VITAL STATISTICS.

Registration of Births, Deaths, and Marriages.

The present official system of compulsory registration of births, deaths, and marriages in Victoria has been in force since 1853, and the registers—framed on the best models—are replete with all necessary information bearing on the family history of the people. The statutory duties under the Registration Acts are performed by the Government Statist, who has control over the local registrars of births and deaths, and (so far as regards their registration duties) over the officiating clergymen and registrars of marriages. Copies of entries certified by him or by the Assistant Government Statist are *primâ facie* evidence in the Courts of Australia of the facts to which they relate. At the head office in Melbourne there is kept for reference a complete collection of all registrations effected since 1st July, 1853, as well as originals or certified copies of all existing church records relating to earlier periods, as far back as 1837.

Applicants for searches or certificates of births, deaths, or marriages should, in applying to the Government Statist, furnish particulars of the date and place of the event; also the names of the parties in the case of a marriage, or the name, age (if a death), and parentage in the case of a birth or death. The fee for a search in the Official Records, or an extract of an entry, is 2s. 6d., and that for a certificate 7s. 6d. (except where the case appears in the records of the current quarter, when 5s. only is charged). For a search in the early church records, prior to 1st July, 1853, the fee is only 1s., or 2s. if a certificate is required.

The *Year-Book* for 1916–17 contains on pages 301 to 303 a statement of the law as to marriages and the registration of births and deaths in Victoria.

MARRIAGES.

Marriages in 1916.

Marriages in Victoria in 1918 numbered 9,156, which was 350 less than in the preceding year, and 2,185 less than The figures for each of the last twenty years are as follows :—

MARRIAGES IN EACH YEAR, 1899 TO 1918.

Year.	No. of Marriages.	Year.	No. of Marriages.
1899 ..	8,140	1909 ..	9,431
1900 ..	8,308	1910 ..	10,240
1901 ..	8,406	1911 ..	11,088
1902 ..	8,477	1912 ..	11,738
1903 ..	7,605	1913 ..	11,324
1904 ..	8,210	1914 ..	11,830
1905 ..	8,774	1915 ..	12,832
1906 ..	8,930	1916 ..	11,341
1907 ..	9,575	1917 ..	9,506
1908 ..	9,334	1918 ..	9,156

The figures for 1915 include a large number of marriages of soldiers who were leaving to take part in the war. Under normal circumstances many of these would have taken place at a later date. This factor, and the absence from the State of a large number of marriageable males owing to the war, would account for the great reduction in the number of marriages during the past three years. All divisions of the Commonwealth experienced somewhat similar reductions. The marriages in Australia for 1918 numbered 33,152 as against 33,674 in the previous year, 40,292 in 1916, and 45,264 in 1915. Of the total for 1918, 9,156 took place in Victoria, 13,199 in New South Wales, 4,821 in Queensland, 3,190 in South Australia, 1,612 in Western Australia, 1,131 in Tasmania, 39 in the Northern Territory, and 4 in the Federal Capital Territory.

Marriage rates.

The ordinary marriage rate—per 1,000 of the total population—like birth and death rates similarly estimated, is somewhat unreliable in comparatively newly settled countries like Australia, especially in earlier periods, but, as it affords a ready and approximate comparison between years not widely separated, the figures relating to Victoria are shown in the following table for the last ten years :—

MARRIAGE RATES, 1909 TO 1918.

Year.	Marriage Rate.	Year.	Marriage Rate.
1909 ..	7·36	1914 ..	8·31
1910 ..	7·83	1915 ..	9·00
1911 ..	8·40	1916 ..	8·05
1912 ..	8·65	1917 ..	6·76
1913 ..	8·13	1918 ..	6·46

The marriage rate for 1915 was the highest recorded since 1860. The reasons for the lower rates in 1916, 1917, and 1918 are given in the preceding paragraph. Similar causes account for the reductions in the marriage rates for the past three years in the other Australian States and New Zealand. The rates in the other States, New Zealand, and England and Wales in 1918 were as follows :—New South Wales, 6·91 ; Queensland, 7·00 ; South Australia, 7·25 ; Western Australia, 5·18 : Tasmania, 5·55 ; New Zealand, 5·65 ; and England and Wales, 7·15.

Marriages to marriageable males in Australasia.

A better and more reliable index of the frequency of marriage in the different States is a comparison of the marriages with the number of marriageable males, aged 21 and upwards. This is shown in the following statement for the period 1900–2 and for the year 1911 :—

MARRIAGES PER 1,000 MARRIAGEABLE MALES IN AUSTRALASIA.

—	1900–2.	1911.	Increase per cent. in 1911.
Victoria	56·0	67·3	20·2
New South Wales... ...	58·3	68·0	16·6
Queensland	41·6	54·9	32·0
South Australia	56·8	81·3	43·1
Western Australia ..	41·9	45·8	9·3
Tasmania	65·7	69·3	5·5
Australia	55·7	64·7	16·0
New Zealand	55·1	58·8	6·7

In each State the proportion of marriageable men who married during the year 1911 was greater than that for the period 1900–2, the excess amounting to 43 per cent. in South Australia, 32 in Queensland, 20 in Victoria, nearly 17 in New South Wales, 9 in Western Australia, and 5½ in Tasmania. The comparatively low marriage rates for men in Western Australia and Queensland were due to the unequal distribution of marriageable men and women. At the 1911 census, to every 1,000 unmarried and widowed women aged 18 to 50 the numbers of bachelors and widowers between 21 and 55 years of age in each State and Australia were as follows :—Victoria, 853 ; New South Wales, 1,116 ; Queensland, 1,449 ; South Australia, 946 ; Western Australia, 2,265 ; Tasmania, 950 ; and Australia, 1,096.

Marriages to marriageable men and women.

The marriages in proportion to the population, to the unmarried men and widowers aged 21 to 55, and to the unmarried women and widows aged 18 to 50 in each census year, 1857 to 1911, are given in the following table :—

MARRIAGES PER 1,000 OF POPULATION AND OF SINGLE MEN AND WOMEN, 1857 TO 1911.

Year of Census.	Exclusive of Chinese and Aborigines.						
	Enumerated Population.	Number of Unmarried and Widowed.		Marriages.	Proportion of Marriages per 1,000 of the—		
		Men (aged 21 to 55).	Women (aged 18 to 50).		Population.	Unmarried and Widowed Men (aged 21 to 55).	Unmarried and Widowed Women (aged 18 to 50).
1857 ..	383,668	88,456	18,128	4,465	11·64	50·48	246·30
1861 ..	513,896	98,665	24,009	4,528	8·81	45·89	188·60
1871 ..	712,263	77,078	40,836	4,715	6·62	61·17	115·46
1881 ..	849,438	77,250	75,098	5,732	6·75	74·20	76·33
1891 ..	1,130,463	133,576	113,276	9,007	7·97	67·43	79·51
1901 ..	1,193,340	123,691	137,267	8,468	7·10	68·46	61·69
1911 ..	1,309,950	132,642	158,556	10,984	8·39	82·81	69·28

NOTE.—The figures in this table relate to the twelve months of which the date of census is the central point.

Factors in marriage rates.

The marriage rate for men in the last census year was the highest ever recorded, and the marriages in proportion to population were more numerous than in the preceding four census years. An examination of the figures for the seven census periods shows how the crude marriage rates is affected by the proportion of marriageable persons in the community. The maximum marriage rate (per 1,000 of population), which occurred in 1857, was co-incident with the highest proportion of marriageable persons, while the minimum rate—in 1871—was associated with the lowest proportion of such persons. A further examination of the figures shows that the ordinary marriage rate is more directly affected by the proportion of eligible men than by that of eligible women in the population. Thus, the percentage of single women aged 18 to 50 rose from 4·7 in 1857 to 12·1 in 1911, whilst that of single men aged 21 to 55 fell from 23 to 10 in the same period. After allowing for the more uniform distribution of males and females of marriageable ages in the later years, the decrease in the percentage of marriageable men coincides fairly closely with the decline in the ordinary marriage rate.

The female marriage rates show that the chances of a woman marrying were very much smaller at the census dates in 1901 and 1911 than at any earlier period, the proportion entering wedlock each year having fallen from about 1 in 4 in 1857, and nearly 1 in 5 in 1861, to 1 in 16 in 1901, and 1 in 15 in 1911.

Marriages to marriageable persons in metropolis and country.

The extent to which the high crude marriage rates in Greater Melbourne, as compared with the country, are due to variations in age, sex, and conjugal condition may be ascertained by an examination of the results of the last census. The first striking fact disclosed is that, whether the comparison be made for all ages or for marriageable ages only, there is a great preponderance of women over men in the metropolis, whilst in the remainder of the State the men are in excess. In Greater Melbourne there were 55,347 unmarried men aged 21 to 55, as compared with 84,238 unmarried women aged 18 to 50. In the rest of the State the eligible men and women at the corresponding ages numbered 79,925 and 74,318 respectively. It is thus seen that, while there was a surplus of 28,891 marriageable females in the metropolis, there was a deficiency of 5,607 in the country. To obtain definite information regarding the frequency of marriage, the residents of these areas who entered into wedlock were compared with the marriageable population of each sex, and the resulting proportions for the average of the period 1910–12 are shown in the following statement :—

YEARLY MARRIAGES PER 1,000 MARRIAGEABLE PERSONS IN GREATER MELBOURNE AND THE REST OF THE STATE, 1910–12.

District.	Men.	Women.
Melbourne and Suburbs	95·8	66·6
Rest of the State	66·4	68·9

The results show that the chance of marrying within a year is slightly less for a woman residing in Greater Melbourne than for one living outside that area. On the other hand, the chance of a man marrying is 44 per cent. greater for a metropolitan than for a country resident.

Marriage rate in age groups.

The marriage rates amongst marriageable men and women at different periods of life have been computed for various age groups at each of four census periods, and are shown in the following table :—

MARRIAGES PER 1.000 MARRIAGEABLE MEN AND WOMEN IN AGE GROUPS.

Age Group.	Men.				Women.			
	1881.	1891.	1901.	1911.	1881.	1891.	1901.	1911.
15–21 ..	..	..	..	..	24·6	23·6	18·8	23·3
21–25* ..	57·8	44·3	44·6	55·2	118·8	106·0	87·2	105·6
25–30 ..	114·2	85·9	90·5	118·6	105·7	100·5	84·7	112·1
30–35 ..	82·9	75·2	82·1	101·1	73·1	66·4	57·9	66·0
35–40 ..	56·4	51·1	62·6	72·9	53·8	46·4	37·2	43·0
40–45 ..	30·5	33·4	39·9	44·7	32·5	27·7	22·3	20·7
45–50 ..	21·8	25·9	29·8	34·9	22·1	17·8	14·3	15·5
50 and upwards	10·5	9·1	9·1	12·1	4·9	4·2	2·4	2·6

* In the case of men, 20–25.

In 1911 the proportion of marriages to marriageable men in each age group (except 20–25) was the highest experienced, and that of marriages to marriageable women was greater in every age group except 40–45 than in the preceding census year. The men aged 25–30, 30–35, and 35–40 who entered into wedlock during the year under review represented 119, 101, and 73 per 1,000 respectively of the marriageable males at these ages, as against 90, 82, and 63 in 1901. The numbers of women aged 21–25, 25–30, and 30–35 who contracted marriage in 1911 were equal to 106, 112, and 66 per 1,000 respectively of the single and widowed women, as compared with 87, 85, and 58 for the corresponding ages in 1901. It thus appears that the chances of women aged 21–25 and 25–30 marrying within a year increased by 21 and 32 per cent. in Victoria during the last intercensal period. It will be noted that in 1911 the highest marriage rate among women obtained at the age period 25–30, whilst in each of the three earlier census years the maximum rate occurred between the ages 21 and 25.

Marriage rates of bachelors, widowers, spinsters, and widows.

The probabilities of bachelors and spinsters marrying and of widowers and widows re-marrying were obtained by comparing their marriages at specified ages with the respective numbers in the community at these ages at the last census. The marriages per 1,000 of the above-mentioned persons are given in the following table for the year 1911 :—

MARRIAGES PER 1,000 BACHELORS, WIDOWERS, SPINSTERS, AND WIDOWS, 1911.

Age Group.	Marriages to every 1,000—			
	Bachelors.	Widowers.	Spinsters.	Widows.
15–21	..	..	22·3	40·0
21–25*	55·3	64·5	105·3	145·6
25–30	118·8	120·1	111·1	147·6
30–35	99·6	151·2	63·8	80·8
35–40	69·0	113·2	38·9	60·5
40–45	38·1	94·4	16·5	30·7
45–50	27·0	66·8	12·6	17·2
50 and upwards	7·4	16·8	3·7	2·3

* In the case of men 20–25.

The figures show that the probability of a widower marrying within a year is greater than that of a bachelor of similar age, and, further, that the difference in favour of the former is much greater at ages over 30 than at earlier ages. Comparing the marriage rate for widows with that for spinsters it is seen that at every age under 50 the chance of a widow marrying is considerably greater than that of a spinster of the same age. As 76 per cent. of the widowers and 78 per cent. of the widows are over 50 years—a period of life when the chance of re-marrying is small—and the great majority of the bachelors and spinsters are under that age—a period when the probability of marrying is much greater—it is to be expected that the rate for each of the two

former sections will be much lower than that for each of the latter. In proportion to their respective numbers, the marriages of widowers were only slightly more than half as numerous as those of bachelors, and those of widows were only about about one-fifth those of spinsters.

Age of bridegrooms and brides.

The ages of bridegrooms and brides who were married in 1918 are shown in combination for various groups in the table which follows :—

AGES OF BRIDEGROOMS AND BRIDES IN COMBINATION IN VICTORIA, 1918.

Ages of Bridegrooms.	Ages of Brides.																	Total Bridegrooms.
	14.	15.	16.	17.	18.	19.	20.	21 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	50 to 55.	55 to 60.	60 to 65.	65 to 70.	70 and over	
16	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
17	...	..	..	1	...	3	1	1	...	...	...	...	...	...	...	...	...	...	6
18	...	...	6	14	13	9	3	8	3	1	...	...	...	...	...	...	...	...	57
19	...	1	4	12	26	16	9	19	5	...	...	...	...	...	...	...	...	...	92
20	..		3	6	26	19	34	49	5	...	...	...	...	...	...	...	...	...	142
21 to 25	1	2	8	50	157	184	211	1,263	333	31	7	1	1	1	...	...	...	...	2,250
25 to 30	...	3	2	27	57	87	132	1,338	1,231	229	30	3	...	1	...	...	...	...	3,140
30 to 35	...	..	2	7	23	30	33	412	590	326	76	15	2	2	..	...	...	...	1,518
35 to 40	..	...	1	3	5	10	13	131	269	198	127	38	15	3	...	...	...	...	813
40 to 45	...	...	...	1	1	2	7	36	84	97	86	60	22	2	...	.	...	1	399
45 to 50	..	2	...	...	1	...	4	17	57	51	77	67	45	6	3	...	...	...	330
50 to 55	...	...	...	1	...	...	...	10	15	22	33	23	28	32	9	...	.	...	173
55 to 60	...	...	...	...	...	...	...	2	9	13	15	24	16	21	13	1	4	...	118
60 to 65	..	...	...	...	...	...	...	1	3	2	3	13	12	13	7	5	1	1	61
65 to 70	...	...	...	...	...	..	...	...	1	1	...	4	6	6	2	5	5	1	31
70 to 75	...	...	...		..	...	...	1	...	...	1	2	1	2	1	2	2	...	12
75 an over		...	...	...	..	...	...	...	...	...	...	..	3	1	..	4	3	2	13
Total Brides	1	8	26	122	309	361	447	3,288	2,605	971	455	250	151	90	35	17	15	5	9,156

Although age inequalities among contracting parties were relatively few, they were striking in degree. Thus four men between 45 and 50 married women aged 20, while seven women between 35 and 40 were married to men who were their juniors by 15 years. The great majority of the parties were, however, of suitable ages. Of every 1,000 men married during the year, 707 were older and 188 younger than their brides, and 105 were of the same age as their partners.

Proportion of marriages at various ages.

The proportion of both sexes marrying in the various age groups are shown in the succeeding table for the averages of the periods 1881–90 and 1901–10, also for the year 1918:—

PROPORTION OF MALES AND FEMALES MARRYING AT DIFFERENT AGES, 1881–90, 1901–10, AND 1918.

Age Group.	Proportion per 1,000 of total.					
	Bridegrooms.			Brides.		
	1881–90.	1901–10.	1918.	1881–90.	1901–10.	1918.
Under 15	...	...	...	·15	·14	·11
15 to 16	...	...	...	1·17	1·12	·87
16 to 17	·03	·09	·11	6·53	5·16	2·84
17 to 18	·29	·34	·66	20·32	15·58	13·32
18 to 19	1·46	2·09	6·22	42·94	33·31	33·75
19 to 20	5·62	7·02	10·05	65·03	48·67	39·43
20 to 21	15·19	13·67	15·62	73·84	59·41	48·82
21 to 25	321·02	258·64	245·53	432·34	380·91	358·78
25 to 30	365·48	357·07	343·05	223·83	267·78	284·85
30 to 35	134·57	177·13	165·68	62·07	98·54	106·06
35 to 40	58·29	84·06	89·02	29·53	44·37	49·69
40 to 45	32·54	40·87	43·47	17·10	21·19	27·41
45 to 50	24·77	24·05	36·04	12·23	11·00	16·38
50 to 55	18·40	13·33	18·89	6·74	6·29	9·83
55 to 60	11·49	8·05	12·88	3·40	3·13	3·82
60 and over	10·85	13·59	12.78	2·78	3·40	4·04
Total	1,000·00	1,000·00	1,000·00	1,000·00	1,000·00	1,000·00

The age constitution of brides shows a very marked alteration in recent periods. Of every 1,000 women who were married during 1918 498 were under 25 years, and 285 were aged 25–30, as against 642 and 224 at corresponding ages in the years 1881 to 1890. As fertility is considerably less at older than at younger ages, it is evident that, owing to the altered age distribution of wives, the potential births to every 1,000 marriages in the year under review are fewer than to marriages contracted during the period 1881–1890.

Age at marriage.

A high proportion of re-marriages has the effect of increasing the average marrying age of bridegrooms and brides. This is readily seen by comparing for 1918 the mean

age at marriage of bachelors, 29·03 with that of divorced men, and of widowers—41·80 and 46·83 respectively. The average age of spinsters marrying was 26·03, as against 35·24 for divorced women and 39·29 for widows. The average age of men marrying women under 45 and of their brides for certain periods since 1870 is shown in the following table :—

MEAN AGES AT MARRIAGE.

Period.	Average Age of—	
	Brides under 45.	Bridegrooms of Brides under 45.
	Years.	Years.
1870–4	24·13	29·93
1880–4	23·83	28·61
1890–4	24·66	28·66
1900–4	25·44	29·70
1905–9	25·88	29·80
1910	25·88	29·58
1911	25·81	29·46
1912	25·75	29·17
1913	25·66	29·01
1914	25·71	29·01
1915	25·68	28·75
1916	26·07	29·48
1917	26.03	29·69
1918	25·95	29·66

The mean age of women under 45 who married in 1918 was above the average of the previous five years, and it was greater by nearly sixteen months than that of women who married in 1890–4. In Victoria for 1918 the mean marrying age of all brides was 26·86, as compared with 27·27 in England and Wales and 26·77 in New Zealand. The mean ages of all bridegrooms in the same countries were 30·51, 30·04, and 30·64 years respectively.

Marrying age according to occupation. In the *Year-Book* for 1915–16 a table is given showing the average age at marriage of persons engaged in various occupations. This was based upon 42,764 marriages for the period 1907–11, in connexion with which the records gave definite occupations.

Birthplaces of persons marrying. Marriage records show that of the persons married in Victoria during 1917, the latest year for which particulars were tabulated, 89·8 per cent. were born in Australia, 8·0 per cent. were born in the United Kingdom, and only small proportions, amounting to 2·0 per cent. of the bridegrooms and ·6 per cent. of the brides, were natives of foreign countries.

The numbers born in Australia and other countries are shown in the following table for the years 1913 and 1917 :—

BIRTHPLACES OF PERSONS MARRIED, 1913 AND 1917.

Where Born.	Bridegrooms.		Brides.	
	1913.	1917.	1913.	1917.
Australia	9,628	8,226	10,274	8,846
New Zealand	155	71	82	59
England and Wales ...	972	729	644	401
Scotland	213	130	141	68
Ireland	126	119	83	66
Other British Possessions ...	40	37	24	11
Germany	46	26	19	11
Russia	17	26	3	8
Italy	15	27	12	8
United States	30	18	14	7
Other Foreign Countries ...	82	97	28	21
Total	11,324	9,506	11,324	9,506

Marriages in quarters. Victorian experience shows that the Autumn quarter is the most frequently selected season for marrying. In 1918, however, the greatest proportion took place in the Spring, when 26·6 per cent. of the total marriages were solemnized, as against 25·8 per cent. in the Autumn, 24·3 per cent. in the Winter, and 23·3 per cent. in the Summer.

Conjugal condition of persons marrying. The following statement shows the percentages of persons in each conjugal condition who married in different periods since 1870 :—

CONJUGAL CONDITION OF PERSONS MARRYING, 1871–1918.

Conjugal Condition.	Percentage of total Marriages.					
	1871–80.	1881–90.	1891–1900.	1901–10.	1911–17.	1918.
Bachelors and Spinsters..	80·59	85·84	87·22	88·46	90·73	88·51
Bachelors and Widows ..	7·10	4·72	4·23	3·66	2·89	3·78
Widowers and Spinsters..	7·75	6·17	6·07	5·70	4·73	5·78
Widowers and Widows ..	4·56	3·27	2·48	2·18	1·65	1·93

Of every 1,000 persons of each sex married in Victoria during last year, 77 were widowers and 57 were widows, as against 75 and 50 respectively in 1917 and 63 and 43 in 1916.

Divorced persons re-marrying.

The number of divorced persons re-married during 1918 was 159, which was considerably below the number for the preceding year. Of the 109,330 persons married during the last five years, divorced persons numbered 1,001, or 1 in every 109 persons, as compared with 1 in every 655 in England and Wales in 1917. The following are the numbers of divorced persons who have re-married in Victoria since 1913 :—

DIVORCED PERSONS RE-MARRYING, 1914 TO 1918.

Year.	Males.	Females.	Total.
1914	91	124	215
1915	88	119	207
1916	81	111	192
1917	111	117	228
1918	81	78	159

The divorced persons in the State at the last census numbered 1,240 of whom 575 were men and 665 women. A comparison of the re-marriages of divorced males and females during 1911 with these numbers shows that, according to the experience of that year, 11·5 per cent. of the males and 15·8 per cent. of the females re-marry each year. As these proportions greatly exceed the rates for other sections of the community, it is evident that many divorces are obtained with the view of early re-marriage.

Marriages of minors.

The proportions of bridegrooms and brides under 21 years of age are given in the subjoined table for the years 1914 to 1918 :—

Year.	Percentage under 21 years of age.	
	Bridegrooms.	Brides.
1914	3·15	15·34
1915	3·02	14·46
1916	2·65	13·23
1917	2·90	14·06
1918	3·27	13·91

Marriages in religious denominations.

The numbers and proportions of marriages solemnized according to the rites of the principal religious denominations and of those performed by registrars of marriages for the years 1917 and 1918 are shown in the following table :—

MARRIAGES IN VARIOUS DENOMINATIONS.

Denomination.	1917.		1918.	
	Number.	Percentage of Total Marriages.	Number.	Percentage of Total Marriages.
Church of England	2,479	26·08	2,534	27·67
Roman Catholic Church... ...	1,858	19·55	1,710	18·67
Presbyterian Church	1,728	18·18	1,696	18·52
Methodist Church	1,419	14·93	1,301	14·21
Congregational Church	831	8·74	766	8·37
Baptist Church...	444	4·67	441	4·82
Lutheran Church	48	·50	54	·59
Church of Christ	237	2·49	203	2·22
Salvation Army	37	·39	33	·36
Jews	35	·37	51	·56
Other Sects	70	·73	85	·93
Registrars of Marriages... ...	320	3·37	282	3·08
Total	9,506	100·00	9,156	100·00

Marriages by Anglican clergymen represented 27·67 per cent. of the total in 1918 as compared with 26·08 in the previous year, 26·51 in 1916, 25·44 in 1911 and 21·18 in the period 1904–8. Excepting the ratios for the Presbyterian and Methodist churches, there were great disparities between the proportion of marriages celebrated according to the rites of each of the principal denominations and the proportionate number of adherents possessed by it in the community.

Civil marriages.

In 1918, 3·1 per cent., in 1917, 3·4 per cent., in 1916, 3·2 per cent., in 1915, 3·0 per cent., and in 1914 and 1913, 2·6 per cent. of the total marriages in Victoria were celebrated by lay registrars, as against 1 per cent. in 1909, and about 7 per cent. in the decade ended 1890. The decrease which occurred between the earlier period and 1909 was due to the competition of matrimonial agencies which sprang up about 1894, and the increase since 1909 has probably been due to the provisions of the *Marriage Act* 1909 (now incorporated in the *Marriage Act* 1915—No. 2691) permitting the removal from the list of registered clergymen of the names of those who make a business of celebrating marriages. The proportion of civil marriages in Victoria is only about one-seventh of the proportions in New Zealand and England and Wales.

Registered clergymen.

The ministers qualified by registration to celebrate marriages in Victoria numbered 1,547 on 31st December,

1918. The number of these in each denomination (excepting Jews and Quakers) and of the lay registrars of marriages was as follows :—

REGISTERED MINISTERS OF EACH DENOMINATION.

Denomination.	Number of Registered Ministers.	Denomination.	Number of Registered Ministers.
Church of England ..	387	Australian Church ..	1
Roman Catholic ..	325	Ballarat Town Mission ..	1
Presbyterian	284	Free Christian ..	1
Methodist	258	New Church	1
Congregational	72	Unitarian	1
Baptist	89	Greek Orthodox Church	1
Church of Christ ..	54		
Lutheran	22	Total clergymen ..	1,547
Salvation Army ..	32	Lay Registrars of Marriages	20
Latter Day Saints ..	4		
Seventh Day Adventist ..	12		
Catholic Apostolic ..	2	Grand Total ..	1,567

BIRTHS.

Number of births.

The number of births registered in Victoria during the year 1918 was 31,601, of which 16,176 were of males and 15,425 of females. This was 1,434 below the number recorded for the preceding year and 2,638 below that for 1916. Still-births, which are excluded from both births and deaths, numbered 969, and corresponded to a ratio of 3·1 per 100 infants born alive in 1918. The ratio for the metropolitan area was 3·4 as against 2·7 for the remainder of the State. There were 1,049 male to every 1000 female births in 1918, as compared with 1,089 in 1917, and 1,047 to every 1,000 on the average of the preceding five years. The figures for each year since 1898 are as follows :—

BIRTHS IN VICTORIA, 1899 TO 1918.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.
1899 ..	15,785	15,223	31,008	1909 ..	16,092	15,457	31,549
1900 ..	15,834	14,945	30,779	1910 ..	16,411	15,026	31,437
1901 ..	15,876	15,132	31,008	1911 ..	16,944	16,100	33,044
1902 ..	15,583	14,878	30,461	1912 ..	18,244	17,573	35,817
1903 ..	15,115	14,454	29,569	1913 ..	18,436	17,542	35,978
1904 ..	15,313	14,450	29,763	1914 ..	18,549	17,676	36,225
1905 ..	15,523	14,584	30,107	1915 ..	17,821	17,189	35,010
1906 ..	15,716	15,128	30,844	1916 ..	17,625	16,614	34,239
1907 ..	15,989	15,380	31,369	1917 ..	17,222	15,813	33,035
1908 ..	16,073	15,028	31,101	1918 ..	16,176	15,425	31,601

The births in Australia were 12,206 fewer in 1918 than in 1914. The number for 1918 was 125,758, as compared with 129,919 in the previous year, 131,429 in 1916, 134,829 in 1915, and 137,964 in 1914. Of the total recorded for 1918, 31,601 occurred in Victoria, 50,700 in New South Wales, 19,560 in Queensland, 11,357 in South Australia, 7,106 in Western Australia, 5,280 in Tasmania, 105 in the Northern Territory, and 49 in the Federal Capital Territory.

Birth rates. In young communities, birth rates calculated per 1,000 of the population are to some extent unreliable and misleading. In the earlier periods, when, owing to immigration, the population consists for the most part of men and women at the reproductive period of life, the rates are obviously high. As time proceeds, however, notwithstanding that immigration of reproductive adults may be maintained, the proportion of such adults to the total population must diminish, and with it, of necessity, the birth rate. The following table shows the birth rates in Victoria from 1870 to 1918 :—

BIRTH RATES IN VICTORIA PER 1,000 OF POPULATION, 1870 TO 1918.

Year.	Birth Rate.	Year.	Birth Rate.	Year.	Birth Rate.
1870 ..	38·07	1897 ..	26·49	1908 ..	24·56
1875 ..	33·94	1898 ..	25·51	1909 ..	24·62
1880 ..	30·75	1899 ..	26·14	1910 ..	24·20
1885 ..	31·33	1900 ..	25·79	1911 ..	25·03
1890 ..	33·60	1901 ..	25·72	1912 ..	26·41
1891 ..	33·57	1902 ..	25·05	1913 ..	25·82
1892 ..	32·51	1903 ..	24·28	1914 ..	25·45
1893 ..	31·18	1904 ..	24·42	1915 ..	24·55
1894 ..	29·05	1905 ..	24·57	1916 ..	24·30
1895 ..	28·46	1906 ..	24·91	1917 ..	23·50
1896 ..	27·19	1907 ..	25·03	1918 ..	22·29

The birth rate for 1918 was the lowest ever experienced in the State. All the States had lower rates in 1918 than in the previous year. The births per 1,000 of the population in the other States, New Zealand, and England and Wales in 1918 were as follows :— New South Wales, 26·55; Queensland, 28·41; South Australia, 25·80; Western Australia, 22·84; Tasmania, 25·91; New Zealand, 23·44; and England and Wales, 17·7. Since 1913 the birth rate has declined by 10·6 per cent. in Australia and 26·6 per cent. in England and Wales.

The birth rate of a community is almost wholly dependent upon the proportion of wives at the reproductive period of life and their internal age distribution. As these elements, especially the former,

differ widely in certain Australian States, the crude rates of the different States are scarcely comparable. The figures for the last census showed that in every 1,000 of the population of each State and of the Commonwealth the married women aged 15 to 45 numbered 106·0 in Victoria, 115·4 in New South Wales, 107·2 in Queensland, 109·9 in South Australia, 123·6 in Western Australia, 110·5 in Tasmania, and 111·2 in Australia. In the case of Victoria, the deficiency in the proportion of wives at the ages mentioned was accentuated by their comparatively unfavorable internal age distribution, the proportion at the younger and more fertile ages being smaller than that of any other State. A computation shows that owing to these differences the legitimate births in Victoria to every 1,000 of the population in 1911 were fewer by 3·5 than in New South Wales, by 1·4 than in Queensland, by 1·8 than in South Australia, by 4·2 than in Western Australia, and by 2·5 than in Tasmania, also that they were 2·0 less than in the whole of Australia.

Corrected birth rates per 1,000 wives in Victoria.

An accurate view of the alteration in the fertility of wives is obtained by comparing the ratio of legitimate births to wives at reproductive ages, and allowing for the difference in their age distribution at each period. The following table shows for Victoria the distribution of married women in six five-year groups in the last five census years :—

PROPORTION OF MARRIED WOMEN IN AGE GROUPS TO TOTAL BETWEEN 15 AND 45 IN THE LAST FIVE CENSUS YEARS.

Census Year.	Proportion in each Age Group to Every 1,000 Married Women between 15 and 45.					
	15–20.	20–25.	25–30.	30–35.	35–40.	40–45.
1871 ..	20·3	130·4	211·4	230·7	233·2	174·0
1881 ..	17·3	159·5	204·6	206·0	209·7	202·9
1891 ..	13·5	156·9	275·2	244·1	172·1	138·2
1901 ..	8·1	99·0	198·3	249·6	249·2	195·8
1911 ..	12·4	113·8	206·9	226·6	221·2	219·1

To estimate the effect which the alteration in age distribution had on the birth rate, the proportion in each of the above groups was multiplied by the average natality rate for the group according to a standard table—the standard used for this purpose being the Swedish table of 1891. The sum of the products for each census year represented the number of births which would have occurred in that year per 1,000 married women between 15 and 45 had the fertility of these women remained unaltered, *i.e.*, the potential births. The year 1871

was used as a basis with which to compare the four subsequent census years, and corrections were applied to the actual births (per 1,000) occurring in those years, so as to make them conform to the age constitution in the first-mentioned year. The correction factors were obtained by taking the number of births per 1,000 married women aged 15–45 which would have occurred in 1871 had the standard natality rates prevailed, and dividing this number by the corresponding number of potential births for 1881, 1891, 1901, and 1911. The above method was applied to find what proportion of the alteration in the ratio of births to married women under 45 was due to causes other than varying age constitution. The last mentioned factor has been taken into account in the computation of the birth rates appearing in column 5 of the subjoined table :—

CORRECTED LEGITIMATE BIRTH RATES.

(1) Census Year.	(2) Married Women between 15 and 45 years of age.	(3) Legitimate Births.	(4) Legitimate Births per 1,000 Married Women 15–45.	(5). Corrected Legitimate Births per 1,000 Married Women 15–45.	(6) Factor for Correction of Rate in Column 4.
1871 ..	88,561	26,805	302·67	..	..
1881 ..	84,831	25,675	302·66	303·14	1·0016
1891 ..	120,700	35,853	297·04	281·98	0·9493
1901 ..	127,858	29,279	229·00	238·75	1·0426
1911 ..	139,398	31,080	222·96	231·50	1·0383

An inspection of the rates in column (5) shows that there was a fall of 7 per cent. in 1891 as compared with 1881, a further serious decline of over 15 per cent. in 1901 as compared with 1891, and a decrease of 3 per cent. in 1911 as compared with 1901, which were not due to variations in the age distribution of the married women between 15 and 45 in the community. A further examination of the corrected legitimate birth rates appearing in this column shows that the births in 1911 to every 1,000 married women of reproductive ages were 71 fewer than in 1881, 50 fewer than in 1891, and 7 fewer than in 1901.

Corrected legitimate birth rate for Victoria.

Legitimate birth rates (per 1,000 of the total population) for widely separated periods do not give a correct indication of the relative fertilities of those periods, unless the number of married women at reproductive ages in proportion to the population and the age constitution of such women have remained unchanged. In order to allow for the disturbance which may have been introduced through variations in these elements it is necessary that corrections be made in the crude rates. The factor to correct the result of changes in the proportion of married women between 15 and

45 is obtained by comparing the number of such women in the community at the period of observation with the number in a standard population. The method of obtaining the correcting factor for the disturbance due to the second element was explained in a previous paragraph.

The following table shows the crude legitimate birth rates in five census years, the corrections to be applied thereto for the reasons mentioned above, the amended birth rates, and the difference between these and the crude rates. The standard used in the computation of the correction factors was the Victorian population of 1871. Corrected birth rates per 1,000 of the population in the years 1881, 1891, 1901, and 1911 are as follows :—

CORRECTED LEGITIMATE BIRTH RATES PER 1,000 OF POPULATION.

Year.	Enumerated Population.	Legitimate Births.	Legitimate Births per 1,000 of population (crude rates).	Wives aged 15–45, per 1,000 of population.	Correction factor for variations in—		Corrected Birth Rate.	Difference between crude and corrected rates.
					Proportion of wives aged 15–45.	Age distribution of wives aged 15–45.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1871	731,528	26,805	36·64	121·1	..	..	..	..
1881	862,346	25,675	29·77	98·4	1·2307	1·0016	36·69	6·92
1891	1,140,405	35,853	31·44	105·8	1·1446	0·9493	34·39	2·95
1901	1,201,341	29,279	24·37	106·4	1·1382	1·0426	28·77	4·40
1911	1,315,551	31,080	23·63	106·0	1·1425	1·0383	27·89	4·26

An inspection of the crude rates in the fourth column of the above table shows that legitimate births per 1,000 of population apparently declined by 6·87 in 1881, 5·20 in 1891, 12·27 in 1901, and 13·01 in 1911, as compared with the first census date. After making allowance for the disturbing elements known to exist, the apparent decline of 6·87 in 1881 is altered to an increase of ·05 per 1,000, while the decline of 1891 is reduced from 5·20 to 2·25, that of 1901 from 12·27 to 7·87, and that of 1911 from 13·01 to 8·75 per 1,000 as compared with 1871. Between 1891 and 1911 there was a reduction of nearly 19 per cent. in the rate due to other than normal causes.

Births to wives in Australasia and England.

The next table shows the legitimate births per 1,000 married women under 45 (not allowing for their differing age distribution) in each State, New Zealand, and England and Wales in the three census years 1891, 1901, and 1911 :—

LEGITIMATE BIRTHS PER 1,000 MARRIED WOMEN UNDER 45 YEARS OF AGE.

Country.	Legitimate Births per 1,000 Married Women aged 15 to 45.			Decrease per cent. in 20 years.
	1891.	1901.	1911.	
Victoria	297·0	229·0	223·0	24·9
New South Wales ..	298·9	235·6	235·4	21·2
Queensland	315·0	251·0	244·8	22·3
South Australia ..	311·1	235·0	235·9	24·2
Western Australia ..	352·8	244·0	221·8	37·1
Tasmania	315·9	254·6	244·8	22·5
New Zealand ..	279·1	246·1	211·7	24·2
England and Wales ..	268·8	234·2	196·2	27·0

It will be seen from these figures that between 1891 and 1911 there was a pronounced decline in the proportion of legitimate births to married women under 45 years of age in the different States, New Zealand, and England and Wales, varying from 37 per cent in Western Australia to 27 per cent in England and Wales, 25 per cent. in Victoria, 24 per cent. in South Australia and New Zealand, and 21 per cent. in New South Wales. Slightly more than one-fourth of the total decline in Victoria during the twenty years was due to the altered age distribution of married women under 45 years of age, and it is probable that this cause was also responsible for a portion of the decrease in each of the other States and New Zealand.

Birthplaces of parents of legitimate children.

The birth records for 1918 show that 85 out of every 100 children were born to Australian parents, and 96 out of every 100 to one or both parents born in Australia. Of the total fathers, 80·8 per cent. were born in Victoria; 88·4 in Australia; 1·0 in New Zealand; 6·5 in England and Wales; 1·4 in Scotland; ·9 in Ireland; ·3 in other British Possessions; and 1·5 per cent. in foreign countries. The corresponding percentages for mothers were: Victoria, 84·0; Australia, 92·1; New Zealand, ·9; England and Wales, 4·6; Scotland, ·9; Ireland, ·6; other British Possessions, ·2; and foreign countries, ·7.

Chinese and half-caste Chinese births.

During the past nine years the births to Chinese parents numbered 58, or 1 in every 4,977 legitimate births, and there were 273 Chinese half-caste births (fathers only Chinese), or 1 in every 1,057 legitimate births registered in the same period.

Ages of parents of legitimate children.

The average ages of fathers and mothers of legitimate children whose births were recorded in 1918 were 34·24 and 30·32 years respectively, which were 4·58 and 4·37 years above the average ages of bridegrooms marrying brides under 45 years of age, and of such brides for the same period. The proportions of both parents in various age groups are shown in the following table for the year mentioned :—

PERCENTAGE OF PARENTS IN AGE GROUPS, 1918.

Father.		Mother.	
Age Group.	Proportion per 100 Births.	Age Group.	Proportion per 100 Births.
Under 20	·29	Under 20	2·16
20 to 25	7·73	20 to 25	18·28
25 to 30	25·27	25 to 30	31·13
30 to 35	25·83	30 to 35	25·62
35 to 40	19·68	35 to 40	16·34
40 to 45	11·31	40 to 45	5·88
45 to 50	6·45	45 and over ...	·59
50 and over	3·44		
Total ...	100·00	Total ...	100·00

It will be seen that, on the experience of 1918, 49·41 per cent. of the mothers were between ages 20 and 30, and 41·96 per cent. between ages 30 and 40. The proportions of fathers at these ages were 33·00 and 45·51 per cent. respectively. Of every 1,000 legitimate births, about 22 were due to mothers under 20 years, and 6 to mothers aged 45 years and upwards. The *Year-Book* for 1916–17 contains on page 326 information relating to the ages of mothers of first-born children.

Birth rates in town and country.

The subjoined table shows the number of births per 1,000 of the population in the metropolitan, the other urban, and the rural districts, for 1875 and each subsequent

fifth year, also the averages of the years 1901–5 and 1906–10, and the rates for each of the last eight years :—

BIRTH RATES IN METROPOLITAN, OTHER URBAN, AND RURAL DISTRICTS, 1875 TO 1918.

Year.	Births per 1,000 of the Population.			
	Metropolitan District.	Other Urban Districts.	Rural Districts.	Victoria.
1875	33·63	38·63	31·54	33·94
1880	31·19	34·21	28·72	30·75
1885	34·94	31·87	28·12	31·33
1890	37·71	34·43	28·93	33·60
1895	29·46	34·03	25·49	28·46
1900	24·54	32·29	24·26	25·79
1901–5	24·03	32·14	23·46	24·81
1906–10	23·59	32·47	22·88	24·66
1911	24·51	31·85	22·79	25·03
1912	27·48	33·24	22·46	26·41
1913	27·20	31·77	21·74	25·82
1914	26·82	31·36	21·34	25·45
1915	26·11	30·32	20·18	24·55
1916	25·51	30·56	20·10	24·30
1917	24·45	30·00	19·53	23·50
1918	23·11	28·70	18·49	22·29

Birth rates in country towns.

The birth rates in the seven principal country towns are given below for each of the last five years :—

BIRTH RATES IN THE SEVEN PRINCIPAL COUNTRY TOWNS.

Year.	Births per 1,000 of the Population.						
	Ballarat and Suburbs.	Bendigo and Suburbs.	Geelong and Suburbs.	Castlemaine and Suburbs.	Maryborough.	Warrnambool.	Stawell.
1914 ...	26·01	31·44	27·03	32·46	34·91	45·27	42·20
1915 ...	24·73	28·99	28·17	28·16	26·67	44·11	34·22
1916 ...	24·16	27·38	27·58	27·40	32·00	41·22	37·87
1917 ...	22·94	27·75	25·33	22·67	29·60	42·03	35·37
1918 ...	21·24	25·91	23·77	21·00	29·90	39·73	32·65
Average	23·82	28·29	26·38	26·34	30·62	42·47	36·46

On the average of the five years 1914 to 1918, the birth rate in all of the above towns, except Ballarat, exceeded that of the State and of Melbourne and suburbs. The highest rate prevailed in Warrnambool, and the lowest in Ballarat and suburbs.

Birth rates in metropolitan municipalities. The birth rates in metropolitan municipalities are shown in the following table :—

METROPOLITAN BIRTH RATES 1901, 1911, 1916, 1917, AND 1918.

Districts.	Births per 1,000 of the Population.				
	1901.	1911.	191	1917.	1918.
Melbourne City	21·15	19·90	21·45	19·33	18·52
Fitzroy City	22·58	24·40	21·52	23·12	22·54
Collingwood City	26·46	23·36	19·44	18·76	16·97
Richmond City	25·51	25·28	29·26	28·39	24·84
Brunswick City	26·71	24·81	27·39	25·39	24·56
Northcote City	24·40	26·00	30·79	29·36	27·99
Prahran City	22·69	23·77	25·71	27·34	25·30
South Melbourne City... ...	22·10	21·71	20·12	18·16	16·76
Port Melbourne City	25·26	24·59	22·15	22·29	19·38
St. Kilda City	18·59	21·10	18·81	15·73	14·56
Brighton City	22·39	22·48	21·38	21·14	18·08
Essendon City	23·77	21·32	25·89	23·56	21·95
Hawthorn City	22·67	20·16	16·51	18·91	18·38
Kew Town	21·54	23·43	26·34	24·72	23·14
Footscray City	28·21	30·05	35.20	31·66	31·62
Williamstown City	25·34	24·42	25·24	22·90	21·36
Oakleigh Borough	31·25	33·94	30·08	33·80	29·78
Caulfield City	18·72	20·15	28·28	25·80	24·22
Malvern City	21·98	20·25	21·20	19·14	16·18
Camberwell City	19·17	15·24	21·67	21·97	20·61
Preston Shire	26·76	24·06	23·95	20·57	18·92
Coburg Town...	20·58	22·75	25·67	22·61	24·47
Sandringham Town	...	...	...	15·24	13·89
Greater Melbourne :—					
Excluding Births in Institutions	23·03	22·32	23·46	22·43	21·06
Including Births in Institutions	24·85	24·51	25·51	24·45	23·11

Twin and triplet births. The numbers of cases of twin and triplet births in Victoria in the past five years were as follows :—

CASES OF TWINS AND TRIPLETS.

Year.	Cases of Twins.	Cases of Triplets.
1914	402	4
1915	397	1
1916	365	6
1917	372	...
1918	333	2

On the average of the five years 1 mother in every 90 gave birth to twins, and 1 in every 12,939 was delivered of three children at a birth. The proportions for the decennium ended 1912 were 1 in every 98 and 1 in every 7,949 respectively. There was one case of quadruplet births in 1917.

Children legitimized. Under a section of an Act passed in 1903, an illegitimate child, whose parents subsequently married, might, provided there was no lawful impediment to the marriage of the parents at the time of the birth, be legitimized if registered for that purpose within six months after marriage. In December, 1912, this Act was repealed and another was passed, which provides that children born out of wedlock may be legitimized at any time after the marriage of the parents, on the application of the father, provided there was no lawful impediment to the marriage of the parents at the time of the birth. In November, 1916, an Act was passed which allowed legitimation to be effected on the application of the mother if the father were absent on war service or dead. Up to the end of 1918 advantage was taken of these Acts to legitimate 1,467 children, of whom 14 were registered in 1903, 19 in 1904, 34 in 1905, 43 in 1906, 58 in 1907, 60 in 1908, 51 in 1909, 71 in 1910, 126 in 1911, 106 in 1912, 157 in 1913, 149 in 1914, 141 in 1915, 140 in 1916, 136 in 1917, and 162 in 1918.

Legitimation Acts are in force in all the States and New Zealand, but there are marked differences in the numbers of legitimations resulting therefrom. Of every 100 children born out of wedlock, the numbers legitimized in the various States and New Zealand during 1918 were as follows:—Western Australia, 19·5; New Zealand, 17·3; New South Wales, 17·0; Queensland, 15·5; South Australia, 11·7; Victoria, 8·8; and Tasmania, only 5·7.

Illegitimate births in Victoria. The number of illegitimate births in Victoria during the year 1918 was 1,844, which gives a proportion of 5·84 to every 100 births registered, as against 5·51 in the previous year, 5·15 in 1916, 5·75 in 1915, 5·57 in 1914, 6·03 in 1913, 5·72 in 1912, 5·94 in 1911, and 5·59 in 1910.

Illegitimate births to unmarried women in Victoria. While the percentage of illegitimate to total births in Victoria increased from 5·36 in 1891 to 5·94 in 1911, the illegitimate births in proportion to single women were fewer in the later year. It is thus seen that the higher ratio of illegitimate to total births in 1911, as compared with 1891, was not due to greater laxity of morals, but to the smaller number of legitimate births. The proportion of infants born out of wedlock to the unmarried and widowed women between 15 and 45 years of age in Victoria are shown in the subjoined table for the census years 1891, 1901, and 1911, when the conjugal condition of the population was known:—

ILLEGITIMATE BIRTHS PER 1,000 SINGLE WOMEN.

Year.	Single Women aged 15 to 45.	Illegitimate Births.	Illegitimate Births per 1,000 Single Women.
1891	142,443	2,064	14·5
1901	167,760	1,729	10·3
1911	187,488	1,964	10·5

The number of infants born out of wedlock per 1,000 unmarried and widowed women in Victoria was 10·5 in 1911. This was considerably lower than the corresponding figures for most European countries. The proportions ranged from 27·4 in Germany, 24·3 in Sweden, 24·2 in Denmark, 19·4 in Italy, 19·1 in France and 17·8 in Belgium to 13·4 in Scotland, 8·0 in England, 6·8 in Holland and 3·8 in Ireland.

Illegitimacy in town and country.

A larger proportion of illegitimacy prevails in Melbourne and suburbs than in the other urban and rural districts of Victoria, the proportion in the country districts being the smallest of all. During the year 1918, in the metropolitan area, 1 birth in every 12, in other urban districts 1 in 25, and in the rural districts only 1 in 52, was registered as illegitimate. The proportions in 1907–12 were 1 in 11, 1 in 21, and 1 in 42 respectively.

DEATHS.

Deaths.

The following return shows the number of deaths—male and female—also the quarters in which they were registered and the proportion per 1,000 of the population since 1899 :—

DEATHS IN EACH QUARTER, 1900 TO 1918

Period.	Annual Deaths.	Sex.		Quarter of Registration.				Death Rate per 1,000 of the Population.
		Males.	Females.	March.	June.	September.	December.	
1900–4 ..	15,457	8,686	6,771	3,921	3,750	3,992	3,794	12·84
1905–9 ..	14,932	8,296	6,636	3,805	3,539	3,917	3,671	11·93
1910 ..	14,736	8,132	6,604	3,820	3,693	3,661	3,562	11·34
1911 ..	15,217	8,356	6,861	3,519	3,774	4,132	3,792	11·52
1912 ..	16,595	9,077	7,518	4,000	4,199	4,498	3,898	12·23
1913 ..	15,475	8,496	6,979	4,075	3,678	4,137	3,585	11·11
1914 ..	16,503	9,017	7,486	3,953	4,030	4,257	4,263	11·59
1915 ..	15,823	8,860	6,963	3,524	3,788	4,380	4,131	11·10
1916 ..	16,489	8,901	7,588	4,111	4,140	4,509	3,729	11·70
1917 ..	14,555	7,952	6,603	3,430	3,585	3,831	3,709	10·36
1918 ..	15,177	8,079	7,098	3,537	3,563	4,144	3,933	10·70
Average 1914–18	15,709	8,562	7,147	3,711	3,821	4,224	3,953	11·09

The number of deaths in 1918 was 15,177, which was 592 below the average of the preceding five years. In view of the absence of a large number of healthy young men at the war, and the consequent

depreciation in the physical standard of the community, the comparatively low death rate is very satisfactory.

Death rates in Australian States and New Zealand.

The deaths in Australia in 1918 numbered 50,280, as against 48,040 in the preceding year, 54,205 in 1916, 52,808 in 1915, 51,778 in 1914, 51,825 in 1913, and 52,209 in 1912. Of the total deaths in the year under review 15,177 occurred in Victoria, 18,840 in New South Wales, 7,158 in Queensland, 4,390 in South Australia, 2,833 in Western Australia, 1,802 in Tasmania, 74 in the Northern Territory, and 6 in the Federal Capital Territory. The death rates per 1,000 of the population for each of the Australian States and New Zealand are shown in the following statement for the periods 1902–6 and 1907–11, and for each of the last seven years :—

DEATH RATES IN THE AUSTRALIAN STATES AND NEW ZEALAND.

Period.	Victoria.	New South Wales.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australia.	New Zealand.
1902–6	12·55	10·84	10·92	10·67	12·17	11·04	11·44	9·81
1907–11	11·64	10·20	10·12	9·89	10·47	10·83	10·64	9·77
1912 ..	12·23	10·86	10·96	10·28	11·07	10·73	11·23	8·87
1913 ..	11·11	10·91	10·39	10·82	9·35	10·87	10·78	9·47
1914 ..	11·59	10·13	9·97	10·71	9·39	9·67	10·53	9·31
1915 ..	11·10	10·50	11·00	10·67	9·28	10·11	10·67	9·06
1916 ..	11·70	10·68	10·98	11·69	9·80	10·38	11·04	9·64
1917 ..	10·36	9·61	9·63	10·10	8·97	8·89	9·80	9·58
1918 ..	10·70	9·86	10·40	9·97	9·11	8·84	10·09	14·84

The rate in Victoria, taking the average of the last five years, was higher than in any other State, but this result was chiefly due to the larger proportion of elderly persons, amongst whom the mortality rate is very high. The abnormal death rate in New Zealand in 1918 was due to the heavy mortality from influenza.

Age distribution and crude death rates.

Comparisons of the crude death rates of a country for different periods, or of different countries for the same period, are frequently misleading, as they do not allow for variations in the age distributions of the population. In European countries, the proportion of elderly people, among whom the death rate is heavy, is higher than in the Commonwealth or any of the Australian States, and it is greater in Victoria, and lower in Western Australia, than in any of the other States. The proportions living at various age groups at the last census in each division of the Commonwealth and New Zealand, and those in 1890 in Sweden—a

country which fairly represents European conditions—are shown in the following table :—

PROPORTIONS LIVING AT FIVE AGE GROUPS IN AUSTRALIAN STATES, NEW ZEALAND, AND SWEDEN.

Country.	Proportion per 10,000 of Population living at the Age Group—					Total.
	Under 1 Year.	1 to 20.	20 to 40.	40 to 60.	60 and over.	
Victoria	235	3,837	3,173	2,020	735	10,000
New South Wales ..	274	3,926	3,358	1,813	629	10,000
Queensland	269	4,083	3,285	1,782	581	10,000
South Australia ..	256	3,901	3,304	1,833	706	10,000
Western Australia ..	266	3,646	3,682	2,004	402	10,000
Tasmania	279	4,243	3,069	1,783	626	10,000
Australia	260	3,914	3,297	1,882	647	10,000
New Zealand	241	3,763	3,600	1,691	705	10,000
Sweden	255	3,980	2,696	1,923	1,146	10,000

The figures show that the characteristic features of Australian populations, as compared with those of European countries, are a large preponderance of persons at the age group 20–40, and a relatively small number aged 60 and over. Among the Australian States, Victoria and Western Australia have, as mentioned previously, the highest and lowest proportions respectively of persons aged 60 years and upwards—a point which should be kept in view when comparing their crude death rates.

Index of mortality.

The differences shown in the preceding table in the age constitutions of the populations of the six States have been taken into account in computing their respective indexes of mortality. The results for each are based upon an age distribution corresponding to that of Sweden in 1890, which has been adopted by statisticians as a standard for this purpose. Mortality indexes for each State for the undermentioned years, as compiled by the Commonwealth Statistician, are as follows :—

INDEX OF MORTALITY FOR THE AUSTRALIAN STATES.

Year.	Index of Mortality.						
	Victoria.	New South Wales.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
1914	14·11	12·72	12·70	13·03	12·56	12·11	13·18
1915	13·54	13·24	14·30	13·09	12·79	13·04	13·47
1916	14·28	13·48	14·37	14·45	14·15	13·43	13·99
1917	12·81	12·45	12·64	12·65	12·93	11·78	12·63
1918	13·23	12.86	13·94	12·53	13·69	11·70	13.07

In each of the last five years the crude death rate was higher in Victoria than in any other Australian State, but the figures in the above table show that the Victorian index of mortality was the highest in Australia on only one occasion during those years.

Death rates at various ages.

A reliable estimate of the improvement in the health of the community is obtained by comparing the death rates for groups of ages at different periods. Such rates for Victoria are given in the subjoined table for the decennial periods 1881-1890, 1891-1900, and 1902-1911 :—

DEATH RATES AT CERTAIN AGE GROUPS IN VICTORIA.

Age Group.	Deaths per 1,000 at each Age.		
	1881–1890.	1891–1900.	1902–1911.
Males.			
Under 5	44·79	39·29	26·73
5 to 10	4·06	3·36	2·16
10 to 15	2·65	2·20	1·87
15 to 20	4·03	3·28	2·72
20 to 25	6·35	4·79	3·51
25 to 35	7·72	6·60	4·75
35 to 45	11·23	9·03	7·81
45 to 55	19·28	15·32	13·48
55 to 65	33·25	32·90	25·38
65 to 75	61·13	62·99	59·04
75 and upwards	137·18	145·05	157·26
All ages	16·55	15·47	13·30
Females.			
Under 5	39·46	34·09	22·35
5 to 10	3·92	3·12	2·03
10 to 15	2·56	2·06	1·78
15 to 20	4·17	3·43	2·80
20 to 25	5·81	4·81	3·59
25 to 35	7·90	6·89	5·01
35 to 45	10·93	8·68	7·16
45 to 55	14·84	12·12	9·96
55 to 65	23·49	23·64	18·80
65 to 75	50·32	45·87	46·71
75 and upwards	129·00	124·33	131·77
All ages	13·56	12·36	10·66

The figures show that at all ages, excepting 75 and over for males, and 65 and over for females, very much lower death rates were experienced during the last decennium than in the preceding one. Compared with 1891-1900, the mortality rate for the period 1902-11 for the two sexes combined was lower by 33 per cent. for the age group 0-10, by 14 per cent. at ages 10-15, by 18 per cent. at 15-20, by 26 per cent. at 20-25, by 27 per cent. at 25-35, by 15 per cent. at 35-45

and 45-55, and by 20 per cent. at 55-65. The rates, up to age 65 and probably to age 75, are comparable, and the marked decrease at successive periods points to a general improvement in hygienic conditions.

Death rates at various ages in Australian States.

In the next table the annual deaths in Victoria per 1,000 persons of each sex in successive age groups are compared with those in the other Australian States, and in the Commonwealth, for the period 1909-11 :—

ANNUAL DEATH RATES AT VARIOUS AGES IN EACH AUSTRALIAN STATE, 1909–11.

Age Group.	Annual Deaths per 1,000 of Population.						
	Victoria.	New South Wales.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
Males.							
0–5 ..	24·04	23·76	21·53	20·31	26·78	24·05	23·40
5–10 ..	2·01	2·03	2·15	1·90	3·09	2·36	2·13
10–15 ..	1·68	1·75	1·92	1·34	1·84	1·49	1·71
15–20 ..	2·53	2·47	3·14	2·46	2·54	2·63	2·58
20–25 ..	3·14	3·22	4·38	3·05	4·42	3·63	3·43
25–30 ..	3·94	3·74	4·94	3·90	5·07	4·11	4·09
30–35 ..	4·72	4·35	5·42	4·79	5·91	4·44	4·76
35–40 ..	6·30	5·63	7·32	6·90	7·20	6·73	6·34
40–45 ..	7·97	8·13	9·30	7·86	10·64	6·86	8·40
45–50 ..	10·89	10·64	13·55	10·77	14·48	9·00	11·35
50–55 ..	14·63	13·28	17·15	14·91	16·12	13·28	14·49
55–60 ..	20·49	20·41	22·55	18·98	23·98	15·70	20·52
60–65 ..	32·04	27·94	29·16	29·95	30·21	23·33	29·28
65–70 ..	50·53	44·50	50·32	40·11	45·43	36·89	46·25
70–75 ..	76·20	70·60	65·82	59·63	78·10	53·49	70·20
75–80 ..	120·16	108·32	98·99	102·64	116·27	99·52	111·19
80–85 ..	171·92	158·63	152·59	155·53	155·88	158·83	163·58
85 and over	269·56	283·16	231·29	250·80	281·66	355·33	273·85
All ages—Males ..	12·82	11·15	11·46	10·79	11·42	10·84	11·60
Females.							
0–5 ..	18·89	20·05	19·08	16·24	21·66	20·91	19·39
5–10 ..	1·94	1·69	2·11	1·46	3·05	1·91	1·89
10–15 ..	1·51	1·34	1·34	1·47	1·86	1·97	1·46
15–20 ..	2·44	2·04	2·20	2·35	2·10	3·48	2·28
20–25 ..	3·46	3·15	3·44	3·45	3·76	4·23	3·40
25–30 ..	4·33	3·92	4·41	5·02	4·52	4·54	4·28
30–35 ..	4·92	4·40	4·68		5·15		4·69
35–40 ..	6·20	5·79	5·90	6·05	6·22	6·47	6·04
40–45 ..	6·58	6·06	6·94		6·62		6·36
45–50 ..	8·22	7·66	7·79	8·04	7·44	7·43	7·87
50–55 ..	9·90	9·98	10·13	9·60	11·58		9·93
55–60 ..	14·49	14·45	13·51	12·88	13·13	14·19	14·12
60–65 ..	21·62	20·67	21·89	19·19	17·72	18·18	20·73
65–70 ..	35·12	37·10	33·48	32·19	34·43	34·43	35·30
70–75 ..	59·07	54·55	50·18	48·98	55·53	52·95	55·22
75–80 ..	97·13	91·45	88·41	83·86	98·36	86·75	92·80
80–85 ..	133·47	133·49	137·58	128·76	130·53	138·35	133·94
85 and over	239·69	211·64	223·23	228·03	190·19	258·01	229·05
All ages—Females	10·17	8·83	8·34	9·20	8·55	9·71	9·23

A comparison shows that for the period 1909-11 the Victorian death rate for males in every age group between 5 and 50 was below that of the Commonwealth. For men aged 50 to 60 the rates were

very similar, but for the five age periods between 60 and 85 they were lower in Australia, as a whole, than in Victoria. Among females, the mortality rates in the State were lower for four, and higher for fourteen, age periods than those for the corresponding ages in the Commonwealth.

Victorian and English death rates compared.

The death rates of each sex at various ages in Victoria and Australia for the period 1909-11, and in England and Wales for 1906-10, are shown in the table which follows :—

DEATH RATES AT VARIOUS AGES IN VICTORIA, AUSTRALIA, AND ENGLAND.

Age Group.	Annual Deaths per 1,000 of Each Sex.					
	Males.			Females.		
	Victoria. 1909–11.	Australia. 1909–11.	England and Wales. 1906–10.	Victoria. 1909–11.	Australia. 1909–11.	England and Wales. 1906–10.
0–5 ..	24·0	23·4	45·4	18·9	19·4	38·0
5–10 ..	2·0	2·1	3·3	1·9	1·9	3·4
10–15 ..	1·7	1·7	2·0	1·5	1·5	2·1
15–20 ..	2·5	2·6	3·0	2·4	2·3	2·8
20–25 ..	3·1	3·4	4·0	3·5	3·4	3·3
25–35 ..	4·3	4·3	5·3	4·6	4·5	4·5
35–45 ..	7·1	7·3	8·6	6·4	6·2	7·1
45–55 ..	12·5	12·8	15·5	8·9	8·8	12·0
55–65 ..	25·3	25·2	31·2	17·6	17·0	24·3
65–75 ..	62·1	56·2	64·4	45·7	43·6	53·1
75–85 ..	138·2	127·8	137·7	109·1	105·8	119·6
85 and upwards	269·6	273·8	283·0	239·7	229·0	250·9
All ages ..	12·8	11·6	15·6	10·2	9·2	13·8

The low mortality rate at nearly every age in Victoria, by comparison with that in England and Wales, evidences the healthy climate and the favorable social and industrial conditions of the State. A striking feature of the Victorian and Commonwealth mortalities is the light rate among infants and young children. The superiority of the Victorian over the English rate is very pronounced at the age periods 0–5 and 5–10, but it is less marked in the next ten years of life. For the age groups 20-25 and 25-35, the rates for males are lower, while those for females are slightly higher, in Victoria than in England. For each age period after 35, except 75-85 for males, the death rates for both sexes in Victoria are lighter, and at some ages considerably lighter, than in England.

Death rates among metropolitan residents.

The deaths of residents of metropolitan municipalities and their proportions to population are shown in the following table for the period 1910-12 and for the years 1917 and 1918. The method adopted in the compilation of the table is given on pages 338 and 339 of the *Year-Book* for 1916-17:—

DEATH RATES OF METROPOLITAN MUNICIPALITIES, 1910–12, 1917 AND 1918.

Municipality.	Annual Deaths.			Annual Deaths per 1,000 Residents.		
	1910-12.	1917.	1918.	1910-12.	1917.	1918.
Richmond City ...	594	513	498	14·71	12·55	12·15
Port Melbourne City ...	196	148	141	14·56	11·30	10·85
Melbourne City ...	1,469	1,288	1,425	14·44	12·19	13·47
Fitzroy City ...	493	472	513	14·41	13·47	14·62
Collingwood City ...	462	411	391	13·44	11·45	10·95
Brighton City ...	161	187	191	13·02	10·11	9·67
Oakleigh Borough ...	40	60	54	12·90	12·07	10·65
Prahran City ...	587	541	632	12·89	11·12	12·87
South Melbourne City	591	517	511	12·83	10·71	10·55
Williamstown City ...	198	214	228	12·80	11·64	12·21
St. Kilda City ...	326	318	346	12·65	9·98	10·47
Preston Shire ...	65	74	77	12·63	9·57	9·65
Footscray City ...	290	316	313	12·15	10·50	10·26
Brunswick City ...	383	421	381	11·75	10·81	9·65
Coburg Town ...	111	139	154	11·49	9·55	10·29
Essendon City ...	269	326	306	11·12	10·13	9·20
Hawthorn City ...	265	256	274	10·64	9·10	9·74
Kew Town ...	105	126	143	10·47	10·08	10·99
Camberwell City ...	131	164	198	10·21	8·87	10·25
Caulfield City ...	157	243	320	9·68	9·47	11·47
Malvern City ...	151	245	262	9·29	9·16	9·27
Northcote City ...	165	241	266	9·22	9·52	10·25
Sandringham Town ...		69	74	..	8·69	9.01
Remainder of Metropolis	218	257	284	9·22	10·43	11·34
Whole Metropolis ...	7,427	7,546	7,982	12·61	10·73	11·15
Remainder of State ...	8,089	7,009	7,195	10·99	10·09	10·25

The outstanding features of the above figures are the high death rates prevailing in some of the old centres of population, of which Melbourne City, Fitzroy, Richmond, Collingwood, and Port Melbourne are examples, and the low rates in comparatively recently settled areas, such as Northcote, Malvern, Caulfield, Camberwell, and Kew. In the former group the deaths for 1918 were 12·87 per 1,000 as against 10·39 in the latter. Slight differences in the age distribution of the populations of these two divisions may exist, but they can account for only a small portion of the great disparity in their mortality rates. It would appear that the standard of health, as indicated by death

rates, is much better in the outlying and less densely populated suburbs than in the central and more congested areas of the metropolis.

Metropolitan and country death rates compared.

The ages of the people, as disclosed at the last census, enable a comparison to be made between the death rates prevailing at that time in Greater Melbourne and in the remainder of the State. On the average of the years 1910–12, the deaths of metropolitan residents were in the ratio of 12·61 per 1,000 of population as against a ratio of 10·99 for residents of the rest of the State. The apparent difference in favour of the country is 1·62, but computation shows that, when allowances are made for the unequal age and sex distribution of the people in these areas, the actual difference is greater—the deaths per 1,000 of population being fewer by 2·55 among country than among metropolitan residents.

Decrease in Metropolitan death rate.

In Greater Melbourne, in the decade 1909–18, there were 12·58 deaths per 1,000 of the population, as compared with 15·76 in the decennium 1892-1901. The reduction in the rate represents a saving of 20,600 lives in the past ten years. Many factors have contributed to this result, but it is probable that the introduction of the sewerage system, the notification of contagious diseases, the improvement in the conditions of labour, the increasing supervision of the manufacture and sale of articles of consumption, the greater proportion of females in the community, and the advance of medical science, have been the main causes of the decline. That the sanitary conditions of the metropolis have greatly improved is evidenced by a comparison of the death rates from typhoid fever, diphtheria, and tubercular diseases for the period 1909-18 with those for the decennium 1892-1901. The following are the rates :—

Cause of Death.	Deaths per 1,000 of Population.		
	1892–1901.	1909–1918.	Total Decrease in 1909–18.
Pulmonary Tuberculosis ...	1·654	0·892	0·762
Other Tubercular Diseases ...	0·446	0·211	0·235
Typhoid Fever	0·293	0·049	0·244
Scarlet Fever	0·033	0·020	0·013
Measles	0·215	0·041	0·174
Diphtheria	0·196	0·177	0·019
Total	2·837	1·390	1·447

The figures show that the lower death rates from the six above-mentioned diseases in 1909-18 accounted for 46 per cent. of the total decline. It is impossible to state which municipalities have contributed most to this result, as their mortality rates from the diseases referred to are not available for the earlier period. A comparison, however, of the general death rates in each for the periods under review shows that all divisions of the metropolis have, in varying degrees, shared in the improvement.

Death rates in country towns.

Prior to 1912 the death rates given for the chief country towns were based upon the deaths therein in relation to their respective populations. For reasons which have been given in previous editions of this work that method was discarded and the deaths of residents in proportion to population are now shown instead. Such deaths, and their rates per 1,000 of population, are given in the following statement for the periods 1910-12 and 1913-17 and the year 1918 :—

DEATHS PER 1,000 RESIDENTS IN COUNTRY TOWNS.

Town.	Annual Deaths of Residents.			Annual Deaths of Residents per 1,000 of Population.		
	1910–12.	1913–17.	1918.	1910–12.	1913–17.	1918.
Ballarat and Suburbs	639	643	488	15·07	15·45	12·21
Bendigo and Suburbs	690	598	543	17·51	16·00	15·26
Geelong and Suburbs	411	401	396	13·68	11·58	11·62
Castlemaine ..	92	96	73	13·11	13·09	9·40
Warrnambool ..	95	89	93	13·55	12·05	12·57
Maryborough ..	76	70	46	13·39	13·57	9·29
Stawell	82	65	59	18·60	14·36	13·38

Residents of different areas dying in hospitals.

An examination of the particulars of residence of persons who have died in public hospitals of Victoria during recent years reveals interesting and definite information regarding the assistance rendered by these institutions to people in different divisions of the State. For the metropolitan municipalities, the seven principal country towns, and the remainder of the State, the percentage of the total deaths of residents thereof which occurred in public hospitals during the period 1910-15 and the year 1918 was as follows :—

PROPORTION OF DEATHS OF RESIDENTS OCCURRING IN HOSPITALS, 1910–15 AND 1918.

Area.	Percentage of Deaths of Residents occurring in Hospitals.		Area.	Percentage of Deaths of Residents occurring in Hospitals.	
	1910–15.	1918.		1910–15.	1918.
Port Melbourne City...	35·9	40·4	Oakleigh Borough ...	14·6	25·9
Fitzroy City ...	34·5	33·9	Brighton City ...	14·2	12·6
Melbourne City ...	34·4	39·4	Castlemaine ...	13·9	26·0
Collingwood City ...	28·0	34·3	Ballarat	13·9	12·3
Richmond City ...	26·6	25·3	Hawthorn City ...	13·2	20·4
South Melbourne City	26·5	31·3	Malvern City ...	12·8	13·7
Preston Shire ...	25·0	32·5	Kew Town... ...	12·6	14·0
Northcote City ...	24·4	27·4	Williamstown City ...	12·2	17·5
Brunswick City ...	23·9	27·0	Caulfield City ...	11·7	13·4
Warrnambool ...	23·0	23·7	Camberwell City ...	11·1	13·1
Maryborough ...	22·9	30·4	Sandringham Town...	...	13·5
Footscray City ...	22·6	32·9	Summary :—		
Prahran City ...	21·7	23·9	Greater Melbourne ...	24·6	26·7
Stawell	19·6	22·0	Seven Country Towns ...	16·4	18·3
St. Kilda City ...	18·9	16·8	Remainder of State ...	17·8	22·2
Coburg Town ...	18·0	18·8	Whole State ...	20·9	24·2
Bendigo	16·8	23·9			
Essendon City ...	16·5	18·0			
Geelong	16·3	13·1			

The disparities in the proportions for different areas are very significant. Of the total cases of fatal illness which occurred amongst residents of the districts mentioned in 1910–15, the percentage treated in public hospitals varied from 35·9 for Port Melbourne, 34·5 for Fitzroy, 34·4 for Melbourne City, 28·0 for Collingwood, and 26·6 for Richmond, to 11·7 for Caulfied and 11·1 for Camberwell. For the metropolitan area the percentage was 24·6 as compared with 17·6 for the rest of the State. Taking the proportion for fatal cases as an index of all cases dealt with, it would appear that, relatively to population, the assistance rendered by public hospitals to the residents of Greater Melbourne exceeds by about 40 per cent. that given to people residing elsewhere.

Deaths in public institutions in Greater Melbourne.

In 1918 the deaths in public institutions were 35·6 per cent. of the total in Greater Melbourne, 23·8 per cent. of the total in extra metropolitan districts, and 30·4 per cent. of the total in the State as a whole. The number of

deaths in each public institution in the metropolis in 1918 is given in the subjoined table :—

DEATHS IN PUBLIC INSTITUTIONS IN GREATER MELBOURNE, 1918.

Institution.	No. of Deaths.	Institution.	No. of Deaths.
Hospitals—		Other Public Institutions—	
Melbourne	901	Victorian Homes for Aged and Infirm	66
Alfred	273	Benevolent Asylum ...	186
St. Vincent's	145	Heatherton Sanatorium ...	92
Homœopathic	81	Convent of the Little Sisters of the Poor	69
Austin	197	Old Colonists' Homes ...	11
Children's	329	Foundling Hospital, Broadmeadows	1
Women's	176	Carlton Refuge	2
Infectious Diseases ...	150	Depôt for Neglected Children	29
Queen Victoria	8	Kew Lunatic Asylum ...	98
Eye and Ear	11	Yarra Bend Lunatic Asylum...	62
Williamstown	21	Mont Park Asylum ...	9
Military Base	24	Receiving House — Mental Hospital...	13
Macleod Military... ...	3		
Caulfield Military ...	43		
Police	12		
Total Hospitals ...	2,374	Total Hospitals and other Institutions	3,012

Of the 2,374 persons who died in public hospitals in Greater Melbourne during 1918, 322 were residents of places outside the metropolis.

Infantile mortality.

The mortality of children under one year in proportion to births has been considerably less in recent than in earlier periods, but the necessity for reducing the risks to infant health and life, particularly amongst illegitimate children, is still apparent. The deaths of infants in 1918 numbered 1,950, and, as there were 31,601 births, it follows that of every 100 infants born approximately 6·17 died within twelve months. This proportion was the second lowest recorded for the State. The rates for Melbourne and suburbs, the extra metropolitan area, and the whole State, for different periods since 1880, are shown in the subjoined table :—

INFANTILE DEATH RATES 1881 TO 1918.

Period.	Deaths under One Year per 100 Births in—		
	Melbourne and Suburbs.	Remainder of the State.	Whole State.
1881–1890	17.14	9.50	12.68
1891–1900	13.36	9.60	11.11
1901–1905	11.26	8.45	9.58
1906–1910	9.47	6.95	8.00
1911	7.82	6.12	6.87
1912	9.02	6.05	7.45
1913	7.63	6.51	7.05
1914	8.45	7.24	7.83
1915	7.99	5.77	6.88
1916	8.56	6.29	7.46
1917	6.55	4.72	5.67
1918	7.09	5.16	6.17

On the average of the past five years the infantile death rate for the metropolis was 7·73 per 100 births, which was 25 per cent. below that for the decennium ended 1910, and 42 per cent. below the rate for the decennium 1891–1900.

Infantile deaths in different areas. The deaths of infants under 1 year of age per 100 births in Greater Melbourne, Ballarat, Bendigo, Geelong, and the rest of the State for each of the past twelve years were as follows :—

INFANTILE DEATH RATES IN DIFFERENT DIVISIONS OF THE STATE.

Year.	Deaths under One Year per 100 Births.					
	Victoria.	Melbourne and Suburbs.	Ballarat and Suburbs.	Bendigo and Suburbs.	Geelong and Suburbs.	Rest of the State.
1907.. ..	7.26	8.57	8.69	9.03	8.49	5.80
1908.. ..	8.61	9.83	9.52	11.37	10.33	7.12
1909.. ..	7.13	8.39	11.31	9.54	8.94	5.40
1910.. ..	7.69	9.23	10.19	9.44	6.57	6.01
1911.. ..	6.87	7.82	7.70	8.41	6.11	5.82
1912.. ..	7.45	9.02	10.04	8.36	6.73	5.53
1913.. ..	7.05	7.63	8.95	9.10	7.10	6.09
1914.. ..	7.83	8.45	12.31	9.45	8.91	6.58
1915.. ..	6.88	7.99	8.51	7.71	7.04	5.30
1916.. ..	7.46	8.56	7.93	8.16	7.25	5.97
1917.. ..	5.67	6.55	7.01	5.62	4.76	4.49
1918.. ..	6.17	7.09	5.54	5.86	7.16	4.95

The prejudicial effect of city surroundings on infant life is evidenced by the mortality being heavier in urban than in country districts. On the average of the past five years the deaths of children under 1 year of age to every 1,000 births were 77 in Melbourne, 83 in Ballarat, 74 in Bendigo, and 70 in Geelong, as against 55 in the rest of the State.

Infantile death rates in metropolitan districts.

In issues of this work prior to 1913 the infantile death rate given for each metropolitan municipality was based upon the deaths therein exclusive of those occurring in public hospitals. This method necessarily understated the mortality for each district, the understatement being greatest in the case of the poorer and more congested areas, which contribute an undue proportion of the hospital cases. In order to ascertain the actual death rate for each area the deaths in hospitals are now allotted to the districts where the deceased had resided. For the period 1910–14 and the years 1917 and 1918 the deaths under 1 year per 100 births for each municipality of Greater Melbourne were as follows :—

INFANTILE DEATH RATES FOR METROPOLITAN MUNICIPALITIES.

Municipality.	Deaths under One Year per 100 Births.			Municipality.	Deaths under One Year per 100 Births.		
	1910-14.	1917.	1918.		1910-14.	1917.	1918.
Coburg Town ..	12.03	9.73	10.38	Oakleigh Borough	7.65	6.55	7.28
Port Melb. City ..	12.00	7.88	11.90	Prahran City ..	7.27	4.44	6.52
Fitzroy City ..	11.24	11.60	9.99	St. Kilda City ..	6.38	8.38	6.65
Richmond City ..	10.23	7.67	9.14	Caulfield City ..	5.87	5.89	6.95
Preston Shire ..	10.01	8.18	5.96	Essendon City ..	5.79	4.49	5.62
Collingwood City	9.89	10.10	9.90	Hawthorn City ..	5.72	4.89	6.38
Melbourne City ..	9.22	8.13	8.78	Camberwell City ..	5.58	4.93	5.53
South Melb. City..	9.05	7.87	9.73	Malvern City ..	5.51	3.52	5.25
Brunswick City ..	8.50	7.47	8.14	Northcote City ..	5.47	6.46	8.40
Footscray City ..	8.11	6.61	5.80	Kew Town ..	4.76	2.59	4.98
Williamstown City	8.03	6.65	6.02	Sandringham Town	..	5.79	8.77
Brighton City ..	7.84	5.88	7.56				

It is noticeable that the centres having the lowest infantile death rates are residential areas which are not so thickly populated as nearly all of the other metropolitan districts.

Deaths of infants at different ages.

Of the deaths of infants under 1 year in 1918 nearly 53 per cent. occurred in the first month and 69 per cent. in the first three months of life. The annual deaths at ages under 1 month, from 1 to 3 months, from 3 to 6 months, and from 6 to 12 months, during the five years ended with 1917, and the numbers for the year 1918, are given in the following table, together with the percentage of deaths at each of those age-periods and the proportion of deaths to each 100 births :—

DEATHS OF INFANTS AT DIFFERENT AGES, 1913–17 AND 1918.

Age.	Average Annual Deaths of Infants under 1 year of Age.					
	Five Years—1913-17.			Year 1918.		
	Number.	Percentage at each Age.	Number per 100 Births.	Number.	Percentage at each Age.	Number per 100 Births.
Boys.						
Under 1 month	665	47.8	3.71	585	53.1	3.62
1 to 3 months	229	16.5	1.28	190	17.2	1.17
3 to 6 ,,	211	15.2	1.18	125	11.4	.77
6 to 12 ,,	286	20.5	1.59	202	18.3	1.25
Total ..	1,391	100.0	7.76	1,102	100.0	6.81
Girls.						
Under 1 month	488	46.4	2.87	441	52.0	2.86
1 to 3 months	153	14.6	.90	140	16.5	.91
3 to 6 ,,	173	16.5	1.02	114	13.5	.74
6 to 12 ,,	237	22.5	1.40	153	18.0	.99
Total ..	1,051	100.0	6.19	848	100.0	5.50

The death rate of infants under 1 month was somewhat similar in the two periods, but for the age groups 1 to 3 months, 3 to 6 months, and 6 to 12 months, reductions amounting to 5, 31, and 25 per cent. respectively occurred in the mortality rates in 1918 as compared with 1913–17.

Probable mortality of infants.

The experience of the years 1913–18 shows that of every 20,000 newly-born boys and girls in equal numbers, 760 boys and 608 girls died within twelve months, and 9,240 of the former and 9,392 of the latter, or 18,632 of mixed sexes were living at the end of the year. The corresponding numbers surviving the first year in earlier periods were 17,765 in the ten years

1891–1900 and 17,468 in 1881–1890. It is thus seen that of every 20,000 births comprising equal numbers of each sex there were 867 more survivors in 1913–18 than in 1891–1900, and 1,164 more than in 1881–1890.

Infantile death rates from certain causes.

An investigation of infantile mortalities would be incomplete unless the diseases which have proved fatal in different years were ascertained, and their incidence in each period compared. Information of this nature reveals the causes of high death rates, and, when a fairly early period is selected for comparison with recent years, it shows in what direction improvements have taken place. The chief preventable and non-preventable causes of death, grouped under certain headings, are shown in the subjoined table for the periods 1891–3, 1901–10, and 1911–17, and for the year 1918 :—

INFANTILE DEATH RATES FROM CERTAIN CAUSES, 1891–3, 1901–10, 1911–17, AND 1918.

Cause of Death.	Deaths under 1 year per 1,000 Births in—			
	1891–3.	1901–10.	1911–17.	1918.
Diarrhœal Diseases, all forms	29·66	24·62	17·48	11·90
Wasting Diseases (Marasmus, Atrophy, &c.)	22·24	12·74	13·58	13·58
Prematurity	13·13	14·99	14·46	15·57
Bronchitis, Broncho-pneumonia, Pneumonia	11·37	8·13	7·07	6·39
Convulsions	6·83	3·10	1·83	1·08
Congenital Defects and Malformations ...	3·45	4·86	4·42	3·51
Violence	3·16	2·47	1·12	1·01
Whooping Cough	2·60	2·52	1·79	2·12
Other causes	24·49	14·46	8·54	6·55
Total, all causes	116·93	87·89	70·29	61·71

Of every 1,000 infants born 25 died from diarrhœal and wasting diseases in 1918, as against 31 in 1911–17, 37 in 1901–10, and 52 in 1891–3—a decrease of nearly 52 per cent. in 26 years. In 1918 acute bronchitis, broncho-pneumonia and pneumonia were responsible for 6·4 deaths per 1,000 births, as compared with 11·4 in 1891–3—a decline of 44 per cent. between the two periods. Certain causes, which may be regarded as of a non-preventable nature, such as prematurity, congenital defects, and malformations, were responsible for 29 per cent. of the total infantile mortality during the past eight years.

Of the deaths from preventable causes 1 in every 3 is due to diarrhœal diseases, which are responsible for high death rates in December, January, February, March, and April. On the average of the last eight years, of every 1,000 children born 17 died from diarrhœal complaints within a year, a proportion which shows the necessity for preventive measures in this direction.

Legitimate and illegitimate infantile death rates.

On the average of the past six years, 163 in every 1,000 illegitimate infants died within a year, as against 63 in every 1,000 legitimate children. It is thus seen that the chance of an illegitimate child dying before the age of 1 year is two and one-half times that of the legitimate infant. In the year 1918 the mortality rate for legitimate infants was 5·74 per 100 births. The children born out of wedlock during the same year numbered 1,844, and the deaths of illegitimate infants were 241, the death rate being thus 13·07 per 100 births. With the view of ascertaining the chief reasons for the marked disproportion in the mortality rates of the two classes the following table has been constructed, showing the deaths from certain causes per 1,000 legitimate and illegitimate births for the periods 1904–8 and 1913–17 and for the year 1918 :—

DEATH RATES OF LEGITIMATE AND ILLEGITIMATE INFANTS FROM CERTAIN CAUSES.

Cause of Death.	Deaths under 1 year per 1,000 Births.					
	Legitimate.			Illegitimate.		
	1904-8.	1913-17.	1918.	1904-8.	1913-17.	1918.
Diarrhœal Diseases	19·8	14·9	10·7	72·6	51·9	30·4
Prematurity, Congenital Defects, Marasmus, &c.	30·3	31·4	31·6	52·1	68·2	49·9
Bronchitis, Broncho-pneumonia, Pneumonia	6·9	6·2	5·9	18·6	11·8	14·6
Other causes	18·3	11·3	9·2	58·7	37·1	35·8
Total all causes	75·3	63·8	57·4	202·0	169·0	130·7

The rates for 1918 show that of every 1,000 children born out of wedlock 30·4 died from diarrhœal diseases within a year as compared with 10·7 deaths per 1,000 legitimate infants from the same cause. Owing to a larger proportion of the former children being deprived

of breast food a higher mortality from these diseases might be expected among them than among legitimate infants, but the striking differences in the death rates from this cause and from the chief respiratory diseases indicate considerable neglect in the rearing of illegitimate infants.

Infantile deaths in each month from certain causes.

The influence of temperature on infantile mortality from the chief digestive and respiratory diseases is specially noticeable, whilst on deaths from other causes, particularly those of a developmental character, very little influence is apparent. The deaths in Melbourne and suburbs from the two former classes of complaint in each month during the past eight years are shown in the appended table :—

INFANTILE DEATHS IN EACH MONTH FROM CERTAIN CAUSES.

Month.	Infantile Deaths in Greater Melbourne in 1911–18 from—					
	Diarrhœal Diseases.			Respiratory Diseases.		
	Males.	Females.	Total.	Males.	Females.	Total.
January	310	226	536	33	26	59
February	235	179	414	24	19	43
March	198	169	367	26	20	46
April	148	145	293	36	39	75
May	81	69	150	51	40	91
June	42	39	81	65	62	127
July	26	27	53	117	79	196
August	23	19	42	107	81	188
September	35	22	57	70	52	122
October	40	28	68	47	35	82
November	96	66	162	45	27	72
December	234	157	391	42	23	65
Total, 1911–18 ..	1,468	1,146	2,614	663	503	1,166

The experience of the last eight years shows that of the total infantile deaths in the metropolis from diarrhœal diseases 77 per cent. occur during the five months December to April, and of the deaths from respiratory diseases 54 per cent. occur in the four months June to September.

Infantile mortality in Australasia.

The deaths of infants under 1 year of age in the Commonwealth numbered 7,366 in 1918 as compared with 7,302 in the previous year, 9,282 in 1916, 9,126 in 1915 and 9,886 in 1914. The next table gives the proportion of such deaths to the total births in each Australian State and New Zealand for each of the last seven years, and for earlier periods back to 1891 :—

INFANTILE MORTALITY IN AUSTRALASIA.

Period.	Deaths under 1 year per 100 Births.						
	Victoria.	New South Wales.	Queensland.	South Australia.	Western Australia.	Tasmania.	New Zealand.
1891–1900 ..	11·11	11·22	10·34	10·54	14·48	9·58	8·38
1902–6 ..	9·38	9·27	8·93	8·21	12·21	9·02	7·29
1907–11 ..	7·51	7·66	6·98	6·56	8·29	7·97	6·85
1912 ..	7·45	7·13	7·16	6·16	8·21	6·66	5·12
1913 ..	7·05	7·83	6·33	7·01	7·00	7·01	5·92
1914 ..	7·83	6·97	6·39	7·60	6·82	7·16	5·14
1915 ..	6·88	6·81	6·40	6·73	6·66	7·22	5·01
1916 ..	7·46	6·78	7·04	7·36	6·63	7·50	5·07
1917 ..	5·67	5·75	5·42	5·37	5·71	5·23	4·82
1918 ..	6·17	5·90	5·69	5·12	5·73	6·08	4·84

The infantile deaths per 100 births in the Australasian capitals in 1918 were as follows :—Melbourne 7·09, Sydney 6·27, Brisbane 7·05, Adelaide 5·49, Perth 6·49, Hobart 8·28 and Wellington 7·12.

Deaths of children under 5.

In 1918 the deaths of male children under 5 years of age numbered 1,478, and the deaths of female children under that age, 1,203—the former being in the proportion of 18·29 per cent., and the latter of 16·95 per cent., to the total number of deaths of the respective sexes at all ages. The subjoined table gives the annual number of such deaths in the State at each year of

age, and the proportion of the deaths under five years of age to the deaths at all ages in decennial periods from 1871 to 1910, and in the years 1911 to 1918.

MORTALITY OF CHILDREN UNDER FIVE YEARS.

Period.	Years of Age at Death.					Total under 5 Years.	
	0.	1.	2.	3.	4.	Number.	Proportion Per 100 Deaths at all Ages.
Males.							
1871–1880..	1,783	508	206	148	119	2,764	39·41
1881–1890..	2,158	464	161	114	92	2,989	34·28
1891–1900..	2,050	432	143	93	76	2,794	30·05
1901–1910..	1,504	249	83	59	41	1,936	22·93
1911 ..	1,309	201	71	58	42	1,681	20·12
1912 ..	1,515	266	96	66	51	1,994	21·97
1913 ..	1,419	241	83	55	41	1,839	21·65
1914 ..	1,634	291	110	70	43	2,148	23·82
1915 ..	1,401	200	82	60	46	1,789	20·19
1916 ..	1,403	246	100	77	57	1,883	21·15
1917 ..	1,099	176	71	59	38	1,443	18·15
1918 ..	1,102	188	85	51	52	1,478	18·29
Females.							
1871–1880..	1,482	482	198	139	106	2,407	46·06
1881–1890..	1,805	423	151	105	84	2,568	39·61
1891–1900..	1,702	385	129	82	68	2,366	33·61
1901–1910..	1,192	217	81	51	40	1,581	23·58
1911 ..	961	149	73	50	41	1,274	18·57
1912 ..	1,154	217	76	57	52	1,556	20·70
1913 ..	1,119	191	67	47	35	1,459	20·91
1914 ..	1,202	235	74	67	46	1,624	21·69
1915 ..	1,009	188	60	64	42	1,363	19·57
1916 ..	1,150	215	81	53	54	1,553	20·47
1917 ..	774	118	64	52	35	1,043	15·80
1918 ..	848	165	69	66	55	1,203	16·95

The figures show a marked reduction, from period to period, in the mortality of children under 5 years of age relatively to that of persons of all ages, the proportion being 37 per cent. lower in 1911–18 than in 1891–1900.

Ages at death.

The ages of males and females who died in 1918 and in the two preceding years are shown in the following table :—

AGES AT DEATH IN VICTORIA, 1916 TO 1918.

Ages.	1916.			1917.			1918.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Under 1 ..	1,403	1,150	2,553	1,099	774	1,873	1,102	848	1,950
1 to 2	246	215	461	176	118	294	188	165	353
2 ,, 3	100	81	181	71	64	135	85	69	154
3 ,, 4	77	53	130	59	52	111	51	66	117
4 ,, 5	57	54	111	38	35	73	52	55	107
5 ,, 10	187	169	356	144	118	262	171	152	323
10 ,, 15	134	108	242	110	105	215	104	82	186
15 ,, 20	153	156	309	119	134	253	126	121	247
20 ,, 25	215	246	461	152	206	358	158	213	371
25 ,, 30	234	275	509	159	223	382	156	258	414
30 ,, 35	205	214	419	191	250	441	188	246	434
35 ,, 40	272	248	520	258	260	518	246	263	509
40 ,, 45	327	279	606	285	247	532	280	251	531
45 ,, 50	419	349	768	432	286	718	410	297	707
50 ,, 55	585	416	1,001	534	331	865	540	384	924
55 ,, 60	628	421	1,049	651	376	1,027	665	452	1,117
60 ,, 65	572	381	953	612	434	1,046	697	443	1,140
65 ,, 70	548	493	1,041	522	472	994	523	440	963
70 ,, 75	605	582	1,187	558	521	1,079	584	544	1,128
75 ,, 80	718	634	1,352	639	597	1,236	639	640	1,279
80 ,, 85	666	570	1,236	615	543	1,158	596	595	1,191
85 ,, 90	426	356	782	410	318	728	363	358	721
90 ,, 95	103	106	209	88	109	197	118	118	236
95 ,, ..	5	5	10	6	13	19	8	11	19
96 ..	6	9	15	6	4	10	13	7	20
97 ..	3	4	7	2	6	8	8	7	15
98 ..	6	5	11	7	3	10	6	6	12
99 ..	..	2	2	2	3	5	1	2	3
100 ..	..	6	6	2	..	2	..	1	1
101 ..	..	..	..	1	..	1	..	3	3
102 ..	..	1	1	1	..	1	..	..	..
103 ..	..	..	..	..	..	..	..	1	1
104 ..	..	..	..	1	..	1	..	..	..
105 ..	..	..	..	1	1	2	..	..	..
106 ..	1	..	1	..	..	..	1	..	1
108 ..	..	..	..	1	..	1	..	..	..
Total ..	8,901	7,588	16,489	7,952	6,603	14,555	8,079	7,098	15,177

Of the 46,221 persons who died in Victoria during the last three years, 6,646 were aged 80 years and upwards, and 22—nine males and thirteen females—had attained or passed the age of 100 years.

The highest age at death recorded in the period 1916–18 was 108 years, which was attained by one man. To every 100 female deaths there were 114 male deaths in 1918 as against 120 in the previous year and 117 in 1916.

Death rate from certain diseases.

The most striking features of the mortality in 1918 were the low death rate from diarrhœal diseases, the comparatively low rates from respiratory complaints, typhoid fever, measles, suicide and accidental violence, and the high rates from cancer and influenza. The death rates from the chief diseases are shown in the appended table for the period 1908–12 and for the last five years :—

DEATHS PER MILLION FROM CERTAIN CAUSES.

Cause of Death.	Deaths per Million of the Population.					
	1908-1912.	1914.	1915.	1916.	1917.	1918.
Typhoid Fever	98	74	60	51	45	32
Scarlet Fever	16	1	8	21	23	28
Measles	33	74	22	13	11	5
Whooping Cough	77	69	68	84	51	47
Diphtheria and Croup	122	148	142	189	110	149
Influenza	109	106	67	70	47	148
Hydatids	22	20	18	21	14	21
Cancer	833	830	812	921	925	942
Phthisis	855	724	661	743	677	701
Other Tubercular Diseases ..	182	140	135	136	163	144
Syphilis	51	51	34	36	48	42
Diabetes	107	119	114	128	120	146
Anæmia, Chlorosis, Leucæmia ..	81	100	83	94	97	90
Simple Meningitis	133	107	84	67	51	52
Cerebro-Spinal Meningitis ..	..	12	237	231	53	26
Infantile Paralysis	..	6	1	3	4	15
Locomotor Ataxia and other diseases of Spinal Cord	71	75	58	70	58	88
Congestion and Hæmorrhage of the Brain	449	429	443	497	437	427
Epilepsy	35	39	30	54	42	40
Convulsions	76	75	60	55	43	49
Heart Disease (including Endocarditis, Pericarditis, and Angina Pectoris)	1,441	1,278	1,134	1,287	1,442	1,400
Acute and Chronic Bronchitis ..	348	295	263	313	201	233
Pneumonia and Broncho-pneumonia	834	863	865	767	656	694
Pleurisy	45	37	33	42	40	32
Congestion of Lungs and Pulmonary Apoplexy	63	58	59	82	57	56
Asthma and Pulmonary Emphysema	60	49	64	58	48	51
Enteritis, Gastro-enteritis, and Diarrhœal Diseases	833	941	590	731	408	504
Hernia, Intestinal Obstruction ..	113	107	109	107	104	115
Diseases of the Stomach (Cancer excepted)	99	90	78	84	83	83

DEATHS PER MILLION FROM CERTAIN CAUSES—*continued.*

Cause of Death.	Deaths per Million of the Population.					
	1908–1912.	1914.	1915.	1916.	1917.	1918.
Cirrhosis and other diseases of the Liver (Cancer excepted) ..	158	160	145	96	110	112
Biliary Calculi	27	32	26	27	27	32
Appendicitis	81	72	72	55	62	66
Simple Peritonitis (non-puerperal)..	35	39	34	33	30	35
Acute and Chronic Nephritis, Uræmia, Bright's Disease	576	520	566	570	568	586
Diseases of the Bladder and Prostate	94	97	99	91	94	97
Calculi of the Urinary System ..	7	10	6	4	5	6
Old Age	1,030	1,029	1,183	1,208	1,056	1,002
Suicide	102	90	105	83	88	72
Accidental Violence	531	468	492	459	417	408
Homicide	19	16	17	14	13	13

The above and other causes of death are fully dealt with in subsequent paragraphs.

Vaccinations. The efficacy of vaccination in minimizing the risk of infection from small-pox is recognised in Victorian legislation, which requires parents to have their children vaccinated. The proportion of successful vaccinations to every 100 births for the period 1876–1899, and for each year since, is shown in the following table :—

SUCCESSFUL VACCINATIONS PER 100 BIRTHS.

Period.	Vaccinations per 100 births.	Period.	Vaccinations per 100 births.
1876–1899 ...	72	1909 ...	68
1900 ...	67	1910 ...	69
1901 ...	62	1911 ...	62
1902 ...	53	1912 ...	60
1903 ...	71	1913 ...	69
1904 ...	69	1914 ...	65
1905 ...	67	1915 ...	69
1906 ...	67	1916 ...	61
1907 ...	67	1917 ...	60
1908 ...	67	1918 ...	48

In 1918 the vaccinations of children were equal to 48 per cent. of the births, as compared with 60 per cent. in the preceding year, 65 per cent. in 1900–1916, and 72 per cent. in 1876–1899.

Small-pox—Deaths from. Persons suffering from small-pox have arrived at Victorian ports on many occasions but, as they were at once quarantined, the disease never spread among the people of the State. There have been no deaths from the disease during the past eight years, but in 1910 three oversea arrivals—1 male and 2 females—died from small-pox in the Victorian Quarantine Station. Since 1853 only 28 deaths have occurred from this cause, and of that number only 5 took place in the thirty-four years ended 1918.

Typhoid fever. The reported cases of typhoid fever for the whole State declined from 288 per 100,000 of population in 1895–9 to 87 per 100,000 in 1911–14, 67 in 1915, 52 in 1916, 36 in 1917, and 25 in 1918, or by 91 per cent. in the intervening years. The death rate from the disease decreased by 89 per cent. during the same period. The deaths per 100 cases in 1918 were 13·0 as compared with 9·7 in 1913–17. The reported cases of, and deaths from typhoid fever and their proportions to the population, also the percentage of cases that ended fatally, are given in the next table for periods back to 1889 :—

TYPHOID FEVER IN VICTORIA, 1890 TO 1918.

Period.	Annual Cases Reported.		Annual Deaths.		Deaths per 100 reported Cases.
	Number.	Per 100,000 of Population.	Number.	Per 100,000 of Population.	
1890–4	2,932	253·9	381	33·0	13·0
1895–9	3,397	288·4	355	30·1	10·4
1900–4	2,152	178·1	213	17·6	9·9
1905–9	1,569	125·4	135	10·8	8·6
1910	2,124	163·5	139	10·7	6·5
1911	1,303	98·6	95	7·2	7·3
1912	1,122	82·8	98	7·2	8·7
1913	1,127	80·9	95	6·8	8·4
1914	1,195	84·0	106	7·4	8·9
1915	958	67·2	86	6·0	9·0
1916	727	51·6	72	5·1	9·9
1917	511	36·4	64	4·5	12·5
1918	354	25·0	46	3·2	13·0

The death rate from typhoid fever for Victoria is only about one-half of that for the Commonwealth.

Typhoid fever in the Metropolis.

The cases of, and deaths from typhoid fever in proportion to population, in Greater Melbourne, are given in the subjoined table for different periods during the past twenty-nine years :—

TYPHOID FEVER IN THE METROPOLIS, 1890 TO 1918.

Period.	Annual Cases Reported.		Annual Deaths.	
	Number.	Per 100,000 of Population.	Number.	Per 100,000 of Population.
1890–4	1,645	349·3	205	43·5
1895–9	1,510	327·6	156	33·8
1900–4	701	140·0	74	14·8
1905–9	466	86·7	49	9·1
1910	689	118·5	52	8·9
1911	368	61·9	34	5·7
1912	272	44·3	29	4·7
1913	282	44·1	29	4·5
1914	312	47·1	38	5·7
1915	197	29·0	27	4·0
1916	162	23·5	23	3·3
1917	130	18·5	17	2·4
1918	87	12·2	16	2·2

The cases of, and deaths from typhoid fever in proportion to population declined by 96 and 94 per cent. respectively in Greater Melbourne between 1890–9 and 1918. The introduction and extension of the sewerage system coincide closely with, and in a large measure account for, this great improvement.

Prevalence of typhoid fever in different areas.

The number of cases of typhoid fever during each of the last six years in five divisions of the State, and their proportions to the respective populations for the period 1910–17 and the year 1918, are given in the following table :—

PREVALENCE OF TYPHOID FEVER.

Area.	Reported Cases of Typhoid Fever.						Annual Cases per 10,000 of Population	
	1913.	1914.	1915.	1916.	1917.	1918.	1910–17.	1918.
Greater Melbourne ..	282	312	197	162	130	87	4·9	1·2
Ballarat and Suburbs	47	75	79	59	5	11	15·9	2·7
Bendigo and Suburbs	96	87	65	32	31	21	21·7	5·9
Geelong and Suburbs	59	49	10	22	8	3	10·9	0·9
Rest of the State ..	643	672	607	452	337	232	10·3	3·9

The cases in proportion to population were fewer by 76 per cent in Greater Melbourne, 83 per cent. in Ballarat, 73 per cent. in Bendigo, 92 per cent. in Geelong, and 62 per cent. in the rest of the State in 1918 than in the period 1910–17.

Death rates from typhoid fever at different ages.

The mortality from typhoid fever is higher at early adult and middle ages than at other periods of life, and higher among males than females. This is shown in the next table, which gives the death rates in age groups for each sex at the last three census periods :—

DEATH RATES FROM TYPHOID FEVER, 1890–2, 1900–2, AND 1910–12.

Age Group.	Deaths per 10,000 of each Sex.					
	Males.			Females.		
	1890–2.	1900–2.	1910–12.	1890–2.	1900–2.	1910–12.
0–15	2·26	0·97	0·38	2·85	1·46	0·44
15–20	5·21	2·65	1·76	5·85	2·23	1·22
20–25	9·21	4·39	1·82	4·77	1·84	1·32
25–35	6·48	3·28	1·71	3·87	2·04	0·82
35–45	3·60	2·25	1·26	2·03	1·21	0·68
45–55	2·24	1·95	0·82	1·29	0·93	0·39
55–65	1·74	0·66	0·20	1·04	0·34	0·50
65 and over ..	0·99	..	0·10	2·13	0·23	0·19
All ages	4·08	1·95	1·00	3·25	1·49	0·69

The experience of the last three census periods shows that the rate for males exceeds that for females by 29 per cent., and that the heaviest mortality occurs between the ages 15 and 35. It is notable that at each census period there were proportionately fewer deaths of boys than of girls under the age of 15.

Scarlet fever.

In 1918 the deaths from scarlet fever numbered 40, which corresponded to a rate of 28 per million of the population, as compared with rates of 23 in the previous year, 21 in 1916, 8 in 1915, slightly over 1 in 1914, 4 in 1913 and 1912, 3 in 1911, and 34 in 1890–2. During 1918 there were 2,572 cases reported as against 1,994 in 1917 and 1,566 in 1916. For the three years mentioned

the deaths were equal to 1·6 per cent. of the cases. According to the experience of the past ten years the chance of contracting the disease is about 58 per cent. greater for females than for males.

Measles.

Although the mortality from measles has varied very considerably from period to period, there has been no very severe epidemic outbreak since 1898, when 671 deaths resulted from the disease. In 1918 there were only 7 deaths attributed to this cause, representing a rate of 5 per million of the population, as compared with rates of 11 in the previous year, 13 in 1916, 22 in 1915, 74 in 1914, 32 in 1913, and 64 in 1912.

On the average of the five years 1910 to 1914, 47 per cent. of those who died from the disease were under 2 years of age and 75 per cent. were under 5 years. The incidence of mortality at various ages for each sex for the period 1910–14 was as follows :—

Sex.	Annual Deaths from Measles per 10,000 of each Sex aged—									
	0 to 1.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	5 to 10.	10 to 15.	15 to 20.	20 and over.	All Ages.
Males	4·02	7·41	4·39	2·04	0·97	0·73	0·06	0·03	0·06	0·55
Females	4·34	4·92	2·44	1·96	1·00	0·72	0·06	0·06	0·10	0·46

Whooping cough.

There were 67 deaths referred to whooping cough in 1918, which equalled a rate of 47 per million of the population at all ages, as compared with rates of 51 in the previous year, 84 in 1916, 68 in 1915, 69 in 1914, 71 in 1913, 115 in 1912, 32 in 1911, 50 in 1910, and 132 in 1909. The infantile death rate is more affected than the general rate by this ailment, as it is practically confined to children. In the year under review 43 of the deaths, or 64 per cent., were of infants under 1 year, and, with eight exceptions, all the deaths were of children less than 3 years of age. On the average of the past ten years the mortality rate from the disease was 23 per cent. higher among girls than boys.

Diphtheria.

The prevalence of diphtheria throughout the State during the past eight years was the most unsatisfactory feature of the statistics of sickness relating to that period. For the year 1918 the number of cases was 6,568 as against a yearly average

of 4,939 in 1911–17, 1,410 in 1905–9, 1,680 in 1900–4, and 1,584 in 1895–9. On the other hand, a very great reduction has taken place from period to period in the proportion of cases which ended fatally. The case mortality rate was only 3·2 per cent. in 1918 as compared with 4·6 per cent. in 1912–16, 6·3 per cent. in 1905–9, 9·5 per cent. in 1900–4, and 13·9 per cent. in 1895–9.

The appended table shows for the whole State and the metropolis the reported cases of, and deaths from, diphtheria, and their proportions to the population, also the ratios of deaths to cases for different periods since 1894 :—

DIPHTHERIA IN VICTORIA AND GREATER MELBOURNE, 1895 TO 1918.

Period.	Annual Cases Reported.		Annual Deaths.		Deaths per 100 Cases Reported.
	Number.	Per 100,000 of Population.	Number.	Per 100,000 of Population.	
		VICTORIA.			
1895–9	1,584	134·6	221	18·8	13·9
1900–4	1,680	139·0	159	13·2	9·5
1905–9	1,410	112·6	89	7·1	6·3
1910	2,415	185·9	112	8·6	4·6
1911	5,120	387·5	237	17·9	4·6
1912	5,289	390·5	257	19·0	4·9
1913	5,367	385·2	245	17·6	4·6
1914	4,868	342·3	211	14·8	4·3
1915	4,463	313·0	203	14·2	4·5
1916	5,377	381·5	266	18·9	4·9
1917	4,092	291·1	154	11·0	3·8
1918	6,568	463·3	211	14·9	3·2
		GREATER MELBOURNE.			
1895–9	748	162·1	113	24·6	15·1
1900–4	686	136·9	58	11·6	8·5
1905–9	758	140·8	46	8·5	6·1
1910	1,655	284·6	74	12·7	4·5
1911	3,035	510·7	130	21·9	4·3
1912	2,451	399·0	130	21·2	5·3
1913	2,412	377·1	122	19·1	5·1
1914	2,164	326·6	116	17·5	5·4
1915	2,527	372·2	134	19·7	5·3
1916	3,214	465·9	173	25·1	5·4
1917	2,424	344·8	92	13·1	3·8
1918	3,807	531·8	125	17·5	3·3

Prevalence of diphtheria in different areas.

The cases of diphtheria which occurred in five divisions of the State in each of the past six years, and their proportions to the respective populations for the period 1910–17 and the year 1918, are given in the subjoined table :—

CASES OF DIPHTHERIA IN DIFFERENT AREAS.

Area.	Reported Cases of Diphtheria.						Annual Cases per 10,000 of Population.	
	1913.	1914.	1915.	1916.	1917.	1918.	1910–17.	1918.
Greater Melbourne ..	2,412	2,164	2,527	3,214	2,424	3,807	38·5	53·2
Ballarat and Suburbs	179	167	77	76	31	73	26·1	18·2
Bendigo and Suburbs	653	563	376	165	134	299	90·4	84·0
Geelong and Suburbs	184	91	130	122	148	314	36·7	92·3
Rest of the State ..	1,939	1,883	1,353	1,800	1,355	2,075	25·1	35·0

The cases in all divisions of the State were more numerous in 1918 than in the preceding year.

Death rates from diphtheria at various ages.

Of the 533 males and 529 females who died from diphtheria during the five years 1910–14, 883, or 83 per cent., were under 10 years of age. The incidence of mortality for each sex at different ages, for the period mentioned, was as follows :—

DEATH RATES FROM DIPHTHERIA AT DIFFERENT AGES, 1910–14.

Sex.	Annual Deaths from Diphtheria per 10,000 of each Sex aged—									
	0 to 1.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	5 to 10.	10 to 15.	15 to 20.	20 and over.	All Ages.
Males..	2·92	6·30	5·56	9·90	7·50	5·91	1·76	0·36	0·09	1·57
Females	2·68	5·16	6·27	6·43	8·14	6·84	1·68	0·39	0·11	1·54

Hydatids.

The deaths attributed to hydatids in 1918 numbered 30, being equivalent to a rate of 21 per million of the population, as compared with rates of 14 in the preceding year, 21 in 1916, 18 in 1915, 20 in 1914, 19 in 1913, 22 in 1908–12, and 51 in 1890–2. According to the experience of the past ten years the death rate from this disease is 16 per cent. higher among males than females.

Hospital returns for the period 1914–18 show that 400 cases of hydatids were treated therein and that 55, or nearly 1 in every 7, ended fatally.

Anæmia, chlorosis, leucæmia.

Anæmia, chlorosis, and leucæmia were responsible for 128 deaths in 1918, which corresponded to a rate of 90 per million of the population, as against rates of 97 in the previous year, 94 in 1916, 83 in 1915, 100 in 1914, 76 in 1913 and 81 in 1908–12. Of the 26 persons who died from leucæmia in 1918, 22 were males.

Diabetes.

During 1918 diabetes was responsible for 76 male and 131 female deaths, representing a rate of 146 per million of the population as compared with rates of 120 in the preceding year, 128 in 1916, 114 in 1915, 119 in 1914, 91 in 1913, and 107 in 1908–12. The deaths from diabetes per 10,000 of each sex in nine age groups for the periods 1890–2, 1900–2, and 1910–12, are shown in the subjoined table :—

DEATHS FROM DIABETES PER 10,000 OF EACH SEX.

Age Group.	Deaths per 10,000 of each Sex.					
	Males.			Females.		
	1890–2.	1900–2.	1910–12.	1890–2.	1900–2.	1910–12.
0–10	·02	·09	·10	·02	·05	·15
10–20	·17	·24	·20	·14	·26	·36
20–30	·29	·17	·64	·14	·36	·30
30–40	·21	·32	·58	·30	·51	·52
40–50	·58	·49	1·11	·49	·42	·78
50–60	1·18	1·38	1·80	1·31	1·42	3·18
60–70	1·49	2·67	5·63	2·49	3·19	8·47
70–80	2·87	4·36	7·34	1·88	5·01	11·54
80 and over	1·65	4·11	7·43	4·44	3·54	6·83
All Ages ...	·40	·56	1·00	·36	·60	1·26

At each age group over 30 the mortality rate from diabetes was considerably higher in 1910–12 than in the previous census period. In 1910–12 the female exceeded the male rate for each age group

between 50 and 80, the excess for the twenty years of life 60 to 80 amounting to 54 per cent. For all ages combined the rate for females was 26 per cent. higher than that for males.

Influenza.

In the next table are shown the number of deaths and the death rate from influenza in Victoria for each year from 1895 to 1918, and for the first seven months of 1919 :—

DEATHS AND DEATH RATES FROM INFLUENZA.

Year.	Males.	Females.	Persons.	Deaths per 100,000 of Population.
1895	223	199	422	35·8
1896	124	81	205	17·4
1897	103	63	166	14·2
1898	130	131	261	22·3
1899	528	435	963	81·2
1900	99	89	188	15·8
1901	150	145	295	24·5
1902	167	147	314	25·9
1903	68	61	129	10·7
1904	128	129	257	21·3
1905	71	62	133	11·0
1906	121	122	243	19·8
1907	149	127	276	22·1
1908	90	76	166	13·1
1909	61	49	110	8·6
1910	67	52	119	9·2
1911	70	80	150	11·4
1912	80	85	165	12·2
1913	56	38	94	6·7
1914	67	84	151	10·6
1915	45	50	95	6·7
1916	47	51	98	7·0
1917	39	27	66	4·7
1918	98	112	210	14·8
1919 (7 months)	1,683*	1,308*	2,991*	205·0*

* For seven months.

Special features of the epidemic of 1919 are dealt with in subsequent tables.

Influenza epidemic 1919.

Towards the end of January, 1919, an outbreak of influenza occurred in Melbourne and it rapidly spread throughout the whole metropolitan area. The first wave, which was the most virulent one, reached its greatest height in the second week of February and receded slowly during the subsequent six weeks. It was followed by a second wave of greater magnitude which commenced in the last week of March and attained its maximum height about one month later, after which it receded, though more

slowly than the preceding wave. A recrudescence of the disease in a milder form occurred about the middle of July, but it had abated to very small dimensions by the end of August. The disease spread gradually throughout the State but, up to the end of July, the deaths outside Melbourne were, in proportion to population, only about two-fifths of those in the metropolis.

During the first seven months of 1919 influenza accounted for 2,991 deaths in Victoria of which 2,185 occurred in Greater Melbourne. In the first six months of the year the deaths from the disease in New South Wales numbered 3,561 of which 2,456 occurred in Sydney.

The weekly distribution of deaths from influenza in Melbourne and suburbs and the whole State, for the seven months ended July, 1919, is shown in the following table :—

DEATHS FROM INFLUENZA IN EACH WEEK IN GREATER MELBOURNE, AND THE WHOLE STATE FOR THE SEVEN MONTHS ENDED 31ST JULY, 1919.

Week ended—	Number of Deaths from Influenza in—		Week ended—	Number of Deaths from Influenza in—	
	Greater Melbourne.	Whole State.		Greater Melbourne.	Whole State.
January 7 ..	1	2	April 29 ..	197	248
,, 14 ..	..	1	May 6 ..	157	249
,, 21 ..	1	3	,, 13 ..	126	210
,, 28 ..	22	24	,, 20 ..	76	139
February 4 ..	71	80	,, 27 ..	58	105
,, 11 ..	144	170	June 3 ..	52	100
,, 18 ..	125	147	,, 10 ..	62	98
,, 25 ..	72	81	,, 17 ..	39	70
March 4 ..	57	70	,, 24 ..	33	56
,, 11 ..	51	66	July 1 ..	35	48
,, 18 ..	37	47	,, 8 ..	52	69
,, 25 ..	23	28	,, 15 ..	67	83
April 1 ..	43	55	,, 22 ..	78	111
,, 8 ..	92	103	,, 29 ..	81	126
,, 15 ..	139	164	,, 30 and 31 (two days)	14	27
,, 22 ..	180	211			
			Total ..	2,185	2,991

Of the 2,991 deaths from all forms of influenza, 263 were ascribed to simple influenza, 2,434 to influenza and pneumonia, and 294 to influenza and broncho-pneumonia.

Fatality rate from Influenza.

From reports supplied by Influenza and other Hospitals to the Department of Health the fatality rate from influenza in these institutions may be deduced. From the figures in the reports referred to, it would appear that, of the cases treated in hospitals in Greater Melbourne from the 1st March to the 28th August, 7·8 per cent. ended fatally.

Influenza—Age at death.

The striking feature of the epidemic of the present year (1919) is the very heavy death rate among persons at the most vigorous period of life. In this respect the results are of special interest, as there is no Australian record of an epidemic of equal virulence among young and middle aged people. The influenza epidemics which prevailed in Victoria in 1891 and 1899, and accounted for 1,035 and 963 deaths respectively, were specially fatal to children and elderly persons, whilst the present outbreak has not seriously affected these sections of the community. The ages of those who succumbed to the disease in Victoria during the seven months ended July, 1919, were as follows :—

AGE AT DEATH FROM INFLUENZA.

Age at Death.	Males.	Females.	Persons.
Under 5	44	46	90
5 to 10	23	13	36
10 „ 15	26	17	43
15 „ 20	64	57	121
20 „ 25	136	138	274
25 „ 30	298	220	518
30 „ 35	324	213	537
35 „ 40	240	152	392
40 „ 45	172	99	271
45 „ 50	134	91	225
50 „ 55	102	84	186
55 „ 60	59	79	138
60 „ 65	26	35	61
65 „ 70	16	29	45
70 and over	19	35	54
Total	1,683	1,308	2,991

Approximately 74 per cent. of those who died from influenza were between 20 and 50 years of age. In the earlier stages of the epidemic the proportion was 77 per cent.

Deaths and death rates from Influenza in different areas.

Of every 10,000 persons in the community 20·5 died from influenza during the seven months ended July, 1919. The proportions for different areas ranged from 48·7 for Port Melbourne, 39·0 for Melbourne City, 37·1 for Fitzroy, and 34·6 for South Melbourne to 12·4 for Camberwell and 11·2 for the rural districts of the State. In the subjoined table are shown the numbers of male and female residents of each metropolitan municipality and of Ballarat, Bendigo and Geelong who died from influenza during the first seven months of 1919; also, the proportions of such deaths to every 10,000 of their respective populations.

DEATHS AND DEATH RATES FROM INFLUENZA FOR DIFFERENT AREAS.

Place of Residence.	Number of Deaths.			
	Males.	Females.	Total.	Per 10,000 of Population.
Melbourne City	239	179	418	39·0
Fitzroy City	70	62	132	37·1
Collingwood City	57	47	104	28·8
Richmond City	70	66	136	32·6
Brunswick City	58	60	118	29·0
Northcote City	19	34	53	19·9
Prahran City	69	66	135	26·8
South Melbourne City ..	97	73	170	34·6
Port Melbourne City	34	30	64	48·7
St. Kilda City	49	34	83	24·0
Brighton City	18	22	40	18·8
Essendon City	56	49	105	30·1
Hawthorn City	23	24	47	16·5
Kew Town	17	17	34	24·9
Footscray City	57	37	94	30·2
Williamstown City	22	21	43	23·9
Oakleigh Borough	10	8	18	34·3
Caulfield City	36	25	61	20·3
Malvern City	28	23	51	17·1
Camberwell City	14	11	25	12·4
Preston Shire	10	6	16	19·4
Coburg Town	22	20	42	27·2
Sandringham Town	11	8	19	22·7
Remainder of Metropolis ..	38	25	63	23·9
Ballarat and Suburbs ..	38	31	69	17·3
Bendigo and Suburbs ..	44	24	68	19·1
Geelong and Suburbs ..	36	22	58	17·1
Rest of State	414	277	691	11·2
Unstated	27	7	34	..

Influenza. The next table gives the death rate from influenza per 10,000 of each sex in age groups for five census periods, these periods being selected because the age distribution of the people was then accurately known :—

DEATHS FROM INFLUENZA IN VICTORIA PER 10,000 OF EACH SEX.

Age Group.	1870–2.	1880–2.	1890–2.	1900–2.	1910–12.
Males.					
0—15	·69	·34	2·50	1·10	·40
15—20	...	·07	·64	·34	·24
20—25	...	...	1·20	·59	·21
25—35	·05	·07	1·50	·79	·17
35—45	·05	...	3·04	1·31	·59
45—55	·09	·24	5·12	3·20	·73
55—65	·67	·24	12·65	5·25	2·38
65 and upwards	1·09	2·36	27·13	17·02	12·27
All ages	·33	·25	3·94	2·30	1·10
Females.					
0–15	·52	·34	1·86	1·15	·42
15—20	...	...	·92	·83	·34
20—25	...	...	1·28	·69	·35
25—35	·07	·07	2·35	·89	·22
35—45	...	·08	4·11	1·86	·30
45—55	·17	...	5·39	2·02	·68
55—65	·39	·62	11·46	5·53	1·61
65 and upwards	·84	3·18	35·22	16·02	12·80
All ages	·28	·24	3·72	2·13	1·10

The death rate for the last census period shows a substantial decrease as compared with that for each of the two preceding periods, the rate for 1910–12 being 50 per cent. below that for 1900–2, and nearly 71 per cent. below the rate for 1890–2. It is notable that the decline in the mortality rate from this disease has been associated with very heavy reductions in the death rates from pulmonary tuberculosis and other respiratory diseases.

Respiratory diseases. In 1918 the deaths from respiratory diseases numbered 1,645, which represented a rate of 1,160 per million of the population, as compared with rates of 1,094 in the previous year, 1,336 in 1916, 1,368 in 1915, 1,397 in 1914, 1,279 in 1913, 1,659 in 1912, and 1,470 in 1911. Of the deaths from complaints of this nature in the year under review, 74 were referred to acute bronchitis, 257 to chronic bronchitis, 366 to broncho-pneumonia, 618 to pneumonia, 45 to pleurisy, and 63 to asthma. These six diseases accounted for 86 per cent. of the total respiratory mortality. The seasonal incidence of the maladies is evidenced by the deaths in June, July, August, and

September, which represented 42 per cent. of the total for the whole year. Respiratory diseases are much more fatal at the extremes of life than at middle ages, and among males than females. This is shown in the appended table, which gives for each sex the death rates relating to groups of ages at five census periods :—

DEATHS FROM RESPIRATORY DISEASES PER 10,000 OF EACH SEX.

Age Group.	1870–2	1880–2	1890–2	1900–2	1910–12
Males.					
0—15	22·65	29·02	28·52	16·53	12·94
15—20	3·05	3·30	2·92	2·70	1·66
20—25	5·70	5·34	4·88	4·85	2·35
25—35	5·69	8·31	6·85	5·94	3·86
35—45	10·28	15·80	13·55	9·49	10·50
45—55	20·43	26·59	25·18	18·04	18·25
55—65	41·79	51·65	56·51	38·37	32·68
65 and upwards	108·11	136·54	141·07	112·38	138·87
All ages	17·29	24·48	24·30	18·66	17·17
Females.					
0 –15	18·50	24·18	24·13	13·85	10·50
15—20	1·88	2·02	3·52	2·34	1·56
20—25	3·54	4·23	3·05	3·34	2·48
25—35	4·51	5·72	5·65	3·75	3·55
35—45	7·94	12·53	11·55	7·68	5·85
45—55	7·87	13·63	17·01	11·80	8·28
55—65	22·97	29·15	32·10	27·42	16·64
65 and upwards	73·10	1 ·12	112·38	86·78	99·81
All ages	12·63	17·08	17·62	13·28	11·81

Compared with the census period 1900–2, the mortality from respiratory diseases for the period 1910–12 showed a decline in each age group up to 35 for males and 65 for females, the reduction for all ages combined amounting to 8 per cent. in the rate for the former and 11 per cent. in that for the latter. At each census date the male exceeded the female rate, the average excess for the five census periods being nearly 41 per cent.

Cerebro-spinal, tubercular, and simple meningitis.

Cerebro-spinal meningitis was responsible for 37 deaths in 1918, 75 in 1917, 326 in 1916, and 338 in 1915. The cases reported to the Board of Health in those years numbered 1,608, and the proportion of these that ended fatally was 48 per cent. The numbers of deaths from cerebro-

spinal, tubercular, and simple meningitis during the last eight years were as follows :—

DEATHS FROM DIFFERENT FORMS OF MENINGITIS, 1911–18.

Year.	Cerebro-spinal Meningitis.		Tubercular Meningitis.		Simple Meningitis.		Total—All Forms of Meningitis.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1911 ..	9	2	41	49	75	51	125	102
1912 ..	4	3	26	44	63	76	93	123
1913 ..	8	4	25	41	85	65	118	110
1914 ..	12	5	42	30	89	63	143	98
1915 ..	239	99	35	35	74	46	348	180
1916 ..	191	135	29	40	56	39	276	214
1917 ..	48	27	56	41	37	35	141	103
1918 ..	28	9	55	40	39	35	122	84

Age incidence of different forms of meningitis.

The next table shows the incidence of mortality at various ages from different forms of meningitis for the period 1911–18 :—

DEATHS AT DIFFERENT AGES FROM MENINGITIS, 1911–18.

Age Group.	Cerebro-spinal Meningitis.		Tubercular Meningitis.		Simple Meningitis.		Total—All Forms of Meningitis.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Under 5 ..	121	87	175	162	295	237	591	486
5 to 15 ..	64	55	69	74	59	49	192	178
15 ,, 25 ..	159	47	20	45	30	39	209	131
25 ,, 35 ..	76	25	20	20	24	17	120	62
35 ,, 45 ..	49	24	17	9	40	24	106	57
45 ,, 55 ..	47	27	5	7	39	21	91	55
55 ,, 65 ..	16	12	2	2	11	8	29	22
65 and over	7	7	1	1	20	15	28	23
Total 1911–18	539	284	309	320	518	410	1,366	1,014

On the average of the last eight years the deaths of children under 5 years of age from cerebro-spinal, tubercular, and simple meningitis represented 25, 54, and 57 per cent. respectively of the total deaths from these diseases. Of the 37 persons who succumbed to cerebro-spinal meningitis in 1918, 7 were under 5 and 14 were under 15 years. Up to the age of 15 years the incidence of the mortality from this

disease in the period 1911–18 was 30 per cent. higher for males than females, while for the age group 15 to 45 the rate for the former was about three times that for the latter.

Diseases of the spine. In 1918 locomotor ataxia and other diseases of the spine, excluding infantile paralysis, accounted for 77 male and 48 female deaths, representing a death rate of 88 per million of the population, as compared with rates of 58 in the previous year, 70 in 1916, 58 in 1915, 75 in 1914, 62 in 1913, and 71 in 1908–12. Of the 20 persons who died from locomotor ataxia 19 were males.

Infantile paralysis. Mortality returns show that infantile paralysis was responsible for 21 deaths in 1918 as against 6 in the previous year, 4 in 1916, 2 in 1915, 9 in 1914, 3 in 1913, and 6 in 1912. Of the 51 persons who died during these seven years 29 were boys. Six of the victims were under 1 year of age, and 25 were under 5 years. The cases reported to the Board of Health in 1918 numbered 303 as compared with 32 in the preceding year.

Heart disease. During 1918 there were 1,827 deaths ascribed to organic heart disease, 18 to pericarditis, 102 to acute endocarditis, and 38 to angina pectoris. The total—1,985—from these causes represented a rate of 1,400 per million of the population, as compared with 1,442 in the previous year, 1,287 in 1916, 1,134 in 1915, 1,278 in 1914, 1,294 in 1913, and 1,441 in 1908–12. Of the 1,985 persons who died from these diseases in 1918, only 30, or 1·5 per cent., were under 15 years of age. On the average of the three years 1910 to 1912 the deaths from all forms of heart disease per 10,000 of each sex in age groups were as follows :—

DEATH RATES FROM HEART DISEASE AT VARIOUS AGES.

Sex.	Deaths per 10,000 Persons aged—									
	0–15.	15–20.	20–25.	25–35.	35–45.	45–55.	55–65.	65–75.	75 and upwards.	All Ages.
Males ..	1.25	1.81	2.35	3.01	6.71	15.53	49.57	127.50	243.44	15.19
Females ..	1.25	1.66	2.08	2.88	7.10	15.63	36.22	107.21	238.36	13·58

The figures indicate that the mortality rate from heart disease is a function of age, and that it attains its maximum at the oldest age. Of the deaths of persons aged 75 and upwards, approximately 1 in 6 is due to some form of this disease.

Diseases of the digestive system. In 1918 there were 766 male and 695 female deaths from digestive ailments, representing a proportion of 1,030 per million of the population, as against rates of

884 in the previous year, 1,206 in 1916, 1,098 in 1915, 1,504 in 1914, 1,220 in 1913, 1,345 in 1912, 1,233 in 1911, and 2,382 in 1890–2. Diarrhœal diseases were responsible for 715 deaths, which were equivalent to a rate of 504 per million of population, the corresponding rates in previous periods being 408 in 1917, 731 in 1916, 590 in 1915, 941 in 1914, 709 in 1913, 833 in 1908–12, and 1,342 in 1890–2. The age incidence of these diseases shows that they are heaviest at the extremes of life. Of the 715 deaths from diarrhœal diseases in the year under review, 496, or 69 per cent., were of children under 2 years of age, and 85, or about 12 per cent., were of persons over 65 years of age. There were 44 male and 37 female deaths from cirrhosis of the liver, 64 male and 79 female deaths from other affections of that organ, and 89 male and 74 female deaths from hernia and intestinal obstruction.

Appendicitis. The deaths from appendicitis numbered 94 in 1918, 87 in the previous year, 78 in 1916, 102 in 1915, 103 in 1914, and 116 in 1913, and corresponded to rates of 66, 62, 55, 72, 72, and 83, per million of the population respectively. Hospital records show that during 1918 there were 1,503 cases treated, and that 45, or 3·0 per cent., ended fatally, as compared with fatality rates of 2·5 per cent. in 1917, 4·1 per cent. in 1916, 5·3 per cent. in 1915, 2·8 per cent. in 1914, 4·5 per cent. in 1913, and 6 per cent. in the period 1908–12. According to the experience of the five years, 1910 to 1914, the death rate from appendicitis is approximately 31 per cent. higher among males than females. The mortality rates at various ages for that period were as follows :—

DEATH RATES FROM APPENDICITIS, 1910–14.

Sex.	Deaths from Appendicitis per 10,000 of each Sex aged—									
	Under 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 and over.	All Ages.
Males..	0·43	1·00	1·24	1·03	1·01	0·97	0·90	1·38	1·05	0·92
Females	0·42	1·43	0·88	0·71	0·59	0·52	0·85	0·58	0·55	0·70

Diseases of urinary system. In 1918 there were 1,051 deaths attributed to diseases of the urinary system, which corresponded to a rate of 741 per million of the population, as against rates of 710 in the previous year, 705 in 1916, 712 in 1915, 670 in 1914, 724 in 1913, and 700 in 1909–12. Bright's disease, uræmia, and acute nephritis were responsible for 831 deaths, or 79 per cent., and complaints of the bladder and prostate for 138 deaths, or 13 per cent. of the total referred to maladies of the urinary system. The deaths per 10,000

of each sex in age groups for the periods 1890–2, 1900–2, and 1910–12 are shown in the following table :—

DEATH RATES FROM DISEASES OF URINARY SYSTEM.

Age Group.	Deaths per 10,000 of each Sex.					
	Males.			Females.		
	1890–2.	1900–2.	1910–12.	1890–2.	1900–2.	1910–12.
0–10	1·16	·93	·67	·97	·59	·79
10–20	·43	·45	·73	·58	·82	·71
20–30	1·45	1·83	1·72	1·82	1·59	1·61
30–40	3·05	3·55	3·03	4·72	4·21	3·76
40–50	7·36	8·12	9·03	6·63	7·26	7·07
50–60	11·90	17·43	18·95	5·91	11·36	13·81
60–70	27·42	39·62	46·63	9·62	21·49	24·44
70–80	58·98	80·68	96·18	14·62	27·70	38·53
80 and over	74·07	128·48	153·04	22·21	27·15	43·70
All Ages ...	5·25	8·05	9·18	2·84	4·28	5·34

The figures for the latest period show that there is scarcely any difference between the rates for males and females under 50 years of age. For older ages, however, the excess of the male over the female rate is very pronounced, especially at ages 70 and upwards. For all ages the rate for males exceeds that for females by 72 per cent.

Deaths from phthisis at various ages.

The ages and sexes of those who died from pulmonary tuberculosis in each of the last five years are given in the next table :—

DEATHS FROM PULMONARY TUBERCULOSIS AT VARIOUS AGES.

Ages.	Males.					Females.				
	Year.					Year.				
	1914.	1915.	1916.	1917.	1918.	1914.	1915.	1916.	1917.	1918.
0–10 ...	9	2	9	2	2	2	5	2	4	7
10–15 ...	7	2	6	2	2	4	10	10	6	7
15–20 ...	17	19	16	21	18	46	32	46	38	38
20–25 ...	54	48	60	51	47	70	66	79	67	83
25–30 ...	60	51	72	41	39	83	77	72	74	86
30–35 ...	72	53	55	58	55	61	44	44	66	51
35–40 ...	67	66	69	70	67	57	44	49	50	50
40–45 ...	58	51	72	60	56	40	40	42	27	41
45–50 ...	56	72	68	63	58	35	23	39	29	30
50–55 ...	64	58	67	58	72	20	32	18	14	24
55–60 ...	36	41	48	50	54	24	20	17	13	16
60–65 ...	26	27	30	40	41	9	5	7	4	14
65–70 ...	19	21	20	16	19	8	6	5	5	2
70 and over	16	16	14	17	12	11	11	11	6	3
Total ...	561	527	606	549	542	470	415	441	403	452

The death rates from phthisis at various census periods are dealt with in the succeeding paragraph.

Death rates from phthisis. The deaths from phthisis in 1918 numbered 994—542 being of males and 452 of females—and equalled a rate of 701 per million of the population, as compared with rates of 677 in the previous year, 743 in 1916, 661 in 1915, 724 in 1914, 755 in 1913, 855 in 1908–12, and 1,365 in 1890–2. In England in 1917, and in Scotland and Ireland in 1916, the deaths from this cause were 1,250, 1,062 and 1,693 per million of their respective populations. The rates for Victoria are more fully shown in the following table, which gives the mortality per 10,000 of each sex, in age groups, at six census periods :—

DEATH RATES IN VICTORIA FROM PHTHISIS IN AGE GROUPS AT THE LAST SIX CENSUS PERIODS.

Age Group.	Annual Mortality from Phthisis per 10,000 of each Sex.					
	1860–2.	1870–2.	1880–2.	1890–2.	1900–2.	1910–12.
Males.						
0 to 15	2·55	1·22	1·74	·90	·38	·46
15 " 20	7·72	5·71	6·88	5·41	5·06	3·71
20 " 25	12·23	18·75	21·19	18·29	14·35	8·45
25 " 35	16·53	22·21	30·33	23·70	20·31	13·11
35 " 45	21·63	21·83	25·11	28·28	22·07	15·63
45 " 55	23·14	22·24	28·65	31·17	25·05	18·07
55 " 65	25·63	27·86	31·41	36·48	35·75	18·88
65 and upwards ...	23·20	19·56	18·08	25·40	31·07	13·55
All Ages ...	13·33	12·89	15·33	15·73	13·51	8·98
Females.						
0 to 15	3·70	·98	1·76	1·43	·93	·97
15 " 20	14·07	12·37	12·50	9·51	8·18	7·62
20 " 25	18·95	19·28	21·00	18·49	12·79	12·68
25 " 35	24·76	22·02	26·56	21·77	18·15	14·03
35 " 45	25·62	21·65	24·06	22·53	17·74	11·51
45 " 55	25·01	19·60	20·72	16·13	14·41	8·18
55 " 65	22·59	10·51	14·26	12·35	12·52	7·47
65 and upwards ...	18·03	12·61	13·12	8·25	8·18	5·29
All Ages ...	14·46	10·62	12·75	11·51	9·72	7·61

A comparison of the mortalities from pulmonary tuberculosis at the last two census periods shows that, except among boys and girls under 15, lower death rates obtained at each age group in 1910–12

than in 1900–2, and that the improvement was greater among males than females. An analysis of the figures discloses the fact that at certain ages the decrease was very slight in the female rate, while in the male rate it was very considerable at all ages over 15. Taking three important periods of life, 15–20, 20–25, and 25–35, it is found that between the last two censuses the rates for males declined by 26, 41, and 35 per cent. respectively, as compared with reductions of only 7, 1, and 22 per cent. in the rates for females. The heavy decline in the death rate from phthisis among men between 20 and 35 years of age is very striking, especially as it is co-incident with a reduction of 43 per cent. in the mortality rate from other diseases of the respiratory system. By combining the death rates from pulmonary tuberculosis, as shown above, with those from other forms of tubercular disease, given in a subsequent page, it appears that the section of the community represented by females aged 15 to 25 was the only one which experienced no relief from tubercular diseases in 1910–12 as compared with the preceding census period. It is probable that this result is partly due to the increased proportion of females engaged in manufacturing industries. Comparing the number of females aged 15 to 25 employed in factories with the total females of similar age in the community, it is found that between the 1901 census and that of 1911 there was an increase of 78 per cent. in the proportion exposed to the risk of tubercular infection involved in factory employment.

Tubercular death rates in Melbourne, Ballarat, and Bendigo.

The distribution of tuberculous mortality shows that certain urban centres—particularly Bendigo and suburbs—furnish considerably higher death rates than the rural portions of the State. The tubercular death rate amongst miners is very considerably in excess of that among farmers and graziers, and, as mining occupations predominate in Bendigo and suburbs and farming and grazing occupations in the rural districts, the distribution of callings accounts in a large measure for the disparity in the mortality rates from this cause in the divisions of the State referred to. On the average of the past five years the tubercular death rate of Bendigo exceeded the rates of Ballarat and Melbourne by 24 and 65 per cent. respectively. The rates in these localities from phthisis and other tubercular diseases are given in the appended table

for the periods 1891–1900, 1901–5, and 1906–10, and for each of the last eight years :—

DEATH RATES FROM TUBERCULAR DISEASES IN MELBOURNE, BALLARAT, AND BENDIGO, 1891 TO 1918.

Period.	Deaths per 10,000 of the Population.								
	Phthisis.			Other Tubercular Diseases.			All Tubercular Diseases.		
	Melbourne and Suburbs.	Ballarat and Suburbs.	Bendigo and Suburbs.	Melbourne and Suburbs.	Ballarat and Suburbs.	Bendigo and Suburbs.	Melbourne and Suburbs.	Ballarat and Suburbs.	Bendigo and Suburbs.
1891–1900 ..	16·7	17·1	24·1	4·7	3·5	4·0	21·4	20·6	28·1
1901–1905 ..	13·9	15·3	22·7	4·2	4·0	4·7	18·1	19·3	27·4
1906–1910 ..	10·8	11·5	21·2	3·0	2·1	2·0	13·8	13·6	23·2
1911 ..	9·9	9·4	19·5	2·6	3·3	2·5	12·5	12·7	22·0
1912 ..	10·0	10·0	17·7	2·0	1·7	2·1	12·0	11·7	19·8
1913 ..	8·8	10·9	20·0	2·2	2·8	2·3	11·0	13·7	22·3
1914 ..	8·9	11·2	11·8	2·0	·9	1·0	10·9	12·1	12·8
1915 ..	7·7	10·2	13·6	1·7	2·1	2·4	9·4	12·3	16·0
1916 ..	8·6	14·3	14·2	1·8	1·5	1·4	10·4	15·8	15·6
1917 ..	7·9	10·9	16·8	2·2	1·7	2·2	10·1	12·6	19·0
1918 ..	8·3	9·2	17·4	1·8	1·3	3·1	10·1	10·5	20·5

Prevalence of phthisis in different areas.

Relatively to population cases of pulmonary tuberculosis are fewer in country districts than in urban areas. The cases reported during each of the past six years in five divisions of the State, and their proportions to the populations of these divisions for the period 1910–17 and the year 1918 are given in the subjoined table :—

PHTHISIS IN DIFFERENT AREAS.

Area.	Reported Cases of Pulmonary Tuberculosis.						Annual Cases per 10,000 of Population.	
	1913.	1914.	1915.	1916.	1917.	1918.	1910–17.	1918.
Greater Melbourne ..	780	856	972	1,094	1,052	982	14·2	13·7
Ballarat and Suburbs	56	60	63	77	43	40	13·9	10·0
Bendigo and Suburbs	64	53	59	70	53	56	19·4	15·7
Geelong and Suburbs	31	18	20	37	14	22	8·2	6·5
Rest of the State ..	445	423	395	375	400	380	6·1	6·4
Whole State ..	1,376	1,410	1,509	1,653	1,562	1,480	10·7	10·4

The proportion of residents of any large area reported as suffering from phthisis represents fairly closely the degree of infection of that centre. While this may be taken as true when applied to the metropolis as a whole, it cannot be accepted as definitely correct for each of its parts, as the place of residence of a large proportion of the people differs from their place of work or business. The prevalence of the disease in the principal metropolitan municipalities is shown in the next table for the two and a half years ended June, 1911, which is the latest period for which this information has been tabulated :—

PHTHISIS IN METROPOLITAN MUNICIPALITIES.

Municipality.	Annual Cases per 10,000 of the Population.	Municipality.	Annual Cases per 10,000 of the Population.
Preston Shire ...	20·2	Richmond City ...	12·1
Port Melbourne City	18·7	Brighton City ...	10·4
Melbourne City ...	18·1	Hawthorn City ...	10·3
Fitzroy City ...	17·3	Northcote City ...	10·0
Brunswick City ...	17·1	Essendon City ...	9·8
Coburg Town ...	15·4	Kew Town ...	9·8
South Melbourne City	15·2	Footscray City ...	9·2
Camberwell City ...	14·0	St. Kilda City ...	6·7
Prahran City ...	13·4	Malvern City ...	6·6
Collingwood City ...	12·5	Caulfield City ...	5·2
Williamstown City ...	12·2		

Other phases of phthisis. The results of an investigation of 3,198 cases of pulmonary tuberculosis which occurred in the State during the two and a half years ended June, 1911, are given in the 1913–14 edition of this work. The matters dealt with were the sex and age of the patients, their usual place of residence, the chances of metropolitan and extra metropolitan residents contracting the disease at different ages, the time elapsing from the commencement of the complaint to the date on which medical advice is obtained, and the probability of recovering from the disease. In the issue referred to the medical and economic results of sanatorium treatment of tuberculosis of the lungs in Germany are shown for a series of years.

Tubercular diseases (phthisis excepted). In 1918 there were in Victoria 204 deaths from tubercular diseases (excluding phthisis), which corresponded to a rate of 144 per million, as compared with rates of 163 in the previous year, 136 in 1916, 135 in 1915, 140 in 1914, 156 in 1913, 182 in 1908–12, and 379 in 1890–2. The death rates for

various age groups are shown in the following table for five census periods :—

DEATH RATES FROM TUBERCULAR DISEASES (PHTHISIS EXCEPTED) IN AGE GROUPS.

Age Group.	Deaths per 10,000 of each Sex.				
	1870-2.	1880-2.	1890-2.	1900-2.	1910-12.
Males.					
0—15 ...	7·53	7·98	10·36	5·64	2·75
15—20 ...	·64	·81	1·17	1·12	1·12
20—25 ...	1·80	1·23	·89	1·77	1·23
25—35 ...	·70	·66	·84	1·91	1·71
35—45 ...	·77	·88	·77	1·39	1·38
45—55 ...	·95	·85	·67	1·64	·82
55—65 ...	·88	1·07	·78	2·40	1·29
65 and over	1·09	2·36	·56	1·17	·59
All ages	3·46	3·55	4·02	2·99	1·70
Females.					
0—15 ...	5·89	7·28	8·43	5·33	2·12
15—20 ...	·82	1·30	1·27	1·95	2·34
20—25 ...	·52	·69	1·23	2·09	2·59
25—35 ..	·54	·41	·88	1·98	1·81
35—45 ...	1·04	·70	·42	1·77	1·33
45—55 ...	·17	·67	·34	1·01	·93
55—65 ...	·39	·62	·69	·71	1·11
65 and over	1·69	1·19	·64	·71	·29
All ages	3·10	3·39	3·58	2·91	1·76

As compared with the period 1900–2 the proportion of persons under 15 years of age who died from tubercular diseases (excluding

phthisis) during 1910–12 represents a decline of 51 per cent. for males and of 60 per cent. for females. The most important increase occurred in the rate for females aged 15–25.

Tubercular diseases— Deaths of recent arrivals from.

The experience of recent years shows that the tubercular death rate in Victoria is but slightly affected by the arrival from beyond Australia of persons suffering from tubercular diseases. None of those who died in 1918 had been born outside and resident less than one year in Australia, and only ·8 per cent. had resided in the continent for a shorter period than five years.

Cancer— Deaths at various ages.

The numbers dying from cancer in different age groups in each of the last five years are given below :—

DEATHS FROM CANCER AT VARIOUS AGES.

Age Group.	Males.					Females.				
	1914.	1915.	1916.	1917.	1918.	1914.	1915.	1916.	1917.	1918.
0–15	1	6	5	6	2	6	3	6	10	4
15–25	4	3	5	2	..	6	6	4	6	3
25–35	10	16	15	8	7	15	17	18	24	16
35–45	30	28	25	24	35	64	67	57	84	68
45–55	105	86	121	116	108	135	126	164	121	145
55–65	160	144	184	204	240	163	151	162	168	190
65–75	140	166	163	140	159	139	136	154	154	130
75–85	103	86	94	94	91	72	81	93	101	93
85 and over ..	18	21	15	15	23	11	15	13	23	22
Total ..	571	556	627	609	665	611	602	671	691	671

The widely different social and economic effects produced by the prevalence of and deaths from the two important diseases—cancer and phthisis—are evidenced by the ages of their victims. For the year 1918 the average age of those who died from cancer was 63·0 years for males, and 60·2 years for females, whilst the corresponding averages for phthisis were 43·5 years for males and 33·8 years for females.

Cancer— Death rates at different ages.

Deaths from cancer in 1918 numbered 1,336, and represented a death rate of 942 per million of the whole population, as compared with rates of 925 in the previous year, 921 in 1916, 812 in 1915, 830 in 1914, 838 in 1913, 833 in 1908–12, and 584 in 1890–2. In England in 1917, and in Scotland and Ireland in 1916 the deaths per million of population from this cause were 1,210, 1,126, and 908 respectively. Cancer rates, computed

in relation to the general population in earlier and later periods, are not fairly comparable owing to the changed age distribution of the people. A more accurate mortality rate is obtained by comparing the deaths with the number of persons in the community of the same sex in age groups. This has been done for four census periods, when the numbers of the people in age groups were accurately known, and the results are given in the appended table :—

DEATH RATES FROM CANCER IN AGE GROUPS.

Age Group.	Deaths from Cancer per 10,000 of each Sex.			
	1880–2.	1890–2.	1900–2.	1910-12.
Males.				
Under 5 ...	·29	·18	·30	·73
5 to 10 ..	·24	·10	·42	·25
10 " 15 ...	·18	·11	·20	·16
15 " 20 ...	·07	·17	·22	·15
20 " 25 ...	·25	·32	·33	·71
25 " 35 ...	·80	·81	1·26	·96
35 " 45 ...	4·12	4·29	3·69	3·16
45 " 55 ...	10·16	14·83	14:14	16·03
55 " 65 ...	22·01	31·92	36·00	36·36
65 " 75 ...	34·55	52·75	59·04	74·15
75 and over	45·12	58·55	74·04	88·40
All ages	4·29	6·16	7·52	8·50
Females.				
Under 5 ...	·12	·09	·26	·19
5 to 10 ...	·12	·10	·04	·10
10 " 15 ...	·06	·06	—	·27
15 " 20 ...	·26	·12	·28	·44
20 " 25 ...	·39	·22	·23	·41
25 " 35 ...	2·65	1·68	1·61	1·39
35 " 45 ...	7·32	7·43	6·05	7·26
45 " 55 ...	15·07	18·00	18·13	17·87
55 " 65 ...	29·35	31·79	33·05	38·03
65 " 75 ...	32·68	53·96	51·18	61·66
75 and over	27·56	49·55	62·70	86·19
All ages	4·27	5·57	6·64	8·76

Deaths from cancer occur at all age periods, but the rates in the foregoing table show that it is essentially a disease of later life, increasing rapidly in the groups past middle age, and reaching a maximum mortality rate in the oldest age group. A comparison of the figures for the last two census periods, which would not be appreciably affected by differences in the diagnosis of the disease, shows that at ages under 45 an increase occurred in the rate for females, and a slight reduction in that for males. At the next age period, 45–55, the male rate increased by nearly 13 per cent., while the female rate declined very slightly. At the period, 55–65, the mortality rate for men remained

almost stationary, but that for women exhibited a very marked increase. Among both males and females aged 65 and upwards the death rate was considerably heavier in 1910–12 than in 1900–2. From the figures for the two periods mentioned it would appear that there was a slight but definite increase in the death rate from cancer among persons under 65, and a large increase among persons over that age and, further, that on the whole the increase was much greater among females than males.

Seat of cancer.

The following table shows the seat of cancer in persons who died from this disease in 1918 :—

SEAT OF CANCER.

Seat of Disease.	Males.	Females.	Total.
Cancer of the buccal cavity (mouth, &c.) ..	80	5	85
,, the stomach and liver	284	224	508
,, the peritoneum, the intestines, and the rectum	89	94	183
,, the female genital organs ...	...	114	114
,, the breast	...	95	95
,, the skin	39	22	61
,, other and unspecified organs ...	173	117	290
Total Deaths	665	671	1,336

Thirty-eight per cent. of the persons who died from cancer were affected in the stomach or liver. Of the total females who died from the disease nearly one-third were affected in the genital organs or the breast.

Senile decay.

During the year 1918, the deaths of 663 men and 757 women aged 65 years and over were ascribed to senile decay. The deaths at these ages from all causes during the year numbered 5,593—2,860 of men and 2,733 of women. It is thus seen that 25·4 per cent. of the deaths of persons aged 65 years and upwards were due to senile decay. The mortality rates of elderly persons in several age groups have been computed for the period 1910–12, when the numbers of persons within those groups were accurately known. These show that of every 100 persons in the respective age groups there died within a year, from all causes, 4·21 aged 65 to 70, 6·63 aged 70 to 75, 10·71 aged 75 to 80, 16·36 aged 80 to 85, and 27·30 aged 85 and upwards.

Accidental violence.

Death rates from accidental violence have been lower in later than in earlier periods, a result that is chiefly due to the lighter mortality rate from accidental drowning,

the smaller proportion of the population engaged in country occupations, which are generally of a more hazardous nature than those in towns, and the increasing proportion of females in the community. In 1918 there were 418 male and 160 female deaths attributed to accidents and negligence, which represented a rate of 408 per million of the population. This proportion was 12 per cent. below the average rate—465—for the previous five years, and nearly 50 per cent. below the rate—811—for 1890–2. The deaths from various accidents in 1918 are given in the appended table :—

DEATHS FROM ACCIDENTAL VIOLENCE, 1918.

Nature or Place of Accident.	Males.	Females.	Total.
Poisoning by Food	3	2	5
Other Acute Poisonings	3	6	9
Burns (including Conflagrations)	20	36	56
Absorption of Poisonous Gases	2	2	4
Suffocation in bed (infants)	7	8	15
Drowning	93	26	119
Firearms	11	3	14
Falls	43	17	60
In Mines and Quarries	10	..	10
Machines	8	..	8
Vehicular Accidents—			
On Railways	37	7	44
Motor Car	20	8	28
Motor Cycle	4	..	4
Motor Lorry	3	..	3
Bicycle	1	..	1
Tram Car	17	5	22
Vehicle drawn by Horses	13	5	18
Vehicle, Undefined	6	..	6
Injuries by Animals	9	..	9
Effects of Heat	6	3	9
Excessive Cold	4	..	4
Electricity	1	..	1
Fractures, Unspecified	34	20	54
Other Violence	63	12	75
Total	418	160	578

On the average of the past three years the female mortality rate from accidents was about one-third of the rate for males.

Fatal accidents among males at different ages.

The mortality rate from accidents is only one-half as great among males aged 15 to 45 as among men over that age. The deaths per 10,000 males at certain ages from

drowning, sunstroke, and other accidents for the period 1909–13 were as follows :—

DEATH RATES FROM ACCIDENT—MALES, 1909–13.

—	Accidental Deaths per 10,000 Males Aged—							
	15–20.	20–25.	25–35.	35–45.	45–55.	55–65.	65 and over.	15 and upwards.
Drowning ..	1·74	1·19	1·15	1·40	1·89	2·57	3·64	1·72
Sunstroke ..	..	..	·08	·10	·27	·18	·96	·16
Other Accidents ..	3·68	5·19	4·68	5·90	7·51	10·06	16·54	6·56
Total Accidents ..	5·42	6·38	5·91	7·40	9·67	12·81	21·14	8·44

For men aged 20 to 35 the death rate from accidental violence is less than one-third of that for men over age 65 and slightly less than one-half of the rate for those aged 55 to 65. The death rates in the above table agree fairly closely with English experience, which shows that the annual deaths from accidents per 10,000 males were 5·33 at ages 15–20, 5·71 at 20–25, 6·64 at 25–35, 8·62 at 35–45, 11·12 at 45–55, 13·99 at 55–65, and 18·85 at 65 and upwards.

Occupations of men dying from accidents.

During the year 1918, 309 males aged seventeen years and upwards died from the results of accidents. The numbers for the different occupations were as follows :—

Occupation.	Deaths from Accidents, 1918.	Occupation.	Deaths from Accidents, 1918.
Labourer (undefined) ..	53	Fisherman	3
Farmer, grazier	48	Fellmonger	3
Railway employee	16	Gentleman	3
Miner	13	Horse-trainer, groom ..	3
Soldier	13	Hotelkeeper	3
Driver, carter, carrier ..	11	Inspector	3
Blacksmith	7	Postal employee	3
Carpenter	6	Agent	2
Clerk	6	Bookseller	2
Engineer	5	Dealer	2
Gardener	5	Doctor	2
Grocer	5	Orchardist	2
Electrician	4	Salesman	2
Manager	4	Sawmiller	2
Seaman	4	Ship's fireman	2
Tinsmith	4	Watchman ..	2
Wharf labourer	4	Others (specified) ..	21
Tramway employee ..	4	Unspecified	28
Brickmaker	3		
Coachpainter	3	Total	309
Engine-driver	3		

Of the 309 deaths of males over 17 years of age which resulted from accidents in 1918, 65 were due to drowning.

Suicide. In the year 1918, 78 males and 24 females took their own lives. The deaths represented a rate of 72 per million of the population as compared with rates of 87 in the preceding year, 83 in 1916, 105 in 1915, 90 in 1914, 103 in 1913, 102 in 1908–12, and 109 in 1890–2. A much lower rate from suicide obtains among females than males, the rate for the former being about one-third of that for the latter on the average of the past five years. Among males the death rate from suicide in the years 1916–18 was about 24 per cent. below the average of the three years preceding the war. This is somewhat similar to English experience, which shows that the mortality rate from this cause among males was 27 per cent. lower in the years 1915–17 than in the period 1911–13.

Homicide. The deaths ascribed to homicide in 1918 numbered 18, of which 10 were of males and 8 of females. These represented a rate of 13 per million of the population as against rates of 13 in the previous year, 14 in 1916, 17 in 1915, 16 in 1914, 18 in 1913, and 19 in 1908–12.

Deaths of married women in childbed. The death rate of women in childbed varies considerably at different ages, and is less at younger than at older age periods. The number of deaths of married mothers in childbed, and the death rates for various age groups are shown for the decade 1906–15 and the year 1918 in the following table :—

DEATH RATES OF MARRIED MOTHERS IN CHILDBED IN AGE GROUPS, 1906–1915 AND 1918.

Age Group.	Married Mothers.			
	Deaths.		Deaths per 1,000 Confinements.	
	1906–15.	1918.	1906–15.	1918.
Under 20 years	23	2	2·71	3·14
20 to 25 ,, ...	184	12	2·85	2·23
25 ,, 30 ,, ...	326	21	3·60	2·29
30 ,, 35 ,, ...	334	28	4·59	3·71
35 ,, 40 ,, ...	346	28	6·86	5·82
40 years and over	156	7	6·90	3·68

The experience of the ten years 1906–15 shows that for the age period 35 years and upwards the deaths of mothers in childbed were 69 per 10,000 as against 37 per 10,000 for those under 35 years of age. For the same term of years the number of deaths per 1,000 married women of all ages in first confinements was 5·57, as against an average of 4·04 for other confinements.

Deaths in childbed.

The death rate of women in childbed is usually ascertained by comparing the number of deaths of parturient women with the total number of births. The proportions for each of the last eight years, and the averages of previous periods back to 1871 are given below :—

DEATHS OF MOTHERS (MARRIED AND SINGLE) TO EVERY 10,000 CHILDREN BORN ALIVE.

Period.	Number of Mothers who Died Annually of—			Deaths of Mothers to every 10,000 Children Born Alive.
	Puerperal Diseases or Accidents. (Excluding Septicæmia.)	Puerperal Septicæmia.	Total.	
1871–1880 ..	127	46	173	64·38
1881–1890 ..	121	64	185	59·19
1891–1900 ..	117	66	183	56·01
1901–1905 ..	126	58	184	60·92
1906–1910 ..	101	46	147	47·17
1911 ..	86	62	148	44·79
1912 ..	92	61	153	42·72
1913 ..	112	65	177	49·20
1914 ..	97	61	158	43·62
1915 ..	91	40	131	37·42
1916 ..	75	55	130	37·97
1917 ..	89	45	134	40·56
1918 ..	64	43	107	33·86

In recent periods a marked reduction has taken place in the death rate of women in childbed. The deaths of mothers per 10,000 children born alive were 37·5 in 1915–18 as compared with 47·2 in 1906–10, and 60·9 in 1901–5.

Puerperal septicæmia.

In 1918 there were 43 deaths of married and unmarried mothers from puerperal septicæmia, which corresponded to a death rate of 13·6 per 10,000 births, as against 13·6 in the previous year, 16·1 in 1916, 11·4 in 1915, 16·8 in 1914, 18·1 in 1913, 16·0 in 1908–12, and 18·1 in 1901–7.

NATURAL INCREASE.

Natural increase per 1,000 of population in Australasia.

The natural increase, *i.e.*, the excess of births over deaths, per 1,000 of the population, in the various Australian States and New Zealand, for the periods 1902–6 and 1907–11 and for each of the last seven years, is shown in the following table :—

NATURAL INCREASE PER 1,000 OF THE POPULATION, AUSTRALIAN STATES AND NEW ZEALAND.

Period.	Victoria.	New South Wales.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australia.	New Zealand.
1902–6	12·30	15·76	15·41	13·28	18·04	18·12	14·68	16·94
1907–11	13·05	17·45	17·03	15·54	18·13	18·85	16·01	17·07
1912	14·20	19·04	18·74	18·37	17·79	19·80	17·42	17·61
1913	14·71	17·90	19·87	18·30	20·04	19·16	17·48	16·67
1914	13·85	18·80	19·49	18·62	19·01	20·66	17·52	16·68
1915	13·45	17·81	18·35	16·14	18·69	19·21	16·57	16·27
1916	12·60	17·26	16·67	15·61	17·41	18·09	15·74	16·29
1917	13·14	18·46	19·42	16·11	16·57	18·14	16·70	16·08
1918	11·59	16·69	18·01	15·83	13·73	17·07	15·16	8·60
Mean 1914–18	12·93	17·80	18·39	16·46	17·08	18·63	16·34	14·78

The mean natural increase in the Australian States for the period 1914–18 was 16·34 per 1,000 of population, which is probably greater than will prevail when the age constitution of the people becomes similar to that of old settled countries. At present the proportion of elderly people is smaller than in those countries and, partly as a consequence of this, the death rate is lower. It has been shown in a previous paragraph that the Victorian death rates at nearly all periods of life are below those of England and Wales. The Australian annual rate of increase due to excess of births over deaths—16·34—would

enable a population to double itself in slightly under 43 years, whilst at the Victorian rate of 12·93 per 1,000 of population a period of 54 years would be required. In 1914, the year of the commencement of the war, the excess of births over deaths per 1,000 of population was 9·8 in England and Wales, 10·6 in Scotland and 6·3 in Ireland.