever the numbers are large enough to form a satisfactory basis of fact, the frequency of stillbirth amongst males is shown to be definitely greater than it is amongst females. The male excess for legitimate births is the same as that of last year. and it is maintained with considerable uniformity throughout the several sections distinguished. For illegitimate births, also, male excess is usually found, but exceptions are recorded in 1934 in Greater London, North I, North II, Midland I and Wales II. As between legitimate and illegitimate births, the latter exhibit the higher rates in all sections (the females of Wales I excepted), the amount of the excess being on a somewhat larger scale than that indicated in the comparison between the sexes.

Table CXVIII.—Stillbirths, 1933 and 1934.

Area.			Stillbirtl 00 total			Stillbirths per 1,000 total births and Live Births per 1,000 population expressed in relation to correspond- ing rate for England and Wales taken as 1,000.				births an per 1 express corres	d Infant M ,000 live b sed in rela- ponding ra	per 1,000 total nfant Mortality 0 live births in relation to adding rate for ad Wales taken 1,000.	
		Legitimate. Illegitimate.		Still	Stillbirths. Live Births.				Deaths	Deaths			
	Total.	Males.	Fe- males.	Males.	Fe- males.	Legiti- mate.		Legiti- mate.	Illegi- timate	Still- births.	under 4 weeks.	under 1 year.	
1933. England and Wales	41.4	43	38	56	51	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
Regional Summary— South-East	33·5 33·0 34·2	35 35 35	30 29 32	54 54 54	43 43 43	802 790 819	910 910 910	935 935 942	984 952 1,016	809 797 826	829 815 850	807 851 741	
East. North North I North II North III North III North IV	46·3 41·5 45·5 47·5 47·8	48 42 49 50 50	43 39 41 44 45	59 58 55 62 58	57 53 58 53 60	1,120 1,000 1,098 1,152 1,156	1,082 1,043 1,054 1,075 1,112	1,043 1,196 1,094 1,000 1,000	1,032 1,095 1,413 968 937	1,118 1,002 1,099 1,147 1,155	1,123 1,189 1,055 1,088 1,130	1,191 1,246 1,105 1,128 1,223	
Midland Midland I Midland II	41·6 41·4 42·1	43 43 43	39 39 40	56 61 48	49 44 60	1,007 1,002 1,017	991 979 1,007	1,029 1,036 1,014	905 889 921	1,005 1,000 1,017	1,039 1,056 1,007	1,024 1,032 1,008	
East	37 · 1	39	34	46	38	900	790	986	1,286	896	936	822	
South-West	42.1	43	40	56	56	1,012	1,049	928	952	1,017	923	777	
Wales I	55·9 55·4 57·2	58 57 61	53 53 52	61 65 55	66 68 63	1,357 1,345 1,396	1,191 1,245 1,097	1,065 1,101 971	1,063 921 1,444	1,350 1,338 1,382	1,186 1,220 1,084	1,166 1,223 992	
Density Summary of all Areas outside Greater London— County Boroughs	43.8	46	40	54	53	1,059	1,006	1,043	1,063	1,058	1,074	1,175	
Other Urban Districts. Rural Districts	44.3	45	39	54 64	52	1,073	998	986	905	1,070	1,039	978	
1934. England and Wales	40.5	42	37	55	53	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
Regional Summary— South-East Greater London Remainder of South-	33·0 32·1 34·3	35 34 37	30 29 31	45 43 47	48 51 45	810 787 845	865 872 853	943 943 943	984 953 1,047	815 793 847	803 789 825	889 976 755	
East. North North I North II North III North III North IV	45·1 41·4 44·7 46·6 46·0	47. 42. 48. 49. 47.	42 40 40 43 44	62 51 60 73 62	57 57 61 50 59	1,115 1,025 1,098 1,150 1,135	1,108 996 1,126 1,139 1,126	1,050 1,184 1,106 1,007 1,014	1,016 1,031 1,359 1,000 953	1,114 1,022 1,104 1,151 1,136	1,136 1,268 1,034 1,092 1,128	1,136 1,324 1,044 1,014 1,145	
Midland Midland I Midland II	41·1 41·0 41·1	43 43 43	38 38 39	54 56 49	55 61 46	1,018 1,013 1,025	1,011 1,083 885	1,035 1,050 1,007	891 859 938	1,015 1,012 1,015	1,022 1,035 996	985 1,019 919	
East	37.3	40	33	51	40	922	839	986	1,266	921	971	842	
South-West	40.1	41	39	50	49	992	926	922	1,016	990	988	844	
Wales I Wales II	53·2 54·2 50·2	54 55 52	50 52 45	80 82 78	61 50 81	1,313 1,346 1,213	1,237	1,064 1,099 957	1,016 922 1,281	1,338	1,225 1,245 1,163	1,101 1,113 1,066	
Density Summary of all Areas outside Greater London—									1.000	1.040	1.079	1,119	
County Boroughs Other Urban Dis-	42.2	43 47	40 40	58 62	53 57	1,043 1,090					1,078 1,045	941	
tricts. Rural Districts	40.5	42	38	53	49	1,000	950	1,014	1,047	1,000	1,014	905	

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As regards areal comparison, Wales returns legitimate stillbirth frequencies markedly higher than those of any English sections, which among themselves decrease generally from the North, where the rate is about 12 per cent. in excess of the general average, to the South-East where it is 19 per cent. below. The contrasts are not so consistent among the illegitimate frequencies.

The relative positions in the various portions of the country and the close association in this respect between stillbirths and infantile deaths are brought out in the columns of the table in which the stillbirth rate and infantile mortality rate of the year are expressed in relation to that of the country at large, the latter being taken as 1,000 in each case. The similarity of incidence is marked in comparisons made with the mortality of the full first year of life, but the parallelism is found in certain areas to be even closer when the comparison is restricted to the deaths occurring within the four weeks immediately following birth.

Some idea of the local variation of stillbirths may be obtained from Table CXIX, which shows the boroughs and the county urban and rural aggregates exhibiting the highest and lowest rates per

Table CXIX.—Stillbirths, 1934. Range of local variation. Stillbirths per 1,000 total births.

				, oo oour n	AL CLESS				
Metropolitan Boroughs.		County Urban Aggregates (Excluding County Boroughs)			g	Rural Aggregates.			
Chelsea	40 40 36 36	Merthyr Tydfil . Oldham Preston Huddersfield Halifax	. 59 . 59 . 57	Carmarthen Glamorgan Monmouth Pembroke Lancs Yorks, W.R.	57 56 56 56 50 50	Glamorgan Brecon	62 59 58 55		
Fulham	28 28 28 27 27 27 24	Hastings	31 31 31 30	Middlesex Norfolk Suffolk East Sussex, East Southants	32 32 32 32 31 30 28	Kent Sussex, West Bucks	29 29 29 28 28		

1,000 total births in 1934. Areas in which fewer than 20 stillbirths were registered have been omitted. Material for a comparison of live births with stillbirths over the years 1928–1934 is contained in Table CXX.

NATURAL INCREASE.

The excess of live births over deaths registered in England and Wales during the years 1928 to 1934 was in—

1928	 199,878	1932	 129.843
1929	 111,181	1933	 83,948
1930	 193,384	1934	 120,832
1931	 140,451		De la

From the comparable series of rates per 1,000 living population given in Table R, it will be observed that, though there is rather greater irregularity in the successive rates of natural increase, they have, over the range of years there given, followed on the whole a similar course to those followed by both birth and deathrates, and have declined with advancing years. The present rate of natural increase is 3·0 per 1,000 population. Lower rates were recorded in 1918 (0·4), 1929 (2·9) and 1933 (2·1), but, with these exceptions, it is lower than any so far recorded. It compares with a figure of approximately 10 per 1,000 in the years immediately preceding the war and over 14 per 1,000 in the period 1876–1880 when the birth-rate was at about its maximum. Stated in these terms the curve of natural increase expresses no more than that the crude

Table CXX.—Comparison of Live Births and Stillbirths, 1928-1934.

		lbirths ,000—	pe		births male birth	ns.	Illegitimate births per 1,000—			
Year.	popula- births		Live	births.	Stillb	irths.	Live l	oirths.	Stillbirths.	
	tion of all ages.	(live and still).	Total.	Illeg.	Total.	Illeg.	M.	F.	M.	F.
Col. (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1928 1929 1930 1931 1932 1933 1934	0-70 0-68 0-69 0-67 0-66 0-62 0-62	40·1 40·0 40·8 40·9 41·3 41·4 40·5	1,044 1,043 1,044 1,049 1,050 1,046 1,055	1,041 1,021 1,049 1,059 1,042 1,021 1,049	1,210 1,259 1,235 1,248 1,216 1,180 1,188	1,297 1,311 1,233 1,250 1,197 1,137 1,102	44·9 45·1 45·9 44·6 43·8 43·3 43·0	45·1 46·0 45·6 44·2 44·2 44·3 43·3	64·8 62·9 61·0 61·8 56·5 56·1 56·2	60·5 60·4 61·1 61·7 57·3 58·2 60·7

birth-rate has hitherto been greater than the crude death-rate, and that the decline in the former has advanced at a greater rate than the fall in the latter. From the general continuity of the series it may be inferred that the number of births will continue to exceed the deaths for some years, and that, apart from the results of migration, the population will continue to increase during such period though, naturally, at a slower pace.

What must not be inferred from mere excesses of births over deaths or from their alternative expressions as rates per 1,000 total population, is that the continuance of current conditions regarding fertility and mortality would be sufficient to ensure a continuous increase in the national population, both now and in the future. Attention has been drawn in previous Reports to the reduction in the population, which, apart from immigration, must inevitably take place in the near future if the current trend in the birth rate persists.

Some light is thrown on the subject by a comparison of the actual population at the mid-point of any period with the hypothetical population that the births during the same period would support. This is done in Table CXXI in which the data for a

Table CXXI.—England and Wales; Comparison of Actual with Life-Table Population, 1871 to 1934.

Numbers in thousands.

Period.	by 100,0 accordin Official L	a supported 2000 births ag to the ife Tables.	An Bi	al Mean nual rths eriod.	Hypothetical Population which would be supported by current numbers of births according to Life Table Rates.			Actual Mean estimated Popula- tion.	Ratio per cent. of Life-Table Population to Actual Population.	Hypothetical Crude Birth-rate needed to maintain actual Population per 1,000.	Actual Crude Birth-rate per 1,000.	Actual Mean Natural Increase per 1,000
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1871–1880	M. 4,135	F. 4,462	M. 437	F. 421	M. 18,070	F. 18,785	P. 36,855	P.	P.	Р.	P.	P.
1881–1890 1891–1900	4,366 4,413	4,718 4,777	453 466	436	19,778	20,570	40,348	24,343 27,488	151 147	23·3 22·1	35·4 32·4	14·0 13·3
1910–1912	5,150	5,535	450	449	20,565 23,175	21,449	42,014 47,142	30,643 36,071	137 131	21·8 18·7	29·9 24·5	11·7 10·7
920–1922	5,562 5,874	5,958 6,288	323	420 309	24,584 18,973	25,024 19,430	49,608 38,403	37,886 39,952	131 96	17·4 16·5	22·8 15·8	10·3 3·9
933	_	_	297	283	17,446	17,795	35,241	40,350	87	16.5	14.4	2.1
934		-	307	291	18,033	18,298	36,331	40,467	90	16.5	14.8	3.0

series of periods from 1871-1880 are shown. Columns (2) and (3) give the population in thousands that would be supported by 100,000 births according to the official life-tables of each period. The application of these numbers to the numbers of births actually registered, columns (4) and (5), gives the hypothetical population shown in columns (6) and (7) that the births would support. The sum of the numbers for the sexes, column (8), is compared with the estimated actual population, column (9), by means of the percentage ratios in column (10). Columns (11) and (12) give the hypothetical and actual crude birth rates, and column (13) the actual natural increase. It is to be noted from columns (4) and (5) that the numbers of births attained a maximum in the period 1891-1900, and have since declined at increasing speed. The percentages in column (10) show that in the earlier periods the births were sufficiently numerous not only to maintain the population but also to provide a substantial balance for emigration. In recent years the percentage ratio of the life-table population to the actual population has fallen below 100 and, as shown in Table S (Part II), the balance of migration has been in an inward direction.

The method used in Table CXXI for the comparison of life-table with actual populations of the same period is not free from objection, but the series of results obtained in columns (10) and (11) are consistent among themselves and are of some interest in connection with other series of rates with which they may be compared, and for which a greater degree of absolute significance may be claimed.

Table CXXII shows for 1931–34 the rate of natural increase in various sections of the country, representing the combined effect of the several sectional birth and death rates. Attention may be drawn to the large differences between the different sections of the regions, namely, North I (Durham and Northumberland), and North IV (Cheshire and Lancashire), and between Wales I (Brecknockshire, Carmarthenshire, Glamorganshire and Monmouthshire), and Wales II (the remainder of Wales).

A comparison of the rates of natural increase in certain selected years is provided in Table CXXIII in which the countries shown are the same as in Table Q. The only countries in which there is a greater natural increase in 1934 than in 1911–13 are France and Spain; and comparatively small decreases occur in Ireland, Portugal and Japan. The largest decrease is recorded for Austria; and two countries—England and Wales and Sweden—have a rate in 1934 which is less than one-third of that of 1911–13.

Table S, which provides an analysis of migration from 1911 onwards, shows that the balance of passenger movement, which for many years had been in the outward direction, has been reversed during the last five years. The net passenger movement into the United Kingdom was 54,509 in 1934. This contrasts with about 48,000 in 1933, 77,000 in 1932 and 91,000 in 1931, and with an outward balance of 100,000 so recently as 1926.

GREAT BRITAIN AND IRELAND.

Population.—The first complete census of the United Kingdom was taken in 1821, when the population numbered 20,893,584 persons; during the 100 years 1821–1921 this number increased by about 126 per cent., the sum of the census figures for Great Britain and of the estimated population of Ireland in June, 1921, amounting to 47,123,196. Up to the date when the 1931 Census

Table CXXII.—Natural Increase per 1,000 living, 1931-1934.

	STATE OF THE PERSON NAMED IN	-	And in case of the last of				
				1931.	1932.	1933.	1934.
England and Wales	2190	KT. b		3.5	3.3	2.1	3.0
Regional Summary—							
South-East			•	3.4	3·0 3·5	2·0 2·3	2.6
Remainder of South	-East		::	2.9	2.3	1.7	2.3
North		1903.4	7.4	3.2	3.4	1.9	3.2
North I			::	6.1	6.4	3.0	5.2
North III				2.7	2.7	1.6	2.9
North IV		aulos a		2.3	2.5	0.8	2.4
Midland I		30000	Mi.o	4.7	4.2	3.0	4.0
Midland II		••		4.6	4.2	2.8	3.7
South-West		1 40 -11		3.4	2.9	1.9	0.8
Wales		inger a	-	3.4	3.2	2.3	3.2
Wales I Wales II		1296. 50	.43	4.5	4·2 0·8	3.0	4·2 0·4
			~		0.8	0.1	0.4
Density Summary of All London—	Areas	outside	Great	er			
County Boroughs		12.44.00		3.4	3.5	1.9	3.2
Other Urban Districts Rural Districts		• • • • • • • • • • • • • • • • • • • •		$3 \cdot 1$ $3 \cdot 7$	$\frac{2\cdot 9}{3\cdot 4}$	1·7 2·6	$\frac{2\cdot7}{3\cdot2}$

was taken there was a further increase of 4 per cent. The populations of the several portions of the United Kingdom for each census year from 1821 and for individual years from 1895 are set out in Table A.

Marriages.—The marriages during the year 1934 numbered 401,737, corresponding to a rate of $16\cdot 2$ persons married per 1,000 of the total population. This rate was $1\cdot 1$ per 1,000 above the corresponding rate in 1933 and $1\cdot 3$ above the average rate in the ten years 1921–1930.

Births.—The live births registered in the year 1934 numbered 769,740, and were in the proportion of $15 \cdot 5$ per 1,000 of the total population. This rate was $0 \cdot 4$ above the corresponding rate in 1933 and $3 \cdot 3$ per 1,000 below the average in the ten years 1921–1930.

Deaths.—The deaths registered in the year 1934 numbered 597,155, and were in the proportion of $12\cdot 0$ per 1,000 of the total population. This rate was $0\cdot 5$ per 1,000 below the corresponding rate in 1933, and $0\cdot 5$ below the average in the ten years 1921–1930.

Infant Mortality.—The deaths of infants under one year of age during the year 1934 numbered 47,349, representing a rate of 62 per 1,000 live births. This rate was 4 per 1,000 below that recorded in 1933 and 12 per 1,000 below the average in the ten years 1921–1930.

Table CXXIII.—Natural Increase Rates in certain Countries, 1911-1934.

(Derived from birth and death rates given in the League of Nations Annual Epidemiological Report, 1934, pp. 67-69.)

200	1911– 1913.	1921.	1926.	1931.	1932.	1933.	1934
England and Wales	10.3	10.3	6.2	3.5	3.3	2.1	3.0
Scotland	10.4	11.6	8.0	5.7	5.1	4.4	5.1
Northern Ireland	6.7	8.3	7.5	6.1	5.8	5.1	6.1
Irish Free State	6.3	5.3	6.5	4.8	4.3	5.7	6.2
Austria	6.1	6.2	4.2	1.9	1.3	1.1	0.8
Belgium	7.5	8.1	5.8	5.0	4.5	3.3	3.8
Czecho-Slovakia	9.2	11.5	9.0	7.1	6.9	5.5	5.5
Denmark	13.3	13.0	9.5	6.6	7.0	6.7	7.4
Finland	12.1	10.3	8.3	6.2	6.1	4.5	5.7
France	0.6	3.0	1.4	1.3	1.5	0.5	1.0
Germany	12.2	11.2	7.8	4.8	4.3	3.5	7.1
Hungary	11.4	10.6	10.7	7.1	5.5	7.3	7.0
Italy	12.5	12.4	10.5	10.1	9.1	10.0	10.1
Netherlands	15.0	15.3	14.0	12.6	13.0	12.0	12.3
Norway	12-1	12.7	8.8	5.4	5.4	4.6	5.0
Portugal	14.4	11.6	13.3	12.9	12.8	11.9	11.9
Roumania	18.0	15.8	13.9	12.5	14.2	13.3	11.7
Spain	9.0	9.0	10.7	10.1	11.8	11.3	10.2
Sweden	9.7	9.1	5.0	2.3	2.9	2.5	2.5
Switzerland	9.0	8.1	6.5	4.6	4.6	5.0	4.9
Australia	17.1	15.0	12.6	9.5	8.3	7.9	7.1
Canada		17.8	13.3	13.1	12.6	11.3	11.0
New Zealand	17.0	14.6	12.3	10.1	9.1	8.6	8.0
South Africa (whites)	21.7	18.0	16.6	16.0	14.2	14.3	13.7
United States of America	_	12.6	8.4	6.9	6.5	5.9	6.1
Japan	13.6	12.4	15.6	13.2	15.2	13.7	11.9

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 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, Northern Ireland and the Irish Free State. Similar returns are furnished to the Registrars-General of Births and Deaths by Officers

Table CXXIV.—Great Britain and Ireland. Vital Statistics. 1921-30 and 1931-4.

	Great Britain and Ireland.	England and Wales.	Scot- land.	Northern Ireland.	Irish Free State.					
Estimated Population in	the midd	le of the y	ear 1934	(in thousa	ınds).					
Males	23,944 25,749 49,693	19,412 21,055 40,467	2,375 2,559 4,934	622 657 1,279	1,535 1,478 3,013					
Marriages.										
1934 Persons married per 1,000 living :—	401,737	342,307	36,949	8,230	14,251					
1921–1930	14·9 14·9 14·6 15·1 16·2	15·5 15·6 15·3 15·8 16·9	13·8 13·5 13·6 13·9 15·0	12·1 11·8 11·0 12·0 12·9	9·5 8·9 8·8 9·3 9·5					
Births.										
1934	769,740 18.8 16.5 15.9 15.1 15.5	597,642 18·3 15·8 15·3 14·4 14·8	88,836 21·5 19·0 18·6 17·6 18·0	25,365 22·1 20·5 19·9 19·4 19·8	57,897 20·2 19·3 18·9 19·2 19·2					
	Dear	hs.								
1934	597,155 12·5 12·6 12·4 12·5 12·0	476,810 12·1 12·3 12·0 12·3 11·8	63,741 13·7 13·3 13·5 13·2 12·9	17,521 15·1 14·4 14·1 14·3 13·7	39,083 14·5 14·5 14·5 13·5 13·0					
		ts under 1			10 0					
1934 Per 1,000 live births :—	47,349	35,017	6,901	1,767	3,664					
1921–1930	74 69 69 66 62	72 66 65 64 59	89 82 86 81 78	81 73 83 80 70	70 69 72 65 63					

in command of His Majesty's ships. The returns of births and deaths at sea received by the Registrar-General constitute the "Marine Register Book." During the year 1934 this register was increased by the addition of 49 entries of birth and 896 entries of death.

REGISTRATIONS OF BIRTHS, DEATHS AND MARRIAGES.

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 1934 by 1,759,066, this addition raising the total of names in the indexes, which at the end of 1934 embraced a period of $97\frac{1}{2}$ years, to 164,881,140 (Table T).

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 revised list of these various registers and records will be found on pages 149–155 of the Review for 1925. Searches may be made in any of these registers, and certificates obtained on payment of the prescribed fees.

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

The 424,943 gratuitous searches during 1934 comprise 40,224 searches made for the purpose of verifying the ages of persons aged 70 and upwards claiming old age (non-contributory) pensions and 213,030 for persons claiming pensions under the Old Age Contributory Pensions Acts, 1925 and 1929; 98,617 for verification purposes in connexion with claims to widows' and orphans' pensions under the Widows', Orphans', etc., Acts, 1925 and 1929; 26,716 to assist dependents of men of H.M. Forces to produce evidence of marriage and of the births of children in connexion with claims to naval and military pensions, separation allowances, etc., and to verify the ages of certain classes of youths and men in connexion with service in the Army, Navy and Air Force; 29,608 for verification of age, etc., in connexion with National Health and Unemployment Insurance; and 16,748 for other public purposes.

Offences against the Registration Acts.—In 1934 sixteen persons, on prosecution by order of the Registrar-General, were convicted of offences in connexion with registration. The offences for which convictions were obtained were as under:—

(a)	For failing to register a birth	4
(b)	For failing to re-register a birth under the Legitimacy	
	Act	1
(c)	Giving false information when registering a birth, stillbirth or death	10
(d)	Giving false information for the purpose of procuring marriage	1

x = 14371

In addition to the above cases proceedings were taken and convictions obtained by the Director of Public Prosecutions in cases reported through the Registrar-General, the offences including those of false registration and making false declarations when giving notice of marriage.

Table CXXV.

Table CXXV.										
Years.	Total Searches.	Gratui- tous Searches.	Searches paid for by Fees.	Certifi- cates Issued.	Amount Received.					
1866 (52 weeks)	12,135 26,356 36,450 53,289 65,142 64,340 69,249 72,370 132,169 126,716 140,496 149,752 150,540 188,040 202,939 303,334 272,199 255,462 301,913 284,194 258,461 263,047 269,822 337,521 488,781 541,916 1,002,345 600,678 550,742 1,207,344 651,414 598,624 591,668 562,849	58,626* 51,347 65,491 69,151 71,225† 104,593 118,788 197,669 177,403 146,504 170,670 149,447 131,167 143,088 144,118 178,990 339,790 407,687 854,084 452,953 402,853 1,053,047 509,267 464,985 455,664 424,943	12,135 26,356 36,450 53,289 65,142 64,340 69,249 72,370 73,543 75,369 75,005 80,601 79,315 83,447 84,151 105,665 94,796 108,958 131,243 134,747 127,294 119,959 125,704 158,531 148,991 134,229 148,261 147,725 147,889 154,297 142,147 133,639 136,004 137,906	10,017 20,282 27,682 35,727 50,310 49,429 53,058 54,870 54,674 57,019 56,347 61,143 60,356 65,817 69,746 88,265 80,374 90,898 107,067 108,684 99,911 90,400 93,701 121,890 115,378 105,560 115,009 114,731 116,768 121,549 109,163 104,420 108,050 111,265	## S. d. 1,860 15 6 3,879 15 6 5,317 13 6 7,200 12 6 9,611 9 0 9,458 6 0 10,194 9 0 10,550 8 0 10,568 8 0 10,939 5 6 10,875 6 0 11,752 6 0 11,613 19 0 12,482 11 6 13,007 10 0 16,379 17 0 14,859 14 0 16,889 0 0 20,017 14 6 20,415 0 0 18,949 10 6 19,028 12 6 20,875 16 0 27,109 15 0 25,610 2 6 23,305 6 6 25,733 16 0 25,678 17 0 25,903 18 0 26,964 12 0 24,323 1 6 23,086 13 0 23,790 11 0					
(0)		22,010	107,000	111,200	24,378 14 6					

^{*} Including some searches made in 1908.

RE-REGISTRATION OF BIRTHS UNDER THE LEGITIMACY ACT, 1926.

Under the Legitimacy Act, 1926, an illegitimate child of parents who married after the birth of the child was, subject to certain conditions, legitimated; and the Act contained incidental provision

to enable the births of such children to be re-registered. During the year 1934 authority was issued for the re-registration of the births of 3,095 children, being 127 more than the preceding year.

The number of authorities issued during each quarter is as follows:—

Quarter.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.
		1,401			981	854	752	722
June					908	762	724	777
September					797	709	718	798
December	1,593	1,070	933	986	825	819	774	798
alt groupfill		-					-	EURO
Totals	5,495	4,883	4,046	3,989	3,511	3,144	2,968	3,095

ADOPTION OF CHILDREN UNDER THE ADOPTION OF CHILDREN ACT, 1926.

The Adoption of Children Act, 1926, provided for the legal adoption of children by Order of the Court, and established a system of registration of such adoptions in an Adoption Register to be kept by the Registrar-General. The number of children whose adoption was registered during 1934 is 4,758. Table CXXVI furnishes an analysis of the Adoption Orders made by reference to the several classes of Courts and the quarterly distribution of the total figure.

Table CXXVI.

atsolven atsolven	Num		doption t with.	n Orders	Corresponding number of children, <i>i.e.</i> , Entries made in Adopted Children Register.				
Year.	Total.	High Court.	County Court.	Court of Summary Jurisdiction.	Year's Total.	March Quarter.	June Quarter.	September Quarter.	December Quarter.
1927	2,943 3,278 3,294 4,511 4,119 4,465 4,524 4,756	133 124 72 74 68 38 61 45	184 236 224 317 274 264 262 290	2,626 2,918 2,998 4,120 3,777 4,163 4,201 4,421	2,967 3,303 3,307 4,517 4,127 4,467 4,528 4,758	329 851 722 1,084 873 1,073 1,029 1,063	990 844 787 1,196 1,049 1,178 1,258 1,265	774 705 857 983 1,046 1,000 1,004 1,075	874 903 941 1,254 1,159 1,216 1,237 1,355

PARLIAMENTARY AND LOCAL GOVERNMENT ELECTORS.

The returns of Parliamentary and Local Government Electors published in Tables U and V summarise the Register of Electors

[†] In addition, there were 91,917 gratuitous searches made for National Insurance Audit purposes.

compiled under the Representation of the People (Equal Franchise) Act of 1928 in respect of the qualifying period of three months ending on the 1st June, 1934.

The particulars have been taken from statements furnished to the Registrar-General by the Registration Officers of the several areas, or in the case of a University forming the whole or part of a University constituency, by the Chancellor, Registrar or other

officer dealing with Parliamentary registration.

Registration Officers were instructed that the return of Parliamentary Electors should be the net total of individual Parliamentary Electors in each constituency, all duplicate entries being omitted from the count. In the case of Local Government Electors the number of names on the register was to be given. The instructions further directed that the names of "out voters" (that is, persons whose names appear twice in the Register, by reason of a claim under Rule 24 of the First Schedule to the 1918 Act) should be counted once only in respect of that qualification.

Table U refers to Parliamentary electors, and shows for each Parliamentary constituency in England and Wales, including the University constituencies, the numbers of males and females on the Register, and also the numbers registered in respect of business premises qualifications and the numbers on the absent voters list.

Table V refers to Local Government electors, and shows the numbers of each sex registered in respect of every local government area, *i.e.*, county borough, metropolitan borough, municipal borough, urban district and rural district in England and Wales.

The figures for the whole country are summarised in Table CXXVII and are shown in conjunction with the figures of previous Registers made since the passing of the 1918 Act.

It will be observed that the sex distribution of the electorate which, in respect of the Parliamentary Register, was formerly in the proportion of about 1.3 men to each woman, was completely altered by The Representation of the People (Equal Franchise) Act of 1928. That Act, which placed women on the same footing as men in regard to the franchise, added about 41 million women to the Parliamentary electorate and nearly 11 million to the Local Government electorate, and as a consequence women now outnumber men by approximately 12 per cent. in the case of each. The somewhat abnormal increase in the male electorate between 1928 and 1929—an interval of six months, it should be noted, in place of the usual 12 months period—cannot be explained by the new Act which left the male franchise unaltered apart from a trifling addition—approximately 3,700—in respect of men registered in respect of their wives' occupation of business premises, and must be mainly ascribed to the special procedure, adopted for the first time in connexion with the 1929 register, of the universal service of a compulsory form of return which disclosed and made good omissions from the registers on the pre-1928 Act franchise.

Including a certain amount of plural representation in the case of those persons registered in more than one constituency by reason of their possessing the necessary residence or business qualification, or being entitled to be registered in respect of a University constituency, the total Parliamentary electorate of 27,031,162 represents 66.8 per cent. of the estimated total population, or 65.6 per cent. of the male and 67.9 per cent. of the female population; in the case of the rather more restricted Local Government franchise, the numbers are somewhat less and the proportions correspondingly lower, the total electorate being 49.4 per cent. of the whole population, or 48.6 per cent., and 50.1 per cent. in the case of males and females separately.

Table CXXVII.—Parliamentary and Local Government Electors, 1918-1934.

			amentary Re Iniversity Co	Local Government Register.				
Register.	Persons.	Males.	Females.	Business Premises Qualifications. Males only up to 1928, Persons from 1929 (included in Cols. b-d).	Persons on Absent Voters' List (included in Cols. b-d).	Persons.	Males.	Females.
on and a	b	c	d	e	f	g	h	k
1918 (Autumn) 1919 " 1920 " 1921 " 1921 " 1922 " 1923 " 1925 " 1925 " 1926 " 1927 " 1928 " 1928 " 1929 (Spring) 1930 (Autumn) 1931 " 1932 " 1933 " 1934 "	17,222,983 17,465,638 17,584,552 17,795,784 18,001,692 18,388,833 18,806,842 19,167,275 19,346,954 19,585,972 19,866,649 25,095,793 25,730,507 26,135,944 26,439,713 26,715,526 27,031,162	10,281,054 10,234,887 10,316,750 10,237,344 10,312,248 10,498,179 10,719,922 10,897,545 10,982,128 11,094,031 11,226,396 11,866,794 12,101,108 12,288,852 12,440,109 12,578,340 12,735,465	6,941,929 7,230,751 7,407,802 7,558,440 7,689,444 7,890,654 8,086,920 8,269,730 8,364,826 8,491,941 8,640,253 13,228,999 13,847,092 13,847,092 13,999,604 14,137,186 14,295,697	159,013 205,461 203,471 194,737 199,904 208,694 211,257 217,509 206,199 205,538 205,793 371,594 364,762 365,090 367,684 367,734 367,912	3,362,028 1,157,061 254,866 185,227 162,901 151,953 165,564 167,406 155,436 154,432 174,731 174,270 174,274 172,234 188,684 166,102	13,930,130 14,361,123 14,712,453 15,019,348 15,322,625 16,015,033 16,345,290 16,574,549 16,865,666 17,179,487 18,620,395 18,879,147 19,156,018 19,418,156	6,998,665 7,176,019 7,364,912 7,527,861 7,700,108 7,873,461 8,007,384 8,157,607 8,284,181 8,444,718 8,608,017 8,825,225 8,905,768 9,036,870 9,160,409 9,274,801 9,428,765	6,931,465 7,185,104 7,347,514 7,491,487 7,622,517 7,818,501 8,007,649 8,187,683 8,290,368 8,420,948 8,571,470 9,973,379 10,119,148 10,257,747 10,384,877 10,556,146

Of the total of the Parliamentary Registers, the bulk, viz. 26,928,554, represents the aggregate voting strength in the 509 geographical constituencies into which England and Wales is divided, the balance of 102,608 representing the five University constituencies. Eleven of the Boroughs, and three University constituencies, however, each return two members, so that the total representation in Parliament is by 528 members, 520 in respect of the geographical divisions, with an average electorate of 51,786 per member and eight in respect of the Universities, with an average electorate of 12,826.

MISCELLANEOUS.

Other tables appearing in Part II of the Statistical Review which have not formed the subject of special comment in the foregoing pages are:—

Table W, showing the Population, Births, Deaths, Infant Mortality and Marriages, with Rates in British Islands and Dominions, 1934.

Tables X and Y, showing the census populations respectively of the British Empire, Dominions, etc., and of Foreign Countries.

Appendix, showing changes in boundaries of various local government districts and the areas and populations involved.

WEATHER OF THE YEAR 1934. ENGLAND AND WALES.

(Contributed by the Air Ministry.)

The year 1934 was the third year in succession with mean temperature above the average in all districts. The water shortage over most of England due to a deficiency of rainfall that had been in evidence since November 1932 became more acute in this year until the very wet weather of December, for which month the general precipitation for England and Wales was 190 per cent. of the average. In consequence of this wet month, the percentage figure for the whole year was below 90 only in England E. and the Midlands, with 85 and 87 per cent. respectively, whereas in the previous year it had been below 90 in all districts. In England N.E. there was even a slight excess.

The deviation of mean temperature above the average was about a degree for the country as a whole, and was due largely to the warmth of June, July and September, and the phenomenal mildness of December. Temperature approached 90° locally on June 17th, and reached 90° in various parts of England on July 9th, 10th and 11th. At Southport, July was the warmest month experienced for at least 63 years.

The coldest spells, which occurred in the last ten or eleven days of January and in February, rarely gave rise to temperatures below 20°.

Sunshine was generally rather above the average, due mainly to the large excess in July, when there was nearly 40 per cent. more than the average over a large part of England, and an excess of 30 per cent. in England S.W., the least sunny district. In the last three months of the year, dull weather predominated to such an extent that only about 70 per cent. of the average sunshine was recorded.

There were some rather severe gales in January and December, but it was not a very stormy year.

Further information.—Tables relating to meteorological elements are given in Part I (Tables 30–32). A description of the weather of each month appears in the Quarterly Return of the Registrar-General and a summary of the observations at Greenwich for each month of the year appears in Table XI of the Return for the fourth quarter.

Charts showing the distribution of pressure, temperature, sunshine and rainfall for the year, together with summaries of the observations at numerous stations will be found in the Annual Summary of the Monthly Weather Report issued by the Meteorological Office.

A list of the publications of the Meteorological Office will be found in "List M" issued by H.M. Stationery Office.

SUMMARISED REFERENCE TO SPECIAL STUDIES OR OTHER NON-ANNUAL FEATURES INCLUDED IN THIS REVIEW.

Mortality during the first two years of life, according to the season of the year in which infants are born (pp. 28-34).

There is evidently a considerable disadvantage in survival at the end of the second year for children born in the winter months compared with those born at other seasons. Despite the fact that each group of children has, by the end of 2 years from birth, been twice exposed to a complete round of the seasons, out of each 1,000 children born in 4 winters an average of 89 died within 2 years, whereas out of each 1,000 born in summer only 75 died. For spring the proportion was 77 and for autumn 82. During the first year of life the handicap of the winter-born infant in comparison with the summer-born was equivalent to a 14 per cent. excess in mortality, and during the second year of life to a 42 per cent. excess.

Mortality in the County Boroughs and Administrative Counties in 1931-34 compared with 1911-14 (pp. 144-150).

In 1911–14 the standardized mortality in the 83 towns now classed as county boroughs ranged from 74 to 150 per cent. of the national mortality, but by 1921–24 the range had contracted to 83–140 and by 1931–34 to 87–137. This narrowing of the range must, it is suggested, be attributed in the main to the effects of public hygiene and amelioration

of the conditions of life in the towns where mortality was worst in 1911–14. Whilst 54 towns had rates of 14 per 1,000 or more 20 years previously, not one gave an average rate as high as 14 in 1931–34, and 31 gave rates below 10, contrasted with only one in 1911–14. The improvement in the chances of survival has been much greater in the less favourably circumstanced industrial towns during the 20 years than in the more happily situated group, for the 8 towns with highest mortality in 1911–14 register a 33 per cent. fall, from an average standardized rate of 19·2 to 12·9, whilst the 8 towns with lowest rates in 1911–14 show a 19 per cent. fall, from 10·9 to 8·8 per 1,000. The contrast between the town and county mortalities has diminished in the last 20 years, and the decline for the administrative counties has ranged from 29 to 12 per cent.

Relation between Mortality in the County Boroughs and Distribution of Social Classes, Housing Density and Situation, 1929–33 (pp. 150–155).

The rates of standardized mortality in 1929–33 have been correlated with three measures of environment and social conditions, namely, the zone of geographical latitude in which the town is situated, a housing density index given by the mean number of persons per room, and a social index given by the proportion of males over 14 years of age whose occupation places them in the unskilled or partly skilled classes. The resulting coefficients with mortality are each fairly high, being of the order of ·7, and for none of the factors does the correlation disappear when the effect of the other two has been eliminated. After correcting for the differences in the 3 factors by a statistical process, it is found that towns in the eastern parts of England compare favourably as regards mortality with towns in the west.

Relation between Mortality in the Administrative Counties and Distribution of Social Classes, 1931-34 (pp. 155-156).

Examination of the average standardized death rates of the counties after excluding their county boroughs and arranging them in order of the proportions of their adult male populations engaged in unskilled or partly skilled occupations, shows that there is no such association between the social distribution of their populations and mortality as is found for the large towns. It is evident that this must be due in part to the low mortality of agricultural labourers. The correlation between a social classification based on occupations and mortality would seem to be a phenomenon characteristic of town dwellers and not to be explained simply by differences in income levels.

Comparison of Mortality at various Ages in England and Wales with that in other Countries (pp. 156-158).

Rates in 1930-32 were calculated from life tables or statistics of deaths and populations for 11 countries. The lowest infant mortality rates were in Norway, and next in order came Holland, Sweden, England and Wales, South Africa, Finland, Canada, Scotland, Italy and Portugal. At the pre-school period, 1-4 years, the order was almost the same except that Canada came fourth. The Norwegian rates at this age were less than half those in England and Wales, and the Swedish rates little more than half. At ages 5-34 years Holland had the lowest rates (corrected to a standard population containing equal numbers at each age), followed by England and Wales, Canada and South Africa for males, the last-mentioned being second in order for females. At 35-64 the corrected rates for Norway and Sweden were followed in ascending order by those for Canada, Italy and England and Wales for males, and by Holland, England and Wales and Canada for females. At 65-74 the corrected rates were again lowest for Norway, England and Wales, being 10th in order for men and 7th in order for women. Male mortality at this age even in the rural districts of England and Wales was 26 per cent. above that in Norway as a whole, 15 per cent. in excess of the Swedish national rate and 7 per cent. above that of Holland. Scandinavian rates have for long compared very favourably at ages over 50 with this country, where the stress of civilisation perhaps takes a greater toll.

Maternal Mortality according to Social Class of Husband (pp. 130-131).

The rate of mortality during 1930–32 from pregnancy and child-bearing per 1,000 live births has now been calculated for the wives of men in social groups, the classification being based upon the husbands' occupations as ascertained at the Census of 1931, and as stated on the death certificates. For all married women the rate was 4·13, for classes I–II comprising wives of men in professions and allied occupations it was 4·44, for classes III and IV, defined as skilled and semi-skilled workers, it was about average, and for Class V, unskilled workers, it was 3·89. A similar classification has been made for separate causes.

Mortality from Cancer of Various Parts of the Body at different ages compared with the Average Rates in 1911-20 (pp. 85-96).

It is inferred that unless there has been some change in the diagnosis or certification to account for it, certain forms of

cancer are affecting people at a later age than was the case 20 years ago, or else those affected are living longer through earlier resort to treatment or more efficient treatment. When the various sites of cancer are examined evidence of delayed mortality is found for cancers of some organs, notably of the tongue, mouth and esophagus in males and of the stomach and rectum in females, and for rodent ulcer in each sex. Others, such as cancer of the lip in males and of the uterus in females, show a decline at all ages, whilst others again. such as intestinal, lung and breast cancers show an increase at all ages. The mean age at death from cancer as a whole has increased since 1911-20 by one year in excess of that which can be accounted for by the increasing average age of the population, but for certain organs, such as the tongue, it has advanced by as much as 4 years.

Manner of Solemnization of Marriage (pp. 173-177).

A quinquennial tabulation analysing the marriages of 1934 according to the way in which they were solemnized records a further increase in the proportion of civil as compared with religious marriages. The analysis is of interest in that it indirectly provides evidence of the incidence and changes in the incidence of the various religious communities and their distribution throughout the country. Some evidence of the extent of illiteracy in the population is also available from the record of persons signing the marriage register by mark.

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