

THE PRINCIPAL CAUSES OF MORTALITY IN QUEENSLAND.

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WHEN making this investigation into the various causes of mortality in Queensland, I at first intended to take the whole 40 years since separation. I found, however, that the figures in the earlier years were too small, and the causes of death in some cases too vague to lend themselves to useful and reliable results, consequently I have restricted the investigation to the twenty-five years 1875/99, dividing this term into five periods of five years each.

The value of comparative mortality statistics is often much impaired by reason of the diverse conditions that effect various populations. Death rates, arrived at simply on the basis of total deaths to total population, can be safely compared only when the number alive at the various ages are in the same ratio, when the sexes are in the same proportion, and when there is no considerable alien population subject to a different rate of mortality to disturb the result. When these conditions exist and are not allowed for, results which are more or less misleading are brought out.

In Queensland more than in most countries allowance to be made for peculiar conditions. The increase of the male population in this State owes more to immigration in comparison with the natural increase than any other Australian State, except Western Australia. The result of this is that the number of males in the prime of life is greater than it otherwise would be and far exceeds the number of females; thus at the last census in 1891 while the male population *under* 20 differed very little from the female in that group, the males *over* 20 numbered 131,000, as compared with 80,000 females.

As an example of the errors and exaggerations that creep in through these disturbing elements not being allowed for we may consider the year 1884. In this year there was a heavy mortality amongst the Pacific Island population, and the returns over the whole population showed the death rate per 1000 living as 22·3, while, the Polynesians being left out from both living and dying, we get 17·2 as the death rate for the year. And in regard to the particular disease phthisis to which the islanders are specially prone, the ratios work out for that year as 19 per 10,000 living, with the Polynesians included, and only 10 per 10,000 with them excluded, a difference of nearly 100 per cent. Further, as showing the possible error when age and sex are not allowed for, the Queensland total male ratios in deaths from cancer are for 1899 greater than for females, viz. :—5·3 as against 4·1 per 10,000 living ; while, due regard being had for the greater proportion of males in the cancer ages the correct result of a higher death rate for females is arrived at, as will appear later on. The comparative mortality of a country is becoming of more practical importance as the best energies of our governments are being given to the prevention of disease. Not so very many years ago preventive medicine was scarcely heard of, now it appears to be a special branch of medical practice. So many diseases are now recognised under the heading of bacterial, and bacterial necessarily implies more or less preventible, that there is no lack of work for this branch of medicine. By observing the progress of the various diseases over a term of years we can see what success has been met with, and learn by the results of the past what, if any, modifications are necessary as regards future operations.

My authorities for the figures given in this paper are, as regards the general mortality, the very complete reports issued by the Registrars-General for England and Queensland. As regards the causes of death of Polynesians, they are given separately by our Registrar-General for phthisis and other tubercular diseases, the other causes of death I obtained from the records of the Immigration Office.

For the purpose of working out the ratios, I took the living to be the mean of those alive at the beginning and end of each quinquennium, which, though not absolutely exact, it is usual to take in comparisons of this nature, and the numbers alive at each age are proportional to the figures shown at the nearest census. I have had to modify this arrangement in comparisons

involving the ages of infancy in the figures for the last quinquennium, on account of the falling off in the birth rate, which will have the effect of bringing the number under five in that quinquennium no higher than in the one previous, though the total population shows considerable increase. For older ages the comparisons are not sensibly affected, and I have not altered the figures. The death rate put against each quinquennium is the annual rate, and is simply one fifth of that experienced through the whole five years.

In arriving at the ratios, deaths to persons living, I have taken the numbers living at those ages at which the disease in the great majority of cases begins to be fatal, such as 15 for phthisis, 35 for cancer, &c., but the deaths from those diseases are the *total* deaths at all ages, including those few which occur before those ages. I have preferred not to alter the figures more than necessary, as to know the *numbers* of deaths as well as the *ratios* is useful; and as in no case does the number of deaths outside the included ages amount to one-tenth of those inside, the ratios are not materially affected, and for purposes of comparison one year with another the results are not affected at all.

INFANT MORTALITY.

The infant mortality is said to be generally accepted as the most sensitive test of the health of a given population, and judged by this standard, Queensland stands well. The infant mortality is found by comparing the total deaths under age 1 with the births of the year, and on this basis the average per thousand for the past 25 years is as follows:—

1875/79, 145; 1880/84, 127; 1885/89, 129; 1890/94, 104; 1895/99, 102.

The rate for all England in 1898 was 160, higher than ours has ever been. There are only four counties in England that show a better rate than our present one; three with 99, and one with 101 per 1,000. Our rate for 1899—109, though higher than the average for the previous five years, was the lowest in Australia, South Australia being next with 111.

If we take the mortality for the first five years of life we get results as follows:—

		Total deaths under five.		Ratio to 10,000 living.
1875/79	..	8,217	..	58·6
1880/84	..	8,806	..	48·0
1885/89	..	11,851	..	46·8
1890/94	..	10,926	..	34·4
1895/99	..	10,169	..	32·2

Thus the deaths during the last quinquennium were not only far fewer in proportion, but actually fewer numerically than were recorded 10 years ago though the population under 5 increased one fourth in that period. Now that Queensland, in common with all other European nationalities is suffering from a reduced birth rate, it is some consolation that the children who are born have a better chance of growing to maturity. The improvement during the 25 years has been very considerable, and the rate during the last 10 years is better than can be shown in any part of England. The English rate 55·8 is about equal to ours of 25 years ago, and no part of England can now show so low a death rate over the first five years of life as does Queensland. The lowest county rate is a little under 34 per 1,000 as compared with our 32·2.

It is not possible to gather anything but the most general idea as to those causes of death in childhood that have contributed most to the general reduction, as the classification has been so completely altered during the 25 years. At the beginning of this term one-fourth of the deaths were said to have been due to debility or atrophy (wasting away), now only 2 per cent. are so classified, deaths from diseases of the digestive system were then only 3 per cent., now they contribute 20 per cent. Deaths from diarrhoeal and respiratory diseases show a most pronounced improvement, the former especially, the rate having been reduced by more than one-half within the last 10 years, viz. :—From 8·5 per 1000 in 85/89 to 4 per 1000 in 95/99.

PHTHISIS.

Of all fatal diseases to which the European race is subject that of phthisis has for a long time, and possibly for centuries, taken the place at the head of the list. That it has remained so to the present may be regarded as due, to a very large extent, to the fact that, through ignorance as to the nature of the disease, no check has been placed upon its spreading until quite recent times. Not regarded as a communicable disease, no attention was given to the danger of infection from persons suffering from consumption. Since the discovery of the tubercle bacillus, and the consequent more enlightened treatment of consumptives as persons bearing infection, we may expect to find an improvement in phthisis statistics, and we do not look in vain.

The figures given below showing annual death rate from phthisis must not be compared with other statistics of this

nature, for these, so far as I have seen them, have given the ratios of deaths to the whole population, while I have worked out my ratios on the basis of the population at consumptive ages, viz. :—15 years to the end of life. As the deaths amongst Polynesians from this disease have been given separately by the Registrar-General only since 1877, I have worked out results for four quinquennia only, so that I might leave that race completely out of both deaths and population. The numbers and ratios refer therefore exclusively to Europeans and the Asiatic races which, unlike the Polynesians, show a mortality little differing from that of the Europeans. The figures are as follows for males and females respectively :—

	MALES.		FEMALES.	
	Total deaths from phthisis excluding Polynesians.	Annual Ratio to 10,000 living above age 15.	Total deaths from phthisis excluding Polynesians.	Annual Ratio to 10,000 living above age 15.
1880/84	754	15·8	398	14·8
1885/89	1019	16·0	545	13·2
1890/94	1120	15·2	562	10·8
1895/99	1103	12·8	584	9·6

It will be noticed that there is a marked difference in the movements as between the males and the females; while the latter show a continued reduction, and are now one-third less than they were in the first quinquennium under notice, the male rate was almost constant for the first three periods, and during the last period showed a reduction of less than a fifth as compared with 1880/84. This difference seems to me to be not without some significance, especially when taken in conjunction with a similar condition found in the English comparison, for whereas the mortality from this disease was practically the same for both sexes in the decennium 1861/70, viz. :—24·7 and 24·8 per 10,000 living at all ages for males and females respectively, the rate was reduced 20 years after to 18·5 for males and 16·1 for females, the reductions being 25 per cent. for the former as against 35 per cent. for the latter. The more recent figures for the year 1898 make the reductions 39 per cent. and 54 per cent. respectively. An investigation that was made some years ago into the records of the Brompton Hospital for chest complaints showed that while male consumption was more common than female as regards the London district, the cases where there was a family predisposition to the disease showed a greater ratio amongst females. This was accounted for by the more sedentary and less invigorating life of the females, and to this I should add that in view of the

fact that the attendance on those of the family who are suffering from the disease falls to the females, they would be less likely to escape the infection than the males who spend a much greater part of their time away from home. As the Queensland rates have been probably effected to a certain extent by the presence of a number of persons who came here with the hope of deriving benefit from the climate, it would not be safe to draw deductions from these alone, but as they are supported by the English figures I think that they may be depended on. From these considerations I should gather that while the efforts made to reduce the spread of consumption amongst the population generally have been largely successful, they have been materially assisted by wise attention to the danger of direct infection amongst members of the family circle. I think these figures may also bear the inference that a good deal of consumption set down as due to heredity, may rather be ascribed to infection. The English annual rate per 10,000 living in the year 1898, taking the population over age 15, was 24 for males and 17 for females, a much higher rate than Queensland has ever known.

CANCER.

While the outlook as regards phthisis is decidedly hopeful, the reverse is the case in regard to cancer. The former disease is still responsible for more deaths than cancer or any other disease, but as cancer is rapidly increasing, while phthisis is diminishing, the present relative positions may not long continue. In 15 years the proportion of deaths from cancer to phthisis has increased in Queensland from 30 per cent. to 60 per cent.; indeed, at the present time in this State cancer causes more death after it once comes into evidence at about age 35 than does phthisis after that age. In England, owing to the large number of deaths from phthisis, that disease still causes more deaths than cancer even after 35, though the difference is gradually becoming smaller.

The ratios for Queensland are as follows :—

	MALES.			FEMALES.	
	Annual Ratio per			Annual Ratio per	
	10,000 living over			10,000 living over	
	Total Deaths.	age 35.	Total Deaths.	age 35.	
1875/79	114	6·6	95	12·6	
1880/84	175	8·0	158	14·8	
1885/89	263	9·6	181	12·4	
1890/94	378	11·8	281	15·6	
1895/99	612	16·6	419	20·1	

The considerable difference in the rates of increase in males and females is very marked, and is a common feature in all

cancer statistics. The English rates are higher in both sexes than ours, on account of the larger proportions of persons living at the higher ages. Taking the proportions of persons living at the different ages as they exist in Queensland, the deaths in England from cancer would, in 1898, have been 15·5 for males, and 24·7 for females, per 10,000 living over age 35. Twenty years ago female cancer was in England double the rate for male, as in the Queensland experience; during that term the increase in female cancer has just kept pace with our own, but the rate of increase in male cancer has been less than ours.

There has been considerable controversy as to whether the increase in cancer is real or only apparent. The advocates of the latter view include Mr. George King, one of the foremost of British actuaries, who, with Dr. A. Newsholm, reported in a paper read before the Royal Society of London, 1893, as the result of an investigation into this matter that the increase in deaths from cancer was due to improvement in diagnosis, and a more careful certification of the cause of death, and gave statistics to show that the whole of the increase has taken place in inaccessible cases of cancer, in which, from their position, exact diagnosis is difficult, while accessible cancer easily diagnosed has remained practically stationary. For those who contend that the increase is real, and not merely apparent, I quote from a paper read before this Society by Dr. Hirschfeld in 1893, he said: "We are therefore forced to the conclusion that the rapidly and greatly increasing prevalence of cancer in the Australian colonies cannot be accounted for by an increase out of proportion of that part of the population which is most liable to malignant tumours (aged persons), nor by greater accuracy of diagnosis, even by a certain small natural increase in consequence of hereditary transmission, that on the contrary the improved diagnosis of the earlier stages, together with the advancement of surgical treatment, should warrant a diminution instead of an augmentation of the cases of death caused by cancer."

For the other side I quote from the concluding remarks of the paper by Mr. King and Dr. Newsholme:

"1. Males and females suffer equally from cancer in these parts of the body common to men and women, the greater prevalence of cancer among females being due entirely to cancer of the sexual organs. This is shown by the Frankfort statistics, and may not unreasonably be accepted as a general law, seeing

that in other respects, where comparison is possible, the Frankfort statistics are confirmed by those of the United Kingdom.

“2. The apparent increase in cancer is confined to what we have called ‘inaccessible cancer.’ This is shown (a) by the Frankfort statistics (b) by the fact that the difference between the rates for males and females respectively is approximately constant, and does not progressively increase in cancer in each of the sexes; (c) because the apparent increase in cancer among the well-to-do assured lives, who are presumably attended by medical men of more than average skill, is not so great as among the general population. (This remark is based on the different experiences of the Scottish Widows’ Life Assurance Society and the general population of the United Kingdom.)

“3. The increase in cancer is only apparent and not real, and is due to improvement in diagnosis, and more careful certification of the causes of death. This is shown by the fact that the whole of the increase has taken place in inaccessible cancer difficult of diagnosis, while accessible cancer easily diagnosed has remained practically stationary.”

In 1892 our own Registrar-General commenced to tabulate deaths from cancer under their various heads, and I compare below the figures for the years 1892/93 with those for the years 1898/99, dividing them as Mr. King and Dr. Newsholme did into accessible and inaccessible cancer. (Of cases that could not be classified there were 19 in the earlier period and 26 in the later.)

ACCESSIBLE CANCER.

	1892/93.			1898/99.	
	Males.	Females.		Males.	Females.
Uterus ..		28	..		57
Breast ..		13	..		26
Neck & face	12	3	..	22	1
Mouth & Throat	44	5	..	66	2
	—	—		—	—
	56	49		22	84
	—	—		—	—
Total	105		Total	174	

Increase 66 %

INACCESSIBLE CANCER.

	1892/93.			1898/99.	
	Males.	Females.		Males.	Females.
Stomach ..	57	17	..	112	34
Intestines ..	14	7	..	23	12
Bladder & Kidneys	3	1	..	9	8
Lungs ..	2	1	..	5	6
Liver ..	14	11	..	39	24
	—	—		—	—
	90	37		188	84
	—	—		—	—
Total	127		Total	272	

Increase 114%

The increase in the population was only 22 per cent., so that in both cases the increase in cancer largely exceeded it, though certainly by a great deal more in inaccessible cancer.

These figures lead us to conclusions widely differing from Mr. King's and Dr. Newsholme's for, in the first place, males and females in Queensland suffer very unequally from cancer in those parts of the body common to man and woman. Allowing for the difference in the number of the sexes, the proportion in Queensland is as 45 for males to 26 for females in the years 1898/99. Also the Frankfort statistics, which alone furnished information as to the various parts of the body affected, show an even rate for cancer in males over 30 years, while in that time our rate has more than doubled. There seems no other conclusion possible, at least, so far as Queensland is concerned, but that cancer is increasing to a serious extent. I may add that the deaths from cancer in the stomach are exceedingly heavy in Queensland, especially amongst males, the percentage of deaths from cancer in the stomach to total deaths from cancer is 32 in Queensland and only 16 in England.

DISEASES OF URINARY SYSTEM.

Another disease causing an increasing number of deaths is that of the kidneys, classified under two heads, Bright's disease and nephritis. Kidney disease accounts for the great majority of deaths included under the heading, diseases of the urinary system, and I have extracted the figures for the whole class.

MALES.			FEMALES.		
	Total deaths.	Annual ratio per 10,000 living over age 15.		Total deaths.	Annual ratio per 10,000 living over age 15.
1875/79 ..	131	3.5		29	1.4
1880/84 ..	204	4.0		54	2.0
1885/89 ..	354	5.2		122	2.9
1890/94 ..	449	5.7		166	3.2
1895/99 ..	619	6.8		308	5.2

The English rates for the year 1898 are for males and females respectively 5.2 and 3.9 on the basis of a population aged as in Queensland, which are lower than were our rates during that year. Almost the same rate of increase was shown in the English statistics over a period of 20 years from 1870 to 1890 as in Queensland, with a similar accelerated increase in the female section.

TYPHOID FEVER.

There has been a very great diminution during the past ten years in the deaths from this cause, which was at one time

responsible for more deaths per annum than any other. The ratios are as follows :—

		Total deaths male and female.	Annual ratio per 10,000 living over age 5.
1875/79	..	6.1	7.8
1880/84	..	1048	9.6
1885/89	..	1083	7.4
1890/94	..	544	3.0
1895/99	..	683	3.4

We are still considerably in excess of the English rate, which for 12 years past has kept steadily at about 2.2 per 10,000.

MALARIAL FEVER.

Considering that one-third of our population lives within the tropics, it might have been expected that malarial diseases would be an important factor in our death rate, this indeed was the case 20 years ago, and malarial fever was responsible for as many deaths as consumption, though the proportion of population within the tropics was much less than it is now. The number of deaths as well as the ratios have gradually decreased, however, during the 20 years until the deaths from this are almost the fewest among the principal causes of death.

MALES.

		Total deaths.	Annual ratio per 10,000 living over age 20.
1875/79	..	547	16.2
1880/84	..	340	7.4
1885/89	..	166	2.8
1890/94	..	196	2.8
1895/99	..	138	1.8

LIVER DISEASE.

For the same climatic reason it would have been expected that liver complaint would be responsible for a large proportion of deaths. The deaths from this cause are, however, amongst the fewest, and have been fairly regular throughout the term, with a suggestive increase during the years when money was plentiful.

MALES.

		Total deaths.	Annual ratio per 10,000 living over age 20.
1875/79	..	96	2.8
1880/84	..	137	3.0
1885/89	..	311	5.2
1890/94	..	260	4.0
1895/99	..	245	3.1

ALCOHOLISM.

The deaths from this cause are a good deal higher than in England, and showed the same increase that liver complaint did before the years of depression brought about an enforced

economy in method of living. The death rate during the past quinquennium is the smallest and is only one-half that experienced in the period 1885/90.

MALES.		
	Total deaths.	Annual ratio per 10,000 living over age 20.
1875/79	.. 98	2·9
1880/84	.. 164	3·6
1885/89	.. 282	4·7
1890/94	.. 189	2·8
1895/99	.. 189	2·4

ACCIDENTS.

Accidental deaths always have appeared and still do appear amongst the largest contributors to our total death rate. The figures run as follows :—

MALES.		Annual ratio to 10,000 living at all ages.	FEMALES.		Annual ratio to 10,000 living at all ages.
Total deaths.			Total deaths.		
1875/79	1375	25·0	287		7·6
1880/84	1658	21·8	332		7·6
1885/89	2194	22·0	611		8·4
1890/94	2419	20·6	608		6·4
1895/99	2249	16·0	582		5·6

I have excluded from the last quinquennium the 250 victims (chiefly Asiatics) of the disaster to the pearl fishers in 1899.

A comparison of the various classes of accidental deaths shows that the improvement has been in regard to those accidents which are of the more preventible class, such as burns, scalds, and drowning, which are only one half the rate of 20 years ago, while those accidents which can less be guarded against, such as horse, railway and mining accidents, falls, and falling trees, show almost exactly the same rates. The rate of death from accident among children is only one-third the rate of 20 years back. Amongst adults the cause responsible for the greatest number is that of drowning, which has accounted for an average of 109 per annum during the past three years, but 20 years ago on the same basis of population the number would have been 200. Horse accidents account for an average per annum of 89, practically the same rate as that of 1877/79. The deaths resulting from accidents in mining average 16 per annum.

SUICIDE.

The deaths from suicide are third on the list of deaths from violence, with an average of 80 per annum during the past three years. The rate has been practically stationary during the past 25 years, as the figures show :—

MALES.		
	Total deaths.	Annual ratio to 10,000 living above age 15.
1875/79 ..	127	3·8
1880/84 ..	147	3·2
1885/89 ..	223	3·6
1890/94 ..	284	4·1
1895/99 ..	326	4·1

This rate is higher than the English rate, which is only 2·6 per annum per 10,000 living over age 20. Twenty years ago the English rate was 2·2, thus showing a slight increase.

RESPIRATORY AND DIARRHOEAL DISEASES.

It is not possible to trace the history of these two classes of disease on account of the records being swelled by the deaths of large numbers of Polynesians, which, except in the more recent years, cannot be eliminated. Comparing the Queensland ratios (exclusive of Polynesians) with the English, we have the following figures for the years 1897/98 :—

		Annual ratio per 10,000 males living over age 15.	
		Queensland.	England.
Respiratory diseases ..		15·0	26·5
Diarrhoeal diseases ..		3·7	1·2

GENERAL.

A table of comparison showing at a glance the ratios of deaths occurring from all the most important causes in Queensland and in England is interesting. The latest reports available from England are for the years 1897 and 1898, and I have taken out results for the same years from the Queensland experience. In order that the result may yield a fair comparison, I have divided the deaths into three groups—from ages 15 to age 45, from 45 to 65, and from 65 upwards; this grouping yielding in England as nearly as possible equal numbers of deaths. The deaths in each group in the Queensland experience I have proportioned to the ratios shown in the English statistics, so that the Queensland ratios are not those of actual experience, but as they would be if the age distribution of the population were of a more normal character. To these I have appended results derived from the Mortality experience of the Mutual Life Insurance Company of New York, for the years 1894/98, dealing with their figures in the same way. In this case though, from the way in which the figures are presented, I have had to take the dividing age between the second and third groups at 60 instead of 65, but the general result will not be appreciably affected. This Company's business is now world-wide; but, as far as the deaths are concerned, over 90 per cent. are recorded as having occurred in the United

States of America, so that this experience may be considered as fairly representing that of the better class in that country, such as would be found on the books of an ordinary life assurance company. I have eliminated the deaths of Polynesians from the Queensland experience, so that this comprises only the European population, and the Asiatic, which, as before stated, has much the same rate of mortality.

Percentage which the several causes of death bear to the total deaths for the years 1897/98. Over age 15—males:—

MALES.	Queensland.	England.	United States.
Influenza ..	3·7	2·2	1·1
Typhoid fever ..	3·1	1·4	4·0
Malarial fever ..	1·0		1·4
Diarrhoea diseases ..	2·6	·8	2·0
Alcoholism ..	1·7	·9	·3
Cancer ..	6·3	6·1	4·9
Phthisis ..	8·5	13·8	10·2
Tubercular diseases other than phthisis ..	·8	1·2	·4
Diabetes ..	·4	·9	1·3
Diseases of Nervous system ..	9·4	12·0	16·7
Diseases of Circulatory system ..	13·4	14·8	14·2
Bronchitis ..	3·6	7·8	1·2
Pneumonia ..	5·5	6·2	8·1
Other diseases of respiratory system ..	2·6	2·2	1·4
Diseases of liver ..	1·5	2·1	1·8
Other diseases of digestive system ..	4·4	3·4	6·0
Brights Disease ..	3·1	2·7	7·4
Nephritis ..	·5	·6	
Other diseases of urinary system ..	2·2	1·9	2·7
Accident ..	10·7	5·3	5·6
Suicide ..	2·6	1·4	2·7
Old Age ..	3·5	7·6	2·0
Other causes ..	8·9	4·7	4·6
	100·0	100·0	100·0

One noticeable feature of the comparison is the high rates in England due to chest complaints, viz. :—30 per cent. of the whole, as against 20·2 in Queensland and 20·9 in the United States. Nervous diseases find the United States a good deal in advance with 16·7, England next with 12 per cent., and Queensland last with 9·4. Of digestive diseases the United States are again highest with 7·8; England and Queensland having 5·5 and 5·9 respectively. In the violence classes

Queensland is much the highest with 13·3, as against only 6·7 and 8·3 for England and the United States respectively. The United States are highest with urinary diseases, 10·1; Queensland and England being 5·8 and 5·2. In cancer the United States are lowest with 4·9, the other two being nearly equal with a little over 6 per cent. The larger number set down to old age in England may be accounted for by the fact that there will be a larger proportion of extremely old people in that experience as compared with the other two. The comparison in regard to certain diseases shows the effect that mode of life, apart from climate, may have in some respects. From what we know, or imagine, of our "go-ahead" American cousins, we should rather expect that their causes of death would not run on parallel lines with our own, and we find that in diseases relating to the brain and the digestion they are far ahead. Adding together diseases of the digestive, nervous (including suicide), and urinary systems, we get 24·1 for Queensland, 25·0 for England, and 38·6 for the United States.

KANAKAS.

As there has been a certain amount of discussion recently concerning the mortality of the Polynesians in Queensland, I have taken out the experience during the past 25 years.

		Total deaths.	Ratio per 1000 living.
1875/79	..	1708	74
1880/84	..	4064	102
1885/89	..	3207	75
1890/94	..	2126	51
1895/99	..	1461	36

The ratios of the second and third periods were swelled by the inclusion of the figures for 1884 and 1885, when, owing to a serious epidemic of dysentery, followed by an outbreak of pneumonia, the death rates ran up to 164 and 110 per 1000 respectively. Excluding these years, and taking the experience for four years only in each of these two periods, the ratios will run 74, 60, 49, 51, and 36. The lowest rate of 36 per 1000 is still excessive, seeing that the rate for the European population of the ages of the Kanakas, 15 to 45, is not more than 8 per 1000. One-half the deaths amongst the islanders are due to tubercular diseases, and of the other half pneumonia and dysentery are responsible for the greater part.

CONCLUSION.

Although the only perfect comparison of mortality is that based on exact ages of living and dying, still, what has been

submitted in this paper furnishes evidence that the mortality of Queensland is favourable as compared with England; and we have seen that the general movement in regard to the more important disease, is one of reduction. How the European race will fare, as regards the attainment of extreme old age, will take many years to show; this State is still so young, and the settlement, in the North especially, of such comparatively recent date, that we have not the facts yet for ascertaining what effect the heat of North Queensland will have on the longevity of Europeans. All that we can conclude at present is, that the indications are favourable as to the general healthiness of the country, and as it becomes more settled, while sanitation and other matters pertaining to the health of the people receive more attention, it does not seem an extravagant expectation that Queensland may become the sanatorium of Australia. We have within our 18 degrees of latitude great diversities of climate, ranging from the humid heat of the North to the dry summer weather with cool nights experienced in the Downs country, and we have the choice of the mild winter on the northern coast or of the bracing weather of the elevated lands towards the west, for so great is the elevation that even well within the tropics are hard frosts experienced throughout the winters on the higher table lands there.

I would conclude my paper by expressing the hope that as medical knowledge advances and municipal practice improves, and as the residents learn to adapt their mode of life more to the exigencies of the climate, some future writer may be able to record the fact that the principal cause of mortality in Queensland is old age.



Martin, Sidney G. 1902. "The Principal Causes of Mortality in Queensland." *The Proceedings of the Royal Society of Queensland* 17(1), 1–15.

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