

VITAL STATISTICS.

Marriages in Victoria can only be celebrated by a minister of religion whose name is registered in the office of the Government Statist, by the Government Statist, or by any duly appointed registrar of marriages. In order to guard against the celebration of marriages by undesirable persons, the present law provides that no person shall be registered as a minister of religion unless he ordinarily officiates as such in one of the officially recognised religious denominations, is supported by the recognised head of the denomination in Victoria, or, if there be no such head, then by at least two registered ministers; and satisfies the Government Statist that he is a fit and proper person to celebrate marriages. The Governor in Council may prohibit from celebrating marriages any minister who is proved guilty of any offence, misconduct, or impropriety unworthy of his calling; and the Government Statist may cancel the registration of any minister who ceases to officiate or otherwise loses his qualifications. Any clergyman or person officiating as such who celebrates a marriage without being duly registered, or any person who obtains registration by untruly representing himself as an officiating minister, or who personates a registrar, shall be guilty of a misdemeanour, punishable by a penalty not exceeding £500, or by imprisonment not exceeding five years, or by both; but if the omission were accidental, the penalty is reduced to a maximum of £20 on summary conviction. In the case of a minor (not being a widower or widow), wishing to marry, there must be obtained the written consent (*a*) of the father if he be within Victoria; if not (*b*) of a guardian appointed by him; if no such appointment (*c*) of the mother if within Victoria; if there be no such parent or guardian (*d*) of a police magistrate, or a justice appointed for the purpose by the Chief Justice or a Judge of the Supreme Court. If the mother has been deserted by the father, or obtained a protection order against him, or if, through divorce or judicial separation she has become the guardian *de facto*, her consent is sufficient authority for the marriage. If the minor is a ward of the Neglected Children's or Reformatory Schools' Department, the Departmental Secretary's consent is the authority. In all cases the consent must be indorsed on the marriage certificate. Marriages of Jews and Quakers are exempted from the above provisions, and are deemed legal and valid if celebrated according to their respective usages. To guard against the abuse of the system of matrimonial agencies, the Governor in Council is empowered, if deemed expedient, to prohibit ministers from celebrating marriages in any undesirable place or building. No marriage shall be invalid by reason of

Law as to
marriages
in Victoria

having been celebrated by an unqualified person if either of the parties shall have believed at the time that such person was qualified, nor by reason of any formal defect or irregularity. Marriage with a deceased wife's sister has been legalized in Victoria since 1873; but there is no provision to validate a marriage of a woman with a deceased husband's brother.

Registra-
tion.

Church
records.

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) of the officiating clergymen and lay registrars; and copies of all 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 certified copies or originals of all existing church records relating to earlier periods, as far back as 1837. For the registration of births and deaths, the State is divided into 634 registrars' districts, for each of which a registrar is appointed, who (if not a public servant) is paid by fees at the rate of 2s. 6d. per entry, but is not prevented from following his or her own private business; whilst the marriages are recorded by the clergyman or lay registrar who performs the ceremony. Registrations of marriages are made in triplicate, and of births and deaths in duplicate—each copy bearing the original signatures of the parties married and witnesses (in case of marriage), or of the informant (in case of a birth or death), and of the registrar. One copy is retained by the registrar or clergyman; one forwarded to the Government Statist—to be kept as a permanent record; and the third (in case of marriage only) is given to one of the parties married. The parents of a legitimate child born in Victoria, or the occupier of a house wherein a birth or death occurs, is required under a penalty of £10 to give notice (either personally or by authorized agent) to the registrar of the district within 60 days after the birth, and within 7 days after the death. (As an alternative, the notice may be given by the attending doctor or nurse.) If an illegitimate child is born in any house or place of which the mother of the child is not the occupier, or if an illegitimate child, under five years of age, dies in, or its dead body is brought to, any house or place, the occupier must give notice to the deputy-registrar within three days if within any city, town, or borough, or to either the deputy-registrar or police officer in charge, if elsewhere. In the case of an illegitimate birth, if the mother is the occupier the notice must be given within three weeks. The penalty for breach of this is imprisonment for six months or a penalty of £25. No fee is charged for registration, except in the case of a birth registered after sixty days, when 5s. is charged if within twelve months, and 12s. 6d., if over one year. By an Act (No. 1835), passed on the 6th April, 1903, an illegitimate

child, whose parents marry after the passing of the Act, may, provided there was no lawful impediment, at the time of the birth, to the marriage of the parents, be legitimized if the birth be registered for that purpose within six months after the date of the marriage. If the parents had married before the passing of the Act, the child might have been registered within six months after the passing of the Act. 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.

MARRIAGES.

The number of marriages celebrated in Victoria during the year 1904 was 8,210, as against 7,605 in 1903, and 8,477 in 1902, and an average of 8,201 during the last five years. Marriages, 1900-4.

The ordinary marriage rate is the number of marriages per 1,000 of the total population. Like the ordinary birth and death rates similarly estimated, it is only adapted to effect comparisons in old and settled communities where the age constitution of the people remains almost unchanged. It is not suitable for comparative purposes in newly settled countries, such as Australasia, especially in the earlier days. As, however, it furnishes a ready and closely approximate comparison between different years which are not widely separated, the figures are given for the last five years in Victoria :— Marriage rates.

1900	...	...	...	6.96	per 1,000
1901	...	...	...	6.97	„ „
1902	...	...	...	7.00	„ „
1903	...	...	...	6.29	„ „
1904	...	...	...	6.80	„ „

The number of marriages celebrated during the year 1904 was equal to the average of the last five years, and exceeded that of the previous year by 605. It will be noticed that although there was a slight increase in the rate from 1900 to 1902, there was a sudden fall in 1903—the number of marriages in that year being lower than in any year since 1897. Though the migration of marriageable men from Victoria accounts to some small extent for the reduced rate as compared with earlier years, yet the probable explanation of the decline in the marriage rate is to be found in the prevailing economic conditions.

It has been shown upon more than one occasion that, in a normal population, the frequency of marriage is not dependent upon the number of the total population, still less upon the number of marriageable women, but almost entirely upon the number of marriageable men the community contains, the tendency of whom to marry is modified by their occupations, and upon the view they take of their future prospects. To demonstrate this, the following table has been constructed showing the proportion of marriages to the population, to the number Factors in marriage rates.

of single men, and to the number of single women, in each census year from 1854 to 1901:—

PROPORTION OF MARRIAGES PER 1,000 OF POPULATION AND OF SINGLE MEN AND WOMEN, 1854-1901.

Year of Census.	Exclusive of Chinese and Aborigines.						
	Enumerated Population.	Number Marriageable—		Marriages.	Proportion of Marriages per 1,000 of the—		
		Men.	Women.		Popula- tion.	Marrige- able Men.	Marrige- able Women.
1854 ..	234,361	70,865	15,083	3,696	15.77	52.16	245.04
1857 ..	383,668	95,427	26,317	4,465	11.64	46.79	169.66
1861 ..	513,896	106,940	37,006	4,528	8.81	42.34	122.36
1871 ..	712,263	89,921	65,386	4,715	6.62	52.43	72.11
1881 ..	849,438	99,824	119,360	5,732	6.75	57.42	48.02
1891 ..	1,139,463	163,048	173,138	9,007	7.97	55.24	52.02
1901 ..	1,193,340	154,334	211,087	8,468	7.08	54.87	40.12

Fluctua-
tions in
marriage
rate.

It will thus be observed that, whilst the proportion of marriages to the population (marriage rate) and to the marriageable women has fluctuated considerably, the proportion to the marriageable men has been tolerably constant, the extremes being $57\frac{1}{2}$ in 1881, and $42\frac{1}{2}$ in 1861, and the usual range was between the narrow limits of 52 and 55. This proportion steadily diminished from $57\frac{1}{2}$ in 1881 to 55 in 1901, although the latter was higher than at any period prior to 1881. The proportion of marriages per 1,000 married women, on the other hand, has fallen off considerably. Even in the more settled times, after the gold rush, it fell from 72 in 1871 to a level of about 50 in 1881 and 1891, and still further to as low as 40 in 1901, owing to the generally increased proportion of marriageable women to men, which at the last period reached to as high as 137 per 100 men. In other words, the chances of a woman marrying in Victoria are now very much smaller than at any earlier period, the proportions having fallen from about 1 in every 4 of the marriageable women in 1854, 1 in 8 in 1861, to 1 in 20 in 1891, and 1 in every 25 in 1901.

Marriage
rates in
certain age-
groups,
1881-1901.

To further investigate this subject, it will be interesting to ascertain the marriage rates amongst marriageable men and women at different periods of life, and, with this view, the rates have been com-

puted for various age groups between 15 and 50 at each of the last three census periods, and are shown in the following table:—

PROPORTION OF MARRIAGES PER 1,000 MARRIAGEABLE MEN AND WOMEN AT EACH AGE.

Age Group.	Men.			Women.		
	1881.	1891.	1901.	1881.	1891.	1901.
15—21 .. ..	..	..	..	24.6	23.6	18.8
21—25*	57.8	44.3	44.6	118.8	106.0	87.2
25—30	114.2	85.9	90.5	105.7	100.5	84.7
30—35	82.9	75.2	82.1	73.1	66.4	57.9
35—40	56.4	51.1	62.6	53.8	46.4	37.2
40—45	30.5	33.4	39.9	32.5	27.7	22.3
45—50	21.8	25.9	29.8	22.1	17.8	14.3
50 upwards ..	10.5	9.1	9.1	4.9	4.2	2.4
15—45 .. ..	..	..	..	55.9	58.7†	49.0

In the last two periods, as compared with the first, there is every evidence of a tendency amongst men to defer marriage to a later period in life—the turning point being age group 30-35, for there has been a marked decrease in the rates below, but an increase in the rates above that age. In 1901, as compared with 1891, however, there was a considerable increase in the rate at every age period except 20-25 and over 50.

In the case of marriageable women, there was, it will be observed, a slight fall between 1881 and 1891, but a considerable fall between 1891 and 1901 in the proportion marrying at each age group under 35; but a rapid fall from each census to the subsequent one in the proportions at ages over 35. The fall between 1891 and 1901 was almost uniformly distributed over the various age groups, and averaged about 18 per cent. In this connexion it may be noted that whilst the marriageable women between 15 and 45 increased by 25,300 during the intercensal period 1891-1901, the number of marriageable men between 20 and 50 decreased by 9,156—a decrease chiefly due to the efflux of single men to Western Australia and South Africa. Thus, there were resident in Western Australia, according to the recent census returns of that State, 17,433 adult males of Victorian birth (besides 6,909 minors), of whom 6,701 were married, and 10,732 were single.

There was a sensible increase in the mean ages at marriage of both brides and bridegrooms during the 23 years ended in 1902. A slight improvement is shown, however, in the mean marrying ages

Tendency amongst men to defer marriage.

Fall in marriage rates of women at all ages.

Mean ages at marriage.

* In the case of men 20-25.

† The apparent anomaly of the rate for women between 15 and 45 being higher in 1891 than in 1881, whilst the rate in each age group in 1881 is higher than that in the corresponding period in 1891, is due to the changes in the age constitution of women under 45 years of age.

of both sexes during the last two years as compared with the preceding quinquennial period, as will be seen from the following statement, which gives for certain five-year periods, and for the last two years, the mean ages of brides under 45 years of age, and of the bridegrooms marrying such brides:—

AGE AT MARRIAGE.

Period.	Brides under 45.	Bridegrooms of Brides under 45.
1870-4	24.13 years	29.93 years
1880-4	23.83 "	28.61 "
1890-4	24.66 "	28.66 "
1898-1902	25.49 "	29.75 "
1903	25.38 "	29.43 "
1904	25.34 "	29.33 "

The mean age of bridegrooms marrying brides under 45 years of age in Victoria during the year 1904 was 29.33, an age which would have been slightly higher if all the bridegrooms were included. In England and Wales, during the years 1900-1, the mean age of all bridegrooms was 28.48—or about one year lower than in Victoria—and this later marriage age to a large extent accounts for the lower marriage rate in Victoria when compared with England and Wales. In Victoria the marriage rate in 1904 was 6.8 per 1,000 of the population, in England and Wales it was 7.8 in 1903.

Marriage rates in Australian States and New Zealand.

In the following table are shown the marriage rates per 1,000 of the population in the Australian States and New Zealand for each of the last five years, and also the mean rates for the whole period:—

MARRIAGE RATES IN THE AUSTRALIAN STATES AND NEW ZEALAND: RETURN FOR FIVE YEARS.

Year.	Victoria.	New South Wales.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.	New Zealand.
1900 ..	6.96	7.38	6.88	6.37	10.06	7.71	7.24	7.67
1901 ..	6.97	7.68	6.61	6.43	9.66	7.71	7.29	7.81
1902 ..	7.00	7.53	6.31	6.61	9.77	7.46	7.23	8.01
1903 ..	6.29	6.88	5.72	6.21	9.33	7.53	6.67	8.27
1904 ..	6.80	7.21	5.93	6.85	8.83	7.55	7.00	8.26
Mean	6.80	7.34	6.29	6.49	9.53	7.59	7.09	8.00

Marriage rates in different States compared.

It will be observed that, according to the average of the five years, the lowest marriage rates prevailed in Queensland and South Australia, and by far the highest in Western Australia. In Victoria the rate was somewhat below, and in New South Wales slightly above, the

average for Australia. For the year 1904, all the States, except Western Australia, showed an increase in the marriage rate, varying from 10 per cent. in South Australia and 8 per cent. in Victoria to less than 4 per cent. in Queensland, Tasmania having remained nearly stationary. The rate of the Commonwealth increased by 5 per cent. in the same period.

For reasons already explained, 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 male adults per 1,000, aged 21 and upwards, such as is contained in the following statement for the average of the three years, 1900 to 1902:—

Marriages in proportion to marriageable males in Australian States and New Zealand.

MARRIAGES PER 1,000 MARRIAGEABLE MALES IN AUSTRALASIA.

Victoria	...	...	...	...	56.0
New South Wales	...	...	...	...	58.3
Queensland	41.6
South Australia	56.8
Western Australia	41.9
Tasmania	65.7
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Total Australia	55.7
New Zealand	55.1

Although the marriage rates are generally regarded as evidence of prosperity in a community, it can hardly be regarded as such in some of the Australian States, where the age and sex constitutions are not normal. Thus, in Queensland and Western Australia, the low rates amongst marriageable men cannot be said to be due to the absence of prosperity, as compared with the other States, or to greater disinclination on the part of the men to marry, but rather to the fact that the number of marriageable women to that of men is small in both those States.

The average marriage rate of Australia is the same as in Italy, but is lower than in 11 out of the 15 European countries shown in the following table for the period, 1896-1900:—

Marriage rates in various countries.

MARRIAGE RATES IN VARIOUS COUNTRIES.

Hungary	..	..	8.4	Holland	..	..	7.4
German Empire	..	..	8.4	Denmark	..	..	7.4
Belgium	..	..	8.3	Scotland	..	..	7.3
England and Wales	..	..	8.1	Australia (1900-4)	..	..	7.1
Austria	..	..	8.0	Italy	..	..	7.1
Spain	..	..	7.7	Norway	..	..	6.9
Switzerland	..	..	7.7	Sweden	..	..	6.1
France	..	..	7.5	Ireland	..	..	4.9

Formerly the marriages which were celebrated in urban and rural districts were compared with the populations of those districts respectively, but as the place where a marriage was solemnized is no guide as to domicile, the method has been abandoned, and the classification according to the usual residence of the parties adopted instead. The following table gives the average annual numbers and rates per 1,000 of the population of brides and of bridegrooms, whose usual place of residence (if in Victoria) was in Melbourne and suburbs, other urban

Marriage rates in urban and rural districts.

districts, or rural districts respectively, or was outside the State—during the two years 1903 and 1904:—

USUAL RESIDENCE OF BRIDES AND BRIDEGROOMS, AVERAGE OF 1903 AND 1904.

Usual Residence of Bridegroom.	Usual Residence of Bride.				Total Bridegrooms.	Proportion of Bridegrooms per 1,000 of Population.
	Metropolitan.	Other Urban.	Rural.	Outside Victoria.		
In Victoria—						
Metropolitan Districts	3,029	100	154	32	3,315	6.6
Other Urban Districts	91	1,015	191	10	1,307	6.3
Rural Districts	367	259	2,238	31	2,895	5.8
Outside Victoria ..	157	61	84	89	390	..
Total Brides	3,643	1,435	2,667	162	7,907	6.5
Proportion of Brides per 1,000 of Population ..	} 7.2	6.9	5.4	..	6.5	..

Lower marriage rate in rural than urban districts.

It will first be noticed that nearly 5 per cent. of the bridegrooms, and 2 per cent. of the brides, resided outside the State. Excluding non-residents, these figures show that the marriage rate—for both males and females—was higher in the metropolitan and other urban districts, than in rural districts.

Rates in districts in 1903-4 and previous years.

An examination of the marriage rates obtaining in metropolitan, urban, and rural districts, during the years 1903-4, shows a sensible decline in the metropolitan and urban centres, as compared with the three preceding years, whilst in the rural districts it remained fairly constant, as will be seen from the following figures, which show the marriage rates for both sexes in each division of the State during the periods 1900-2 and 1903-4:—

Period.	Metropolitan District.	Urban District.	Rural District.
Males—1900-1902 ..	.. 7.2	.. 7.2	.. 5.8
" 1903-1904 ..	.. 6.6	.. 6.3	.. 5.8
Females—1900-1902 ..	.. 7.7	.. 7.7	.. 5.6
" 1903-1904 ..	.. 7.2	.. 6.9	.. 5.4

Causes of lower marriage rate in rural districts.

To what extent the lower rates in the rural districts are due to variations in sex, age, and conjugal condition, is a problem which may be solved by an examination of the recent census returns. The first striking fact disclosed is the great preponderance of females over males in both urban districts, whilst the reverse was the case in the rural districts—there being over 111½ females to every 100 males in the former, as compared with only 86½ females to every 100 males in the latter. Secondly, there was, when compared with the total population, a larger proportion of adult males, but a much smaller proportion of adult females, in the rural than in the urban districts at each of the three age groups, 15 to 21, 21 to 45, and 45 and over.

The tendency which undoubtedly existed in former years for young men starting life to leave their homes in the country and gravitate to the towns, where life is considered more attractive, and higher wages and easier employment usually prevailed, has, owing to economic causes, been, at least for a time, reversed; although it still continues in the case of women, who can always readily find remunerative employment in the towns. Then again, the census returns show that there is a much larger proportion of marriageable men, but a much smaller proportion of marriageable women, in the country than in either of the two urban districts—the percentage of marriageable men (aged 21 and upwards) in the total population being 14.4 in the rural, as against 11.1 in the metropolitan and 10.3 in the other urban districts; and that of marriageable women (aged 15 to 45) 11.9, as against 15.2 and 16.0 respectively. To arrive at definite results in regard to the marriage rate, it will, therefore, be necessary to compare, according to the plan already adopted, the marriages with the marriageable population of each sex in the three districts. Such a comparison shows that the marriage rate of men is far less in the country than in the towns, but that an eligible woman in the country has—under general conditions—a better chance of marriage than one residing in the metropolis, or in the other urban districts; as, out of every 100 eligible men in the rural districts, four marry annually, as against nearly seven in every 100 in the urban districts; whereas of eligible women more than one-twentieth in the rural, but less than one-twentieth in the urban districts, marry within twelve months. The following are the proportions of marriages per 1,000 marriageable persons, viz., men aged 21 or upwards, or women aged 15 to 45, in each district according to the average of the three years, 1900 to 1902:—

PROPORTIONS OF MARRIAGES PER 1,000 MARRIAGEABLE PERSONS IN METROPOLITAN, URBAN, AND RURAL DISTRICTS.

District.	Men.	Women.
Metropolitan ..	66.9	48.5
Other Urban ..	69.1	46.7
Rural ..	38.9	51.5

These results confirm those obtained when comparing the marriages per 1,000 marriageable men in the different States, when it was shown that where there was an excess of marriageable women, such rate was high, but where the proportion of marriageable women to marriageable men was abnormally low, such rate is low, but the rate for women is high.

During the twenty years, 1881 to 1900, of the 153,399 marriages celebrated in Victoria, 26.73 per cent. were celebrated in the Autumn quarter, 25.97 per cent. in the Spring, 24.00 in the Summer, and 23.30 in the Winter. In the years 1901-4, the percentages were

Marrriages
in quarters.

27.37 in the Autumn, 24.51 in the Summer, 24.51 in the Spring, and 23.61 in the Winter quarter. It would thus appear that marriages are most numerous in the Autumn, and least in the Winter quarters.

Former condition of persons married at certain periods.

The following statement shows the percentages of persons in each conjugal condition, who married at the periods specified:—

CONJUGAL CONDITIONS OF PERSONS MARRYING, 1871-1904.

Conjugal Conditions.	1871-80.	1881-90.	1891-1900.	1901-4.
Bachelors and Spinsters ..	80.59	85.84	87.22	87.88
Bachelors and Widows ..	7.10	4.72	4.23	3.79
Widowers and Spinsters ..	7.75	6.17	6.07	6.01
Widowers and Widows ..	4.56	3.27	2.48	2.32

That these percentages are now approaching somewhat those of a settled community, might be inferred from the slight alteration which has taken place between the rates in 1901-4 and those of the preceding ten years. This is corroborated by the similar percentages for England and Wales during the year 1900, which were 87.30 for marriages contracted between bachelors and spinsters, 3.27 between bachelors and widows, 5.89 between widowers and spinsters, and 3.54 between widowers and widows.

Divorced persons re-marrying, 1900-4.

The number of divorced persons re-marrying has shown a steady increase in each year since 1900, except during 1903. The number for 1904 was considerably higher than for any other year during the last five. A larger number of divorced women remarry than divorced men; the ratio for the last five years being about 4 of the former to every 3 of the latter. The following are the numbers of divorced persons re-marrying for the last five years:—

DIVORCED PERSONS RE-MARRYING: RETURN FOR FIVE YEARS.

Year.	Males.	Females.	Total.
1900	40	45	85
1901	41	45	86
1902	34	59	93
1903	33	37	70
1904	45	68	113

Marriages of minors.

In all civilized countries minors are not permitted to marry without the consent of their parents or guardians. The following table shows the numbers of males and females who marry under 21 to every 100 marriages, for the periods, 1881-90, 1891-5, 1898-1902,

and 1903-4, in Victoria, and for the period 1897-1901 in England and Wales:—

MARRIAGES OF PERSONS UNDER 21 YEARS IN VICTORIA AND ENGLAND AND WALES.

	Number under 21 in every 100 Marriages in Victoria.				Number under 21 in every 100 Marriages in England and Wales.
	1903-4.	1898-1902.	1891-5.	1881-90.	1897-1901.
Bridegroom ..	2.33	1.95	1.80	2.26	5.06
Bride ..	15.47	15.44	17.13	21.00	16.52
Mean ..	8.90	8.74	9.51	11.63	10.79

During the five years, 1900 to 1904, an annual average of 8,201 marriages was registered, of which only 143, or a little under 2 per cent., were celebrated by lay registrars. This proportion was as high as 7 in the ten years, 1881-90, but suddenly dropped from 6.6 to 3.7 in 1894, and has since declined to 1.4 in 1904, probably owing to the competition of matrimonial agencies, which sprang up about 1894. Of the other marriages, 1,665 were solemnized according to the rites of the Church of England, 1,317 of the Presbyterians, 1,627 of the Methodists, 409 of the Baptists, 393 of the Independents, 1,350 of "other sects"—chiefly Protestants—1,273 of the Roman Catholic Church, and 24 according to those of the Jews.

The number of marriages solemnized at matrimonial or advertising agencies gradually rose from 1,409 in 1898 to 1,701 in 1900, and fell to 1,188 in 1902, but increased again to 1,353 in 1903, and to 1,502 in 1904. About 20 per cent. of the total marriages were performed in such agencies in 1900, and 18 per cent. in 1903 and 1904. This accounts for the unduly large proportion of marriages celebrated by "other sects," whose clergymen acted for such agencies.

BIRTHS.

The number of births registered in Victoria during the year 1904 was 29,763—15,313 males and 14,450 females. This was 194 above the number recorded for the preceding year, but 3,866 fewer than the average of the ten years ended 1900. The figures for each year since 1890 were:—

NUMBER OF BIRTHS IN VICTORIA, 1891-1904.

1891 ..	38,505	1896 ..	32,178	1901 ..	31,008
1892 ..	37,831	1897 ..	31,310	1902 ..	30,461
1893 ..	36,552	1898 ..	30,172	1903 ..	29,569
1894 ..	34,258	1899 ..	31,008	1904 ..	29,763
1895 ..	33,706	1900 ..	30,779		

During the twenty years ended with 1883, the number of births remained almost stationary; but in 1884 a marked increase took

place, which continued during the subsequent seven years; the number in 1891 being the highest. Since 1891, however, a rapid falling off has taken place down to the period embraced in the last five years, when the number has fluctuated at a lower level than that which had prevailed at any other period since 1886. The number of births in 1903 was the lowest since 1884. During 1904, however, a slight improvement is shown, as compared with the previous year.

In connexion with this decline in the number of births since 1891, it must be borne in mind that during the whole of the intervening period there has been an extensive emigration from Victoria—the excess of departures over arrivals amounting to 157,462 persons—and as these emigrants were for the most part adults of the reproductive period of life, the diminution in the number of births shown in the last table can be readily understood, and has already been largely felt in a reduced attendance in the public and private schools of the State.

The following table shows the birth rates in Victoria from 1860 to 1904:—

BIRTH RATES IN VICTORIA, 1860-1904.

Year.	Birth Rate.	Year.	Birth Rate.	Year.	Birth Rate.
1860 ..	42·81	1891 ..	33·57	1898 ..	25·51
1865 ..	42·40	1892 ..	32·51	1899 ..	26·14
1870 ..	38·07	1893 ..	31·18	1900 ..	25·79
1875 ..	33·94	1894 ..	29·05	1901 ..	25·78
1880 ..	30·75	1895 ..	28·46	1902 ..	25·15
1885 ..	31·33	1896 ..	27·19	1903 ..	24·46
1890 ..	33·60	1897 ..	26·49	1904 ..	24·65

The above rates, based upon the number of births to every 1,000 of the population, are, like marriage rates calculated on a similar basis, apt to mislead, unless the different constituents, or elements of the population, bear a normal proportion to one another.

The method is, at all events in young communities, absolutely unreliable and misleading. In the earlier years when, owing to immigration, the population consisted for the most part of men and women at the reproductive period of life, the birth rate is obviously high. As time proceeds, however, notwithstanding that immigration of reproductive adults may be maintained, the proportion of such to the total population must continuously diminish, and with it, of necessity, the birth rate. The decline in Victoria in the latter years is accentuated on account, not only of the cessation of immigration, but on the absolute emigration of adults. Under these circumstances, the figures in the table do not show the true measure of the fall in the birth rate.

Ordinary
birth rate
misleading
in new
countries.

A more correct rate is the ratio of the number of legitimate births to that of married women under 45, and the following table shows the rate computed in the ordinary manner, also the proportion of legitimate births per 1,000 of such women during the last four census years:—

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

Year.	Enumerated Population.	Married Women under 45 years of Age.	Legitimate Births.	Proportion of Legitimate Births.	
				Per 1,000 of the Population.	Per 1,000 Married Women under 45 years of Age.
1871 ..	731,528	88,561	26,805	36·64	302·67
1881 ..	862,346	84,831	25,675	29·77	302·66
1891 ..	1,140,405	120,700	35,853	31·44	297·04
1901 ..	1,201,341	127,858	29,279	24·37	229·00

It will be observed that, although the proportion of legitimate births per 1,000 of the population fluctuated considerably during the four census periods, the proportions per 1,000 of married women remained fairly uniform during the first three census years, but showed a decline in 1901 from 297 to 229, being equivalent to nearly 23 per cent. A noticeable instance of the unreliability of the ordinary birth rate in a new country such as this, appears in the above table on comparing 1881 with 1891, for whereas the birth rate per 1,000 of the population was considerably higher (by nearly $1\frac{3}{4}$ per 1,000) in the later than in the earlier year, yet the proportion of births per 1,000 married women was actually lower. The fluctuations in the ordinary birth rate from 1871 to 1891 are, therefore, found to have been mainly due to varying proportions of married women in the community at the fruitful period of life. The exceptional fall since 1901, however, cannot be so explained, as other factors must be involved which require further investigation, and which will be dealt with in the following paragraphs.

An analysis of the minor age groups, of which the whole age group, 15 to 45, is composed, will disclose the fact that there has been a considerable falling off in 1901, as compared with previous census periods, in the proportion of married women at the younger, and more fertile ages, but a counter-balancing increase in that at the higher ages—a result chiefly brought about by a decrease in the proportion of young men at marriageable ages, through emigration, and the consequent decline of the female marriage rates at the lower age groups. Thus, the number of married women under 30 years of age fell from 53,778 in 1891 to 39,230 in 1901, or by 27 per cent., whereas the number over 35, but under 45, increased during

Proportion of births to population and married women.

Percentage of married women in quinquennial groups under 45 years of age.

the same period from 37,460 to 57,161, or by 52½ per cent. Relatively to the whole number at child-bearing ages, the married women under 30 years of age fell from 44½ per cent. in 1891 to 30½ in 1901; whilst those at the higher ages, between 35 and 45, rose from 31 to 44½ per cent. This will be seen in the following statement:—

PERCENTAGE OF MARRIED WOMEN IN AGE GROUPS TO TOTAL UNDER 45 YEARS AT FOUR LAST CENSUS YEARS.

Census Year.	Married Women Under 45 Years of Age—Percentage in each Age Group.					
	15—20.	20—25.	25—30.	30—35.	35—40.	40—45.
1871 ..	2·03	13·04	21·14	23·07	23·32	17·40
1881 ..	1·73	15·95	20·46	20·60	20·97	20·29
1891 ..	1·35	15·69	27·52	24·41	17·21	13·82
1901 ..	·81	9·90	19·83	24·96	24·92	19·58

So far as the groups 15 to 25 are concerned, the results are in accordance with the figures published in the English Registrar-General's Report for 1903, which show that of the total number of married women between 15 and 45 years of age in England and Wales, the proportion of those between 15 and 25 was 15·2 per cent. in 1871, 14·8 per cent. in 1881, 13·7 per cent. in 1891, and as low as 12·4 in 1901.

To estimate the extent to which the changes in age distribution between the two last periods would influence the birth rate for this State, it is necessary to ascertain the rates of natality for married women at different ages. Up to the present, the available information relating to Victoria on which such rates might be computed, has not yet been tabulated in respect to all married women, although it was done for one year in respect to newly married women.* Such rates were, however, published in a previous issue of this work† for several European countries and towns, from which it is proposed to select the rates for Sweden—which it has been decided to adopt as a standard for measuring the extent of the decline in the productiveness of married women in Victoria during the last ten years, owing to changes in their age constitution. The following were the rates of natality in Sweden in 1891, at each quinquennial age group under 45:—

Age of Wives.	Births per 100 Wives.
15—20	51·8
20—25	45·1
25—30	37·5
30—35	31·2
35—40	25·0
40—45	14·2

* For particulars, see *Victorian Year-Book*, 1895—8, page 663, et seq.
 † *Ibid.*, page 666.

Rates of legitimate natality at various ages in Sweden.

Applying these proportions to the numbers of married women at similar age groups in Victoria in 1891 and 1901, it is found that the relative fertility of such women diminished by 9 per cent. in the interval, owing to their increased average age alone. This will, however, account for little more than a third of the fall since 1891 in the rate actually experienced. It is also found that in 1891 the rate in Victoria was only 5½ per cent. below that of Sweden under similar age conditions, whereas in 1901 the former was nearly 22 per cent. below the latter. The following are the results:—

BIRTH RATE.

Year.	Births per 1,000 Married Women 15 to 45.		Percentage of Victorian rate below Swedish.
	Actual.	Applying Swedish rates to Victoria.	
1891	302·1	319·8	5·5
1901	227·9	291·2	21·7
Decrease	74·2	28·6	..
„ per cent.	24·6	8·9	..

Prior to 1891, immigration, voluntary and assisted, had practically ceased, and as the bulk of the immigrants belonged to the latter class, they were physically a selected class under the immigration laws, and amongst whom a high birth rate was to be expected. This cessation was probably chiefly responsible for the decline in 1891, and for the larger decline in 1901, when the more prolific women (as a class) were approaching, or had actually passed, the reproductive limit, and the women as a whole were reaching the conditions of a more settled population, with its due proportion of frail and infirm. In brief, the average physique of women now is not equal to that of the earlier years—owing entirely to natural causes, the average in the earlier period being that of a specially selected class, whilst the average of the present is that of nearly a normal population. As further contributing towards the decline from 1891 to 1901, it is pointed out that the conditions obtaining in 1891 were entirely different from those of 1901, the former being a year in a prosperous period, and the latter representing the sixth year of an unprecedented drought, both as regards duration and intensity.

Cessation of immigration chief factor in decline of birth rate.

Birth rates
in Aus-
tralian
States and
New
Zealand.

The following table gives the birth rates, calculated in the ordinary way, per thousand of the population in the Australian States and New Zealand for 1891, and for each of the last five years:—

BIRTH RATES IN THE AUSTRALIAN STATES AND NEW ZEALAND:
RETURN FOR 1891 AND THE LAST FIVE YEARS.

Year.	Victoria.	New South Wales.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australia.	New Zealand.
1891 ..	33·57	34·50	36·35	33·92	34·85	33·37	34·23	29·01
1900 ..	25·79	27·43	30·19	25·55	30·80	28·16	27·31	25·60
1901 ..	25·78	27·60	28·28	25·09	30·32	28·40	27·05	26·34
1902 ..	25·15	27·17	27·68	24·60	30·09	28·92	26·63	25·89
1903 ..	24·46	25·35	24·62	23·24	30·27	28·47	25·21	26·61
1904 ..	24·65	26·73	27·12	24·70	30·34	29·59	26·30	26·94
Mean of 5 Years	25·17	26·86	27·58	24·64	30·36	28·71	26·50	26·28

During the year 1904, the Australian States and New Zealand, when compared with the previous year, showed an increase in the ordinary birth rate, varying from 10 per cent. in Queensland to less than 1 per cent. in Western Australia and Victoria. This improvement in the birth rate of the Commonwealth is equal to a gain of 4,327 births, as compared with the rate for the preceding year. If to this gain be added the saving in infantile life during 1904, the total gain in the Commonwealth would be about 7,200 children in excess of 1903.

Decline in
the number
of legiti-
mate
births.

According to the average of the last five years, the highest birth rate prevailed in Western Australia and the lowest in South Australia, the latter being but slightly lower than that of Victoria. The comparison of these rates is not a reliable one, but it is useful for certain purposes. As already explained in the case of Victoria, it cannot be relied on as an index of the productiveness of married women, which can be more closely gauged by a comparison of the legitimate births with the number of married women at reproductive ages. Such a comparison is effected in the subjoined return, which shows the results for each Australian State and for New Zealand at the two last census years:—

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

State.	Proportion of Legitimate Births per 1,000 Married Women, aged 15 to 45.		Decrease per cent.
	1891.	1901.	
Victoria	302·1	227·9	24·6
New South Wales	298·9	235·6	21·2
Queensland	315·0	251·0	20·3
South Australia	311·1	235·0	24·5
Western Australia	352·8	244·0	31·1
Tasmania	315·9	254·6	19·4
New Zealand	279·1	246·1	11·8

It will be seen from these figures that between 1891 and 1901 there was a pronounced decline in the percentage of legitimate births to married women under 45 years of age in the different States, varying from 31 per cent. in Western Australia, and 24 in Victoria and South Australia, to about 20 in Queensland and Tasmania, and to nearly 12 per cent. in New Zealand. The remarks already made regarding changes in age, constitution, and physique when dealing with the decline in Victoria are equally applicable to other States, except Western Australia, where, although immigrants are still received from the other States, yet they do not belong to the selected classes of former years.

The following is a statement of the birth rates in the principal European countries for the year 1901, also the average birth rates for the 25 years, 1876-1900, arranged in order according to the rates in 1901:—

BIRTH RATES IN EUROPEAN COUNTRIES.

Country.	Births per 1,000 of Population.		Decline per cent.
	1901.	1876-1900.	
Hungary	37·8	42·9	12
Austria	36·9	37·8	2
Prussia	36·2	37·7	4
German Empire	35·7	37·4	4½
Spain	34·7	35·9	3
Italy	32·6	36·6	11
Holland	32·3	34·2	6
Denmark	29·9	31·3	4½
Norway	29·8	30·7	3
Scotland	29·5	32·2	8½
Belgium	29·4	30·1	2
Switzerland	29·1	28·9	1 (increase)
England and Wales	28·5	32·3	12
Sweden	26·8	28·7	7
Ireland	22·7	23·8	5
France	22·0	23·7	7

It will be seen that there was a decline in the birth rates for 1901 as compared with the averages of the 25-year period in all the countries named with the exception of Switzerland. The decline was relatively greatest (viz., 12 per cent.) in the case of England and Wales, and of Hungary (where the birth rate is still the highest in Europe, with the exception of Russia), and was also very marked in Italy, with a fall of 11 per cent., in Scotland (8½ per cent.), Sweden (7), France (7), Holland (6), and Ireland (5), whilst the fall was less than 5 per cent. in all the other countries shown. The average rate in the Commonwealth of Australia for the past five years was lower than the rate for 1901 in any of the European countries except Ireland and France; but, as already explained, there are exceptional reasons why the rate in Australia is so abnormally low. By a comparison of the birth and marriage rates in European countries, it is

found that a high birth rate is generally concurrent with a high marriage rate and *vice versa*. A notable exception to this is France, in which a high marriage rate is co-existent with a lower birth rate than in any other European country.

Birth rates
in town and
country.

The following 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, and the averages of the years 1901-4:—

BIRTH RATES IN METROPOLITAN, OTHER URBAN, AND RURAL DISTRICTS.

Year.	Number 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
1901-4	24·29	30·97	23·31	25·01

It will be noticed that in the last four years, as compared with 1890, the birth rate in the metropolitan district fell off by nearly 36 per cent., in the rural districts by 19 per cent., and in the other urban districts by only 10 per cent.

Illegitimate
births and
rates.

The number of illegitimate births registered in Victoria during the year 1904 was 1,707, which gives a proportion of 5·73 to every 100 births registered, which was slightly above the average of the five years ended with 1903. This proportion has been fairly constant during the last twelve years, when it was decidedly higher than at any earlier period within the last 30 years. The proportion in Victoria was much lower than in Queensland and New South Wales, and slightly lower than in Tasmania, but higher than in any other of the Australian States or New Zealand; it was also lower than in Scotland, but much higher than in the other portions of the United Kingdom; it was also lower than in 14 countries on the continent of Europe respecting which particulars are available, in six of which the rates run as high as from 10 to 15 per cent.* The following are the proportions of illegitimate births to every 100 children born in the Australian States and New Zealand, for the five years ended with 1904, and in the United Kingdom for the ten years, 1891-00:—

ILLEGITIMATE BIRTH RATES.

<i>Australasia</i> —		<i>Australasia</i> —	
Victoria	5·7	South Australia	4·2
New South Wales	6·9	<i>United Kingdom</i> —	
Queensland	6·4	Scotland	7·2
Tasmania	5·8	England	4·2
New Zealand	4·5	Ireland	2·6
Western Australia	4·3		

* For particulars, see edition of this work for 1895-8, page 654.

It will readily be supposed that a larger proportion of illegitimacy prevails in Melbourne and suburbs than in any other district of Victoria, and that the proportion in country districts is the smallest of all. During the five years 1900-4, in the metropolitan districts, about 1 birth in 11; in the other urban districts, about 1 in 18; and in the rural districts, only 1 birth in 38 was registered as illegitimate. Of 32 foreign cities, respecting which the information was given in a previous issue of this work, each is burdened with a larger amount of illegitimacy than that prevailing in Melbourne.

Illegitimacy in town and country.

Although the proportion of illegitimate births to the total births, as already stated, has varied so little for several years past, yet the proportion of such births to the number of unmarried women and widows, between the ages of 15 and 45, shows the same decline between 1891 and 1901, as has already been observed in the proportion of legitimate births to married women at similar ages. With the exception of altered age distribution, which in this instance is estimated to account for less than 1¼ per cent. of the fall, the many causes, which have contributed so largely to the decline in the legitimate birth rate, have no doubt operated—but in a major degree—to bring about a reduction in the illegitimate birth rate per 1,000 single women, which will be seen on comparing the rate for 1901 with that of the previous census, 1891, as given in the subjoined statement:—

Fall in illegitimate birth rate.

ILLEGITIMATE BIRTHS PER 1,000 SINGLE WOMEN.

Period.	Single Women Aged 15 to 45.	Illegitimate Births.	Illegitimate Births per 1,000 Single Women.
1891	142,443	2,064	14·49
1901	167,760	1,729	10·31

The proportion of illegitimate births per 1,000 unmarried and widowed women between the ages of 15 and 45, was 14·49 in 1891, and 10·31 in 1901. In England and Wales it was 14·1 in 1880-2, 10·5 in 1890-2, and 8·5 in 1900-2, a reduction, during the two latest census periods, of about 29 per cent. in that of Victoria, and 19 per cent. in that of England and Wales.

Rates in England and Wales and Victoria.

Infantile mortality is perhaps one of the most prominent determinants of the birth rate. A cursory glance at the next table, which shows the ordinary birth rate and the infantile mortality (that is, the percentage of infants dying under one year), is *primâ facie* evidence of the intimate connexion existing between the two events:—

Birth and infantile death rates in various countries.

BIRTH AND INFANTILE DEATH RATES IN VARIOUS COUNTRIES.

Country.	Birth Rate per 1,000 of the Population.	Deaths under 1 year per 100 Births.
South Australia	25·5	10·9
Victoria	25·7	11·0
New Zealand	25·7	8·1
Sweden	26·9	10·0
Commonwealth of Australia	27·1	11·0

BIRTH AND INFANTILE DEATH RATES IN VARIOUS COUNTRIES—*contd.*

Country.	Birth Rate per 1,000 of the Population.	Deaths under 1 year per 100 deaths.
New South Wales	27·4	11·1
Tasmania	28·1	9·6
Switzerland	28·4	19·0
Queensland	28·5	10·4
Great Britain	28·7	15·0
Belgium	28·9	17·0
Japan	29·8	15·2
Denmark	30·0	14·0
Western Australia	30·6	14·0
Italy	33·9	19·0
Holland	32·1	20·0
Prussia	36·5	21·0
Austria	37·2	25·0
Hungary	38·9	25·6
Saxony	39·9	28·3

France and Ireland have been intentionally omitted from this table—the former because the low birth rate is due to the practice of well-known restrictive measures, the latter to the excessive withdrawal of reproductive adults by emigration. Russia is also omitted in consequence of want of reliable figures, but it is generally understood that both the birth rate and infantile mortality are the highest in the civilized world.

The following statement shows the birth rates per 1,000 of the population, and the number surviving their fifth year:—

BIRTH RATES AND SURVIVORS.

Country.	Birth Rate.	Surviving their Fifth Year.
Hungary	39·4	23·6
Austria	37·2	22·8
Prussia	36·5	25·0
Spain	34·8	19·9
Italy	33·9	21·4
Holland	32·1	25·6
Norway	30·3	25·4
Denmark	30·0	22·7
England	29·2	22·2
Belgium	28·9	21·9
Switzerland	28·4	21·2
New South Wales	27·4	23·3
Sweden	26·9	21·1
New Zealand	25·7	22·8
Victoria	25·7	21·7
France	22·0	16·5

During recent years the question of the birth rate and its decline in Australia has received much public attention, culminating in the

appointment of a Royal Commission in New South Wales, but it would not appear that the intimate connexion existing between birth rate and infantile mortality has yet received the consideration which its importance justifies. It has already been pointed out in a previous table that such relationship does exist, and that high birth rates are in normal communities associated with high infantile mortalities, and low birth rates with low mortalities. It will also be observed from the preceding table that the mortality generally in high birth rate countries is such that after five years the numerical superiority of the high birth rates vanishes. Although the infantile mortality in Australia is very low when compared with other communities, yet probably more could be done in the direction of saving infant life—particularly illegitimate children. The abnormally low rates which prevailed during 1904 must not be looked upon as the result of permanent efforts, with that object in view, but rather to the absence of fatal epidemics. As the Commonwealth must in the future depend for its increase of population upon its natural increase, unless steps are taken to promote immigration, it is absolutely necessary that its infantile life must be preserved to its utmost limit, and to this end the Commission made many valuable suggestions, amongst which are:—The distribution of printed instructions *re* infant feeding; that girls should be taught infant feeding at school; that advertisements *re* artificial foods should be subject to regulation and control; the prohibition of preservatives in artificial foods and milk; the Government control of infant and foundling homes.

Doubtless if these and the other suggestions of the Commission are given effect to, the infantile mortality would be brought down to the irreducible minimum; and as the present need of Australia is population, it would be of great economic advantage if measures were taken enforcing the Commission's recommendations.

DEATHS.

The following return shows the number of deaths—males and females—also the quarters in which they were registered and proportion per 1,000 of the population, during the years 1900-4:—

DEATHS IN EACH QUARTER: RETURN FOR FIVE YEARS.

Year.	Total Deaths.	Sex.		Quarter of Registration.				Death Rate per 1,000 of the Population.
		Males.	Females.	March.	June.	September	December.	
1900 ..	15,215	8,627	6,588	4,113	3,393	3,758	3,951	12·74
1901 ..	15,904	9,035	6,869	4,129	3,844	4,120	3,811	13·22
1902 ..	16,177	9,152	7,025	3,886	3,930	4,281	4,080	13·40
1903 ..	15,595	8,626	6,969	4,036	3,994	3,810	3,755	12·90
1904 ..	14,393	7,992	6,401	3,439	3,590	3,992	3,372	11·92
Average	15,457	8,686	6,771	3,921	3,750	3,992	3,794	12·84

Deaths.

The number of deaths during the year 1904 was 14,393—7,992 males and 6,401 females—a result considerably under the average of the last five years, when the total was 15,457—the males 8,686, and the females 6,771. According to the experience of the five years, 1900-4, the quarter of the year ending 30th September is the most fatal, the next in order being the quarter ending 31st March. These positions, however, were not maintained in the year under review, for, although the greatest number of deaths occurred in the September quarter, the next occurred in the June quarter. The death rate for 1904 is the lowest experienced in the history of the State.

Death rates in Australian States and New Zealand.

For purposes of comparison 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 a period of five years from 1900 to 1904:—

DEATH RATES IN THE AUSTRALIAN STATES AND NEW ZEALAND:
RETURN FOR FIVE YEARS.

Year.	Victoria.	New South Wales.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australian States.	New Zealand.
1900 ..	12·74	11·16	11·72	10·68	12·65	11·02	11·77	9·43
1901 ..	13·22	11·68	11·88	11·22	13·36	10·45	12·17	9·81
1902 ..	13·40	11·95	12·08	11·86	13·63	10·90	12·45	10·50
1903 ..	12·90	11·63	12·38	10·79	12·60	11·86	12·09	10·40
1904 ..	11·92	10·62	10·11	10·22	11·91	11·01	11·01	9·57
Average	12·84	11·41	11·63	10·95	12·83	11·05	11·90	9·94

Although the death rate of Victoria, according to the average of the five years, 1900-4, was higher than in any other State, this result is due, as will be shown later on, to the larger proportion of persons aged 60 years and over, amongst whom the death rate is very high.

A lighter mortality was experienced in each State, excepting Tasmania, during 1904 than in any other year shown above. The death rate for the Commonwealth fell from 12·09 in 1903 to 11·01 during the year under review—a decline of 9 per cent. The saving of life due to the diminished death rate—4,275— and the increase resulting from the improved birth rate—4,327—represent a gain of 8,602 persons to the Commonwealth, as compared with the rates prevailing in the previous year.

Death rates in European countries.

The following were the maximum, minimum, and mean death rates per 1,000 of the population, in the principal European countries

during the five years ended with 1900, also the average of the 25 years ended with the same year. It is remarkable that, with the exception of Sweden, Austria and Hungary, Spain and Italy, the minimum rate during the five-year period almost invariably occurred in 1896, and the maximum in 1900. In all, except Ireland, there has been a noticeable decrease, and in Austria, Hungary, Switzerland, Germany (including Prussia), Holland, and Italy, a considerable decrease in the recent five-year period, as compared with the average of 25 years. The countries are arranged in order according to the average rate of mortality in the more recent period:—

DEATH RATES IN EUROPEAN COUNTRIES.

Country.	Five Years, 1896-1900.			Average of 25 Years.
	Max.	Min.	Mean.	
1. Norway	15·8	15·2	15·7	16·6
2. Sweden	17·7	15·1	16·1	17·1
3. Denmark	17·3	15·5	16·4	18·3
4. Holland	17·8	16·9	17·2	20·3
5. England and Wales	18·2	17·0	17·7	19·1
6. United Kingdom ..	18·4	17·0	17·8	19·0
7. Scotland	18·5	16·6	17·9	19·2
8. Ireland	19·6	16·6	18·1	18·2
9. Belgium	19·3	17·2	18·1	20·1
10. Switzerland	19·3	17·6	18·1	20·6
11. France	21·9	19·5	20·7	21·9
12. Prussia	21·8	20·0	21·0	23·7
13. Germany	22·1	20·5	21·2	24·2
14. Italy	24·0	21·8	22·9	26·4
15. Austria	26·4	24·9	25·6	28·8
16. Hungary	28·9	26·9	27·9	32·3
17. Spain	29·9	28·6	29·2	30·6

Comparing this statement with a previous one, it will be noticed that the death-rate of Victoria or of Western Australia—the highest in Australasia—is considerably lower than that in Norway—the lowest in Europe. And although, owing to the fact that emigration from the old to the newer countries tends to raise the death rate in the former, but to lower it in the latter, the death rates, calculated on the total population, would naturally be on a higher level in Europe than in Australasia, yet it may be safely affirmed that the true rate of mortality, allowing for differences in the age constitution of the people, is lighter in Australasia than in any State in Europe, except, perhaps, Norway, Sweden, and Denmark.

Death rates of European and Australasian States compared.

In every country the death rate is higher in towns than it is in the country districts. This circumstance, although no doubt partly attributable to the superior healthfulness and immunity from contagion

Death rates in town and country.

prevailing in the latter, is also to a great extent due to the fact that hospitals and charitable institutions, which are frequented by patients from the country as well as by town residents, are generally situated in the towns; and further, that outside of charitable institutions many persons die who have come from the country on the approach of a serious illness for the sake of the superior nursing and medical attendance to be obtained in town. In the ten years ended with 1890, the rate in the metropolitan district was higher than in the other urban districts, but in more recent years was much lower, in consequence of a marked decrease in the rate in the former district; whilst in the rural districts the rate has remained fairly constant, at between 8 and 9 per 1,000, or much less than half the rate in the extra-metropolitan towns. The following are the figures for the means for the periods, 1881-90 and 1891-1900, and the years 1901 to 1904:—

DEATH RATES IN METROPOLITAN, OTHER URBAN, AND
RURAL DISTRICTS.

Period.	Metropolitan District.	Other Urban Districts.	Rural Districts.
1881-90	20·65	19·90	8·90
1891-1900	16·25	21·17	8·98
1901	15·09	19·54	8·73
1902	14·93	20·86	8·77
1903	14·37	20·17	8·41
1904	12·99	18·71	8·02

Proportion
of deaths in
general
hospitals,
1900-4.

In Victoria during the past five years one in every seven deaths occurred in general hospitals, and in Melbourne and suburbs during the same period one in every four took place in some public institution.

Unre-
liability of
ordinary
death rate.

The misleading results arrived at by a comparison of the ordinary death rates of different countries, or of the same country at different periods, unless the age distribution is identical, have been pointed out in former editions of this work. This applies more especially to such a comparison of newly-settled communities—such as the Australian States—with one another, and with the old-established countries of (say) Europe. In the former the population is, on the average, younger than in the older countries, and is, moreover, constantly being strengthened by immigrants at the younger adult ages, at which the mortality is low; whereas, in the latter, not only is the age distribution more constant from year to year, but there is relatively a much larger proportion of elderly people, amongst whom the death rate is very high, concurrent with a smaller proportion of the younger and middle-aged adults, at the most vigorous period of life. Some idea of the differences of age distribution at present existing between European countries and the Australian States (as a whole) will be obtained by the following comparison of the proportions of

the population living at various age groups in Sweden—as representative of the former—and in Australia:—

PERCENTAGE OF POPULATION IN AGE GROUPS, SWEDEN AND AUSTRALIA.

Age Group. (Years.)	Percentage of Population Living at each Age Group in—	
	Sweden in 1890.	Australia in 1901.
Under 1 year	2.55	2.47
1 to 5	9.25	9.05
5 to 15	21.10	23.60
15 to 20	9.50	10.04
20 to 25	8.20	9.36
25 to 30	6.70	8.50
30 to 35	6.00	7.79
35 to 40	6.00	7.25
40 to 45	5.60	5.88
45 to 55	9.40	7.29
55 to 65*	7.70	4.76
65 to 75	5.40	3.01
75 to 85	2.34	.89
85 and over	.26	.11
Total	100.00	100.00

It will be observed that the most striking differences occur between the ages of 20 and 40—the migratory period—under which ranged 33 per cent. of the population in Australia, as against only 27 per cent. in Sweden; and at ages over 45, at which the preponderance was in favour of Sweden, where there were 25 per cent. over that age as against only 16 in Australia.

In accordance with the decision of the Conference of Statisticians, held at Hobart in 1902, that “for computing the ‘Index of Mortality’ the table of age groups adopted by the Congress of International Statistics be followed, viz.:—Under 1 year, 1 to 20 years, 20 to 40 years, 40 to 60 years, and 60 years and over, and that the population of Sweden, as enumerated at the last census at those ages, be taken as a standard,” the method referred to has been adopted in Victoria. It consists of applying the ascertained death rates in the age group specified to a population whose age distribution corresponds with that of Sweden in 1890.

Index of mortality.

* At age 55 to 60 the proportion in Sweden was 4.20, and in Australia 2.54 per cent.

The following was the result for Victoria in 1901, when the populations within the several age groups were accurately known, and the incidental death rates could be established:—

“INDEX OF MORTALITY,” VICTORIA, 1901.

Age.	Standard Population, per 1,000. (Sweden, 1890.)	Death Rate per 1,000 at each Age in Victoria 1901.	Index of Mortality for Victoria, 1901.
0—1	25·5	112·55	2·88
1—20	398·0	4·19	1·67
20—40	269·6	6·21	1·68
40—60	192·3	13·19	2·54
60 and over	114·6	59·81	6·86
Total	1,000·0	13·22	15·63

Proportions of population at five age groups in Australian States and New Zealand.

In order to compare with the proportion in Sweden, as shown in the second column of the previous table, as well as to afford a basis for the computation of the “Index of Mortality,” the proportions per 10,000 living at the same five age groups in each Australian State and New Zealand, for the year 1901, are given in the following table for both sexes, and also for males. The great preponderance of population at the age groups between 1 and 40, and the large and increasing deficiency at age groups over 40, are the characteristic features of the Australian populations when compared with the Swedish. Amongst the Australian States, Victoria is conspicuous in having by far the largest proportion of persons aged 60 and over—an age group which has an important influence in determining the death rate. On the other hand, Victoria has, with one exception, the lowest proportion of both sexes between 1 and 20, and also, with one exception, the lowest proportion of males between 20 and 40—at which age groups the death rate is lightest:—

PROPORTIONS LIVING AT FIVE AGE GROUPS IN AUSTRALIAN STATES AND NEW ZEALAND, 1901.

State.	Proportion per 10,000 of Total Population Living at the Age Period—					Total.
	Under 1 Year.	1 to 20.	20 to 40.	40 to 60.	60 and over.	
Both Sexes.						
Victoria	236	4,163	3,272	1,531	798	10,000
New South Wales	253	4,382	3,210	1,597	558	10,000
Queensland	260	4,348	3,309	1,601	482	10,000
South Australia	227	4,445	3,054	1,641	633	10,000
Western Australia	273	3,324	4,548	1,529	326	10,000
Tasmania	267	4,519	3,118	1,488	608	10,000
Australia	247	4,269	3,290	1,571	623	10,000
New Zealand	238	4,195	3,295	1,596	676	10,000

PROPORTIONS LIVING AT FIVE AGE GROUPS IN-AUSTRALIAN STATES AND NEW ZEALAND, 1901—*continued.*

State.	Proportion per 10,000 of Total Population Living at the Age Period—					Total.
	Under 1 year.	1 to 20.	20 to 40.	40 to 60.	60 and over.	
Males only.						
Victoria	120	2,093	1,585	795	434	5,027
New South Wales	127	2,210	1,664	915	324	5,240
Queensland	132	2,201	1,910	1,016	302	5,561
South Australia	116	2,234	1,527	897	312	5,086
Western Australia	140	1,704	2,994	1,073	219	6,130
Tasmania	135	2,297	1,639	802	323	5,196
Australia	125	2,154	1,723	890	350	5,242
New Zealand	124	2,117	1,692	906	415	5,254

The "Index of Mortality" has been computed for each Australian State and New Zealand for the year 1901, with the following results, which is contrasted with the death rate per 1,000 of the total population for the same year. The death rates for 1901 differ but slightly from the average of the 3 years, 1900-2:—

Index of mortality in Australian States, 1901.

"INDEX OF MORTALITY" IN EACH AUSTRALIAN STATE AND NEW ZEALAND, 1901.

State.	Ordinary Death Rate.	"Index of Mortality."
Victoria	13.22	15.63
New South Wales	11.68	15.33
Queensland	11.88	15.24
South Australia	11.22	14.30
Western Australia	13.36	17.89
Tasmania	10.45	13.82
Australia	12.17	15.41
New Zealand	9.81	12.42

Although the order of the States is but slightly affected by the new method, Western Australia is shown to have really a far higher rate of mortality than that indicated by the ordinary method; but Victoria only a slightly higher rate than in the two other principal Australian States—New South Wales and Queensland—and probably even this small difference in favour of the latter States would dis-

appear if the old-age group 60 and upwards were subdivided. New Zealand enjoys the enviable position of supremacy—its death rate not only being the lowest Australasian, but probably the lowest of any country in the world for which statistics are available.

“Adjusted”
death rates,
1871 to
1902.

The “Index of Mortality” has not yet been computed for earlier years, or for other countries, except Sweden (where it was, in 1900, 1672); but an equally fair comparison is available for Victoria, for three successive decades, and for the triennial period 1900-2, by means of the “Adjusted”* death rates, already alluded to, and these are embodied in the following table for each sex, together with the ordinary death rates, based on the total population of either sex, irrespective of age variations:—

ADJUSTED DEATH RATES IN VICTORIA, 1871-1902.

Period.	Ordinary Death Rate.†		Adjusted Death Rate.‡	
	Males.	Females.	Males.	Females.
1871 to 1880 ..	16·45	14·15	16·48	14·64
1881 to 1890 ..	16·65	13·56	15·97	13·85
1891 to 1900 ..	15·47	12·36	14·14	12·04
1900 to 1902 ..	14·80	11·43	13·05	10·75

Diminishing
rate of
mortality
in Victoria.

The “adjusted” rates indicate that there has been a considerable falling off in the true rates of mortality at each successive decade, more especially the last, at which the rate was about $2\frac{1}{2}$ per 1,000 lower than in the first decade, and over $1\frac{3}{4}$ lower than in the second one. A further fall occurred during the three years, 1900-1902, when the mortality was exceptionally low, being more than 1 per 1,000 below that of the ten years, 1891-00.

Proportion
of deaths at
each age to
population.

The following are the death rates at various age groups in Victoria, according to the average of the ten years, 1891-00, and of the three years, 1900-2. The population on which the rates in the last column but one are based is the mean of the populations enumerated at the censuses of 1891 and 1901; and the population, according

* For the method of calculating the “Adjusted death rate” see *Victorian Year-Book*, 1892, Vol. I., paragraph 656 *et seq.*

† Per 1,000 of the actual population.

‡ Per 1,000 of the standard population. See *Year-Book*, 1892, paragraph 656.

to the census of 1901, taken at the end of March, was used for computing the rates in the last column:—

DEATH RATES AT VARIOUS AGE GROUPS IN VICTORIA, 1891-1900 AND 1900-2.

Ages.	Deaths.		Deaths per 1,000 Living at each Age.	
	Average of Ten Years, 1891-1900.	Average of Three Years, 1900-2.	Average of Ten Years, 1891-1900.	Average of Three Years, 1900-2.
<i>Males—</i>				
Under 5 years ..	2,794	2,282	39·29	34·07
5-10	231	195	3·36	2·70
10-15	139	142	2·20	2·10
15-20	191	184	3·28	3·11
20-25	274	249	4·79	4·90
25-35	672	579	6·60	6·25
35-45	633	742	9·03	8·81
45-55	671	655	15·32	15·34
55-65	1,200	910	32·90	29·86
65-75	1,460	1,724	62·99	61·57
75 and upwards ..	1,032	1,276	145·05	141·59
All ages ..	9,297	8,938	15·47	14·80
<i>Females—</i>				
Under 5 years ..	2,367	1,900	34·09	29·10
5-10	209	186	3·12	2·63
10-15	128	128	2·06	1·92
15-20	202	175	3·43	2·92
20-25	289	237	4·81	4·10
25-35	676	608	6·89	6·00
35-45	543	642	8·68	8·32
45-55	476	454	12·12	11·48
55-65	693	635	23·64	21·49
65-75	785	994	45·87	45·07
75 and upwards ..	673	868	124·33	122·77
All ages ..	7,041	6,827	12·36	11·43

It will be observed that the rate of mortality in the three years, 1900-1902, was lower at every age group in the case of females, and at all age groups except two—20 to 25, and 45 to 55—in the case of males. Low mortality in 1900-2.

A still greater improvement is noticeable on comparing the rates for the decade, 1891-00, with those for the previous one;* for in the case of males, there was a much diminished rate of mortality at every age group below 55, and only a slight increase in the groups Decreased mortality at various ages, 1881-90 to 1891-1900.

* See *Victorian Year-Book*, 1895-8, page 685.

over that age, and, in the case of females, a considerable decrease at every age group except 55-65.

Deaths of
sexagen-
arians,
1900-2.

The proportion of deaths per 1,000 persons 60 years and upwards in the Commonwealth, is of special interest now, owing to its bearing on the question of a Commonwealth old-age pension, at present under consideration, and the following table has been constructed, showing, in age groups, such proportions for the Australian States and New Zealand, on the average of the years 1900-2:—

DEATH RATES OF SEXAGENARIANS.

Ages at Death.	Deaths per 1,000 of the Population in Age Groups in—							
	Victoria.	New South Wales.	Queens- land.	South Australia.	Western Australia.	Tasmania.	Common- wealth.	New Zealand.
60 to 65	30·1	29·8	29·8	25·3	32·1	25·2	29·3	24·3
65 to 70	43·9	45·4	47·7	41·1	51·4	41·0	44·5	39·9
70 to 75	69·5	71·7	72·1	58·9	67·8	66·2	68·9	64·4
75 to 80	104·5	105·8	124·4	88·8	127·4	106·0	101·8	97·8
80 & over	181·7	195·2		162·4	186·8	199·1	185·0	182·0
Total ..	62·2	58·9	52·1	54·5	56·6	65·1	58·4	49·2

The experience of the three years, 1900-2, shows that of every 1,000 persons aged 60 years and upwards in the Commonwealth, 58·4 died during the year, a lower rate than that of Tasmania, Victoria, or of New South Wales, but higher than that of the other States and New Zealand, the proportion of deaths for each State and New Zealand being:—Victoria, 62·2; New South Wales, 58·9; Queensland, 52·1; South Australia, 54·5; Western Australia, 56·6; Tasmania, 65·1; and New Zealand, 49·2. As the average age of persons over 60 years tends to increase in young countries, it may be expected that these rates will become higher, until the normal, or settled conditions of older countries are reached.

Infantile
mortality
in 1904 and
previous
years.

During 1904 a low infantile death rate was recorded for Victoria. The proportion—779 deaths to every 100 births—was the lowest experienced in the history of the State. The total number under 1 year who died was 2,319, and, as the births for the same period numbered 29,763, it follows that 1 infant died to every 12·83 births. In the ten years ended with 1900, the proportion of infants dying was 11·11, and in 1903, 10·64 to every 100 births. The improvement shown in 1904, as compared with 1903, was nearly 27 per cent., which was equivalent to saving the lives of 848 more infants than in the preceding year.

The following table shows the infantile mortality rates in Melbourne and suburbs, and the remainder of the State, and the difference in favour of the latter during the years 1873-1904:—

Infantile death rates in Melbourne and country.

INFANTILE DEATH RATES IN MELBOURNE AND SUBURBS, AND THE REMAINDER OF THE STATE, 1873-1904.

Period.	Melbourne and Suburbs—Deaths per 100 Births.	Remainder of State—Deaths per 100 Births.	Excess per cent. of Melbourne over Country Rate.
1873-80	16·85	10·16	66
1881-90	17·14	9·50	80
1891-1900	13·36	9·60	39
1901	12·41	8·89	39
1902	12·74	9·55	33
1903	12·43	9·42	32
1904	9·27	6·81	36

It will be observed from the above figures that the mortality amongst infants is much heavier in the metropolitan area than in the remainder of the State. This was more marked in earlier than later years. During the period, 1873-80, the rate prevailing in the metropolitan area was 66 per cent. greater than in the rest of Victoria. In 1881-90 it was 80, and in 1891-1900 it was 39 per cent., whilst in the years 1903 and 1904 it fell to 32 and 36 per cent. respectively, showing that the conditions surrounding infant life in Melbourne are steadily improving, and are approaching those of rural life.

The mortality of illegitimate infants under 1 year of age, during the years 1901, 1903, and 1904, was nearly three times as great as that prevailing amongst children legitimately born. On the average of the three years under review, of every 100 illegitimate children born, 24·3 died within a year, as compared with only 8·7 deaths to every 100 legitimate births. The mortality rates for 1904, for illegitimate and legitimate children fell to 20 and 7 per cent. respectively.

Infantile mortality of illegitimates.

In classifying the deaths of infants, those are distinguished which occur at under the age of one month, at from 1 to 3 months, at from 3 to 6 months, and at from 6 to 12 months. The annual numbers of these during the ten years ended with 1900, and the period, 1900 to 1904, are shown in the following table, together with the proportion of deaths at each of those periods of age and the number at each such period to every 100 births. It will be noticed that in the last five years the mortality of infants at each age period,

Deaths of infants at different ages.

excepting girls under 1 month, was below the average of the ten years ended with 1900:—

DEATHS OF INFANTS AT VARIOUS AGES, 1891-1900 AND 1900-4.

Ages.	Average Annual Deaths at under 1 year of Age.					
	Ten Years—1891-1900.			Five Years—1900-4.		
	Number.	Percentage at each Age.	Number per 100 Births.	Number.	Percentage at each Age.	Number per 100 Births.
<i>Boys.</i>						
Under 1 month	650	31·7	3·79	586	35·6	3·76
1 to 3 months	355	17·3	2·07	298	18·1	1·91
3 to 6 „	445	21·7	2·59	344	20·9	2·21
6 to 12 „	600	29·3	3·50	416	25·4	2·69
Total ..	2,050	100·0	11·95	1,644	100·0	10·57
<i>Girls.</i>						
Under 1 month	488	28·7	2·98	459	34·4	3·11
1 to 3 months	301	17·7	1·84	214	16·0	1·44
3 to 6 „	385	22·6	2·35	292	21·8	1·97
6 to 12 „	528	31·0	3·23	371	27·8	2·52
Total ..	1,702	100·0	10·40	1,336	100·0	9·04

More deaths of male than female infants at all ages.

During both periods referred to in the table, the mortality of male infants in proportion to the number born exceeded that of female infants at each of the age periods—more especially in the first month of life, when the excess was about one-fourth. During the period of ten years, the births of male infants were in the proportion of about 105 to every 100 female infants; but as the numbers shown above indicate a proportion of 120½ deaths of the former to 100 of the latter, the proportion alive at the end of the first year is reduced to 103 males to every 100 females. These proportions remained undisturbed during the five years period 1900-4.

Periods at which infants die.

In the same period of ten years, nearly a third of the male and nearly two-sevenths of the female infants who died before they were a year old died in the first month after birth; over a sixth of both males and females in the next two months; between a fourth and a fifth of both males and females in the next three months; and about three-tenths in the next six months.

Infantile mortality in Victoria, England, and New South Wales.

Of infants of both sexes who died under 12 months, 47·8 were under 3 months, 22·1 were from 3 to 6 months, and 30·1 per cent. from 6 to 12 months. In England and Wales, for the same period, the percentages were—under 3 months, 48·4; 3 to 6 months, 20·9; 6 to 12 months, 30·7. In New South Wales the percentages were 50·3, 22·6, and 27·1 respectively.

According to the experience of the ten years 1891-1900, it appears that of every 20,000 newly-born boys and girls in equal numbers, 379 of the former and 298 of the latter may be expected to die before they are a month old; 207 more boys and 184 more girls may be expected to die between one and three months of age; 259 more boys and 235 more girls between three and six months; 350 more boys and 323 more girls between six and twelve months. At the end of a year it is probable that 1,195 of the boys and 1,040 of the girls will have died, and 8,805 of the former and 8,960 of the latter, or 17,765 of mixed sexes, will be still living. In the previous ten years, the proportion surviving the first year was 8,652 males and 8,816 females. Hence there has been an improvement in the rate of infantile mortality in the last decade, as compared with the previous one, which has resulted in the saving of 148 more lives in every 10,000 infants of both sexes.

The following table shows the proportion of deaths of infants under one year to the total births in each Australian State and in New Zealand for each of the last five years, and the average for the ten years ended with 1900:—

INFANTILE MORTALITY IN AUSTRALASIA.

Year.	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
1900 ..	9·53	10·32	9·84	9·93	12·61	7·99	7·51
1901 ..	10·29	10·37	10·19	10·01	12·89	8·90	7·14
1902 ..	10·86	10·97	10·02	9·40	14·20	7·91	8·29
1903 ..	10·64	11·63	11·99	9·71	14·12	11·08	8·11
1904 ..	7·79	8·24	..	7·05	11·30	9·07	7·10
Mean—5 years ..	9·82	10·31	..	9·22	13·02	8·99	7·63

It will be observed that the average rate for the ten years, 1891-1900, was far higher in Western Australia, and much lower in New Zealand and Tasmania, than in any other Australasian State. During 1904 the infantile mortality in the Commonwealth and New Zealand—with the exception of Tasmania—was lower than has hitherto been experienced. The rates in Western Australia and Tasmania were higher than in the other States, the lowest being in South Australia and New Zealand. Compared with the preceding year the decline was very marked in all the States.

Of all the countries respecting which information is available, infantile mortality is highest in Russia, Austria, and some of the German States—where at least one out of every four infants born die within twelve months—whilst it is lower in Tasmania and New

Zealand than in any of the European countries, and lower in all the Australian States than in any except Sweden and Ireland. The following table shows the various rates:—

INFANTILE MORTALITY IN VARIOUS COUNTRIES.

Deaths under 1 Year of Age to 100 Births.		Deaths under 1 Year of Age to 100 Births.		Deaths under 1 Year of Age to 100 Births.	
Russia ...	30·0	Italy ...	19·0	Victoria ...	11·1
Bavaria ...	27·0	Belgium ...	17·0	South Australia ...	10·5
Austria ...	25·0	France ...	17·0	Queensland ...	10·3
Wurtemberg ...	25·0	Great Britain ...	15·0	Sweden ...	10·0
Prussia ...	21·0	Greece ...	15·0	Ireland ...	10·0
Holland ...	20·0	Western Australia ...	14·5	Tasmania ...	9·6
Roumania ...	20·0	Denmark ...	14·0	New Zealand ...	8·4
Switzerland ...	19·0	New South Wales ...	11·2		

NOTE.—The information respecting all the countries except the Australasian States is for the year 1895 and was obtained from *Mulhall* (page 685). That respecting the Australasian States is based on the average of the ten years ended with 1900.

Deaths of
children
under 5.

In the year 1904 deaths of male children under 5 years of age numbered 1,681, and deaths of female children under that age numbered 1,373—the former being in the proportion of about 21 per cent., and the latter of about 21·5 per cent., to the total number of deaths at all ages. These proportions are much below the average of former years. Comparing the averages of the last three decades, a marked falling off took place, from period to period, in the mortality of children relatively to that of persons of all ages, and the following table shows the annual number of such deaths at each year of age, and their proportion to the deaths at all ages, in each of the last four years and during the three decennial periods ended with 1880, 1890, and 1900:—

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.							
1871-80	1,783	508	206	148	119	2,764	39·41
1881-90	2,158	464	161	114	92	2,989	34·28
1891-1900	2,050	432	143	93	76	2,794	30·05
1901	1,788	317	90	77	58	2,330	25·79
1902	1,793	345	106	67	37	2,348	25·65
1903	1,694	271	100	76	47	2,188	25·36
1904	1,299	192	85	55	50	1,681	21·03
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	1,404	308	100	61	48	1,921	28·11
1902	1,515	285	110	52	51	2,013	28·65
1903	1,452	267	103	67	51	1,940	27·84
1904	1,020	169	79	49	56	1,373	21·45

The average number of male and female children at each year of age under 5 living, during the period of ten years ended with 1900, is compared in the next table with the average number of deaths of children of the same sexes at those ages which occurred annually during that period:—

Number of children under 5 and their deaths.

DEATHS OF CHILDREN UNDER FIVE IN PROPORTION TO POPULATION.

Age last Birth-day.	Males.				Females.			
	Mean Number Living, 1891 and 1901.	Annual Deaths, 1891 to 1900.		Deaths per 1,000 Children Living.	Mean Number Living, 1891 and 1901.	Annual Deaths, 1891 to 1900.		Deaths per 1,000 Children Living.
		Number.	Per-centage.			Number.	Per-centage.	
0	15,516	2,050	73·38	132·12	15,089	1,702	71·94	112·80
1	14,124	432	15·46	30·59	13,783	385	16·27	27·94
2	13,981	143	5·11	10·23	13,428	129	5·45	9·61
3	13,780	93	3·33	6·75	13,667	82	3·47	6·00
4	13,698	76	2·72	5·55	13,437	68	2·87	5·06
Total	71,099	2,794	100·00	39·29	69,404	2,366	100·00	34·09

Of every 1,000 boys under 1 year of age, 132, and of every 1,000 girls under 1 year of age, 113, died in the decade under notice; the corresponding proportions for the previous ten years being 152 and 130 respectively. These proportions are naturally higher than those quoted in the table showing the comparison of deaths of children under 1 with the births, the proportions in which were 120 deaths of male infants and 104 deaths of female infants to every 1,000 births of infants of those sexes respectively during the recent decade, and 135 and 118 respectively during the previous one.

Proportion of infants dying annually.

In proportion to their respective numbers in the population, more boys than girls died at every year of age, the difference per 1,000 living being as much as 19 at under 1 year, but only about 2·3 at from 1 to 2, and less than 1 at subsequent ages.

More boys died than girls.

According to the figures, deaths of boys under 1 year of age furnish a larger proportion to the total deaths of boys under 5 than deaths of girls under 1 do to the total deaths of girls under 5, but the reverse is the case at each of the years of age after the first.

Boys and girls dying under 1 year.

Of the whole number of children who died before they attained the age of 5, nearly three-fourths, viz., 73 per cent. of the boys, and 72 per cent. of the girls, were under 1 year of age; less than a sixth of the boys and about a sixth of the girls were between 1 and 2; about 1 in 19 of the boys and about 1 in 18 of the girls were between 2 and 3; 1 in 33 of the boys and 1 in 28 of the girls were between 3 and 4; 1 in 37 of the boys and 1 in 35 of the girls were between 4 and 5.

Proportion of deaths of children at each age.

It results from actuarial calculations, based upon the figures for the decade 1891-00 in the last table, that of every 20,000 boys and girls in equal numbers born in Victoria, 1,195 boys and 1,040 girls

Probable mortality of children under 5 years.

may be expected to die before they complete a year of life, 265 more boys and 247 more girls before they complete 2 years, 81 more boys and 84 more girls before they complete 3 years, 63 more boys and 52 more girls before they complete 4 years, and 47 more boys and 43 more girls before they complete 5 years. At the end of that period it is probable that 1,651 of the boys and 1,466 of the girls will have died; and 8,349 of the boys and 8,534 of the girls will be still living. The average result for both sexes is 8,441 per 10,000, which is more favorable than that deduced from the mortality of either of the two previous decades 1881-90, and 1871-80, which showed the number of survivors at the end of the first five years of life to be 8,211 and 8,103 respectively.

Tendency of the sexes towards equality in the first 5 years after birth.

Out of every 10,000 infants born in Victoria, there will on the average be 5,120 boys and 4,880 girls—being in the ratio of 105 of the former to every 100 of the latter. These, according to the results just arrived at, will be reduced at the end of 5 years to 4,275 boys and 4,165 girls—or in the ratio of 103 of the former to every 100 of the latter. Thus, one-half of the excess of males over females at birth is neutralized in the first two years.

Survivors at age 5 out of every 1,000 born.

The number of survivors at the age of 5 out of every 1,000 children born has also been computed for New South Wales and New Zealand, and the results are compared with those given in *Mulhall's Dictionary of Statistics* for several European countries, as follow. It will be noticed that a larger number of infants survive the first five years in New Zealand, New South Wales, and Victoria than in any European country:—

CHILDREN SURVIVING THEIR FIFTH YEAR IN VARIOUS COUNTRIES.

	No. of Survivors.		No. of Survivors
New Zealand	889	Denmark	755
New South Wales	850	France	751
Victoria	844	Switzerland	748
Norway	838	Prussia	684
Ireland	837	Italy	632
Sweden	783	Austria	614
Scotland	780	Hungary	598
England and Wales	762	Spain	571
Belgium	756		

Connexion between infantile mortality and birth rate.

It is remarkable that those countries (with the exception of France) in which the greatest infantile mortality occurs are those which possess a high birth rate, and on the contrary those countries which have a low birth rate have also the lightest mortality. It is evident, therefore, that there is an intimate association between the birth rate and the infantile mortality, and in view of the importance at present attaching to the subject of the declining birth rate, both by medical men and economists, the figures shown above should prove of some interest. So great indeed is the mortality per 1,000 births in the high birth rate countries that the ultimate gain to the population of those countries at the expiration of five years is in some cases below that of the low birth rate countries, and it is highly probable that could the mortality have been traced for a year or two beyond that period, it would be found that the supremacy rests with the low

birth rate countries. The following statement shows the birth rate per 1,000 of the population, and the number surviving their fifth year similarly estimated:—

BIRTH RATES AND SURVIVORS IN VARIOUS COUNTRIES.

Country.	Birth rate.	Surviving age 5.
Hungary	39·4	23·6
Austria	37·2	22·8
Prussia	36·5	25·0
Spain	34·8	19·9
Italy	33·9	21·4
Holland	32·1	25·6
Norway	30·3	25·4
Denmark	30·0	22·7
England	29·2	22·2
Belgium	28·9	21·9
Switzerland	28·4	21·2
New South Wales	27·4	23·3
Sweden	26·9	21·1
New Zealand	25·7	22·8
Victoria	25·7	21·7
France	22·0	16·5

Thus it will be seen that the superiority of the birth rate of European States, so far as population is concerned, has for the most part disappeared at the end of five years.

In connexion with this subject generally—the association between birth rate and infantile mortality—Mr. F. S. Crum, the assistant statistician of the Prudential Insurance Company of New York, who has conducted investigations into and written upon it for some years past, thus expresses himself:—“In my investigation of the subject I found that the general tendency of the birth rate of Massachusetts was downward, though the rate fluctuated considerably, and in a general way in times of prosperity the rate was higher than in times of commercial depression, crisis, &c. The more children who died before attaining age 1, the more children were born, not only in an equal proportion, but greater, and the lower the infant mortality, the lower was the fecundity of women. In a general way, from my investigation, it seemed that foresight and prudence exercised a more powerful influence in restricting fecundity than in reducing infant mortality. I found that a higher infant mortality was generally coincident with a higher birth rate. It is undoubtedly true that a high infant mortality affects the birth rate, the tendency being to increase the number of births. It is only natural that this should be the case. The death of a child before it has reached one year not only shortens the interval between child-bearing, but leaves a vacancy to be filled by another birth. I believe that in any consideration of birth rates the greatest possible care should be taken to examine and duly weigh all the data which may influence the movement of the rate, and if

this is not done the wildest possible conclusions are likely to be derived from a narrow view of the subject, when if all the facts were taken into account a very reasonable and more just explanation of the phenomenon of a declining birth rate would be found. In this country it seems to be the general opinion of those best qualified to judge that there has been a decline in the number of births in proportion to the population contributing to the same in all or most of the more settled portions of the country. Here the conditions, however, are extremely complex, because of the heavy immigration, and the inter-mixture of native and foreign elements. The average age at marriage in such communities as we have the data for seems to be increasing, and this of itself would account for a part of the decline in the birth-rate."

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. Such deaths are classified in two ways. If the death is supposed to occur merely from the consequences of child-bearing without specific disease, it is set down under the head of childbirth, but if it should arise from puerperal fever or puerperal septicaemia it is placed under puerperal fever. The proportion of deaths of child-bearing women has fallen decade by decade from 64 per 10,000 in 1871-80 to 56 in 1891-00. In the years 1901 and 1902, however, the rate was as high as in the decade 1871-80. This rise was no doubt partly attributable to the increased average age of mothers, previously referred to. The proportions which prevailed in the last four years, and the averages of previous periods back to 1864, are shown in the following table:—

DEATHS OF MOTHERS TO EVERY 10,000 CHILDREN BORN ALIVE.

Period.	The Number of Women who Died Annually of—			Deaths of Mothers to every 10,000 Children Born Alive.
	Child Birth.	Puerperal Fever.	Total.	
1864-70 ..	108	20	128	49·06
1871-1880 ..	127	46	173	64·38
1881-1890 ..	121	64	185	59·19
1891-1900 ..	117	66	183	56·01
1901 ..	130	71	201	64·82
1902 ..	131	68	199	65·32
1903 ..	136	53	189	63·92
1904 ..	113	46	159	53·42·

Deaths in
childbed
from septic
diseases.

The proportion per 1,000 births of deaths in childbirth from septic diseases during the four years 1901-4 was 1'97. In England and Wales for 1903 the proportion was 1'67. These rates are considerably higher than those obtaining in the out-door departments of the large maternity hospitals in London, where, according to Dr. H. O. Cowen, in his paper on "Puerperal Sepsis," in the *Intercolonial*

Medical Journal for August, 1904, the results of the Queen Charlotte and the British Lying-in Hospitals show that out of 34,628 outdoor births attended by trained and skilled midwives attached to these institutions there were only six deaths, or the very small proportion of less than two deaths to every 10,000 births—one-tenth of the Victorian mortality rate from the same cause.

Prior to 1904, deaths from appendicitis were not separately shown, having been included under the heading of "ulceration of intestines." Particulars relating to this disease are therefore now given for the first time for Victoria, and these show that during the past year 86 deaths—58 of males and 28 of females—resulted from this cause. The greatest mortality for both sexes occurred between the ages of 10 and 35 years. The proportion per cent. at the various age groups were as follow:—1 per cent. under 5 years of age, 9 between 5 and 10, 32 between 10 and 20, 27 between 20 and 30, 12 between 30 and 40, 6 from 40 to 50, and 13 per cent. distributed over the group 50 years and upwards. During the year 364 cases of appendicitis were treated in the general hospitals throughout the State, and of this number 32 ended fatally—a proportion of about 1 death in every 12 cases.

Deaths from
appendicitis,
1904.

GENERAL TABLES OF MORTALITY.

The following table shows the death rates of males and females during each year since 1860:—

MALE AND FEMALE DEATH RATES PER 1,000 OF EITHER SEX IN VICTORIA FOR EACH YEAR, 1861-1904.

Year.	Death Rate per 1,000 of each Sex.		Year.	Death Rate per 1,000 of each Sex.	
	Males.	Females.		Males.	Females.
1861	18·84	20·47	1883	15·52	12·95
1862	18·28	18·56	1884	15·49	13·18
1863	17·34	16·25	1885	16·47	13·39
1864	15·52	14·67	1886	16·49	13·72
1865	17·74	16·29	1887	17·14	14·18
1866	19·82	19·16	1888	16·80	13·91
1867	18·39	17·99	1889	19·19	16·20
1868	15·95	14·23	1890	17·59	14·44
1869	16·40	14·32	1891	17·74	14·63
1870	15·59	13·41	1892	14·99	12·15
1871	14·49	12·21	1893	15·69	12·35
1872	15·42	13·14	1894	14·60	11·47
1873	15·91	13·99	1895	14·58	11·74
1874	16·78	14·48	1896	14·73	11·77
1875	20·40	18·29	1897	14·22	11·34
1876	18·25	15·64	1898	17·57	13·99
1877	17·17	14·26	1899	15·48	12·43
1878	16·57	14·22	1900	14·34	11·11
1879	16·04	12·93	1901	14·90	11·48
1880	14·80	12·48	1902	15·13	11·66
1881	15·38	12·77	1903	14·25	11·48
1882	16·91	13·57	1904	13·24	10·60

The next table gives the yearly average proportion of deaths from influenza per 10,000 of the population in age groups, during the four latest census periods, and shows that during the two latter, the proportion of deaths resulting from this disease was eleven times as great as in the two preceding periods:—

DEATH RATES FROM INFLUENZA IN VICTORIA PER 10,000 OF POPULATION.

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

Since 1890, there were two epidemic outbreaks of influenza—in 1891, and 1899, resulting in 1,035 and 963 deaths respectively. The deaths due to this cause in 1903 numbered 129, which was the lowest during the past fourteen years. In 1904, the number increased to 257. In the period 1890-8, 16 per cent. of the deaths from influenza were of children under five years, and nearly 50 per cent. were aged 55 and upwards. In 1904, the corresponding rates were eleven and 64 respectively, thus showing that it is more fatal to the very young and old than to those of middle ages.

The next table shows the average yearly death rates (for males and females) per 10,000 of the population from respiratory diseases, in various age groups, during the four latest census periods.

DEATH RATES IN VICTORIA PER 10,000 FROM RESPIRATORY DISEASES.

Age Group.	Males.				Females.			
	1870-2.	1880-2.	1890-2.	1900-2.	1870-2.	1880-2.	1890-2.	1900-2.
0-15 ...	22·65	29·02	28·52	16·53	18·50	24·18	24·13	13·85
15-20 ...	3·45	3·30	2·92	2·70	1·88	2·02	3·52	2·34
20-25 ...	5·70	5·34	4·88	4·85	3·54	4·23	3·05	3·34
25-35 ...	4·69	8·31	6·85	5·94	4·51	5·72	5·65	3·75
35-45 ...	10·28	15·80	13·55	9·49	7·94	12·53	11·55	7·68
45-55 ...	20·43	26·59	25·18	18·04	7·87	13·63	17·01	11·80
55-65 ...	41·79	51·65	56·51	38·37	22·97	29·15	32·10	27·42
65 upwards ...	108·11	136·54	141·07	112·38	73·10	116·12	112·38	86·78
All ages ...	17·29	24·48	24·30	18·66	12·63	17·08	17·62	13·28

An examination of the above table shows that the proportion of males dying from diseases of the respiratory system exceeded that of females at each census period. The average mortality rate per 10,000 of the population for the four census years being 21·18 deaths for males, and 15·15 for females. In each age group (except 15-20 in 1890-2), the mortality rate for males was heavier than that for females, and not only was there a considerable decrease in the proportions for both sexes, but, in nearly every group, a reduction is shown during 1900-2, as compared with 1890-2.

AVERAGE YEARLY DEATH RATE PER 10,000 PERSONS DYING FROM
TUBERCULAR DISEASES (PHTHISIS EXCEPTED) DURING THE
YEARS 1870-2, 1880-2, 1890-2, 1900-2.

Ages.	Death-rate per 10,000 persons during—			
	1870-2.	1880-2.	1890-2	1900-2.
MALES.				
0—15	7·53	7·98	10·36	5·64
15—20	·64	·81	1·17	1·12
20—25	1·80	1·23	·89	1·77
25—35	·70	·66	·84	1·91
35—45	·77	·88	·77	1·39
45—55	·95	·85	·67	1·64
55—65	·88	1·07	·78	2·40
65 and over	1·09	2·36	·56	1·17
All ages	3·46	3·55	4·02	2·99
FEMALES.				
0—15	5·89	7·28	8·43	5·33
15—20	·82	1·30	1·27	1·95
20—25	·52	·69	1·23	2·09
25—35	·54	·41	·88	1·98
35—45	1·04	·70	·42	1·77
45—55	·17	·67	·34	1·01
55—65	·39	·62	·69	·71
65 and over	1·69	1·19	·64	·71
All ages	3·10	3·39	3·58	2·91

It will be noticed that the proportion of persons under fifteen years of age dying from tubercular diseases (excluding phthisis), during the last census period, showed a decline of 45 per cent. for males, and nearly 37 per cent. for females. As a reduction of 58 and 35 per cent. for males and females respectively occurred also in the proportion of deaths of persons of the same age from phthisis, it evidences a gratifying decrease in the mortality rates from all tubercular diseases amongst children during the last decennial period.

The number of deaths from phthisis during the past 45 years numbered 52,262, which gives a mean yearly death rate of 13·05 per 10,000 persons living for the whole period.

DEATHS FROM PHTHISIS IN VICTORIA FOR THE YEARS, 1860-1904.

Year.	Deaths from Phthisis.		Year.	Deaths from Phthisis.	
	Total Number.	Number per 10,000 Persons Living.		Total Number.	Number per 10,000 Persons Living.
1860 ...	772	14·46	1899 ...	1,339	11·29
1865 ...	741	12·12	1900 ...	1,387	11·62
1870 ...	888	12·45	1901 ...	1,416	11·77
1875 ...	1,027	13·04	1902 ...	1,412	11·69
1880 ...	1,175	13·82	1903 ...	1,341	11·09
1885 ...	1,384	14·46	1904 ...	1,342	11·11
1890 ...	1,631	14·58			
1895 ...	1,567	13·23	Sum and mean	52,262	13·05
1898 ...	1,520	12·85	of 45 years		

The foregoing table shows a diminishing death rate per 10,000 of the population from phthisis during the past 45 years, especially in the last five years, as compared with earlier periods. This is more fully shown in the following table, which gives the proportion per 10,000 of the population of deaths, for each sex, during the five latest census periods:—

DEATH RATES IN VICTORIA FROM PHTHISIS AT DIFFERENT AGES AT FIVE CENSUS PERIODS, 1860-2, 1870-2, 1880-2, 1890-2, 1900-2.

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

It will thus be seen that the male death rates per 10,000 of the population from phthisis were greater during the four latest census periods than those of females; but the proportion of deaths of females under 20 years of age, was nearly twice as great as that of males during the five census years, whilst the proportion of males, 45 years and upwards, during the latter period, was considerably greater than that of females. The figures for 1900-2, show that there was a decline in every age group (excepting 15-20 and 65 and upwards amongst males, and 55-65 amongst females) as compared with those for 1890-2.

The yearly average proportion of deaths from influenza and respiratory diseases (combined) per 10,000 of the population living at different ages during the four latest census periods, is shown in the following table:—

DEATH RATES FROM INFLUENZA AND RESPIRATORY DISEASES
(COMBINED), 1870-2, 1880-2, 1890-2, 1900-2.

Age Group.	1870-72.	1880-82.	1890-92.	1900-02.
<i>Males.</i>				
0-15	23·34	29·36	31·02	17·63
15-20	3·05	3·37	3·56	3·04
20-25	5·70	5·34	6·08	5·44
25-35	5·74	8·38	8·35	6·73
35-45	10·33	15·80	16·59	10·80
45-55	20·52	26·83	30·30	21·24
55-65	42·46	51·89	69·16	43·62
65 and upwards	109·20	138·90	168·20	129·40
All ages	17·62	24·73	28·24	20·96
<i>Females.</i>				
0-15	19·02	24·52	25·99	15·00
15-20	1·88	2·02	4·44	3·17
20-25	3·54	4·23	4·33	4·03
25-35	4·58	5·79	8·00	4·64
35-45	7·94	12·61	15·66	9·54
45-55	8·04	13·63	22·40	13·82
55-65	23·36	29·77	43·56	32·95
65 and upwards	73·94	119·30	147·60	102·80
All ages	12·91	17·32	21·34	15·41

Excepting the age group 15-20 during 1890-2, and 1900-2, the proportion of deaths of males from influenza and respiratory diseases combined, was greater in every instance at each census period, than that for females. The mortality rates showed a considerable decrease for both sexes during the last census period, as compared with the two previous ones, such decrease amounting to 26 per cent. in male, and 28 per cent. in female rates.

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 each of the years 1900 to 1904, and also for the mean of that period, is shown in the following table:—

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

Year.	Victoria.	New South Wales.	Queens land.	South Australia.	Western Australia.	Tasmania.	Australian States.	New Zealand.
1900	13.05	16.27	18.47	14.87	18.15	17.14	15.54	16.17
1901	12.56	15.92	16.40	13.87	16.96	17.95	14.88	16.53
1902	11.78	15.22	15.60	12.74	16.46	18.02	14.18	15.39
1903	11.56	13.72	12.24	12.45	17.67	16.61	13.12	16.21
1904	12.73	16.11	17.01	14.48	18.43	18.58	15.29	17.37
Mean	12.34	15.44	15.94	13.68	17.53	17.66	14.60	16.33

The mean natural increase of the Australian States for the period 1900-4, *viz.*, 14.60, is probably not far from that which will be attained under ordinary circumstances when the age constitution of the population will have become normal, and when undisturbed by migration. At the present time, the birth rate and death rate are both below normal, owing to factors in operation which have already been discussed in dealing with the birth and death rates. This annual rate of increase, 14.6 per thousand, will enable a population to double itself in about 48 years. It will, however, be noticed that the rate for the last year was .7 above the average of the five years, and if this increased rate were maintained, the population would take about 45½ years to double itself.

Natural increase per 1,000 of population in European countries.

The following table shows the natural increase per 1,000 of the population in various European countries—the mean of the five years, 1897-1901, being adopted, and the countries placed in order of increase:—

NATURAL INCREASE PER 1,000 OF POPULATION—EUROPEAN COUNTRIES—MEAN OF FIVE YEARS, 1897 TO 1901.

Country.	Natural Increase.	Country.	Natural Increase.
1. Prussia ...	15.5	10. Italy ...	11.0
2. The Netherlands ...	14.8	11. Belgium ...	10.9
3. German Empire ...	14.6	12. United Kingdom ...	10.7
4. Norway ...	14.5	13. Sweden ...	10.6
5. Denmark ...	13.5	14. Switzerland ...	10.5
6. Austria ...	11.9	15. Spain ...	5.0
7. Hungary ...	11.7	16. Ireland ...	4.7
8. Scotland ...	11.6	17. France ...	1.2
9. England and Wales	11.4		

It is seen from this statement that the present Australian rate is below the first two countries shown, but is equal to that of the German Empire. It might be inferred that in Prussia and the Netherlands—where the rate of natural increase is higher than in the

Commonwealth—that those countries were increasing their populations at a greater rate than the Commonwealth of Australia, but emigration must be taken into account when dealing with European countries.

The actual rates of increase in various European countries have been computed and are set forth in the following table, which also shows the periods from which such rates were obtained, and also the periods in which the population would double itself at the computed rate of increase:—

Actual rates of increase of population in European countries.

ACTUAL RATE OF INCREASE OF POPULATION IN VARIOUS EUROPEAN COUNTRIES.

Country.	Annual Rate of Increase per cent.	Experience	Period required to Double Population.
1. German Empire ...	1.12	1872-1901	62½
2. Prussia ...	1.11	1867-1901	62½
3. The Netherlands ...	1.05	1853-1901	66½
4. Denmark ...	1.03	1861-1901	67½
5. Great Britain ...	.91	1864-1901	76½
6. Hungary ...	.97	1876-1901	71½
7. Belgium ...	.84	1853-1901	83
8. Norway ...	.81	1871-1901	86
9. Sweden ...	.77	1852-1901	90½
10. Austria ...	.77	1853-1901	90½
11. Switzerland ...	.72	1868-1901	96½
12. Italy ...	.64	1872-1901	108½
13. Spain ...	.45	1861-1901	154½
14. France ...	.16	1853-1901	433½

Even at the present rate of natural increase in Australia, the period required to double its population, viz., less than 50 years—and which is independent of immigration—is considerably less than that required by any of the European countries, based upon actual experience.

The following table shows the excess per cent. of births over deaths in each of the Australian States and New Zealand for each of the five years, 1900 to 1904, together with the mean of the same period:—

Excess per cent. of births over deaths in Australasia.

EXCESS PER CENT. OF BIRTHS OVER DEATHS, AUSTRALIAN STATES AND NEW ZEALAND.

Year.	Victoria.	New South Wales.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australian States.	New Zealand.
1900 ...	102	146	158	139	143	156	132	171
1901 ...	95	136	138	124	127	172	122	169
1902 ...	88	127	129	107	121	165	113	147
1903 ...	90	118	99	115	140	140	109	156
1904 ...	107	152	168	142	155	169	139	181
Mean...	96	136	138	125	137	160	123	165

Excess of
births over
deaths in
European
countries.

From this it is seen that the least excess in Australasia is in Victoria and the greatest in New Zealand. To every hundred deaths that occur in Victoria there are 196 births, in New South Wales 236, in Queensland 238, in South Australia 225, in Western Australia 237, in Tasmania 260, whilst in New Zealand there are 255. The position occupied by Victoria is due to the excessive emigration of adults in recent years, which is also chiefly responsible for the low birth rate, and (compared with Australian rates) to some extent for its somewhat high death rate. But even under these adverse circumstances, the excess in Victoria compares advantageously with those of European countries, as will be seen from the following table, which shows the excess in those countries as derived from the mean of the five years 1897-1901:—

EXCESS PER CENT. OF BIRTHS OVER DEATHS IN EUROPEAN COUNTRIES.

Country.	Excess.	Country.	Excess.
1. Norway ...	92	10. Great Britain ...	60
2. The Netherlands ...	86	11. Switzerland ...	58
3. Denmark ...	82	12. Italy ...	49
4. Prussia ...	74	13. Austria ...	47
5. German Empire ...	69	14. Hungary ...	43
6. England and Wales...	65	15. Ireland ...	26
7. Sweden ...	65	16. Spain ...	20
8. Scotland ...	64	17. France ...	6
9. Belgium ...	61		

Comparison
between
excess per
cent. of
births over
deaths in
Australasia
and
European
countries.

Thus it will be seen that in no European country does the excess per cent. of births over deaths reach the average of the Australian Commonwealth. In Hungary, which has the highest birth rate amongst the European States quoted, viz., 38'9, the death rate is so high, viz., 27'2 per 1,000 of the population, that the excess per cent. of births over deaths is only 43, whilst Australia, with its birth rate of only 26'5 has an excess of 123 per cent. In other words, whilst in Hungary the loss caused by every 100 deaths is replaced by 143 births, in Australia such loss is replaced by 223 births. In New Zealand, which has a birth rate of only 26'28, the 100 deaths are replaced by no less than 265 births. In Germany every 100 deaths are replaced by 169 births, in Great Britain by 160, and in France by only 106. The comparison, it is obvious, is entirely to the advantage of Australasia.

GREATER MELBOURNE.

Vital
statistics
of Greater
Melbourne.

The mean population of Greater Melbourne was 504,960 for the year 1904. This area embraces a radius of ten miles, and is divided into 31 sub-districts. At the end of 1904 there was living within the area an average of 3 persons to the acre. The density varies considerably, however, in the several sub-districts, ranging from 36 persons to the acre in Fitzroy, 32 in North Melbourne, and 31 in Richmond, to 1 person to the acre in Boroondara, and less than 1

in Preston, Oakleigh, and other outlying districts. The density is calculated exclusive of parks, gardens, and other public reserves within the area, which contained, on 31st December, 5,332 acres.

The births and deaths for the two years 1903 and 1904 were:—

	1903			1904		
	Males.	Females.	Total.	Males.	Females.	Total.
Births ...	6,116	5,896	12,012	6,035	5,851	11,886
Deaths ...	3,772	3,445	7,217	3,439	3,119	6,558
Natural increase ...	2,344	2,451	4,795	2,596	2,732	5,328
The illegitimate births numbered			1,031			1,084
The cases of twins numbered			101			125
The cases of triplets numbered			4			1

The number of illegitimate births, 1,084, is 53 more than in 1903, when the number was 1,031. Over two-fifths took place in the Women's Hospital or in buildings under the supervision of the officers of that institution. The proportion of illegitimate births to the whole number registered in Greater Melbourne was 1 in 11, as against 1 in 12 in 1903, 1902, and 1901, 1 in 11 in 1900, and 1 in 12 in the 8 previous years. The birth rate, exclusive of public and charitable institutions, was 21'45 per thousand of the mean population, and including these establishments it was 23'54. The corresponding averages for the ten years, 1892-1901, were 26'83 and 28'55 per thousand.

The highest rate, 29'18 per thousand, obtained in the sub-district of North Melbourne, and the lowest, 15'77, in Camberwell and Boroondara. In the latter district, however, the population is comparatively small. Further examination will disclose that the birth rate varied in groups of districts, as well as districts, as will be seen by combining Collingwood, Brunswick, Fitzroy, North Melbourne, Footscray, Port Melbourne, and Richmond, and Kew, Hawthorn, Brighton, St. Kilda, Caulfield, Malvern, and Camberwell. In the former, the rate is 24'05, and in the latter, only 18'36, per thousand of the population. The death rate, exclusive of public and charitable institutions, was 9'54 per thousand, and including these establishments, 12'99, whilst the corresponding averages for the 10 years 1892-1901 were 12'39 and 15'76. Although the number of births in 1904 fell off as compared with that in 1903, this diminution was more than compensated by a larger falling off in the number of deaths.

The municipal estimate of population, the births and deaths, and their proportions to the population, the excess of births over deaths, the mean temperature in the shade, the rainfall, and the mean atmospheric pressure in Greater Melbourne, during each of the twenty years ended with 1904, were as follow:—

POPULATION, BIRTHS AND DEATHS, ETC., IN GREATER MELBOURNE, 1885 TO 1904.

Year.	Mean Population.	Number of Births.		Number of Deaths		Excess of Births over Deaths.		Mean Temperature in the Shade.	Rainfall.	Mean Height of Barometer.
		Total.	Per 1,000 of the Population.	Total.	Per 1,000 of the Population.	Number.	Per cent.			
1885 ...	345,380	12,066	34·94	6,960	20·15	5,106	73	deg. 57·1	in. 26·94	in. 30·00
1886 ...	371,630	12,941	34·82	7,590	20·42	5,351	71	57·1	24·00	29·96
1887 ...	391,546	14,583	37·24	8,311	21·25	6,262	75	58·1	32·39	29·94
1888 ...	419,49	15,645	37·30	8,606	20·52	7,039	82	57·5	19·42	29·99
1889 ...	445,221	16,934	38·04	10,412	23·39	6,522	63	58·5	27·14	29·94
1890 ...	473,500	17,859	37·71	9,297	19·63	8,562	92	58·7	24·24	29·92
1891 ...	491,700	18,018	36·64	9,368	19·05	8,650	92	57·6	26·73	29·98
1892 ...	481,550	17,399	36·13	7,698	15·99	9,701	126	57·4	24·96	29·93
1893 ...	457,230	15,338	33·55	7,805	17·07	7,533	97	57·9	26·81	29·88
1894 ...	441,890	13,672	30·94	6,871	15·55	6,801	99	58·4	22·61	29·93
Average for 10 yrs. }	431,914	15,446	35·76	8,293	19·20	7,153	86	57·8	25·52	29·95
1895 ...	446,800	13,208	29·56	7,076	15·84	6,132	87	58·5	17·04	29·93
1896 ...	454,700	12,769	28·09	7,121	15·67	5,648	79	57·8	25·16	29·95
1897 ...	458,900	12,303	26·81	6,833	14·89	5,470	80	57·6	25·85	29·94
1898 ...	471,800	12,116	25·47	8,523	18·07	3,493	41	58·7	15·61	29·91
1899 ...	485,801	12,435	25·60	7,317	15·06	5,118	70	57·1	28·87	29·95
1900 ...	490,100	12,067	24·62	7,021	14·32	5,046	72	56·3	28·09	29·92
1901 ...	498,30	12,375	24·85	7,515	15·09	4,860	65	56·9	27·45	29·95
1902 ...	5,2,120	12,478	24·85	7,496	14·93	4,982	66	56·9	23·08	29·97
1903 ...	502,060	12,012	23·93	7,217	14·37	4,795	66	57·0	28·43	29·92
1904 ...	504,960	11,886	23·54	6,558	12·99	5,328	81	56·7	29·72	29·94
Average for 10 yrs. }	481,527	12,355	25·66	7,268	15·09	5,087	70	57·4	24·93	29·94

The proportion of deaths of elderly persons—aged 75 and upwards—has shown a marked increase in the last fourteen years, thus indicating that the percentage of elderly persons in the population has considerably increased, and has apparently not yet reached a maximum; and this is proved by a comparison of the results of the past two censuses, which show that the male population at those ages has increased from 1,552 in 1891 to 2,795 in 1901, and the females from 1,551 to 3,065. There are now nearly 12 persons aged 75 and upwards in every 1,000 of the population, as compared with a proportion of only 6½ ten years previously.

DEATHS OF PERSONS AGED 75 YEARS AND UPWARDS IN GREATER MELBOURNE, 1891-1904.

Year.	Males.	Females.	Total.	Per cent. of Deaths at all Ages.
1891	286	271	557	5·94
1892	263	219	482	6·26
1893	264	233	497	6·37
1894	284	279	563	8·19
1895	353	284	637	9·00
1896	352	299	651	9·14
1897	327	290	617	9·03
1898	418	372	790	9·27
1899	421	326	747	10·21
1900	402	376	778	11·08
1901	443	415	858	11·42
1902	500	404	904	12·06
1903	432	424	856	11·86
1904	550	470	1,020	15·55

Deaths of females were more numerous than those of males at the age periods between 1 and 5, and 15 and 45, but less at all other periods. The following were the numbers of those of either sex who died at various periods of age in 1904, and the proportion of the deaths at each period to the total number during the year:—

AGES AT DEATH IN GREATER MELBOURNE, 1904.

Ages.	Males.	Females.	Both Sexes.	
			Total.	Proportions per cent.
Under 1 year	608	494	1,102	16·80
1 to 5 years	147	150	297	4·53
5 to 15 "	130	122	252	3·84
15 to 25 "	182	207	389	5·94
25 to 35 "	233	253	486	7·41
35 to 45 "	322	367	689	10·51
45 to 55 "	331	260	591	9·01
55 to 65 "	367	312	679	10·35
65 to 75 "	569	484	1,053	16·06
75 years and over	550	470	1,020	15·55
Total	3,439	3,119	6,558	100·00

DEATHS IN PUBLIC INSTITUTIONS IN GREATER MELBOURNE, 1904.

	No.		No.
Melbourne Hospital ...	729	Benevolent Asylum ...	148
Alfred Hospital ...	186	Infant Asylum ...	2
St. Vincent's Hospital ...	19	Convent of the Little Sisters of the Poor ...	44
Women's Hospital... ..	86	Protestant Refuge ...	18
Children's Hospital ...	159	Eye and Ear Hospital ...	4
Homœopathic Hospital ...	59	Melbourne Gaol ...	10
Austin Hospital ...	87	Pentridge Stockade ...	1
Foundling Hospital ...	11		
Infectious Diseases Hospital	6		
Metropolitan Lunatic Asylum	76	Total ...	1,816
Yarra Bend Lunatic Asylum	75		
Victorian Homes for Aged and Infirm ...	96		

Of the total number, 1,290 took place in Melbourne City, 148 in North Melbourne, 76 in Kew, 59 in South Melbourne, 19 in Fitzroy, 44 in Northcote, 1 in Coburg, and 179 in the remainder of district. These figures, compared with the total deaths (6,558), furnish a proportion of 28 per cent., or, in other words, 1 person in every 3.6 who died in Greater Melbourne during 1904 ended his or her days in a public or charitable institution.

Nearly one-third of all who died at the age of 5 or upwards in 1904, four-sevenths of those who died of typhoid fever, four-sevenths of those who died of diphtheria, about two-sevenths of those who died of cancer, and more than one-fourth of those who died of phthisis, nearly a third of those who died from other tubercular diseases, and accident, ended their days in charitable institutions, as will be seen from the following statement:—

DEATHS OCCURRING IN AND OUTSIDE HOSPITALS, ETC., 1904.

	In Hospitals, &c.	Outside Hospitals, &c.	Total.
Total Deaths ...	1,783	4,775	6,558
Deaths under five years ...	197	1,202	1,399
Deaths from—			
Typhoid Fever ...	41	30	71
Diphtheria ...	41	29	70
Cancer ...	126	298	424
Phthisis ...	181	500	681
Other Tubercular Diseases	78	143	221
Accidents ...	74	134	208
Other Causes ...	1,242	3,641	4,883

The following is a summary of the deaths from some of the principal diseases during each of the last twenty years, the averages of the decades 1885-94 and 1895-1904 being also shown:—

DEATHS FROM CERTAIN DISEASES IN GREATER MELBOURNE, 1885 TO 1904.

Year.	Measles.	Scarlet Fever.	Influenza.	Diphtheria and Croup.	Whooping-Cough.	Typhoid Fever.	Diarrhoeal Diseases.	Erysipelas.	Cancer.	Pneumonia.	Tubercular Diseases (exclusive of Pneumonia).	Diseases of the Brain and Nerve.	Heart Diseases, &c.	Diseases of the Digestive System.	Bronchitis and Laryngitis.	Other Lung Diseases.	Diseases of the Urinary System.	Child Bearing.
1885 ...	6	3	15	129	38	183	506	19	214	826	202	855	382	681	305	655	196	75
1886 ...	12	5	9	104	127	294	642	34	239	790	237	897	407	703	290	617	221	81
1887 ...	64	3	2	137	43	338	652	13	248	909	254	988	528	895	344	528	238	92
1888 ...	15	17	3	269	10	326	546	13	232	904	270	886	556	1,064	346	501	243	96
1889 ...	6	18	11	465	179	560	608	15	322	923	305	1,023	583	1,350	381	628	336	72
1890 ...	1	41	57	541	44	403	335	13	288	948	310	962	619	982	358	637	288	96
1891 ...	3	3	406	208	99	192	415	10	325	849	324	970	666	1,104	472	712	255	82
1892 ...	...	13	34	121	76	154	320	8	313	925	260	827	583	1,025	292	536	241	94
1893 ...	386	18	69	43	54	120	251	12	358	846	206	765	572	1,023	322	609	284	86
1894 ...	1	30	55	60	159	155	171	3	362	778	190	738	551	888	237	538	342	78
Average for 10 yrs. }	49	15	66	208	83	273	445	14	290	870	256	891	545	972	335	596	264	85
1895 ...	...	19	134	72	43	144	152	25	377	814	198	732	609	896	270	575	329	97
1896 ...	2	17	49	108	32	149	178	12	381	722	198	693	665	1,110	236	588	352	72
1897 ...	6	26	65	173	3	121	145	11	366	739	182	739	632	847	252	514	355	82
1898 ...	403	12	91	143	52	222	219	14	427	801	244	788	705	1,200	269	765	345	77
1899 ...	3	3	329	69	132	143	172	9	416	654	197	757	685	949	227	596	395	81
1900 ...	95	3	62	80	12	94	104	11	426	698	212	752	757	875	219	549	421	65
1901 ...	10	2	142	52	125	69	124	9	445	771	218	829	810	865	227	557	465	88
1902 ...	35	11	116	43	55	72	153	23	437	721	197	770	785	1,039	243	650	407	105
1903 ...	11	28	59	42	60	65	129	31	450	704	212	696	821	925	220	586	478	70
1904 ...	...	12	97	74	15	71	70	5	424	681	221	651	752	683	153	476	487	71
Average for 10 yrs. }	57	13	114	86	53	115	145	15	415	731	208	741	722	939	232	586	403	81

The following table shows the number of deaths in Greater Melbourne from all causes, also from typhoid fever, diarrhoeal diseases, and diphtheria and croup, registered in each month of the last ten years :—

DEATHS IN EACH MONTH FROM ALL CAUSES, AND FROM TYPHOID FEVER, DIARRHOEAL DISEASES, AND DIPHThERIA AND CROUP, 1895 to 1904.

Months.	Number of Deaths in Ten Years from—			
	All Causes.	Typhoid Fever.	Diarrhoeal Diseases.	Diphtheria and Croup.
January	6,647	197	267	29
February	5,728	192	167	49
March	6,120	190	203	69
April	5,611	196	123	89
May	5,673	120	72	96
June	6,019	56	42	89
July	6,206	24	32	94
August	6,176	25	21	87
September	5,590	13	24	64
October	5,393	18	38	81
November	6,041	27	161	59
December	7,474	92	296	50
Total	72,678	1,150	1,446	856

The estimated mean population, the births and deaths, and their proportions to population, and the excess of births over deaths in each of the metropolitan cities of Australasia in 1904, were as follow :—

VITAL STATISTICS OF AUSTRALASIAN CAPITALS, 1904.

Capital Cities (with Suburbs).	Mean Population.	Births.		Deaths		Excess of Births over Deaths.	
		Total Number.	Number per 1,000 of the Population.	Total Number.	Number per 1,000 of the Population.	Numerical.	Centesi- mal.
Melbourne ...	504,960	11,886	23·54	6,558	12·99	5,328	81
Sydney ...	514,800	13,215	25·67	5,675	11·02	7,540	133
Brisbane ...	125,068	3,301	26·40	1,433	11·46	1,868	130
Adelaide ...	169,397	4,016	23·71	2,022	11·94	1,994	99
Perth ...	48,400	1,780	36·78	823	17·00	957	116
Hobart ...	34,888	999	28·64	555	15·91	444	80
Wellington ...	55,618	1,479	26·59	580	10·43	899	155

The excess per cent. of births over deaths in the metropolitan cities of Australasia in 1904 was 108; or, for every 100 deaths there were 208 births. The number of births to every 100 deaths in each capital city was as follows:—Hobart 180, Melbourne 181, Adelaide 199, Perth 216, Brisbane 230, Sydney 233, and Wellington 255. The average birth rate for the seven capital cities during the same period was 25·24, the highest rate—36·78—obtaining in Perth, and the lowest—23·54—in Melbourne, which was almost on a level with that of Adelaide (23·71).

Excess of births over deaths in Australasian capital cities.

The death rate for the metropolitan cities of Australasia in 1904 was 12·14, Perth being highest with a proportion of 17·00 deaths per 1,000 of the population, and Wellington lowest with only 10·43. Melbourne was slightly above, and Sydney below, the average. Excepting Perth, all the Australasian capital cities show a considerably lower rate than the principal towns of the United Kingdom, and the foreign cities given in the following list, which has been taken from *Whitaker's Almanac* :—

Death rates in Australasian capitals and other cities.

DEATH RATES IN BRITISH AND FOREIGN CITIES, 1902.

Name of City or Town.	Death rate per 1,000 of the population.	Name of City or Town.	Death rate per 1,000 of the population.
Dublin	24·3	Madras	42·1
Liverpool	22·5	Cairo	35·4
Belfast	20·8	St. Petersburg (1901)	23·0
Manchester	20·0	Rio de Janeiro	20·8
Glasgow	20·0	Rome (1901)	20·0
Newcastle-on-Tyne	19·9	Vienna	19·4
Birmingham	18·6	Buda Pesth... ..	19·2
Edinburgh	17·8	Buenos Ayres	19·0
London	17·7	New York	18·7
Bristol	17·4	Paris	18·4
Hull	17·2	Berlin (1901)	18·0
Sheffield	17·1	Brussels	16·1

THIRTY YEARS SANITARY PROGRESS IN MELBOURNE.

(By James Jamieson, M.D., Health Officer, City of Melbourne.)

It is as important for a State or a city to take stock of its progress, as it is for a bank or a commercial firm to strike a balance at regular intervals. Not the least important of questions, in connexion with city life, is that of sanitation and its results. As in other places, the number of deaths from different causes, and the death rates, are reported on year by year in Melbourne. In the *Victorian Year-Book* comparison of different periods is regularly made in tabular form; but it may be interesting, and possibly useful, to present some of the general results in a more popular shape, and without too imposing a mass of figures.

It is proposed, therefore, in the present paper, to show, in a way to be easily understood, how we stand with regard to certain causes of sickness and mortality at the present time, as compared with successive earlier periods for which reliable figures are available. For this a few points may suffice, for the practical purpose intended. And for proper comparison it is necessary to take precaution that the figures for different periods are large enough, and based on due allowance for changes in the population of the city as the result of continuous growth. Only periods, therefore, centring round census years will be taken; and with the object of eliminating accidental fluctuations in mortality rates, the average of three years will be taken for the comparisons made.

Starting with the general mortality, the deaths from all causes, the first table shows the variations at regular intervals between 1870 and 1902 :—

—	1870-72.	1880-82.	1890-92.	1900-2.
Death rate per 1,000 of population from all causes	18.42	19.68	18.22	14.78

The only inference from these figures, taken by themselves, is that up to about 1891 there was very little sign of a lowering of the general mortality. On the other hand, from 1892 onwards there has been a marked and almost steady decline, culminating in the exceptionally low rate of 12.99 per 1,000 in 1904. It can be objected that all comparisons of the general death rates, in successive periods, are liable to certain fallacies. The proportion of persons living at different ages may not have been the same, and the accidental occurrence of severe outbreaks of epidemic disease may have sufficed to cause marked fluctuations. There is truth in both contentions, and the comparatively high rate in 1890-92 was partly attributable to such outbreaks of diphtheria and influenza. But no mere change of distribution, or varying prevalence of epidemics, can account for the great and almost steady decline of mortality since 1891. Sanitary improvements of various kinds must get credit for a large share in bringing it about.

One of the best tests of the sanitary condition of any town or city is the degree in which typhoid fever is prevalent. The following table shows the rate of mortality from typhoid in the same periods :—

—	1870-72.	1880-82.	1890-92.	1900-2.
Mortality from typhoid per 100,000 of population	65	58	51	16

A mere glance at these figures makes it plain that the improvement of recent years, in typhoid prevalence and fatality, has been very great, and again notably in the last of the four periods. And the improvement has been so steady and continuous, that it may be taken as definite. In no year since 1900 has the rate been over 14, and in no year previous to 1900 was it less than 26, ranging up to 119 in 1878, and 126 in 1889. Various causes may have concurred in bringing about such an enormous change for the better, bringing the typhoid mortality down to about the London level, and considerably below the average of the great towns of England, which have long provided the world with a standard of urban sanitation. But nothing has contributed in such measure to bring it about as the extension of the system of deep drainage, now happily to a large extent completed.

In connexion with health, no question has more occupied the public mind of late years, than that of the prevalence and prevention of consumption, and other forms of tuberculous disease. The following table shows the death rate, per 100,000 of population, from pulmonary phthisis and from other tuberculous diseases in successive periods as before :—

Deaths per 100,000 of the population from—	1870-72.	1880-82.	1890-92.	1900-0.
Phthisis	210	232	188	146
Other tubercular diseases	55	61	61	42
Total	265	293	249	188

It is apparent from these figures that there was no great lowering of the mortality from consumption and its allied forms of disease, till the third of these periods was passed, though in the last of them the improvement was marked.

This being true, when periods sufficiently far apart are compared, it is unfortunately also true that in more recent years the improvement has not been continuous, as the following table shows :—

Deaths per 100,000 of the population from—	1899.	1900.	1901.	1902.	1903.	1904
Phthisis	135	140	155	143	140	135
Other tubercular diseases	40	43	44	39	42	44
Total	175	183	199	182	182	179

It is not very easy to explain these apparently contradictory results. We are almost compelled to admit that the benefit, which is manifest on a large scale, has not been brought about by the adoption of the methods which have come into vogue as part of the "Crusade against Consumption," since these have been of comparatively recent adoption as public measures. It is almost certain, indeed, that the lessened phthisis mortality of the last ten or twelve years is due mainly to general measures of improved sanitation, as better drainage and house construction, but above all to more general recognition of the benefits to be got from good lighting and ventilation, both in private dwellings, and in factories, workshops, and offices. We cannot claim credit for such great reduction of phthisis mortality as has been attained in many cities of Europe and America, chiefly because we have not adopted such vigorous methods of prevention.

Further and more rapid improvement is to be got by educating the public as to the need of such protection, by the adoption and enforcement of better building regulations, and by the proper supervision and control of all advanced cases at least, either in their own homes or in suitable public institutions. Only by persisting in these and other measures can we hope, within a reasonable time, to reduce to a minimum this greatest plague of civilized life.

Another great test of the sanitary condition of any town or district is the rate of infant mortality. It is of growing importance, when viewed in connexion with such questions as a low birth rate, and a slow increase of population. The rate can be struck at any time, since, for ascertaining it, all that is needed is the number of births in a given year, and the number of deaths in the same year, of infants under one year of age. The rates for 1870-72 not being available, those for 1873-75 have been taken, for comparison with those for later triennial periods, as given in the following table:—

	1873-5.	1880-2.	1890-2.	1900-2.	1904.
Infant mortality per 1,000 births	177·9	174·8	143·8	121·5	92·7

These figures certainly give fair ground of satisfaction. The death rate, and in proportion the sickness, among young children, show a great and steady reduction throughout the whole period of about 30 years.

The return for 1904, however, is exceptionally low, and, probably enough, may not be sustained, favorable conditions having concurred to bring it about; an unusually cool and moist summer, and no great

prevalence of epidemic diseases, which happened also to be mild in type. The causes which have been chiefly operative in leading to this change for the better, between the first and fourth periods, may be summed up in improvement in drainage and house surroundings, and still more in better regulation of milk supply, and the diffusion of knowledge on the subject of infant feeding. With fuller regard to all these points, there need not be reason to doubt that a maximum of 100 deaths per 1,000 births, on the average of years, will be regarded as nothing better than a normal condition, though in very few of the large cities of the world does it seem to be near of attainment, rates of 150 to 200 or more being still common.

Though, in the present state of our knowledge, it cannot be applied as a real test of the sanitary condition of a town or district, the prevalence of cancer is one of the great questions at present receiving careful consideration. It must be taken as almost certain that, in most parts of the civilized world, cancer has for many years been increasingly prevalent and fatal. There are difficulties in fixing the degree of increase, and the increase may in some degree be more apparent than real, but that real it is, in very large measure, can hardly be doubted. When comparing different periods it has to be remembered that the proportion of persons at different ages may not be the same; and in most countries, and notably in new countries, there is a tendency for the number of old persons to increase, out of proportion to children and young adults. Recognising this as a probable source of fallacy, the population taken is not the whole body of the people, but the number of persons enumerated, at the census periods, of 45 years and upwards. Those living at the susceptible ages are thus taken, and a tolerably fair basis of comparison is thus got. In the following table comparison is made of the cancer death rate, in successive periods as before, the proportion being per 100,000 persons at and over 45:—

	1870-72.	1880-82.	1890-92.	1900-2.
Deaths from cancer per 100,000 of the population 45 years and upwards	301	324	420	509

The increase shown is so great and so uniform, that it is hardly conceivable that it is to any degree explained by changes in medical nomenclature, or improvement in methods of diagnosis. Cancer has been and remains the great opprobrium of medicine, but public feeling has been fully roused on the greatness of the problem, and

funds are being freely raised in aid of research, and scientific workers in large numbers are now devoting themselves systematically to its solution.

It has not been thought necessary, or perhaps desirable, to compare Melbourne as regards sanitary condition with other cities, either in Australia or elsewhere. It is not easy to be sure that conditions are similar, and allowances and deductions, as for deaths in hospitals and other public institutions, are made in some returns and not in others. It may be enough to have pointed out wherein improvement has been satisfactory or the reverse, and thereby to suggest what are defective joints in our sanitary armour.

And on the whole it can be claimed that diseases known to be preventable have been in fair measure prevented, though the task for sanitary authorities, as for the public generally, remains a great one, demanding both foresight and self-denial.
