

## CONDITIONS UPON WHICH THE HEALTHY GROWTH OF THE POPULATION OF YOUNG COLONIES DEPEND.

BY R. M. JOHNSTON, F.S.S.

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It is a great pleasure to me to listen to any paper written by Mr Green, for whatever subject engages his attention is sure to have been studied with more than ordinary care, and his conclusions are such that we must always entertain them with the greatest respect, even when we may have some difficulty in adopting them in their entirety. While dwelling upon the great future possibilities of this particularly favored portion of the Commonwealth as regards climate, soil, and other natural advantages, in all of which considerations I am heartily in accord with him, I was (as regards the immediate attractions to immigrants from less-favored centres of far distant, densely-populated countries) pleased to note his caution as to the class of immigrants that should be specially encouraged to make a home in our midst. He has carefully shown that "it is not wise to indiscriminately invite all sorts of people to come to Tasmania, or to any other parts of the world." . . . "Experience gained in large communities may be of value, but before launching out in a new country it is absolutely essential to obtain a knowledge of local conditions." Among such conditions, as regards the intending settler upon the land, he mentions the necessity of paying special attention to the differences in soil and climate. He further very wisely observes that: "It is undoubted that the prosperity of new countries must depend largely upon agriculture, especially upon what are termed

small industries—industries where profits are derived from the economical working of the soil, and which enables large families to live comfortably on small acreages." These conclusions of Mr Green are strongly borne out by facts and figures which have come under my own observation. While I am in perfect agreement with Mr Green in the belief that it is very desirable to encourage immigration, and that this favored little colony, although by far the smallest member of the Australian Commonwealth is capable of sustaining in comfort a population of twelve times its present number, still great caution must be exercised as to the character and the numbers of immigrants introduced at any one point of time. It is true the United States of America receives yearly a stream of immigrants from the crowded centres of Europe of over 400,000, without much disturbance to the natural proportions of its various divisions of occupations. But even the 487,918 immigrants absorbed by her in the year 1901 only represents 0.64 per cent of her enormous population of 76 millions, and only represents 14 persons added to every 100 square miles of her territory. It is of interest also at the present time to note the curious composition of this important yearly stream of immigrants absorbed by the United States. The following table shows the origin of the 487,918 immigrants from European countries in the order of their relative importance as regards numbers:—

# IMMIGRATION INTO THE UNITED STATES (1901),

Country of Origin.	No.	Per cent.
Italy ...	135,996	27.37
Austria-Hungary ...	113,390	23.24
Russia ...	85,257	17.47
British Isles ...	45,564	9.34
Sweden, Norway, and Denmark ...	39,234	8.04
Germany ...	21,651	4.44
France ...	3,150	0.65
Others ...	43,676	8.95
Total ...	487,918	100.00

Large as this stream appears, its equivalent relative to our present population would only represent an addition of 1132 immigrants yearly. The ability to absorb even this number without congestion of the local labor market would entirely depend upon the class of immigrant introduced. I agree with Mr Green in thinking that unless they were mainly drawn from the agricultural class, the fresh introduction of this number of immigrants yearly to Tasmania would result in congestion of the local labor market. It is a common mistake, also, to imagine that a large population would necessarily improve the condition of the existing breadwinners of Tasmania. It is too commonly overlooked that the individual breadwinner of a country at the second, or agricultural stage of development, enjoys a much better standard of living than his brother workman in a densely-populated country with its fiercer struggle for existence. Density of population, also involving crowded cities and unhealthy occupations, would banish, too, the high standard of health which the people in these thinly-populated lands now enjoy. The greatness of either the aggregate wealth of a country, or the greatness of the aggregate population affords no information as to the individual wealth or material well-being of its people; and although in these young colonies of Australasia the rapidity with which they have increased their respective populations may be fairly taken as a good index of a corresponding improvement in the social and material well-being of the people generally, it does not follow that the greatness of a country's aggregate population affords the slightest indication as to the standard of living or the material well-

being of the individuals of which the aggregate is composed. The best index of the relative prosperity of the people of different countries, no matter what the aggregate number of the population may be, is the individual purchasing power as indicated by the average "cost of living" and the "ratio of cost of food to earnings," as in the following table, according to the eminent statistician Mulhall. The figures for Australasia have been determined by my distinguished friend, Mr Coghlan.

## COST OF FOOD AND BEVERAGE IN RELATION TO EARNINGS AND EFFORT AS INDICATED BY THE AVERAGE DAY'S EARNINGS.

Country.	Average annual cost of food and beverage.	Ratio of cost of food to earnings.	Days' earnings equal to annual cost of food.
	£ s d	Per Cent.	Days.
United Kingdom	14 4 9	42.2	127
France ...	12 4 5	44.0	142
Germany ...	10 18 5	49.1	148
Russia ...	5 19 7	52.0	156
Austria ...	7 17 4	50.8	152
Italy ...	6 4 10	51.2	153
Spain ...	8 9 0	51.2	154
Portugal...	7 3 0	59.1	177
Sweden ...	9 18 11	45.2	136
Belgium ...	12 3 1	43.4	130
United States ...	9 17 7	25.3	76
Canada ...	8 9 0	32.5	97
Australasia	15 15 7	37.5	112

The above table shows that the condition of the colonies of Australasia compares very favorably with most of the countries for which particulars are given. It also shows that while the cost of food and drink is £15 15s 7d per head in Australasia against £14 4s 9d in the United Kingdom, the proportion of earnings required to pay for this food and the equivalent in days' earnings are much less: that is the purchasing power of the average person in Australasia is greater. This favorable position it also maintains as compared with all countries, with the exception of the United States and

Canada. Even as compared with the latter, the condition of the average person is shown to be, if anything, superior, if we take also into consideration the quantity and quality of the food consumed as shown in the following summary:—

CONSUMPTION OF PARTICULAR KINDS OF  
FOOD PER INHABITANT (LBS.).

Country	Grain	Meat	Sugar	Potatoes	Tea and Coffee—oz	Butter and Cheese
U.K. ...	378	109	75	380	91	19
United States...	370	150	53	170	162	20
Canada ...	400	90	45	600	72	22
Australasia ...	392	264	100	266	126	19
Tasmania ...	472	245	85	495	113	16

CONDITIONS UPON WHICH PROGRESS IN  
YOUNG COLONIES DEPENDS.

Although much depends upon the wisdom and energy of men in framing wise laws and promoting industries, the developmental progress of young colonies depends, in a greater measure than is generally understood, upon the extent and the natural conditions of the lands open to colonising efforts. The whole fabric of the earlier stages of a colony depends entirely on the agricultural, pastoral, mineral, and other primary industries directly engaged in obtaining the raw or staple products essential to the life of man, viz., food, clothing, shelter, warmth, and other comforts. Successful enterprise in these primary industries, again, depends largely upon the extent of the natural facilities offered in the various lands open for selection to immigrants from other densely-populated centres. Among the principal factors which determine the progress of settlement in the earlier stages of a colony's history are climate, suitability of soil for agricultural or pastoral pursuits, and nearness of producing centres to market or seaboard. At first the better lands or more naturally open or accessible areas attract the attention of settlers; but the rate of settlement in each colony greatly diminishes as the poorer or less accessible areas are approached. Thus in

the earlier stages, the smaller areas open to settlers in Tasmania and Victoria show a much more rapid development, owing to their greater accessibility, more favorable climate, and, comparatively, more fertile soils attracting a larger proportion of the stream of enterprising immigrants from European centres. The very much greater rate of settlement, however, is soon checked by the limited areas of the smaller colonies, and henceforward the major stream of immigration gradually diverges to the less favorable climate and the second class pastoral lands of the larger colonies, as shown in the later more rapid development of the larger, naturally open, areas of New South Wales and Queensland. Broadly speaking, therefore, the development of a new colony passes, naturally, through three great successive predominating stages, partly overlapping, viz.: (1) The predominance of the pastoral stage. (2) The predominance of the agricultural stage. (3) The predominance of the manufacturing stage, as in England, Scotland, and Belgium. The last of these stages is a long way off so far as the Australasian Colonies are concerned, because density of population—involving a greater struggle for existence among the laboring classes—is essential to the establishment of great manufacturing industries which can successfully and independently compete with other countries in the external or open markets of the world. But pastoral and agricultural interests alone cannot support many persons to the square mile of territory, and hence, in young colonies, the rate of development, so far as population is concerned, is usually less rapid when all the more available and accessible lands have been encroached upon, and when the third or manufacturing stage is approached. The following table, prepared more recently, shows clearly in a general way the proportions of the different classes of breadwinners accordingly as the State or country has arrived at the second and third developmental stages—that is, the agricultural and manufacturing stages. Tasmania and New Zealand are chosen to illustrate the conditions of the second or agricultural stage, and England is chosen to illustrate the conditions of the third or manufacturing stage:—



PROPORTION PERCENTAGE OF BREADWINNERS EMPLOYED IN DIFFERENT OCCUPATIONS (GAINFUL) ACCORDINGLY AS THE COUNTRIES COMPARED REPRESENT THE TWO GREAT STAGES OF INDUSTRIAL DEVELOPMENT.

PERCENTAGE BREADWINNERS.

	Second Stage (Agricultural).		Third Stage (Manufacturing).		
	Tasmania. per cent. 1901.	New Zealand. per cent. 1896.	Queensland. per cent. 1901.	England. per cent. 1891.	United States. per cent. 1890.
Agricultural and other Primary Industries	37.95	35.26	38.15	10.39	39.65
Other Occupations—					
Industrial...	25.53	27.93	23.30	56.84	22.39
Commercial and Transport	15.62	17.20	20.13	10.86	14.63
Domestic ..	10.80	9.64	11.36	14.73	19.18
Professional	6.80	6.23	6.19	7.18	4.15
Indefinite ..	2.13	2.24	0.87	—	—
Total Other Occupations	62.05	64.74	61.85	89.61	60.35
All ..	100.00	100.00	100.00	100.00	100.00
Density of Population per square mile ...	6.65	7.74	.62	1536.00	21.70

So far as countries at the second or agricultural stage are concerned, it is important to bear in mind that the numbers engaged in the primary industries determine very rigidly the number of persons that may be employed with advantage in any other form of occupation. At this stage, therefore, the latter may well be termed the dependent occupations. The proportions shown indicate that in Tasmania the natural conditions are such that for every 10,000 persons employed in any occupation there must be 3795 of them engaged in one or other of the agricultural, mining, and other primary industries. In other words, every 1000 persons engaged directly in the primary industries in Tasmania makes it possible for 1634 persons, and no more, to find room for employment in some other useful occupation; and that for every 1000 persons you can place as breadwinners upon the land, you can economically support an additional population of 6182 souls. It is largely due to the flooding of particular kinds of employment beyond the strict proportions which local wants demand that inconvenience or distress is felt in young as well as in old countries. The numbers which can find entry into the "dependent," industrial, commercial, and professional divisions cannot, without unhealthy competition, be increased beyond the relative proportions which these divisions must bear to the primary producing industries of the particular country; and these dominating industries in Australasia are agricultural, pastoral, and mining. Employment in other divisions can only follow substantial increases in the primary industries; for manufacturing industries cannot alter their present proportions independently, as in England, until such time as they are able to successfully manufacture for the external or world's markets. This applies much more strongly to the smaller division represented by unskilled labor (not agricultural or primary), and to the commercial and professional classes. These certainly may only increase according to their more or less rigid economic proportions; and, as already stated, this again must be determined by a previous increase in the fundamental producing industries of the place.

The principal producing industries of the place may increase irrespective of other local divisions, as their products—agricultural, pastoral, and mining—may find readily enough the necessary purchasers in foreign markets. Whatever influence therefore, may bar the progress of the dominating producing industries of the place must also bar occupations in all other divisions of services.

So far as the State of Tasmania is concerned, I am of opinion that the rate of annual increase—viz., 1·64 per cent per annum—would be the most satisfactory base for forming an estimate of her population 100 years hence. Notwithstanding the favourable and exceptional experience of the United States of America, which has increased its population at the very high annual rate of 2·70 per cent during the 100 years ending the year 1900, and notwithstanding that the Australasian colonies, as a whole, increased at the high annual rate of 6·57 per cent during the last century—I am of opinion it would be altogether improbable that either Tasmania or the other States of the Australian Commonwealth could maintain in the growth of population, a higher rate of annual increase during the whole course of the next 100 years—than that experienced by Tasmania during the last decade, viz., 1·64 per cent per annum. The following are the main considerations which have guided me in arriving at conclusions on this subject;—The relatively more rapid rate of growth of population in young countries—especially in the earlier stages of settlement—is mainly due to the following influences: (1) The influx of a continuous stream of immigrants producing, at first, to a small population, a much larger proportion of the annual increase than the ultimate major source of increase, viz., the annual rate of natural increase, or the excess of births over deaths. For example, to a population of say 200,000, an influx in one year of 20,000 immigrants would represent an annual increase of as much as 10 per cent., while the normal natural increase would be above the average if it amounted to 2 per cent., representing only an increase of 4000. At a later stage when the population reached 10,000,000, an influx of 50,000 immigrants in one year would only represent one-half

per cent., while the natural increase of say 2 per cent. would add as much to its population in one year as 200,000. This is the true reason why such abnormal annual rates of increase occur in the earlier decades of the wonderful development of these Australasian colonies, and it explains why the high annual rate of increase of 11·27 per cent. in the decade ending in the year 1861 has gradually fallen until it reached the average of only 1·78 per cent. per annum during the decade ending in the year 1901. The following table further illustrates the fluctuating character of the earlier periods of high rates of increase due to influx of immigrants in young countries, as contrasted with the more normal progress of the United Kingdom with its great density of population, in which the influence of migration on its annual rate of increase is so comparatively small that it may be altogether ignored:—

ANNUAL RATE OF INCREASE OF POPULATION DURING THE LAST CENTURY IN OLD AND YOUNG COUNTRIES COMPARED.

Decade ending Year	United Kingdom	United States	Canada	Australasia	Tasmania
1810-11	3·38	3·12	2·88	5·88	—
1820-21	1·59	2·90	2·88	11·94	—
1830-31	1·41	2·95	0·80	8·34	16·41
1840-41	1·08	2·85	6·39	10·28	6·55
1850-51	0·25	3·11	0·87	7·39	3·40
1860-61	0·63	3·10	5·31	11·27	2·52
1870-71	0·83	2·07	1·64	4·39	1·13
1880-81	1·02	2·73	1·75	3·60	1·38
1890-91	0·79	2·80	1·12	3·34	2·36
1900-01	0·75	1·96	1·06	1·78	1·64

NUMBER OF YEARS REQUIRED TO DOUBLE POPULATION.

* 71·80	26·62	28·64	10·89	16·35
† 92·79	35·71	65·71	39·29	42·61

\* Average of the last century (years).

† Average of the last decade (years).

(2.) The preceding table clearly demonstrates not only that the annual rate of increase of population in the younger countries is rapidly approaching the normal rates of the older and more

densely-populated centres of population, but also, as regards the latter, there is evidence of another cause in operation during the last decade, having the effect of still lowering the annual rate of increase of the population. From the beginning of the year 1881 the statistics of the United Kingdom and of the Australasian Colonies show, unmistakably, that a great change has taken place as regards the social conditions of the people, and specially affecting the birth-rate in these countries. My friend, Mr Coghlan, the distinguished statistician of New South Wales, has made a special study of this important matter. In his statistical account of "The Seven Colonies of Australasia, 1901-1902" (pp. 502-503) he has made the following important observations: "It is a matter of common knowledge that for some years past the birth-rate in Australasia has been declining, and so important is the subject—not only as regards the growth of population, but also as affecting general progress—that in 1899 the author made a special investigation into the question of childbirth in Australia, but more particularly with reference to New South Wales. The conclusions arrived at with respect to that State, however, may be held to obtain for all the others, seeing the conditions of living do not differ materially in any of them. During the course of the investigation it was found, first, that for all women the proportion of fecund marriages is decreasing; second, that among fecund women the birth-rate is much reduced as compared with what it was twenty years ago. . . . It was also found that the decline has been persistent and regular since 1881, and this restriction of births in a young country like Australia, where immigration is discouraged, is a matter which must have far-reaching results although its economic effects are only beginning to be seen, and should claim the serious consideration of all thoughtful people." It is true that the lowering of the birth-rate, at once, to some extent, operates in reducing the general death-rate also: but the serious decline in the rate of natural increase, as shown in the following summary, is a strong additional reason for caution in forming any estimate of the growth of population in these colonies during the next century:—

BIRTH-RATE, DEATH-RATE AND NATURAL  
RATE OF INCREASE IN EACH QUINQUENNIAL  
IN AUSTRALASIA, 1861-1900.

Quinquennium.	AVERAGE RATE.		
	Birth-rate.	Death-rate.	Natural Increase.
1861-65 ...	41·92	16·75	25·17
1866-70 ...	39·84	15·62	24·22
1871-75 ...	37·34	15·26	22·08
1876-80 ...	36·38	15·04	21·34
1881-85 ...	35·21	14·79	20·42
1886-90 ...	34·43	13·95	20·48
1891-95 ...	31·55	12·76	20·79
1896-1900 ...	27·31	12·20	15·11

I have thus given, as briefly as the nature of the subject permits, the reasoning upon which, elsewhere, I have chosen to base my estimate of the growth of population in this State upon the latest rates of annual increase, rather than upon averages, which include the differing conditions of the earlier periods, involving as they do the unreliable disturbing conditions and non-recurring abnormal proportional increases, due to influx of immigrants. It is even doubtful if the lower average rates of increase of the last decade can be maintained over so long a period as the next 100 years; but when we consider that the nearness of the United States of America, with her still vast areas of undeveloped lands open to the surplus population of Europe, her rapidly growing density of population, with the resulting congestion of her labor market, perhaps may favor a diversion of a very much larger proportion of European surplus labor to Australia within the next thirty or forty years. We have, therefore, good reason for the belief that the higher stages of development in the United States, in the coming century, may specially favor the progress of the Australasian group. An estimate prepared by me, based upon the experience of twenty-one great countries, with a population of over 400 millions, demonstrates that the present civilisation requires the cultivation of 2.25 acres per head for food and raw products. The present area of the United States is reckoned at about 2291 million acres. Allowing a need of the estimated requirement of cultivated land, viz., 2.25 acres per head, for supplying the whole round of wants of each person, and that three-fourths of her total



area are capable of cultivation; then if her population increases at her present rate of 1·96 per cent. per year, it would be so vast in 119 years (763 million persons) that the produce of every available acre would be wholly required for home consumption. The checks to population, however, may be expected to increase, and this limit may be placed further back; but it is clear that the need to withdraw, more and more, her present enormous export of raw products from external markets will greatly operate in enhancing the value of the virgin soils of the more distant Australasia, and so give an additional spur to her development in the coming years.

PROBABLE GROWTH OF POPULATION IN TASMANIA DURING THE NEXT CENTURY.

Turning our attention now to the future, and assuming that the annual rate of growth of population during the last decade (1·64) will be maintained without any material change throughout the next 100 years, the following table has been prepared by me showing the estimated population in single years for the first ten, and thereafter in intervals of ten years. The population of the Commonwealth is

given for comparison at intervals of ten years. The annual rate assumed by me for the determination of the latter is taken at 1·73 per cent.

ESTIMATED POPULATION DURING THE NEXT 100 YEARS.

Year.	Tasmania.	Commonwealth.	Tasmania's Per Cent. Proportion.
1902	177,077	3,883,822	4.56
1903	179,981		
1904	182,933		
1905	185,933		
1906	188,982		
1907	192,082		
1908	195,232		
1909	198,434		
1910	201,688	4,455,037	4.53
1920	237,316	5,288,607	
1930	279,238	6,278,144	
1940	328,565	7,452,832	
1950	386,609	8,847,310	4.37
1960	454,899	10,502,700	
1970	535,256	12,467,800	
1980	629,809	14,800,610	
1990	741,069	17,570,000	
2000	871,971	20,857,405	
2001	886,273	21,218,208	
2002	900,810	21,585,350	4.17