

## SECTION II.—PUBLIC HEALTH.

## MEMORANDUM.

The present Section deals briefly with the subject of Public Health, setting out, firstly, the evidences as to the condition of public health afforded by the annual rates of mortality, with special reference to infant mortality, the death-rates from the principal forms of disease, and the death-rates in the various classes of occupation; and, secondly, the development of public health administration, especially in regard to the measures adopted for general sanitation, for improving overcrowded and unhealthy areas, and for re-housing population, and, finally, for the public medical service under both central and local control.

## Mortality.

1. That the general rate of mortality has declined is matter of common knowledge. The extent of the decrease will be appreciated from Chart 1, which carries the annual death-rates back to 1850—two years after the passing of the first Public Health Act for England and Wales—and from the following figures:—

DEATH-RATES IN THE UNITED KINGDOM.

		Annual death-rates per 1,000 of the living population.					
		1851-1860.	1861-1870.	1871-1880.	1881-1890.	1891-1900.	1901-1907.
United Kingdom—							
Maximum rates	...	—(a)	—(a)	22·1	19·6	20·0	17·1
Minimum rates	...	—(a)	—(a)	19·9	18·1	16·8	15·4
Average	...	—(a)	—(a)	20·9	19·0	18·2	16·1
England and Wales—							
Maximum rates	...	23·5	23·7	22·7	19·7	20·2	16·9
Minimum rates	...	20·5	21·4	20·3	18·1	16·6	15·0
Average	...	22·2	22·5	21·4	19·1	18·2	15·8

(a) The Registration Acts did not come into force in Scotland until 1855, and in Ireland until 1864.

A similar reduction of the death-rate is noticeable in most of the foreign countries for which records are obtained by the Registrar-General. This is evident from the figures relating to France, Prussia and Belgium which are quoted in Table 3 and are illustrated graphically by Chart 2.

2. *Crude and corrected death-rate.*—The above quoted rates are based simply on the aggregate living population and are adequate as a measure of the extent to which the population is diminished by the actual or average number of deaths occurring in any period. But for purpose of comparison between different periods or between various districts or countries, in which the age- and sex-constitution of the population differ materially, a more accurate method of measuring the mortality becomes necessary, owing to the wide variation of mortality with age, and, to a lesser degree, with sex. The method adopted\* by the Registrar-General neutralises these differences by assuming uniform conditions of age- and sex-constitution in the areas or periods compared, and thus, by allowing the mortality of each age group its due weight in the total, obtains a corrected death-rate which is the true measure of comparative mortality, and, inferentially, of comparative health.

On this method it becomes possible to institute an accurate comparison between the mortality of urban and that of rural districts, the preponderance of persons of more advanced ages—whose mortality is naturally higher than that of the population generally—in the aggregate population of rural districts being neutralized. It thus appears that the mortality of rural districts is about 23 per cent. lower than that of

\* On the necessity for a correction of the death-rate for comparison of localities, reference may be made to the Decennial Supplement to the 65th Annual Report of the Registrar-General, Cd. 2618—1907, page lxiv. *et seq.* This method of correction as applied by the Registrar-General to the annual death-rates for England and Wales over a long series of years takes the age and sex constitution of the population in 1901 as the standard throughout the series and has the effect of slightly reducing the death-rate shown in earlier years. Thus the corrected death-rate for 1850 becomes 19·9 instead of 20·8 per 1,000, the crude rate. For further comparison between the corrected and crude rates see Table 2 on page 25.

urban districts—an appreciably greater difference than is shown by the crude rates of mortality, as appears from the following figures.

AVERAGE DEATH-RATES PER 1,000 OF POPULATION, ENGLAND AND WALES (a).

	Crude Death-rate (Average 1902- 1906).	Corrected Death-rate (Average 1902- 1906).
England and Wales...	15.69	15.69*
London and 10 predominantly urban counties (b).	16.49	17.21
16 predominantly rural counties (b)	15.10	13.26

(a) See page lxxviii. of 70th Report of Registrar-General for England and Wales, Cd. 4464—1908.  
(b) Population 1906—Urban counties, 18,715,000; Rural counties, 4,356,000.

The greater mortality in urban areas may be attributed to various causes, including the greater risk to life incidental to certain industrial occupations, the greater liability to infection, and other risks connected with the aggregation of population, and to insanitary conditions in overcrowded areas. Such conditions have been, and can be, to a very large extent, remedied or ameliorated by public action; and public health administration, the development of which is outlined in subsequent paragraphs of this memorandum, may fairly be credited with having contributed to the reduction in the rate of mortality.

By way of illustrating the mortality in urban areas, Chart 3 has been added for the purpose of showing the comparative death-rates in London, Liverpool and Berlin.

3. *Mortality at various ages.*—The importance of the age-grouping of the population of any area for which the mortality rate is to be calculated will be appreciated from the figures in Table 5, which are graphically illustrated in Chart 4. From these it will be seen that the annual death-rate of children under five years of age in England and Wales in the period 1901-5 was 49.3 per 1,000 of the population of corresponding age; and that after that age the death-rate falls rapidly, being only 2.2 per 1,000 for the age group 10-15. From this point it rises again, slowly at first, but finally reaching 143.7 per 1,000 for ages over 75 years.

Table 5 and Chart 4 also enable comparison to be made of the mortality at various ages of life between the periods 1901-5 and 1851-60, and it will be seen that the death-rate has declined appreciably in each of the several age groups up to 45 years; at the later ages of life there is rather less difference in the rates of mortality, though at each age-period, with one exception, the rate of mortality in 1901-5 is lower than in 1851-60.

#### Infant Mortality.

4. The most important factor in the mortality of persons in early life, as shown in Chart 4, being the death-rate of infants under five years of age, it is important to analyze further the mortality of this age-group. The following figures show that the risk to life is highest in the first year of life and decreases rapidly in each succeeding year.

Annual death-rate of infants per 1,000 living at each age in the decade 1891-1900\*:

Under one year of age	181.2
1-2 years of age	54.7
2-3 "	20.3
3-4 "	12.9
4-5 "	9.3

The death-rate of infants under one year of age is more usually calculated on the number of deaths per 1,000 births in a year, and on this basis of reckoning the death-rate was in England and Wales for 1907, 118 per 1,000 births; in 1850 it had amounted to 146 per 1,000 births. The death-rates for each year since 1857 are illustrated in Chart 5. It will be evident that a material decline in infant mortality has taken place since about the year 1899. This decline may to some extent be due to climatic conditions which have been on an average favourable to infant life, but may also in part be fairly attributed to the increased attention which has been given to the subject in recent years and to the administrative measures which have been taken with the object of saving the waste of infant life.

High as the rate of mortality among infants under one year of age may appear, it may be noted that in most of the principal foreign countries of which statistics are available the rate of infant mortality is as high or, indeed, higher than in England and Wales. In drawing this comparison, however, it has to be remembered that complete correction for differences of practice as regards the registration of births within the first days of life cannot be made.

\* Based on particulars shown in Table on page 3 of Decennial Supplement Cd. 2618—1907.

#### DEATHS OF INFANTS PER 1,000 BIRTHS (1896-1905)\*.

Average Annual  
Rate of Mortality.

Russia (European)	268 (10 year average, 1892-1901).
Austria	223 (9 year average, 1895-1903).
Hungary	215
Prussia	196
Spain	178 (6 year average, 1900-1905).
Italy	168
Belgium	153
France	149
England and Wales	147
Holland	144

5. *Causes of infant mortality.*—The local or other conditions, such as overcrowding, the industrial occupation of married women, &c., which may contribute to a high rate of infant mortality, cannot be considered within the limits of this memorandum. The immediate causes of death, as evidenced by the medical certificates, are, in the order of their importance†:—

Deaths of infants under one year per 1,000 births attributed to—

	Average of 1891-1900.	Average of 1902-1906.
Diarrhoeal diseases	27	25
Atrophy, debility, &c.	21	17
Premature birth	19	20
Convulsions	18	13
Bronchitis	17	11
Infectious diseases (small-pox, &c.)	10	8
Pneumonia	10	11
Tuberculous diseases	8	6
Miscellaneous causes	23	23
All causes...	153	134

Among the ascertained causes of infant mortality, diarrhoeal diseases thus rank first. Mortality from this cause is found to be highest in the third quarter of the year, being materially affected by climatic conditions in the months of August and September.

6. *Infant mortality in urban and rural districts.*—That infant life incurs greater risks in towns than in the country might be expected. The degree of difference between the rates of mortality in the two classes of area may be shown by the following figures:—

INFANT MORTALITY PER 1,000 BIRTHS†.

	1873-1877.	1898-1902.	1907.
Average (England and Wales)	148	152	118
London and 10 predominantly urban counties (a)	161	165	128
16 rural counties (a)	127	125	99

(a) See note (b) to Table on page 14.

Thus infant mortality in urban districts may be taken to be about one-third heavier than it is in rural districts.

Further analysis of the mortality rates in the individual counties shows that mortality is, as a general rule, high in mining and industrial counties, and low in the purely agricultural counties. Nottinghamshire, Lancashire, Glamorganshire, Durham, Staffordshire, West and North Ridings of Yorkshire, Warwickshire, and Monmouthshire head the list with the highest rates (the annual average death-rate in each case in 1907 being over 125 per 1,000 births), while the lowest rates of infant mortality occur in Dorset, Wilts, Hertford, Berkshire, Bucks, Herefordshire, Cambridgeshire, Surrey and Sussex (in each case under

\* See page lx of 69th Annual Report of Registrar General.

† See pages cxi and cxv of Decennial Supplement [Cd. 2618-1907], and pages 82 and 73-81 of 70th Annual Report of Registrar General.

‡ See Table on page xliii of 70th Annual Report of Registrar General.

90 per 1,000 births). On the other hand, the connexion of a high infantile death-rate with urban conditions is not universal. Many of the smaller towns have a comparatively low rate of infant mortality, such being, for example, the case in the non-manufacturing towns in the Southern and South-Western counties.

### Mortality in Childhood and Youth.

7. Charts 6, 7 and 8, which illustrate in detail over a course of 51 years the mortality of childhood and youth, form a significant contrast to Chart 5. As shown in the latter chart infant mortality fluctuated considerably, but showed no persistent decrease until about the year 1900; that this unsatisfactory result does not extend throughout the first quinquennium of life is shown by Chart 6, in which a fairly steady decline in the death-rate during the past forty years is manifest. Chart 7 shows that at ages 5-10 an even more marked diminution of mortality has occurred; and continued improvement is seen from Chart 8 to be maintained in the record of comparative mortality at the ages of 10-15. The net result of the three charts may be put briefly in the following figures:—

		1857.	1907.
Death-rates per 1,000 living in England and Wales.	{ At ages 0-5 years ...	67.8	40.9
	"    5-10 " ...	7.8	3.4
	"   10-15 " ...	4.7	2.0

### Mortality by Causes and Occupations.

8. *Causes of death.*—In Table 8 and Chart 9 are shown the principal causes of death by disease, in such a manner as to indicate clearly the decline or increase that has occurred in the rates of mortality from several causes between 1871-5 and 1901-5. It will be apparent that the mortality from nearly all the principal diseases has declined materially in the 30 years. The most important exceptions to this general decrease are pneumonia, diphtheria, and cancer. The apparent increase in pneumonia, and much, if not all, the increase of cancer may, however, be due to changes in medical nomenclature, or to improved medical diagnosis and certification of causes of death.

Typhus fever and typhoid or enteric fever and cholera rank among the infectious diseases which are most directly controllable by efficient sanitary administration. Chart 10 gives a very satisfactory record respecting each of the two former diseases since 1869. Typhoid fever has greatly declined, under the influence of improved public water supplies, the substitution of water-carriage for conservancy methods of sewage disposal, and the protection of milk and other foods against contamination by the specific infection of this disease.

Typhus fever has almost completely died out. The lower curve in Chart 10, which represents this disease, has almost disappeared from the diagram. This disease is due to infection from person to person, operating mainly in circumstances of dense overcrowding; and the clearance of insanitary areas, the opening out of courts and alleys, the enforcement of building bye-laws, diminished overcrowding, general improvements of sanitation, and the removal of each fever patient to an isolation hospital, are factors which have played an important part in bringing about the reduced mortality from this cause.

Charts 11 and 12 show a marked decrease in the mortality attributed to small-pox and to scarlet fever, while Chart 13 illustrates a similar decline in the death-rates from phthisis and other forms of tuberculosis. Much the same remarks apply to this disease as have been made respecting typhus fever. This chart should be studied in conjunction with Chart 17. Although opinions may differ as to the extent to which this factor has favoured and hastened the decline of tuberculosis, there can be no doubt that the treatment of a large number of the poorest of the consumptive patients in the community within workhouse infirmaries during a considerable portion of their total illness has borne an important share in bringing about the reduction of tuberculosis already secured.

9. *Occupational mortality.*—Charts 14 and 15 and the accompanying Table, which illustrate the comparative mortality\* of males obtaining in a large number of the principal occupations, are borrowed from Part II. of the Decennial Supplement to the 65th Report of the Registrar-General for England and Wales. Chart 14 shows the relative danger to male life associated with the principal occupations and industries in 1900-02, while Chart 15 serves to indicate the improvement secured in the mortality of most of the same occupations between 1890-02 and 1900-02.

\* As to the method of calculating the comparative mortality see page xii of Supplement referred to Cd. 2619-1908.

CHART I, ANNUAL DEATH RATES IN ENGLAND & WALES, SCOTLAND & IRELAND, 1850 - 1908.

(NUMBER OF DEATHS PER 1000 OF LIVING POPULATION.)

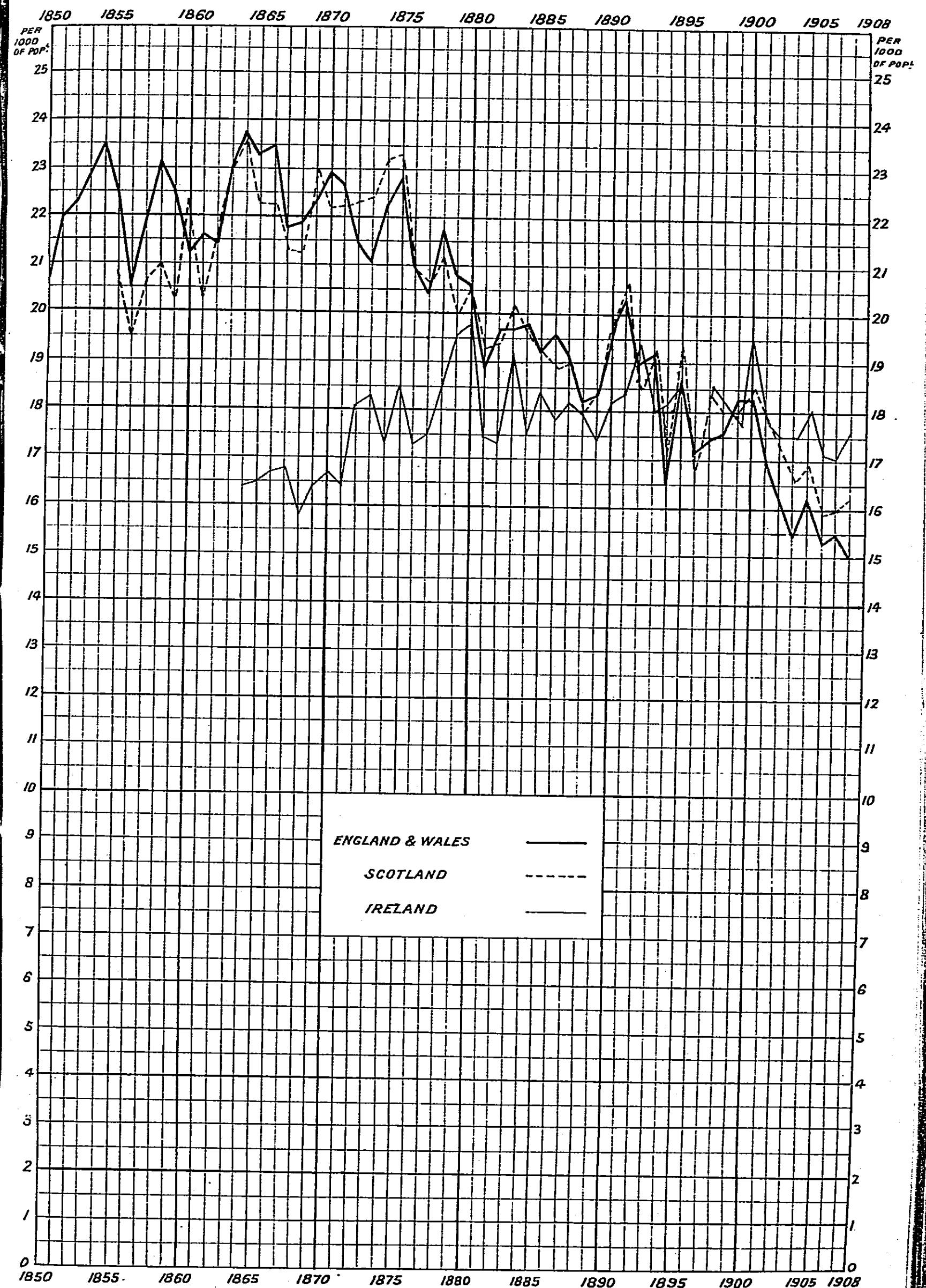
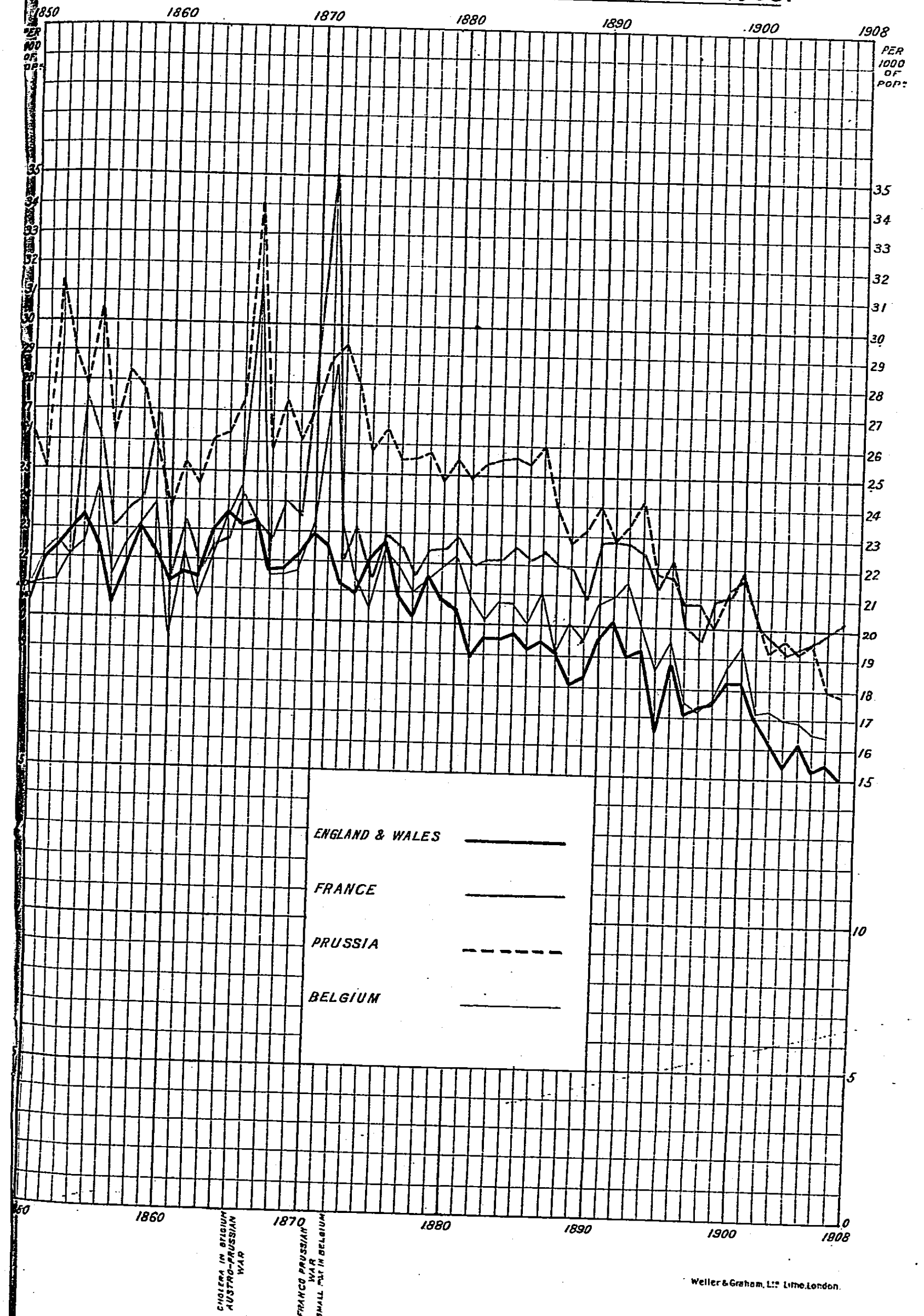




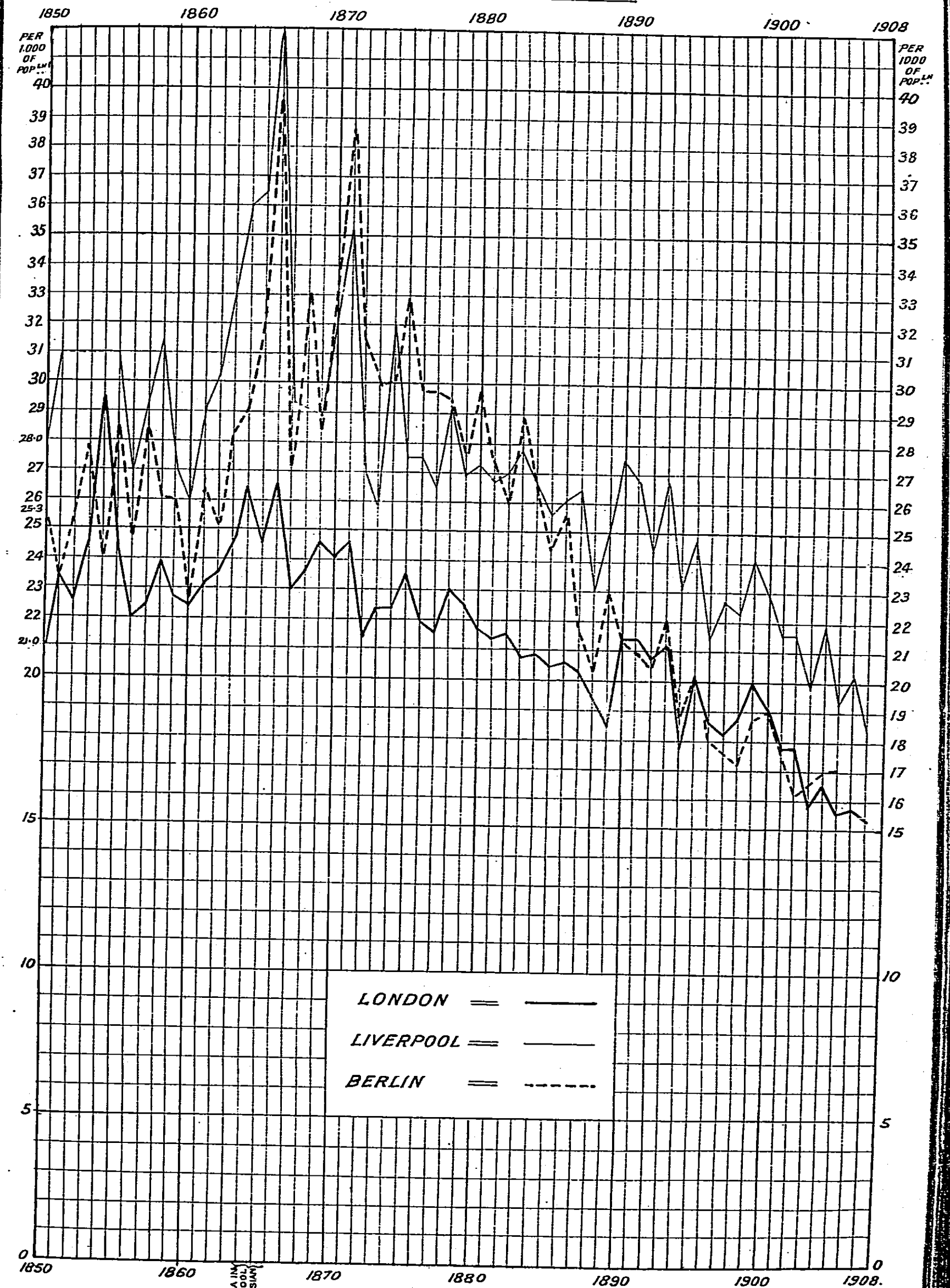
CHART 2. ANNUAL DEATH RATES PER 1000 OF POPULATION IN ENGLAND & WALES, FRANCE, PRUSSIA AND BELGIUM, 1850-1908.



For the figures on which the Chart is based see Table 3.

To follow page 16.

CHART 3. DEATH RATES PER 1000 OF THE POPULATION IN LONDON,  
LIVERPOOL AND BERLIN 1850-1908.



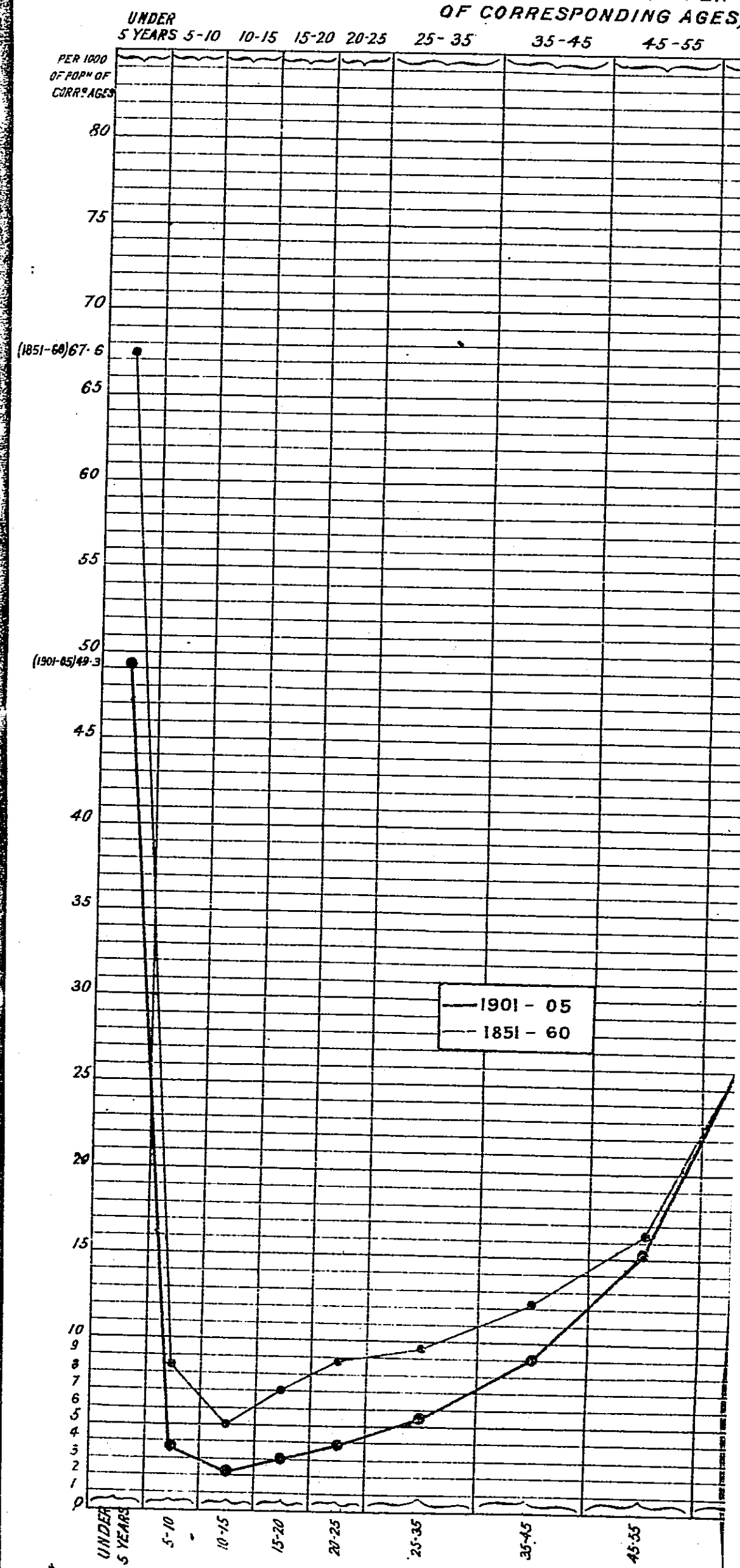
CHOLERA IN  
LIVERPOOL  
AUSTRO-PRUSSIAN  
WAR

For the figures on which this Chart is based see Table 4.

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To follow page 16.

**CHART. 4. DEATH RATES AT VARIOUS AGES**  
(DEATH RATES FOR VARIOUS AGE GROUPS PER 1,000 OF CORRESPONDING AGES)



For the figures on which this Chart is based.

Weller & Graham

PROPORTIONAL  
FIGURES THE  
DEATH  
RATE FOR  
1851-60  
BEING STATED  
AS 100.

110  
105  
100  
95  
90  
85  
80  
75  
70  
60  
40  
20  
0

PROPORTIONAL  
FIGURES THE  
DEATH RATE  
FOR 1851-60  
BEING STATED  
AS 100.

120  
100  
95  
90  
85  
80  
75  
70  
65  
60  
40  
20  
0

# CHART. 4. DEATH RATES AT VARIOUS AGES. 1851-60 & 1901-05.

(DEATH RATES FOR VARIOUS AGE GROUPS PER 1000 OF POPULATION 1851-78  
OF CORRESPONDING AGES)

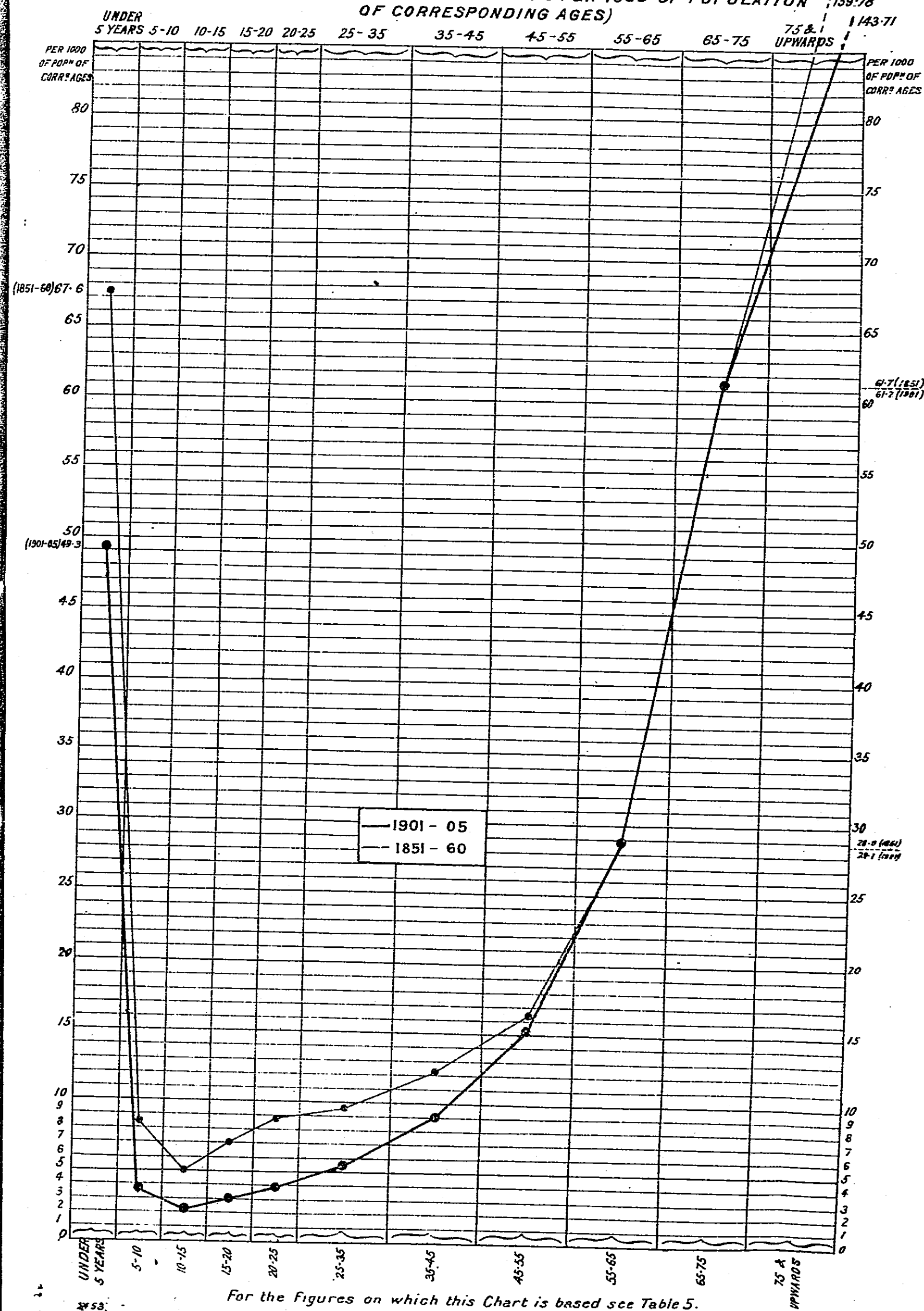




CHART 5. INFANTILE MORTALITY ENGLAND & WALES, 1857-1907.  
(DEATH RATE OF INFANTS UNDER ONE YEAR OF AGE PER 1000 BIRTHS.)

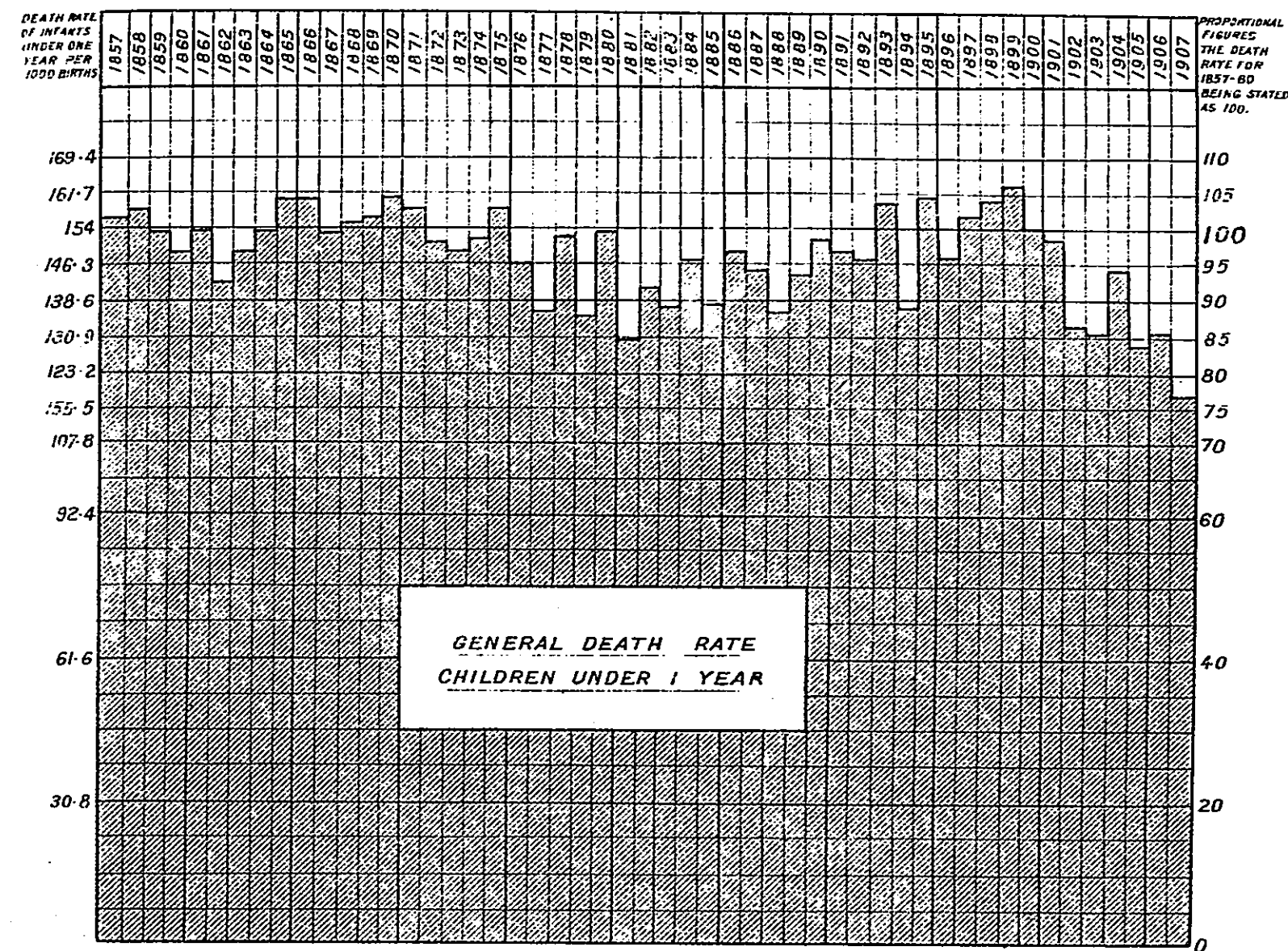
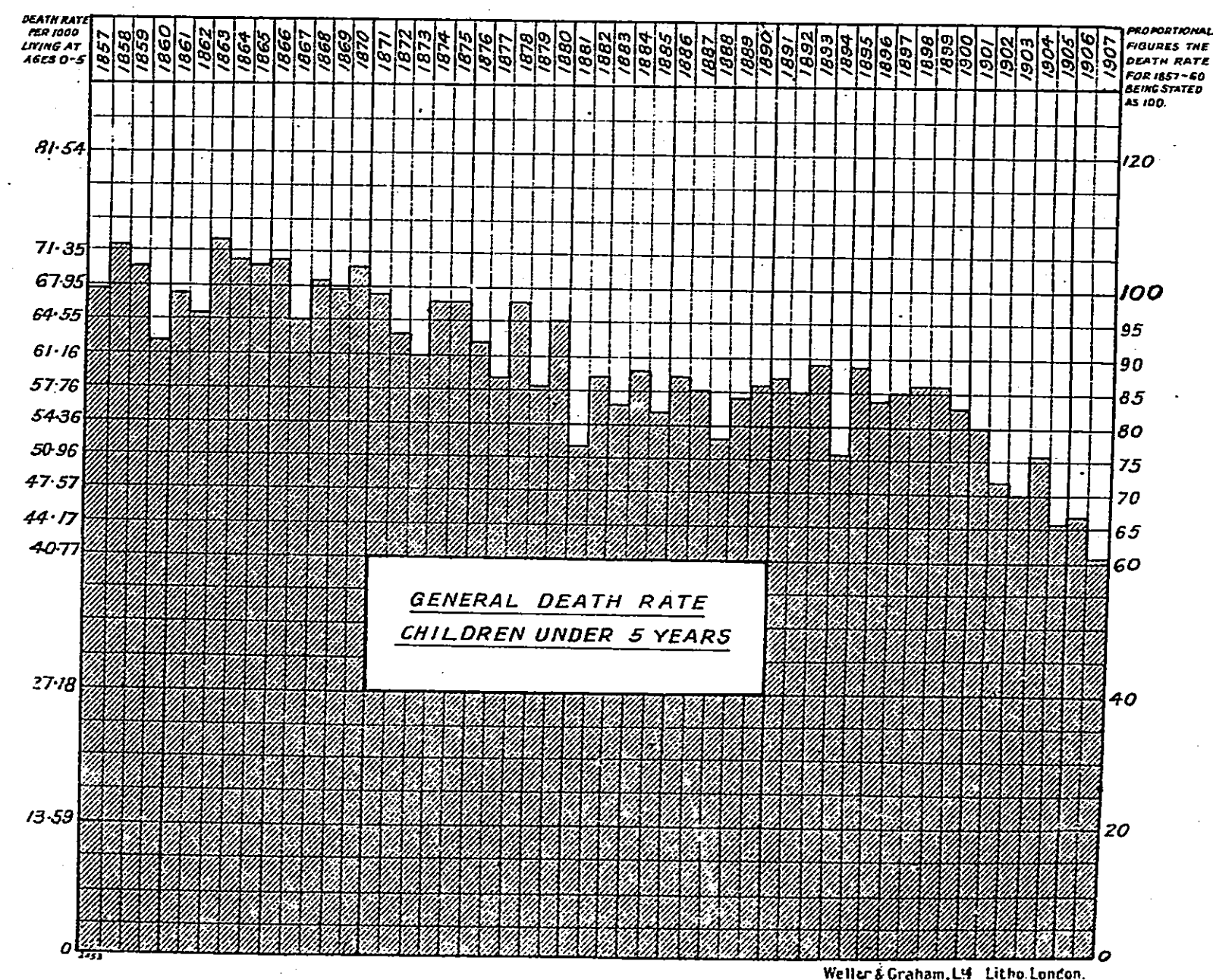


CHART 6. GENERAL DEATH RATE OF CHILDREN UNDER 5 YEARS  
PER 1000 LIVING AT SAME AGES. ENGLAND & WALES 1857-1907.



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For the figures on which these Charts are based see Tables 6 and 7.

To follow page 16.



CHART 7. GENERAL DEATH RATES OF CHILDREN AT AGES 5-10 YEARS PER 1000 LIVING AT SAME AGES. ENGLAND & WALES 1857-1907.

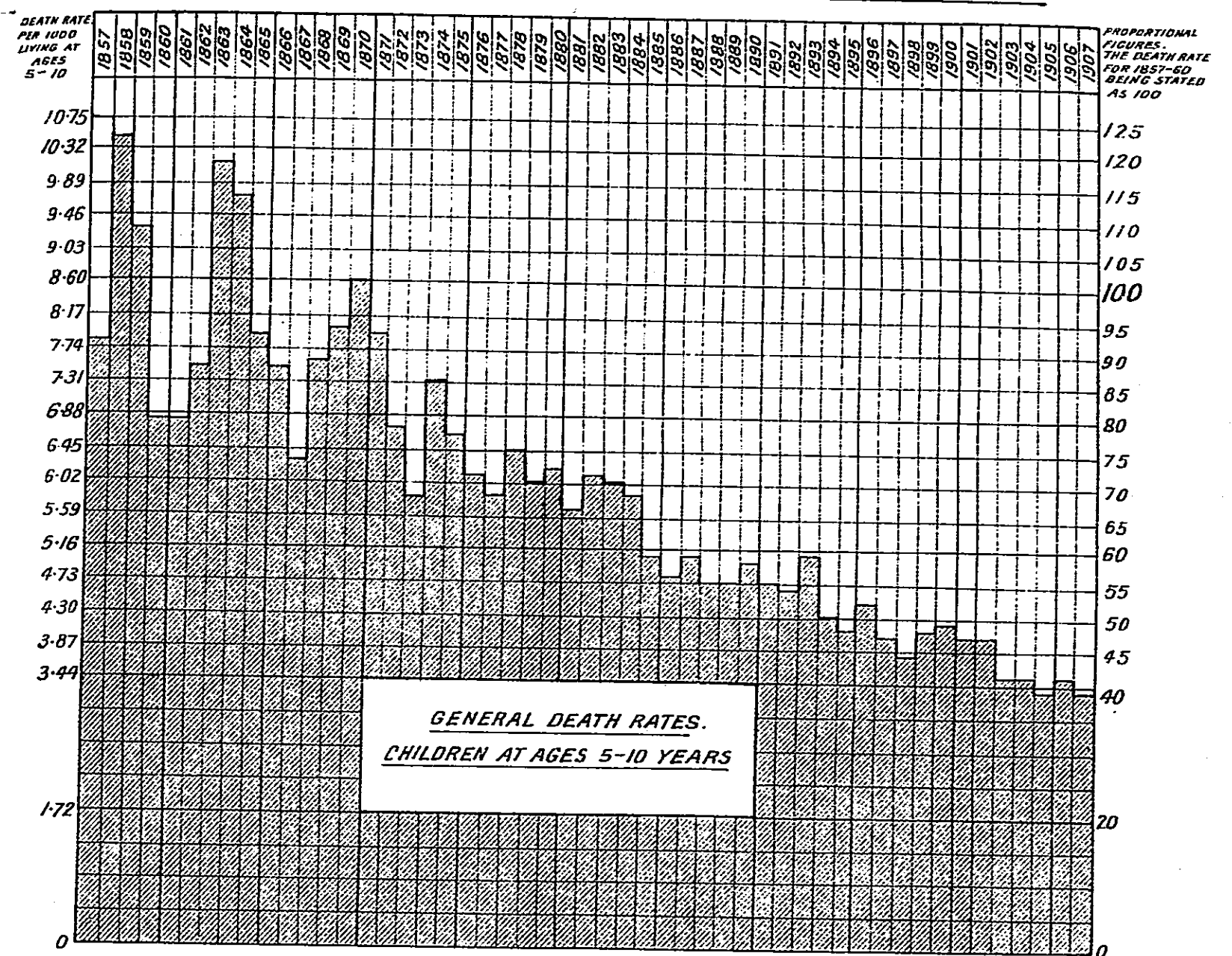
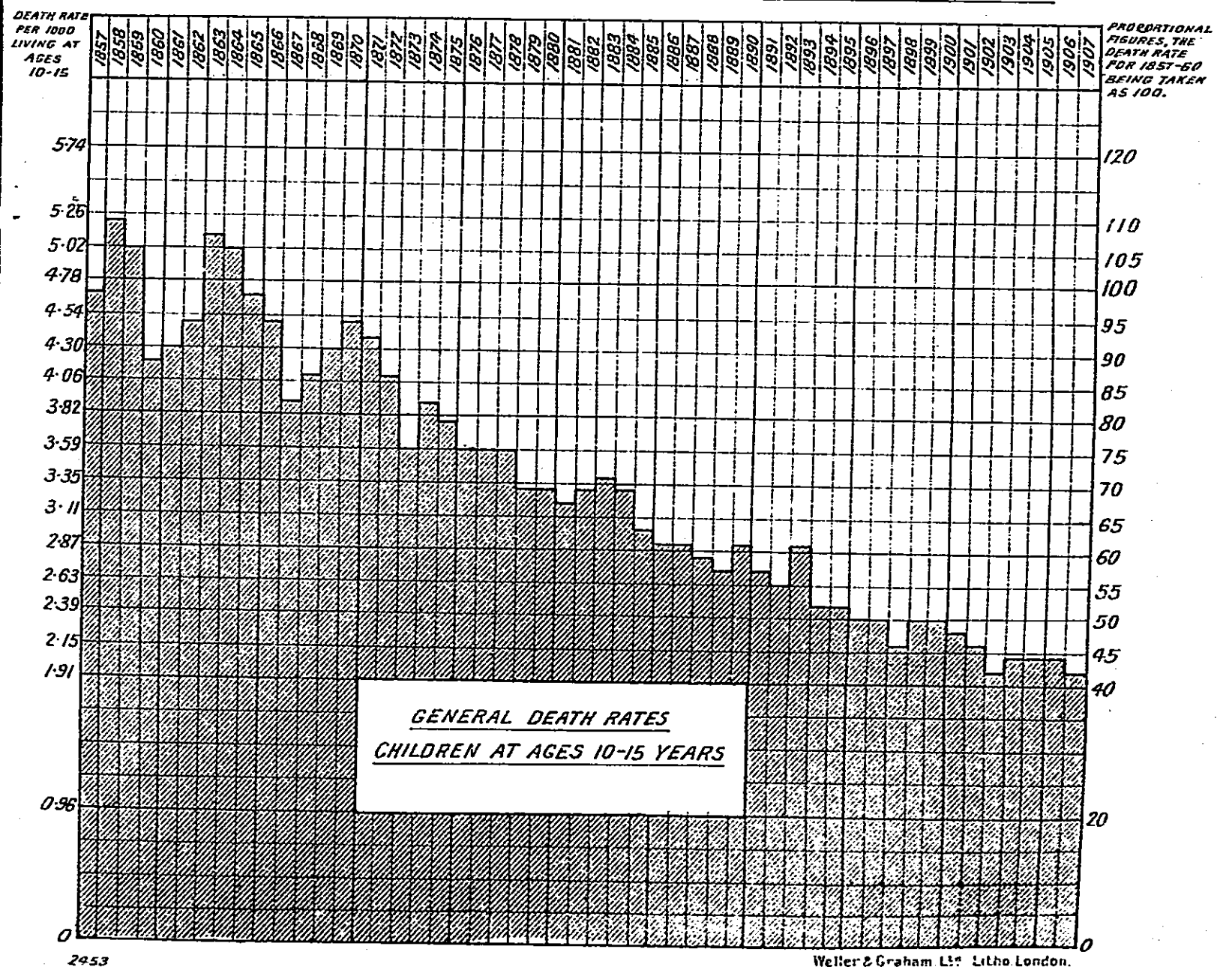


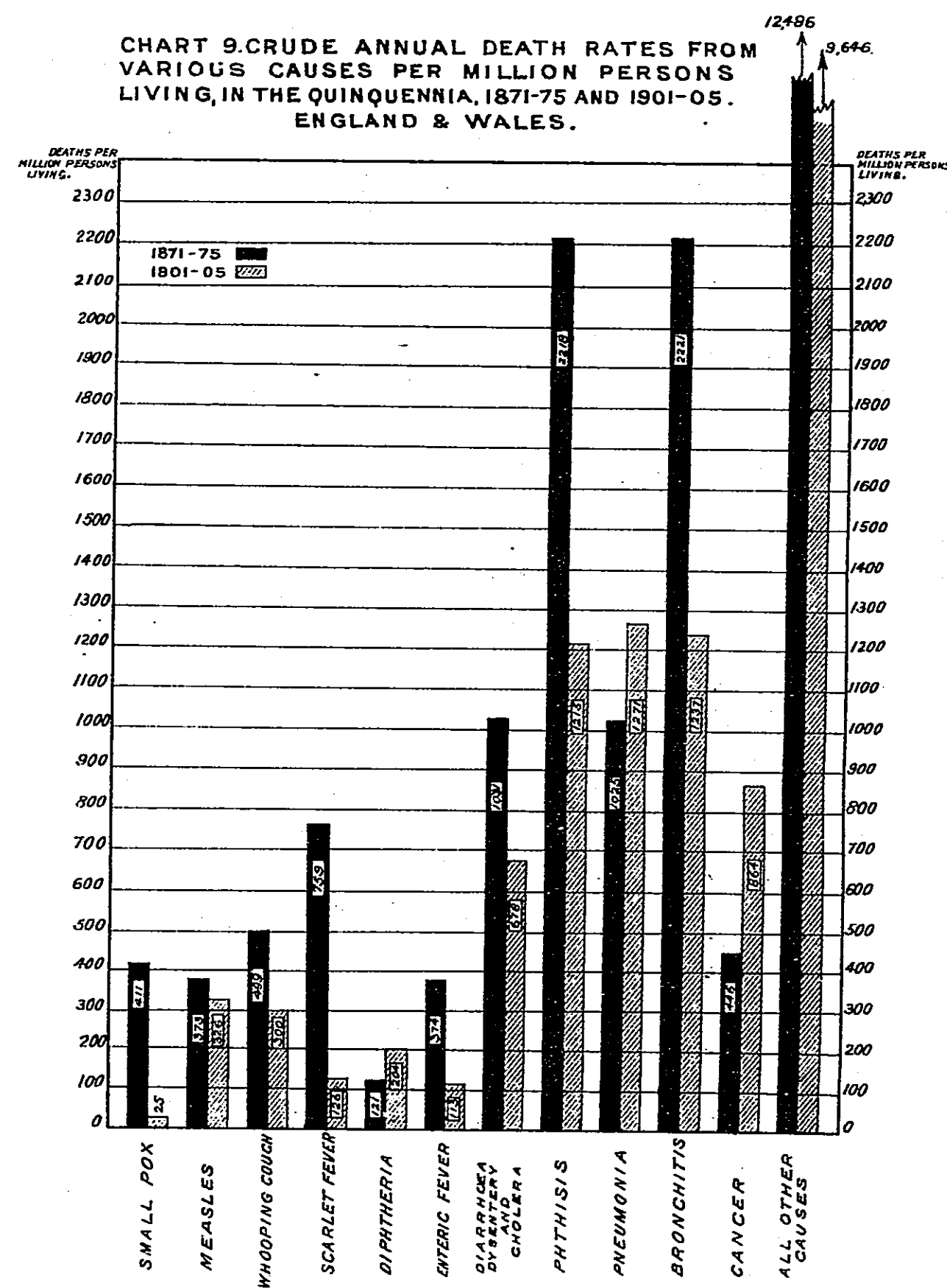
CHART 8. GENERAL DEATH RATES OF CHILDREN AT AGES 10-15 YEARS PER 1000 LIVING AT SAME AGES. ENGLAND & WALES 1857-1907.



For the figures on which the above Charts are based see Table 7

To follow page 15.

CHART 9. CRUDE ANNUAL DEATH RATES FROM  
VARIOUS CAUSES PER MILLION PERSONS  
LIVING, IN THE QUINQUENNIA, 1871-75 AND 1901-05.  
ENGLAND & WALES.



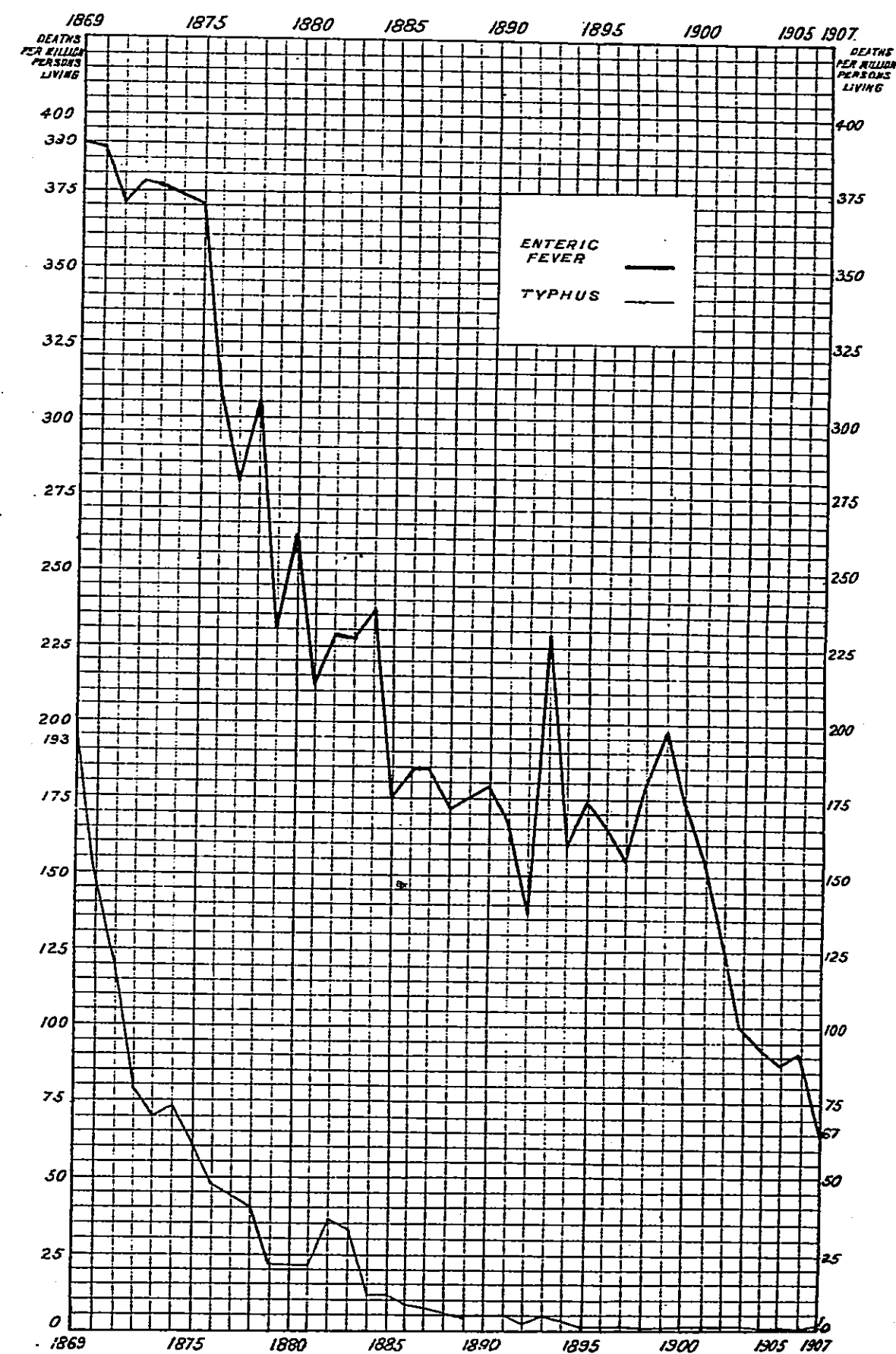
For the figures on which the Chart is based see Table 8.

Note:- The two columns headed "ALL OTHER CAUSES" comprise a number of miscellaneous diseases which for the years 1901-05 include among others the following:-

Average annual death rates per million living.	
Diseases of heart and blood vessels.....	2296
Diseases of nervous system.....	1162
Premature birth and congenital defects &c.....	873
Causes ill defined or not specified.....	1515
Accidents and violent deaths.....	589

[SECTION II.]

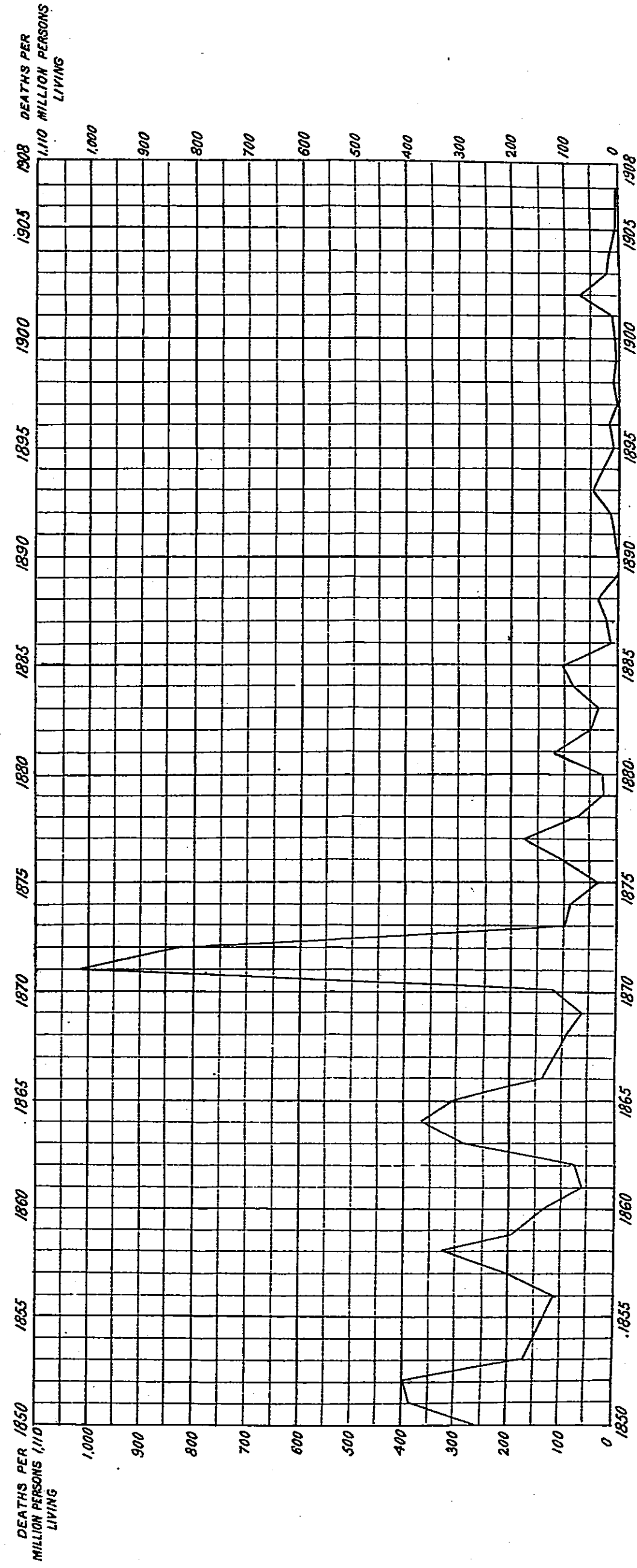
CHART. 10. ENTERIC FEVER AND TYPHUS. DEATH  
RATES PER MILLION PERSONS (ENGLAND & WALES)  
1869 - 1907.



For the figures on which this Chart is based see Table 9.

To follow page 16.

CHART II. SMALLPOX.  
ANNUAL DEATH RATES PER MILLION PERSONS LIVING. ENGLAND & WALES 1850-1907.



For the figures on which this Chart is based see Table 10.

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To follow page 16.



CHART 12. SCARLET FEVER AND DIPHTHERIA  
(DEATH RATES PER MILLION PERSONS LIVING IN ENGLAND & WALES 1855-1907)

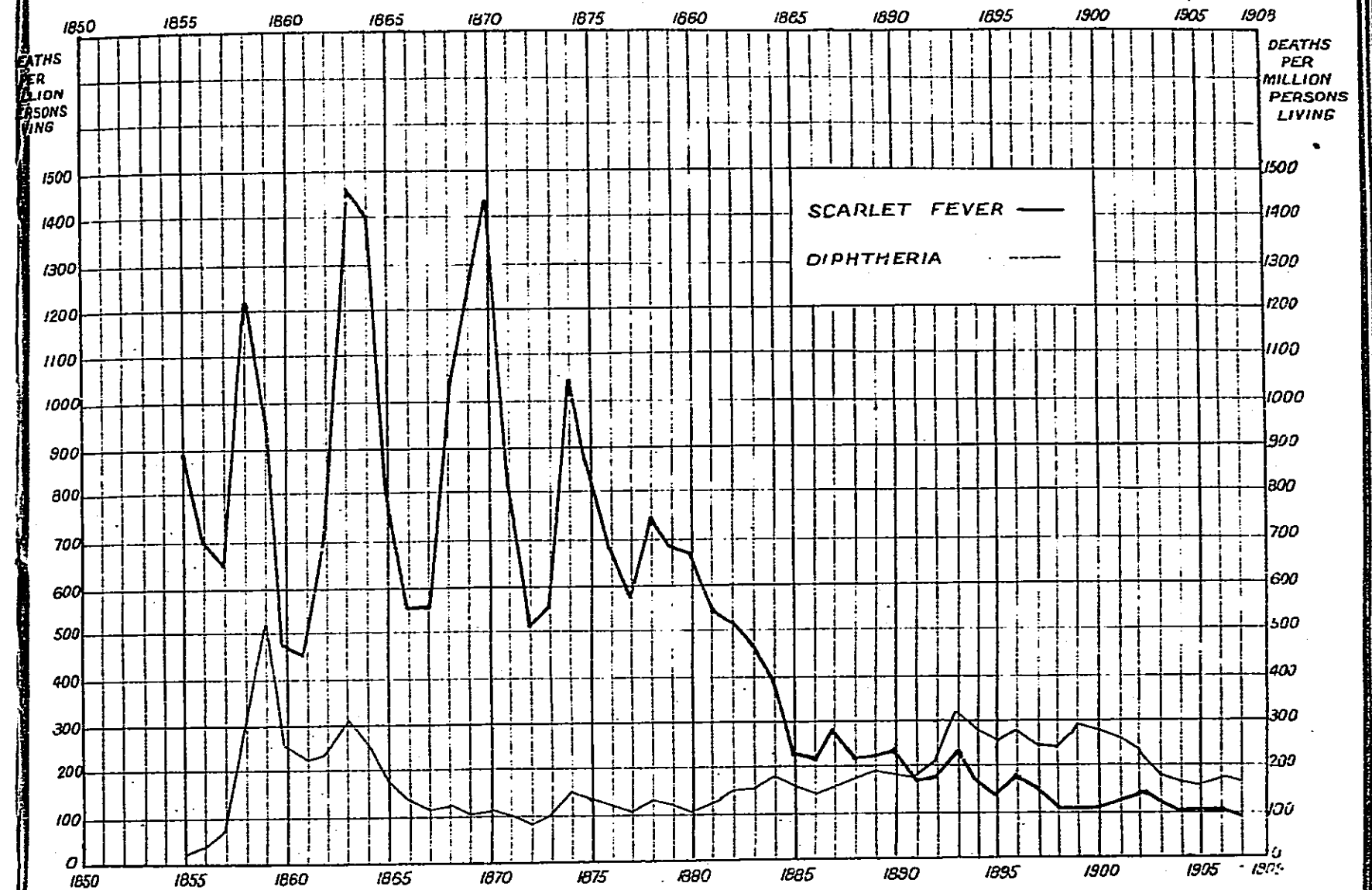
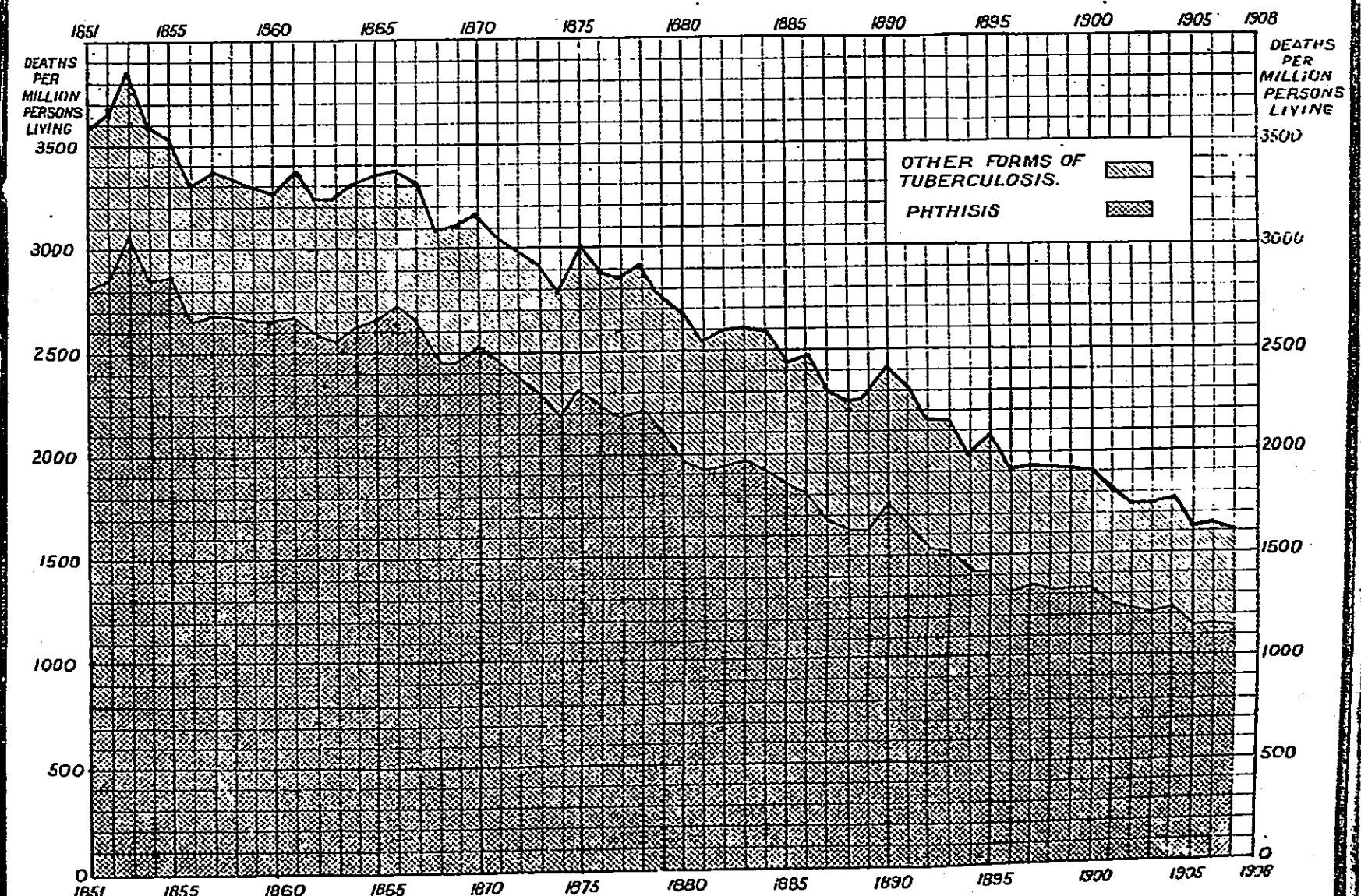


CHART 13. TUBERCULOSIS (ALL FORMS) AND PHTHISIS.  
(DEATH RATES PER MILLION PERSONS LIVING IN ENGLAND & WALES 1851-1907)



For the figures on which the above Charts are based see Tables 11 and 12.

To follow page 16.



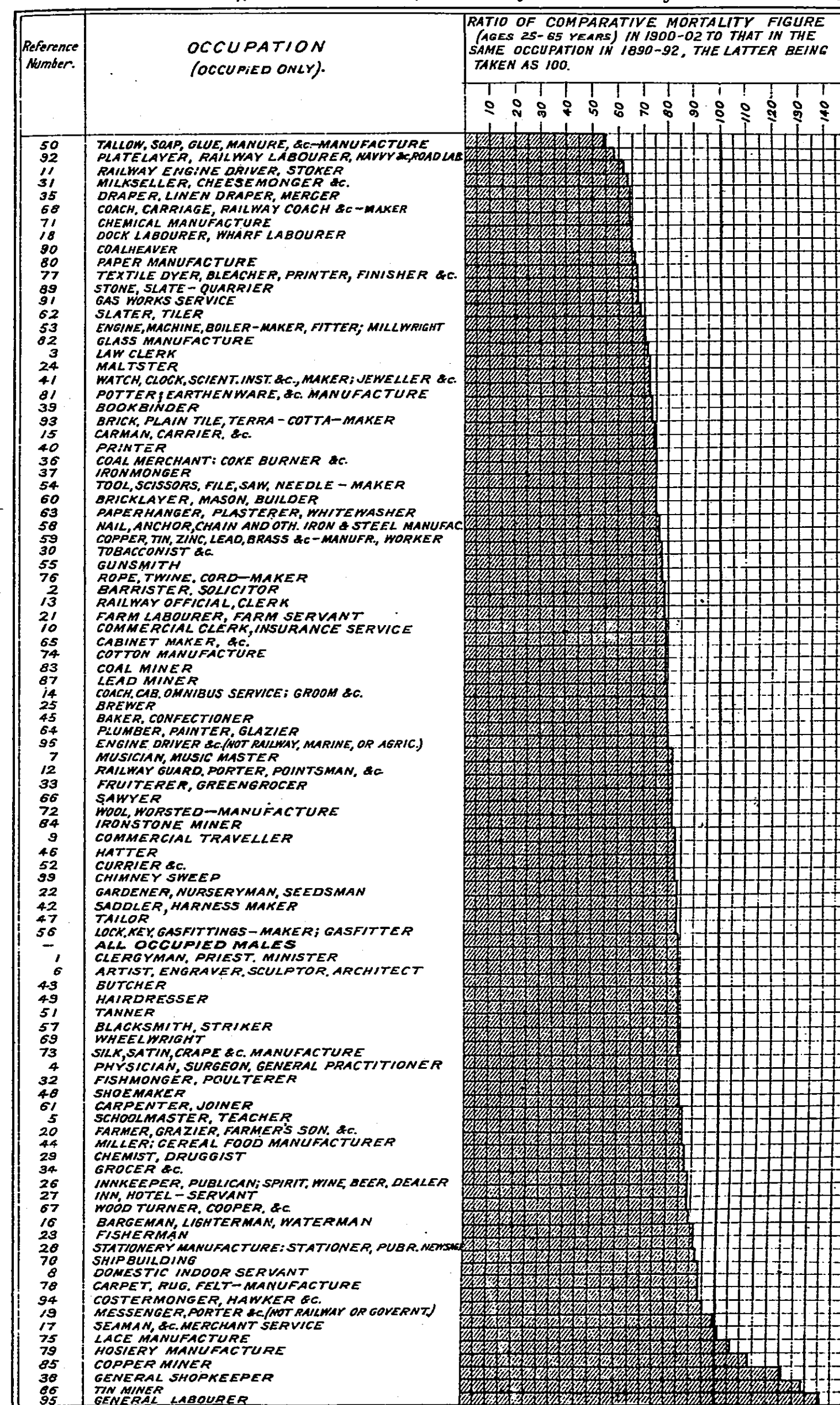


COMPARISON OF THE MORTALITY OF MALES IN SEVERAL OCCUPATIONS IN 1900-02 WITH THE MORTALITY IN THE SAME OCCUPATIONS IN 1890-92 ENGLAND & WALES.

(The Occupations are arranged in ascending order of the several ratios of the mortality in 1900-2 to that in 1890-92.)

The shaded portions on the right of the thick vertical line measure increase of mortality, while the unshaded portions on the left of the thick vertical line measure decrease of mortality.

[Taken from Part II Supplement to 65th Annual Report of the Registrar General for England & Wales C<sup>d</sup> 2619:1908]



Note.- The Chart may be read thus:- The ratio of the mortality in 1900-02 of persons employed in Tallow, Soap, Glue, Manure, &c. Manufacture to the mortality in the same occupation during 1890-92 was as 54 is to 100..... The ratio of the mortality in 1900-02 of persons classed as General Labourers to the mortality of persons so classed in 1890-92 was as 141 to 100.

For the Mortality figures in 1890-92 and in 1900-02. See Table 13 (Columns 3 and 4.)

## Public Health Administration.

10. In regard to Public Health Administration attention may be confined to England and Wales alone.

The statistics already adduced furnish striking evidence of the improved conditions of public health. The average duration of life has been prolonged, the death-rate has declined, and diseases such as tuberculosis, enteric fever, typhus fever, and smallpox have become less prevalent—one of them, typhus fever, having become almost extinct. It remains briefly to indicate some of the elements of public health administration which have aided in bringing about the recorded improvement, those elements being especially selected which lend themselves to graphic illustration.

11. *Public Health legislation, &c.*—In 1831 the first great outbreak of cholera in this country occurred, and this and subsequent outbreaks of the same disease led to an investigation into the sanitary conditions of urban areas. A few towns had at this time obtained sanitary powers by means of local Improvement Acts; but with the rapid growth of a manufacturing population these and other districts had become in parts greatly overcrowded and were found in many cases to be wholly lacking in the elements of sanitation. Reports made to the Poor Law Commissioners which were published in 1838-9, and the subsequent Royal Commission of 1843 on the subject of urban sanitation, led to the passing, in 1847, of the Towns Improvement Clauses Act which consolidated a number of sanitary provisions previously embodied in local Acts, and in the following year, to the passing of the first general Public Health Act.

The Public Health Act, 1848, set up a General Board of Health as a central authority, and allowed local Boards of Health to be constituted on petition of the inhabitants of populous areas outside London, or on the initiative of the General Board of Health in districts whose death-rate exceeded 23 per 1,000 of population. The local Boards were given power to provide sewers, paving, a water supply, to remove nuisances, to regulate offensive trades, streets and buildings and common lodging houses, and to control burial grounds, &c. A series of cholera epidemics in 1849 and 1854, led to further sanitary legislation, such as the Nuisance Removal Acts and the Diseases Prevention Acts, which were designed to give further powers of nuisance removal, for the prevention of pollution of streams, the appointment of Sanitary Inspectors, for special measures to be adopted in case of local epidemics and similar matters, not only to existing Local Boards but to the local authorities of less populous or rural districts; for the latter districts a committee of the vestry or the guardians were empowered to act as the sanitary authority. At the same time were passed the Metropolis Management Acts, 1855 and 1856 which, with later amendments, provided for a uniform sanitary administration over a large part, and ultimately the whole, of the area of the present county of London (*see* Section V., page 84).

In the meantime the central authority, the General Board of Health, had been enlarged and given increased powers, and a medical officer was appointed, whose duty it became to report annually not only on the medical administration of the year, but also generally on the health requirements of the civil population. In 1858 was passed the first Local Government Act which transferred to the Home Office the duty of sanctioning loans and other administrative functions of the General Board of Health in regard to sanitary authorities, while the medical duties of that Board were, under a Public Health Act of the same year, handed over to the Privy Council. The Local Government Act provided also for the easier creation of Local Boards in urban districts for public health purposes, and gave them increased powers, and the number of these bodies increased rapidly in succeeding years. The provisions of this Act, were, however, adoptive only. In the next decade, additional legislation, including the series of Sewage Utilization Acts, gave Local Boards and Vestries or Boards of Guardians, acting as Sewer authorities or Nuisance Removal authorities, increased powers in dealing with nuisances. Finally, as an outcome of the report of the Sanitary Commission (1869-71), the Local Government Board Act, 1871, and the Public Health Acts, 1872 and 1875, were passed, under which the organization of public health authorities was recast.

Under the Act of 1871, the Local Government Board were made the central public health authority, acquiring most of the powers both of the Privy Council and of the



Home Department in relation to local sanitary authorities. The Public Health Act, 1872, divided the whole of England and Wales outside London into urban and rural sanitary districts, the former consisting of boroughs, or other urban districts (under Improvement Commissioners or Local Boards) and the latter of the poor law union area except such portion as was urban. The local Board of Guardians became the sanitary authority in these rural districts. Provision was also made for the formation of Port Sanitary authorities. The new sanitary authorities were at the same time given the appropriate public health powers contained in the earlier Sanitary Acts. In 1875 the previous Acts were consolidated by the Public Health Act of 1875 which remains the substantive enactment on the subject of public health, for the entire country outside the metropolis, though its provisions have been supplemented from time to time by legislation relating to particular branches of public health work, or to special parts of the country. Among the various Acts may be mentioned :—

(a.) Those providing for the clearance of insanitary dwellings and the rehousing of the population displaced, which are referred to in paragraph 16 below.

(b.) Those bearing on the prevention of infectious disease, the Infectious Disease (Notification) Acts, 1889 and 1899, the Infectious Diseases (Prevention) Act, 1890, and the Isolation Hospitals Act, 1893 and 1901.

(c.) The Sale of Food and Drugs Acts, 1875–1907, which have led to a gradually increasing control over the adulteration of foods. Under these Acts public analysts have been appointed throughout the country, their work being supervised by the Local Government Board. A further important step in securing wholesome food was the passing of the Public Health (Regulations as to Food) Act of 1907, under which Orders have been issued by the Local Government Board.

(d.) Acts relating to public health administration in London, including the Public Health (London) Act, 1891; and various Acts amending the sanitary provisions of the general Public Health Acts, such as the Public Health Amendment Acts, 1890 and 1907.

No review of the factors which have made for the great sanitary improvement of the last forty years would be complete which did not refer (a) to the important duties exercised by the Home Office under the Factory and Workshop Acts in securing due regard to the health and safety of employees in factories and workshops and their cognate duties in regard to precautions against accident in mines and quarries, and (b) to the valuable aid to public health administration which has been rendered by the Registrar General, whose office was established in 1836, in providing exact records of mortality and of the local incidence of disease. The classified returns of infectious sickness appearing in more recent years in the annual reports of the Local Government Board and in the Registrar General's Quarterly Returns and Annual Summaries have aided greatly in the same direction.

#### *Authorities for the Administration of Public Health.*

12. *Central Public Health Administration.*—The central authority which, apart from the control over factories and workshops exercised by the Home Office, is responsible for the care of public health is the Local Government Board. One chief part of its duties is the supervision of local sanitary authorities. This is effected largely through the financial provisions of the Public Health and other Acts. In most cases in which a local sanitary authority desire to raise a loan in order to carry out a scheme of water supply, sewerage, or for other purposes, under the Public Health Acts, the Burial Acts, the Housing of the Working Classes Acts, &c., &c., they are required to obtain the sanction of the Board, who usually hold a local inquiry and satisfy themselves in regard to both the technical and financial aspects of the scheme submitted before sanctioning the loan. Where the loan is sanctioned and obtained from the Public Works Loans Commissioners the Board are required to see that the money is expended for the precise purpose for which the loan was sanctioned. The Board have also the duty of examining and approving the bye-laws adopted by local authorities under the Public Health Acts, for the regulation of streets and buildings, prevention of nuisances, and other matters. They are empowered to receive complaints as to the default of local sanitary authorities in providing sewerage or (in certain cases) water supply, or in enforcing the provisions of the Public Health Act which it is their duty to enforce, and they may, after local

inquiry, compel them to discharge their duty in these matters. The Board are also the authority for administering the Alkali Acts, and local Alkali works are visited by their inspectors so as to ensure that they are carried on in accordance with those Acts. The Board have also duties (under the Rivers Pollution Prevention Acts) in regard to the prevention of the pollution of rivers and streams by the discharge of waste products from factories.

The medical inspectors of the Board undertake the detailed supervision of the arrangements for public vaccination throughout the country. They investigate the causes and distribution of disease, and the sanitary circumstances and administration of local sanitary areas visited by them. Their reports when printed are distributed by the Board to the sanitary authorities concerned, who are urged to carry out the reforms needed. Special cholera surveys of ports and riparian districts have been made, when invasions of this disease have been threatened, to secure the taking of defensive measures.

The establishment of the National Vaccine Establishment has enabled the Board to supply all public vaccinators throughout the country with glycerinated vaccine lymph derived from the calf, produced under the strictest aseptic conditions.

The Board have received for many years a special annual grant from the Treasury to enable them to make scientific investigations into the origin and causation of different processes of disease. This grant at the present is being utilised in investigations having important bearing on unsolved problems of public health administration.

13. *Local Sanitary Administration.*—The local authorities concerned with public health administration at the present time are :—

Outside London :—

(i.) Urban Sanitary Authorities, comprising—

(a) Councils of county and other boroughs.

(b) Councils of urban districts not being boroughs.

(ii.) Rural sanitary authorities or, as they became under the Local Government Act, 1894, Rural District Councils,

(iii.) Port Sanitary Authorities, and

(iv.) to a limited extent, County Councils and Parish Councils.

In London :—

(i.) The London County Council.

(ii.) The Metropolitan Borough Councils, and the Corporation of the City.

Both in and outside London the Vaccination Acts are administered by Boards of Guardians, who contract with medical men for the performance of public vaccination in each poor law union.

In addition to the primary public health services, local sanitary authorities outside London created under the Public Health Acts, and those constituted in London under the Metropolis Management Acts and the London Government Act, 1899, have been given, from time to time, duties, some of which are not directly connected with public health. These are referred to in paragraphs 11 and 17 of Section V.

The powers of sanitary authorities directly or indirectly connected with public health may be roughly grouped as follows :—

(i.) Sewerage and sewage disposal; removal and destruction of house and trade refuse; scavenging.

(ii.) Maintenance and repair of highways; provision and maintenance of parks and open spaces; public lighting.

(iii.) Inspection of food and milk supply and of slaughterhouses, bakehouses, dairies, &c.; the prevention of pollution of rivers; inspection of houses, removal of unhealthy dwellings; provision and supervision of burial grounds.

(iv.) Housing of the working classes, water supply, tramways and light railways, electricity and gas supply, provision of baths and washhouses.

(v.) Appointment of sanitary officers, provision of isolation hospitals, notification of disease and other matters referred to in more detail below.

Many of the services in this list, including all those embraced in Class (iv.), are or may be financially remunerative, producing a revenue which in most cases is adequate to cover the cost of the service: the cost of other sanitary services is defrayed by rates levied on the occupiers of property generally. The finance of public health is dealt with in detail in Section V. in connexion with local government and local taxation generally.

14. *Local Medical Officers of Health.*—The medical officer of health and the inspector of nuisances occupy an important place in local sanitary administration.

The office of medical officer of health was originally created by the Town Improvement Clauses Act, 1847, but prior to the Public Health Act, 1872, such appointments could generally only be made in places which had adopted the Acts of 1848 and 1858, and apart from such appointments the only provision for medical supervision of public health was the power given by the Nuisances Removal Act of 1860 to guardians to instruct one of their medical officers to report on the sanitary state of their district, or any part of it.

The legislation of 1872 made it a duty of the sanitary authorities of all urban and rural districts, as well as of port sanitary authorities, to appoint properly qualified medical practitioners as medical officers of health for each district. The Local Government Board have made regulations governing the duties of all these officers, and also their appointment &c., where these officers are appointed subject to their sanction. This is generally the case since that sanction enables the local authority to recover half the salary of each officer from the Imperial grants paid to County Councils. Local authorities are also required to appoint an inspector of nuisances in each district, and their appointments have been made subject to conditions similar to those applying to medical officers of health.

In most of the smaller districts the appointment of medical officer of health is still held by a local practitioner, but about 300 of these districts are now served by some 40 medical officers who act for combined areas and give practically their whole time to the work. About 130 of the larger districts (including all the metropolitan boroughs) now employ a medical officer of health who gives his whole or the greater part of his time to the work of this office, and some of the largest have also assistant medical officers giving their whole time to the service. The recent appointment of school medical officers and inspectors under the Education (Administrative Provisions) Act, 1907, has increased the number of medical men devoting their whole time to the public service. In many cases these appointments are combined with that of medical officer of health.

Every medical officer of health is required to make an annual report on the health and sanitary condition of his district to the local authority. The Local Government Board examine these reports, and, where they find them inadequate, call for supplementary reports. The Board also draw the attention of the local authority to conditions disclosed by the reports which might affect injuriously the health of the district, and urge them to remedy such conditions and generally to provide their district with such sanitary equipment as may reasonably be expected. The Board keep a close observation on the incidence of infectious diseases in each district as shown by the reports of the medical officers of health and the returns of the Registrar General, they require special reports on every considerable outbreak, and give advice as to the measures to be taken to prevent recurrence.

The Local Government Act of 1888, which established County Councils, gave these bodies also power to appoint a medical officer of health. This power was optional, and was only gradually utilized, but at the present time 32 County Councils out of 62 have medical officers, who give the whole or a great part of their time to the service.

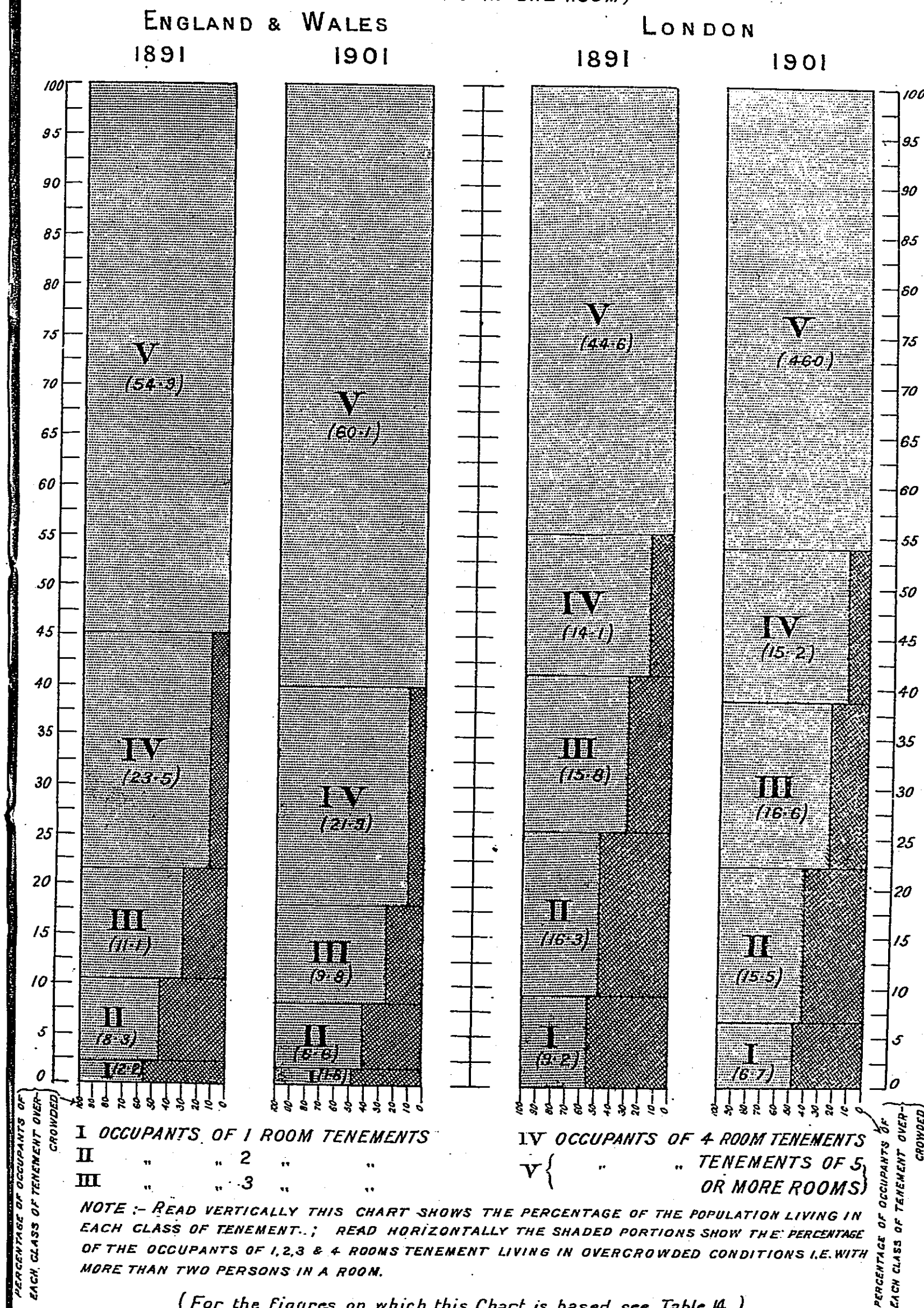
The remaining paragraphs of this memorandum deal in greater detail with the subjects of (a) housing and the action of local sanitary authorities under the Housing of the Working Classes Acts, and (b) the public medical service.

### Housing of the Working Classes.

15. *Overcrowding and Housing.*—Chart 16 and the figures in Table 14 show in a readily intelligible form, the conditions under which the population of England and Wales was housed at the date of the last census. About 60 per cent. of the total

## CHART. 16. HOUSING AND OVERCROWDING, ENGLAND & WALES.

(NUMBER OF PERSONS IN EVERY 100 OF THE POPULATION LIVING IN 1 ROOM TENEMENTS, AND IN TENEMENTS OF 2, 3, 4 & 5 OR MORE ROOMS, AND THE PERCENTAGE OF OCCUPANTS OF EACH CLASS OF TENEMENT LIVING MORE THAN TWO IN ONE ROOM)





population in 1901 of England and Wales, and 46 per cent. in the case of London, were living in houses or tenements of five rooms and upwards: another fifth of the population of England and Wales and 15 per cent. in London were housed in tenements of four rooms; 1·6 per cent. of the population in England and Wales generally, and 6·7 per cent. in London lived in tenements of one room only. The chart shows also the extent to which these conditions improved between 1891 and 1901.

Statistics were obtained at the censuses of 1891 and 1901 as to the extent of overcrowding, a tenement containing more than two occupants to each room within it being regarded as overcrowded, though the standard thus taken is higher in most instances than can be taken under the Public Health Acts. The results obtained on this basis are also shown in Chart 16, from which it will be seen that overcrowding is proportionately greatest in one room tenements, since 48 per cent. in England and Wales, and also in London, of the occupants of this class of tenement are, on this standard, overcrowded. Some improvement, however, occurred between 1891 and 1901, as may be seen from the Chart, in the degree of overcrowding both in this class and in the three other classes of tenement for which the information is available.

16. *Operations under Housing of Working Classes Acts.*—Three series of Acts, viz., the Labouring Classes Lodging Houses Acts, the Artizans and Labourers Dwellings Acts and the Artizans and Labourers' Dwellings Improvement Acts were consolidated and considerably extended by the Housing of the Working Classes Acts, 1890, 1900, and 1903. Under these Acts provision is made for the clearing of insanitary areas, the removal of unhealthy or obstructive buildings, the rehousing of persons displaced, and the erection of dwellings for persons of the working classes. Since 1890 local authorities in the larger urban areas have extensively availed themselves of their powers under these Acts as will be seen from the following figures:—

#### EXPENDITURE ON HOUSING SCHEMES.

Authority.	1889-1890.			1905-1906.		
	Current Expenditure (not including Expenditure out of Loans).		Outstanding Debt.	Current Expenditure (not including Expenditure out of Loans).		Outstanding Debt.
	Expenditure (other than Debt Charges).	Debt Charges.		Expenditure (other than Debt Charges).	Debt Charges.	
London County Council ...	£ 212	£	£ 1,334,166	£ 63,076	£ 138,543	£ 3,174,931
Metropolitan Borough Councils and their predecessors.	15		—	18,511*	31,214	671 55
Corporation of London and (late) Commissioners of Sewers for the City.	3,957	Not ascertained.	247,000	2,378	14,260	50 500
Town Councils ...	10,344		2,254,024	88,313	235,000†	5,155,347
Urban District Councils ...	—		—	7,452	11,939	256,422
Rural District Councils ...	—		—	202	403	6,682
Total ...	14,528	—	3,835,490	179,932	431,000	9,345,491

\* Excluding £1,489 expenditure met by contributions from the London County Council out of loans raised by them.

† Estimated.

17. The portion of this expenditure which represents the cost of rehousing persons displaced from unhealthy dwellings is not ascertainable, nor is information up to date available as to the total number of persons housed and rehoused by local authorities; but the following figures, which have been obtained from the London County Council and other metropolitan authorities, and the six provincial towns named, illustrate the increased activity of local authorities in this direction.

## DWELLINGS PROVIDED AND PERSONS HOUSED BY LOCAL AUTHORITIES.

Authority.	Number of tenements.		Number of occupants.		Total amount received in rents.	
	1895.	1907.	1895.	1907.	1895.	1907.
London C. C. :—					£	£
(a) Tenements, &c.	358 (871 rooms.)	7,474 (19,879 rooms.)	1,150	24,989	4,904	141,025
(b) Lodging houses	1 (324 cubicles.)	8 (1,845 cubicles.)	320	1,419		
City of London and (14) Metropolitan Boroughs.						
(a) Tenements ...	280	2,831	1,156	11,471	4,781	51,083
(b) Shops ...	36	36		54	1,463	1,792
Liverpool ...	373	2,046	1,164 (approx.)	7,566	3,843	17,218
Manchester—						
(a) Tenements, &c.	419	1,350	702	3,404	838	14,956
(b) Shops ...	16	33	23	57	(portion of year 1894-5.)	
Salford ...	(Not fully in operation)	583 houses with 4 or more rooms and 69 tenements with 3 rooms.	No record.	3,078	579 (year 1895-6.)	11,027 (year 1907-8.)
Sheffield ...	—	436	—	1,620 (approx. when fully let.)	—	6,940 (gross rental.)
Plymouth ...	—	317	—	1,401	—	3,458
Southampton ...	—	(a) Lodging house accom- modating 181 male persons. (b) Artizans dwellings comprising 26 tenements in flats. (c) 69 cottage tenements.	—	(a) 176 (b & c) 380	—	(a) 1,587 (b & c) 1,586 (year 1907-8.)
Totals for London and six provin- cial Boroughs.	Lodging Houses 1 Shops ... 52 Cottages and other tenement dwellings 1,499	4 69 13,155	4,520	55,615	16,408	250,672

The above figures show that sanitary authorities in London and the six provincial towns were, in 1907, housing 12 times the number of people they housed twelve years earlier, and were receiving about 15 times the rents they derived in 1895.

The finance of local authorities under the Housing of the Working Classes Acts is dealt with more fully in Section V.

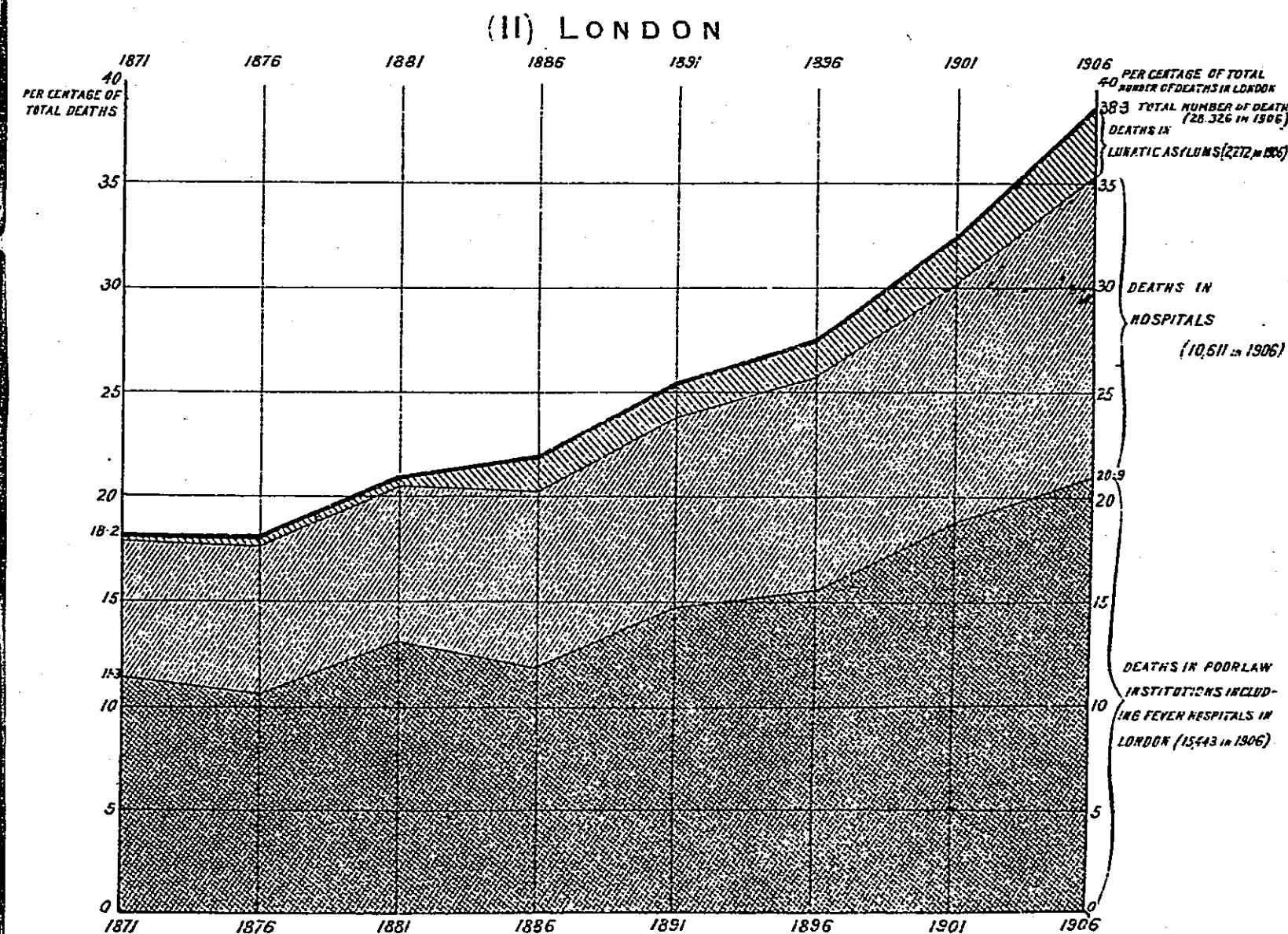
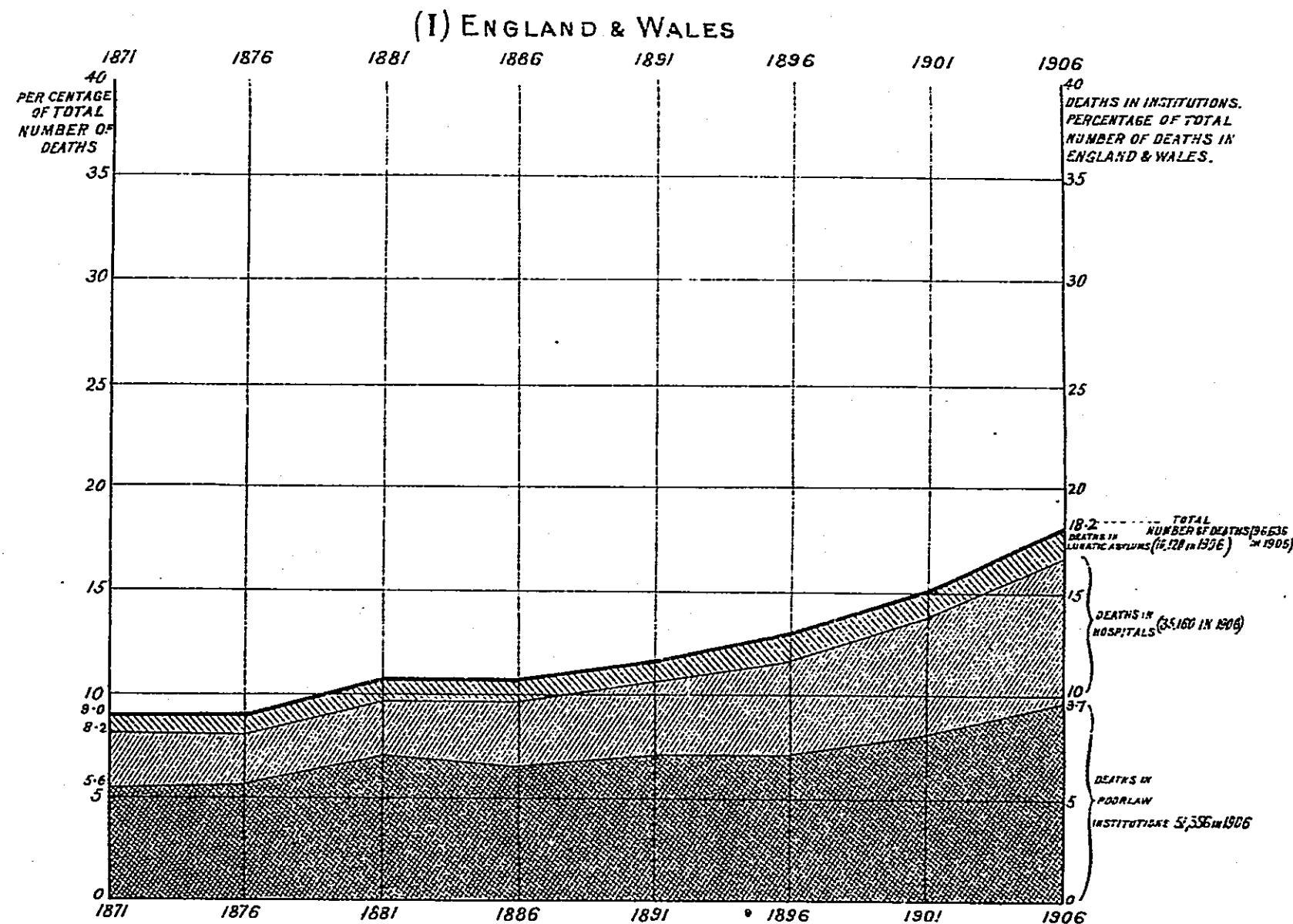
## Local Medical Service.

18. *Hospital Service.—Infectious hospitals.*—The duty of public provision for infectious sick poor in London was, in 1867, entrusted to a single authority, the Metropolitan Asylums Board, and to this body has successively been given the duty of providing hospitals and medical attendance for fever, diphtheria and small-pox cases, together with an ambulance service for the same purpose. Though originally a part of poor law organization, the medical service provided by this Board for infectious diseases is now an essential, though detached, part of the public health service.\* The Asylums Board possesses at the present time 12 fever hospitals with accommodation for 7,420 patients and 3 small-pox hospitals with accommodation for 2,040 patients.

\* Under the Public Health (London) Act, 1891, admission to a hospital of the Board does not constitute parochial relief.

## CHART 17 DEVELOPMENT OF INSTITUTIONAL CARE. (ENGLAND &amp; WALES)

(NUMBER OF DEATHS IN POORLAW INSTITUTIONS, HOSPITALS AND LUNATIC ASYLUMS PER CENT OF THE TOTAL NUMBER OF DEATHS OCCURRING IN (I) ENGLAND & WALES AND (II) LONDON, IN CERTAIN YEARS SINCE 1870)



For the figures on which the above Charts are based see Table 15.

To face page 22.



In provincial districts the power to provide isolation hospitals under the Public Health Acts and the Isolation Hospitals Acts, 1893 and 1901, is permissive and not obligatory, and though most of the large towns and a number of small urban and some rural authorities have singly or in combination, provided hospitals for the isolation of infectious cases, there are still a number of districts without such accommodation. Powers were given to County Councils by the Isolation Hospitals Acts to provide or to cause to be provided hospitals for infectious diseases for any district or districts in their county, and to contribute to such hospitals, and a certain number of County Councils have taken action in this respect.

The total expenditure of local authorities on hospitals (other than poor law infirmaries), amounted in 1905-6 to £1,359,409, including £418,588 incurred by the Metropolitan Asylums Board. This amount does not however include expenditure out of loans nor the annual charges in respect of the debt of the authorities, which had been incurred in the construction of hospitals, &c. In the case of the Metropolitan Asylums Board alone these latter charges amounted in 1905-6 to £227,742.

The notification of the chief infectious diseases, provided for by the Infectious Disease (Notification) Acts of 1889 and 1899, and by the corresponding sections of the Public Health (London) Act, 1891, has rendered practicable the control of infectious diseases by efficient public health administration, including the isolation of the sick. The returns of notifications in about 300 districts, which are received weekly by the Local Government Board and after being tabulated are sent round to the contributing medical officers of health, have also aided in anticipating and safeguarding against disease.

19. *Hospitals and other medical provision for general diseases.*—Provision of hospital treatment for general diseases and for pulmonary tuberculosis has, until recently, been left entirely to charitable effort and to the poor law authorities. In connection with the relief of the poor, both hospital and outdoor medical treatment have been provided. With the growth of population, especially in the large towns, this branch of relief has become one of the most important in the poor law service. A census taken in 1907 showed that about one-third of the whole number of persons in receipt of poor relief, or about 250,000 persons, were under medical treatment. This branch of the public service is, however, dealt with more fully in Section IV., page 57.

Chart 17 illustrates in graphic form the development of the hospital service in England and Wales as a whole, and in London, showing the percentage proportion of the total deaths in the community which occur in institutions for the sick and diseased; namely in (a) public, general and special hospitals, (b) poor law infirmaries and work-houses, and in London the fever hospitals belonging to the Metropolitan Asylums Board; and (c) lunatic asylums. It will be seen that the proportion of total deaths in England and Wales occurring in the various classes of institutions has more than doubled since 1871. In London at the present time (1908) more than one-third (42 per cent.) of all deaths take place in such institutions.

20. *Local Authorities and Infant Mortality.*—In view of the decline of the birth-rate during the last 30 years, and the fact that the infantile death-rate has until the last few years remained almost stationary, it is important that special attention should be directed to the problem of mortality in early life. Certain causes of infantile mortality are inevitable, but others, and particularly those which are connected with improper feeding and sanitary conditions, can be prevented. The efforts to reduce infantile mortality in which the central and many local health authorities are now engaged are, therefore, mainly directed to the removal of ignorance as to the feeding and general hygiene of infants. The Notification of Births Act, 1907, has enabled local authorities adopting the Act to secure that all births occurring in their district shall be notified to the local medical officer of health within 48 hours, whereas previously intimation of a birth might not be received for six weeks—the statutory time within which registration of births must be effected. At the end of November, 1908, the Local Government Board had sanctioned the adoption of this Act in 119 urban districts, laying it down in each case that suitable arrangements should be made for the employment of health visitors, voluntary or official. Such health visitors exist in about 150 districts. The health visitor visits the houses in the poorer districts from which a notification has been received, and advises the mother as to the best means of feeding the infant, and as to the general hygiene of infancy. Breast-feeding is strongly advocated; where this is impossible, careful instructions are given for the artificial feeding of the infant, and the home is re-visited to encourage the carrying out of the instructions. In addition to these measures, milk depôts have been opened in 10 towns for the supply of pasteurised milk to infants who cannot be breast-fed.

## SECTION II.—PUBLIC HEALTH.

TABLE SHOWING THE DATA ON WHICH THE CHARTS IN SECTION II. ARE BASED.

TABLE 1.—INDEX NUMBERS OF GENERAL DEATH RATES, PHTHISIS DEATH RATES, INSTITUTIONAL TREATMENT OF DISEASE, PAUPERISM, PRICES, AND WAGES, 1869-1907.

[The rates for 1869 are taken as 100, the rates for other years in proportion to this figure.]

Year.	General (corrected) Death Rates (England and Wales).	Phthisis Death Rates (England and Wales).	Institutional Treatment of Disease, as indicated by Percentage of Deaths in Public Institutions, to Total Deaths (England and Wales).	Rate of Total Pauperism per 1,000 of population (England and Wales).	Level of general wholesale prices (United Kingdom).	Course of wages in United Kingdom.
1869	100.0	100.0	100.0	100.0	100.0	100.0
1870	102.9	102.6	100.0	100.2	98.0	102.6
1875	102.9	94.0	106.0	72.8	98.0	123.4
1880	92.9	79.7	113.2	68.5	89.6	113.8
1885	89.0	75.4	130.1	61.6	73.4	114.2
1890	91.9	71.0	139.7	58.8	73.4	123.4
1891	95.2	67.4	141.0	56.9	73.4	125.0
1892	89.5	61.6	143.4	55.2	69.4	123.1
1893	90.0	61.3	149.4	55.6	69.4	123.1
1894	78.1	57.7	157.8	57.1	64.3	122.3
1895	88.1	57.9	151.8	57.1	63.2	121.7
1896	80.5	53.9	156.6	57.8	62.2	122.8
1897	82.4	55.1	160.2	57.1	63.2	124.0
1898	82.9	53.8	163.9	56.5	65.3	127.3
1899	86.7	54.4	169.9	57.1	69.4	130.3
1900	86.7	54.3	175.9	53.9	76.5	136.6
1901	80.5	51.4	181.9	52.4	71.4	135.4
1902	77.1	50.1	198.8	53.0	70.4	133.6
1903	73.3	48.9	201.2	53.7	70.4	132.8
1904	77.1	50.2	198.8	54.1	71.4	132.1
1905	72.4	46.3	212.0	56.5	73.4	132.5
1906	73.3	46.7	219.3	56.6	78.6	134.3
1907	71.4	46.3	225.9	55.8	81.6	138.9

NOTE.—For the actual rates as to *General Death Rate*—see Table 2; *Phthisis Death Rate*—see Table 11; *Institutional Treatment of Disease*—see Table 15; *Total Pauperism*—see Table 1 in Section IV.; *Wholesale Prices and Wages*—see Table 4 in Section III.

TABLE 2.—ANNUAL DEATH RATES PER 1,000 PERSONS LIVING IN ENGLAND AND WALES SCOTLAND AND IRELAND.

[For intermediate years see Annual Reports of the Registrars-General for England and Wales, Scotland and Ireland.]

Year.	England and Wales.		Scotland.	Ireland.	Year.	England and Wales.		Scotland.	Ireland.
	Crude Rates.	Corrected Rates.*				Crude Rates.	Corrected Rates.*		
1850	20.8	19.9	†	†	1895	18.7	18.5	19.4	18.5
1855	22.6	21.6	20.8	†	1896	17.1	16.9	16.6	16.7
1860	21.2	20.2	22.3	†	1897	17.4	17.3	18.4	18.5
1865	23.2	22.0	22.3	16.5	1898	17.5	17.4	18.0	18.2
1870	22.9	21.6	22.2	16.7	1899	18.2	18.2	18.1	17.7
1875	22.7	21.6	23.3	18.5	1900	18.2	18.2	18.5	19.6
1880	20.5	19.5	20.5	19.8	1901	16.9	16.9	17.9	17.8
1885	19.2	18.7	19.3	18.4	1902	16.2	16.2	17.2	17.5
1890	19.5	19.3	19.7	18.2	1903	15.4	15.4	16.6	17.5
					1904	16.2	16.2	16.9	18.1
					1905	15.2	15.2	15.9	17.1
					1906	15.4	15.4	16.0	17.0
					1907	15.0	15.0	16.2	17.7

\* The corrected rates for England and Wales are based on the age and sex constitution of the population of England and Wales as enumerated at the census of 1901.

† The Registration Acts did not come into force in Scotland until January, 1855, and in Ireland until January, 1864.

TABLE 3.—ANNUAL (CRUDE) DEATH RATES PER 1,000 PERSONS LIVING IN FRANCE, PRUSSIA AND BELGIUM.

[For intermediate years see Annual Reports of the Registrar-General for England and Wales.]

Year	France.	Prussia.	Belgium.	Year.	France.	Prussia.	Belgium.
1850	21.4	26.1	21.0	1895	22.2	21.8	19.5
1855	26.0	30.6	24.5	1896	20.0	20.7	17.5
1860	21.4	23.7	19.6	1897	19.5	20.9	17.25
1865	24.3	27.4	24.55	1898	20.9	20.0	17.6
1870	28.4	27.2	23.3	1899	21.1	21.3	18.8
1875	23.0	26.6	22.7	1900	21.9	21.8	19.3
1880	22.9	25.5	22.3	1901	20.1	20.5	17.2
1885	22.0	25.4	20.1	1902	19.5	19.2	17.3
1890	22.8	24.0	20.85	1903	19.2	19.7	17.0
				1904	19.4	19.2	16.9
				1905	19.6	19.6	16.5
				1906	19.9	17.9	16.4
				1907	20.2	17.8	—

France—Cholera prevailed in 1865-66; Franco-Prussian War in 1870 and 1871.  
 Prussia—Cholera prevailed in 1866 and 1873. Deaths for 1864, 1866, 1870, and 1871, include those of soldiers who fell in war.  
 Belgium—Cholera prevailed in 1866 and small-pox in 1871.

TABLE 4.—ANNUAL DEATH RATES PER 1,000 PERSONS LIVING IN LONDON, LIVERPOOL, AND BERLIN.

[For intermediate years for London, see Annual Summaries of Registrar-General for England and Wales; for Liverpool, the reports of the Medical Officer of Health, and for Berlin, Das Statistisches Jahrbuch für den Stadt Berlin.]

Year.	London.	Liverpool.	Berlin.	Year.	London.	Liverpool.	Berlin.
1850	21.0	28.0	25.3	1895	19.9	24.8	20.2
1855	24.3	*31.0	28.6	1896	18.6	21.4	18.0
1860	22.4	26.0	22.7	1897	18.2	22.8	17.7
1865	24.5	36.5	31.9	1898	18.8	22.2	17.2
1870	24.1	31.1	31.3	1899	20.0	24.1	18.7
1875	23.6	27.5	32.9	1900	19.2	23.1	19.0
1880	21.7	27.2	29.7	1901	17.7	21.6	18.1
1885	20.4	25.6	24.4	1902	17.7	21.6	16.2
1890	21.4	27.5	21.5	1903	15.7	19.8	16.6
				1904	16.6	21.9	17.0
				1905	15.6	19.2	17.1
				1906	15.8	20.2	—
				1907	15.2	18.3	—

\* Average for 5 years 1851-5.

TABLE 5.—DEATH RATES PER 1,000 PERSONS LIVING AT EACH AGE GROUP, 1851-60 AND 1901-1905 (ENGLAND AND WALES).\*

Age Group.	Rate of mortality per 1,000 persons living at each age.			Age Group.	Rate of mortality per 1,000 persons living at each age.		
	1851-60.	1901-1905.	Decrease between 1851-60 and 1901-1905.		1851-60.	1901-1905.	Decrease between 1851-60 and 1901-1905.
Under 5 years ...	67.60	49.32	18.28	35-45 years ...	12.31	9.03	3.28
5-10 " ...	8.46	3.69	4.77	45-55 " ...	16.54	15.24	1.30
10-15 " ...	4.97	2.15	2.82	55-65 " ...	28.86	29.08	+0.22
15-20 " ...	7.04	3.05	3.99	65-75 " ...	61.74	61.23	0.51
20-25 " ...	8.67	3.91	4.76	75 and upwards...	159.78	143.71	16.07
25-35 " ...	9.76	5.46	4.30				

\* As regards 1851-60, see Table B. on page xiii of Part I. of Decennial Supplement to 65th Report of Registrar-General, Cd. 2618-1907, and as regards 1901-1905, see Table on page lxxiii of 69th Report of Registrar-General, Cd. 3833-1906.

TABLE 6.—INFANT MORTALITY IN ENGLAND AND WALES AND LONDON: NUMBER OF DEATHS OF INFANTS UNDER 1 YEAR OF AGE PER 1,000 BIRTHS.\*

Year	England and Wales.	London.	Mean Temperature,† Greenwich.	Year.	England and Wales.	London.	Mean Temperature,† Greenwich.
1850	146	140	—	1895	161	166	62.3
1855	154	152	—	1896	148	162	62.2
1860	148	153	58.3	1897	156	159	62.2
1865	160	171	62.4	1898	160	167	62.0
1870	160	164	61.5	1899	163	167	64.0
1875	158	162	61.7	1900	154	160	61.3
1880	153	158	62.0	1901	151	149	62.0
1885	138	148	61.5	1902	133	141	59.6
1890	151	163	60.4	1903	132	131	60.2
				1904	145	146	61.4
				1905	128	131	61.6
				1906	132	133	62.0
				1907	118	117	59.2

\* For rates of mortality in years 1858 to 1907 see Tables 27 and 28 of 70th Annual Report of Registrar-General for 1907, Cd. 4464-1908. For earlier years see Tables 24 and 25 of corresponding Report for 1898, Cd. 9417-1900.

† These particulars as to the Mean temperature of the earth at depth of 3 ft. 2 ins. at Greenwich in the third quarter of each year are added in view of the remarks on page 15, para. 5, as to the prevalence of diarrhoeal diseases in the third quarter of the year.

TABLE 7.—ANNUAL DEATH RATES OF CHILDREN UNDER 5 YEARS, 5-10 YEARS, AND 10-15 YEARS, PER 1,000 LIVING AT CORRESPONDING AGES IN ENGLAND AND WALES, 1857-1907.\*

Year.	Deaths to 1,000 living at ages			Year.	Deaths to 1,000 living at ages		
	0-5.	5-10.	10-15.		0-5.	5-10.	10-15.
1857	67.8	7.8	4.7	1895	60.6	4.1	2.5
1858	71.9	10.5	5.2	1896	56.7	4.5	2.4
1859	69.9	9.3	5.0	1897	57.4	4.0	2.4
1860	62.2	6.8	4.2	1898	58.5	3.8	2.2
1865	70.1	7.9	4.7	1899	58.5	4.1	2.4
1870	69.6	8.6	4.5	1900	56.5	4.2	2.4
1875	66.5	6.6	3.8	1901	54.1	4.0	2.3
1880	64.2	6.2	3.3	1902	49.1	4.0	2.2
1885	55.8	5.1	3.0	1903	47.3	3.5	2.0
1890	58.1	5.0	2.9	1904	51.6	3.5	2.1
				1905	44.7	3.4	2.1
				1906	45.3	3.5	2.1
				1907	40.9	3.4	2.0

\* See Tables 14 of 69th and 70th Annual Reports of the Registrar-General for England and Wales (Cd. 3833 and 4464, 1908).

TABLE 8.—CRUDE ANNUAL DEATH RATES FROM VARIOUS CAUSES, TO A MILLION PERSONS LIVING IN THE QUINQUENNIA 1871-75 AND 1901-05 (ENGLAND AND WALES).\*

Causes of Death.				1871-75.	1901-05.
Small-pox ...	...	...	...	410.8	25.4
Measles ...	...	...	...	373.2	325.8
Whooping-cough ...	...	...	...	498.6	300.4
Scarlet Fever ...	...	...	...	758.6	125.8
Diphtheria ...	...	...	...	120.8	204.2
Enteric Fever ...	...	...	...	373.8	112.6
Diarrhoea, Dysentery and Cholera ...	...	...	...	1,031.0	677.8
Phthisis ...	...	...	...	2,218.0	1,215.2
Pneumonia ...	...	...	...	1,025.4	1,270.8
Bronchitis ...	...	...	...	2,220.8	1,237.0
Cancer ...	...	...	...	445.6	864.0
All other causes ...	...	...	...	12,485.8	9,645.6
All causes ...	...	...	...	21,962.4	16,004.6

\* See Table 20 of 70th Annual Report of the Registrar-General (1907), Cd. 4464-1908.

TABLE 9.—ANNUAL DEATH RATES\* FROM TYPHUS AND ENTERIC FEVER PER MILLION PERSONS LIVING (ENGLAND AND WALES).

Year.	Typhus.	Enteric Fever.	Year.	Typhus.	Enteric Fever.
1869	193	390	1897	2	156
1870	147	388	1898	1	181
			1899	1	198
1875	62	371	1900	1	173
1880	21	261	1901	1	155
1885	12	175	1902	2	126
			1903	2	100
1890	5	179	1904	1	93
1895	2	175	1905	1	89
1896	2	166	1906	0	92
			1907	1	67

\* For years 1869 to 1907, see Table 27 of Registrar-General's Annual Report for 1907, Cd. 4464—1908. The rates cannot be stated separately for years prior to 1869.

TABLE 10.—ANNUAL DEATH RATES\* FROM SMALL-POX PER MILLION OF POPULATION (ENGLAND AND WALES).

Year.	Small-pox.	Year.	Small-pox.
1850	262	1895	7
1855	131	1896	17
1860	136	1897	0
		1898	8
1865	301	1899	5
1870	113	1900	3
1875	35	1901	10
1880	25	1902	75
1885	103	1903	23
1890	0	1904	15
		1905	4
		1906	1
		1907	0

\* For years 1858 to 1907, see Table 27 of Registrar General's Annual Report for 1907, Cd. 4464—1908. For earlier years see Table 24 of corresponding Report for 1898, Cd. 9417—1900.

TABLE 11.—ANNUAL DEATH RATES\* FROM SCARLET FEVER AND DIPHTHERIA PER MILLION PERSONS LIVING (ENGLAND AND WALES).

Year.	Scarlet Fever.	Diphtheria.	Year.	Scarlet Fever.	Diphtheria.
1850	753		1895	149	259
1855	894	20	1896	177	291
1860	485	261	1897	147	246
1865	837	196	1898	113	243
1870	1,446	120	1899	117	292
1875	851	142	1900	119	290
1880	675	109	1901	133	273
1885	233	164	1902	148	236
1890	242	179	1903	125	182
			1904	111	170
			1905	112	160
			1906	101	177
			1907	92	164

\* See note \* to Table 10 above.

TABLE 11.—ANNUAL CORRECTED DEATH RATES\* FROM TUBERCULOSIS (ALL FORMS) AND PHTHISIS PER MILLION OF POPULATION (ENGLAND AND WALES).

Year.	Tuberculosis.	Phthisis.	Year.	Tuberculosis.	Phthisis.
1851	3,566	2,817	1895	2,072	1,423
1855	3,559	2,864	1896	1,899	1,327
1860	3,284	2,652	1897	1,933	1,356
1865	3,352	2,651	1898	1,915	1,325
1870	3,174	2,526	1899	1,908	1,339
1875	3,002	2,313	1900	1,904	1,337
1880	2,682	1,962	1901	1,807	1,264
1885	2,453	1,855	1902	1,741	1,233
1890	2,403	1,748	1903	1,742	1,203
			1904	1,777	1,236
			1905	1,632	1,140
			1906	1,644	1,150
			1907	1,605	1,140

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

TABLE 13.—COMPARATIVE MORTALITY OF MALES, AGED 25-65 YEARS IN DIFFERENT OCCUPATIONS, FROM ALL CAUSES; "OCCUPIED ONLY" 1890-91-92; AND "OCCUPIED ONLY," AND "OCCUPIED AND RETIRED," 1900-01-02 (ENGLAND AND WALES).

[Extracted from Table IV. of Part II. of Supplement to 65th Annual Report of the Registrar General of England and Wales, Cd. 2619—1908 (pages clviii. *et seq.*)]

COMPARATIVE MORTALITY FIGURE OF ALL MALES, AGED 25-65 YEARS,  
FOR 1900-01-02=1,000.

Reference Number	Occupation.*	Comparative Mortality Figure of Males, aged 25-25 years.			Reference Number	Occupation.*	Comparative Mortality Figure of Males, aged 25-65 years.		
		Occupied only.		Occupied and Retired 1900-01-02.			Occupied only.		Occupied and Retired 1900-01-02.
		1890- 91-92.†	1900- 01-02.				1890- 91-92.†	1900- 01-02.	
(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
	All Males ... ..	1,155	...	(1890-91-92)	1	Clergyman, Priest, Minister‡ ...	615	515	524
		1,000	...	(1900-01-02)	2	Barrister Solicitor ...	950	739	750
	Occupied Males (England and Wales) ... ..	1,102	925	—	3	Law Clerk ... ..	1,237	880	970
	Occupied and Retired Males (England and Wales) ... ..	—	—	1,004	4	Physician, Surgeon, General Practitioner†	1,118	—	952
	Occupied Males (London) ...	1,325	1,099	—	5	Schoolmaster, Teacher ...	698	599	665
	Occupied Males (Ind- ustrial Districts)‡	1,443	1,129	—	6	Artist, Engraver, Sculp- tor, Architect ...	900	760	823
	Occupied Males (Agri- cultural Districts)‡	795	670	—	7	Musician, Music Master ...	1,404	1,140	1,261
	Unoccupied Males (Eng- land and Wales) ...	2,566	...	(1890-91-92)	8	Domestic Indoor Servant	876	815	927
		2,884	...	(1900-01-02)	9	Commercial Traveller ...	1,111	907	988
					10	Commercial Clerk, In- surance Service ...	1,056	837	911
					11	Railway Engine Driver, Stoker ... ..	934	582	610
					12	Railway Guard, Porter, Pointsman, &c. ...	953	773	813
					13	Railway Official, Clerk ...	904	707	776
					14	Coach, Cab, Omnibus, Service; Groom, &c. ...	1,334	1,062	1,157
					14½	Tramway Service ...	—	984	1,013

\* The system of classification adopted in the Census of 1901 differed somewhat from that followed in 1891. In tabulating the figures for the recent period the aim has been to select groups of well-defined occupations, and to preserve as far as possible a fair comparison with 1890-91-92. For the exact constitution of each occupation see Table I. of Cd. 2619—1908.

† The figures for 1890-91-92 have been recalculated on the recent Standard Population (see page XV. of Cd. 2619—1908), and therefore differ considerably from those published in Part II. of the Decennial Supplement, 1881-1890.

‡ For lists of Agricultural and Industrial Districts, see page viii. of Cd. 2619—1908.

§ Retired Clergymen of the Church of England were not separately abstracted in the Censuses of 1891 and 1901; in the above table they are included with the Occupied.

¶ Retired Physicians and Surgeons were not separately abstracted in the Censuses of 1891 and 1901.



TABLE 13.—COMPARATIVE MORTALITY OF MALES—*cont.*

Reference Number. (1)	Occupation.* (2)	Comparative Mortality Figure of Males, aged 25-65 years.			Reference Number. (1)	Occupation.* (2)	Comparative Mortality Figure of Males, aged 25-65 years.		
		Occupied only.		Occupied and Retired 1900-01-02. (5)			Occupied only.		Occupied and Retired 1900-01-02. (5)
		1890- 91-92.†	1900- 01-02.				1890- 91-92.†	1900- 01-02.	
15	Carman, Carrier, &c. ...	1,484	1,094	1,153	58	Nail, Anchor, Chain and other Iron and Steel Manufactures ...	1,504	1,137	1,187
16	Bargeman, Lighterman, Waterman ...	1,386	1,235	1,333	59	Copper, Tin, Zinc, Lead, Brass, &c., Manu- facturer, Worker ...	1,283	977	1,043
17	Seaman, &c., Merchant Service ...	1,564	1,547	1,646	60	Bricklayer, Mason, Builder ...	1,157	862	906
18	Dock Labourer, Wharf Labourer ...	2,114	1,374	1,481	61	Carpenter, Joiner ...	905	769	820
19	Messenger, Porter, &c. (not Railway or Govern- ment) ...	1,415	1,341	1,449	62	Slater, Tiler ...	1,527	1,036	1,115
20	Farmer, Grazier, Farmer's Son, &c. ...	651	562	596	63	Paperhanger, Plasterer, Whitewasher ...	1,256	937	1,018
21	Farm Labourer, Farm Servant... ..	731	572	621	64	Plumber, Painter, Glazier Cabinet Maker, &c. ...	1,295	1,041	1,114
22	Gardener, Nurseryman, Seedsman ...	638	527	563	65	Sawyer ...	1,131	888	956
23	Fisherman ...	976	892	967	66	Wood Turner, Cooper, &c. Coach, Carriage, Railway Coach, &c., Maker ...	889	717	774
24	Maltster ...	1,021	734	773	67	Cycle and Motor Manu- facture ...	1,258	1,104	1,181
25	Brewer ...	1,649	1,324	1,393	68	Wheelwright ...	—	762	797
26	Innkeeper, Publican; Spirit, Wine, Beer, Dealer ...	1,899	1,669	1,781	69	Shipbuilding ...	899	757	808
27	Inn, Hotel Servant ...	1,997	1,767	1,883	70	Chemical Manufacture ...	836	765	817
28	Stationery Manufacture; Stationer, Publisher, Newsagent ...	963	872	931	71	Wool, Worsted Manu- facture ...	1,609	1,031	1,065
29	Chemist, Druggist ...	1,071	934	999	72	Silk, Satin, Crape, &c., Manufacture ...	1,146	927	984
30	Tobacconist, &c. ...	1,159	898	962	73	Cotton Manufacture ...	1,064	892	964
31	Milkseller, Cheesemonger, &c. ...	1,225	776	832	74	Lace Manufacture ...	1,318	1,037	1,114
32	Fishmonger, Poulterer ...	1,115	943	1,013	75	Rope, Twine, Cord Maker Textile Dyer, Bleacher, Printer, Finisher, &c. ...	819	831	950
33	Fruiterer, Greengrocer ...	1,093	882	942	76	Carpet, Rug, Felt Manu- facture ...	1,075	826	910
34	Grocer, &c. ...	768	670	729	77	Hosiery Manufacture ...	1,585	1,066	1,114
35	Draper, Linen Draper, Mercer ...	1,174	755	845	78	Paper Manufacture ...	1,010	942	1,044
36	Coal Merchant; Coke Burner, &c. ...	929	695	731	79	Potter; Earthenware, &c., Manufacture ...	808	853	921
37	Ironmonger ...	933	700	741	80	Glass Manufacture ...	1,043	684	730
38	General Shopkeeper ...	1,126	1,421	1,508	81	Coal Miner ...	1,970	1,420	1,493
39	Bookbinder ...	1,225	889	934	82	Ironstone Miner ...	1,719	1,202	1,260
40	Printer ...	1,267	935	994	83	Copper Miner ...	1,068	846	885
40	Lithographer; Copper and Steel Plate Printer ...	—	910	964	84	Tin Miner ...	893	723	744
41	Watch, Clock, Scientific Instrument, &c., Maker; Jeweller, &c. ...	1,130	817	872	85	Copper Miner ...	1,423	1,609	1,668
42	Saddler, Harness Maker ...	1,069	889	945	86	Tin Miner ...	1,628	2,159	2,131
43	Butcher ...	1,267	1,062	1,148	87	Lead Miner ...	1,514	1,199	1,206
44	Miller, Cereal Food Manufacturer ...	974	842	890	88	Stone, Slate Quarrier ...	1,359	905	939
45	Baker, Confectioner ...	1,061	852	922	89	Coalheaver ...	1,765	1,144	1,221
46	Hatter ...	1,283	1,046	1,137	90	Gas Works Service ...	1,246	838	878
47	Tailor ...	1,144	953	1,027	91	Platelayer, Railway Labourer; Navy, &c., Road Labourer ...	1,221	707	740
48	Shoemaker ...	1,064	901	984	92	Brick, Plain Tile, Terra- cotta Maker ...	857	622	653
49	Hairdresser ...	1,270	1,070	1,196	93	Costermonger, Hawker, &c. ...	1,911	1,778	2,007
50	Tallow, Soap, Glue, Manure, &c., Manu- facture ...	1,282	689	764	94	General Labourer ...	1,413	1,987	2,235
51	Tanner ...	873	737	774	95	Engine Driver, Stoker, Fireman (not Railway, Marine, or Agricultural) Chimney Sweep ...	909	723	767
51	Furrier, Skinner ...	—	1,274	1,332	96	Civil Service† (Officers and Clerks) ...	1,516	1,240	1,343
52	Currier, &c. ...	1,154	944	1,015	100	Civil Service† (Messengers, &c.) ...	—	—	723
53	Engine, Machine, Boiler Maker, Fitter, Mill- wright ...	1,244	866	913	101	Gamekeeper ...	—	561	586
54	Tool, Scissors, File, Saw, Needle-Maker ...	1,633	1,231	1,315	102	India Rubber, Gutta Percha Worker; Water- proof Goods Maker ...	—	971	1,032
55	Gunsmith ...	1,419	1,087	1,181	103	Brush, Broom Maker; Hair, Bristle Maker ...	—	1,160	1,216
56	Lock, Key, Gasfittings- Maker; Gasfitter ...	1,069	890	957	104	Other Occupied Males ...	980	837	978
57	Blacksmith, Striker ...	1,057	884	937	105				

\* † See notes \* † to Table on preceding page.

† Figures for the "Occupied only" would be misleading, and have been omitted from the Table.

TABLE 14.—HOUSING AND OVERCROWDING.

(An overcrowded tenement is taken to be one containing more than two occupants per room (bedroom and sitting-room included).)

## I.—ENGLAND AND WALES.\*

Class of tenements.	Total number of occupants of each class of tenement.				Occupants of overcrowded tenements.			
	Number.		Percentage of total population.		Number.		Percentage of total population of each class of tenement.	
	1891.	1901.	1891.	1901.	1891.	1901.	1891.	1901.
Tenements of 1 room ...	640,410	507,763	2.2	1.6	357,707	245,586	55.9	48.4
" " 2 rooms ...	2,416,617	2,158,644	8.3	6.6	1,124,056	884,672	46.5	41.0
" " 3 " ...	3,227,464	3,186,640	11.1	9.8	951,877	807,596	29.5	25.3
" " 4 " ...	6,814,069	7,130,062	23.5	21.9	824,404	729,652	12.1	10.2
" " 5 or more rooms...	15,903,965	19,544,734	54.9	60.1	—	—	—	—
Total ...	29,002,525	32,527,843	100.0	100.0	3,258,044	2,667,506	11.2	8.2

\* As to England and Wales, see Tables on pages 21 and 40 of the General Reports on the Censuses 1891 and 1901 respectively (Cd. 7222—1893 and Cd. 2174—1904).

## II.—LONDON.†

Class of tenements.	Total number of occupants of each class of tenement.				Occupants of overcrowded tenements.			
	Number.		Percentage of total population.		Number.		Percentage of total population of each class of tenement.	
	1891.	1901.	1891.	1901.	1891.	1901.	1891.	1901.
Tenements of 1 room ...	387,156	304,874	9.2	6.7	215,232	147,771	55.6	48.5
" " 2 rooms ...	690,844	701,203	16.3	15.5	331,122	296,659	47.9	42.3
" " 3 " ...	666,126	752,221	15.8	16.6	193,129	187,619	29.0	24.9
" " 4 " ...	594,716	691,491	14.1	15.2	92,185	94,047	15.5	13.6
" " 5 or more rooms...	1,889,475	2,086,752	44.6	46.0	—	—	—	—
Total ...	4,228,317	4,536,541	100.0	100.0	831,668	726,096	19.7	16.0

† The 1891 figures for London are based on the Table on page 302, Summary Tables, Census 1901 (Cd. 1523—1903), the 1901 figures from Table 19 of the London Vol. of the Census 1901 (Cd. 875—1902).

TABLE 15.—DEATHS IN PUBLIC INSTITUTIONS PER 100 OF ALL DEATHS IN  
ENGLAND AND WALES AND LONDON.\*

Year.		England and Wales including London.		London.	
		Number.	Percentage of all deaths.	Number.	Percentage of all deaths.
1871	In workhouses and other poor-law institutions ...	28,753	5.6	9,090	11.3
	In hospitals ...	13,706	2.6	5,228	6.5
	In lunatic asylums ...	4,097	0.8	347	0.4
1881	In workhouses and other poor-law institutions ...	34,502	7.0	10,692	13.2
	In hospitals ...	13,822	2.8	5,980	7.4
	In lunatic asylums ...	4,863	1.0	293	0.3
1891	In workhouses and other poor-law institutions ...	42,145	7.1	13,446	14.9
	In hospitals ...	20,442	3.5	8,008	8.9
	In lunatic asylums ...	6,254	1.1	1,598	1.8
1901	In workhouses and other poor-law institutions ...	44,414	8.1	15,046	18.9
	In hospitals ...	30,559	5.5	9,061	11.3
	In lunatic asylums ...	8,508	1.5	1,868	2.3
1906	In workhouses and other poor-law institutions ...	51,356	9.7	15,443	20.9
	In hospitals ...	35,160	6.6	10,611	14.3
	In lunatic asylums ...	10,120	1.9	2,272	3.1

\* The number of deaths in institutions in England and Wales are taken from the Annual Reports of the Registrar-General; the particulars for London from the Annual Summaries of the Registrar-General. The particulars relating to the Metropolitan Asylums Board Hospitals (in and out of London) are included under workhouses, &amp;c. Particulars for Metropolitan institutions situated outside the county are included in London.