THE POPULATION OF THE EARTH.

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HOW many people are now living on the earth? How are they divided in regard to the great geographical divisions of the world, to the great political subdivisions or nationalities, or as to races? Where are the most densely and the most sparsely settled countries? At what rate are the various great groups of population increasing in different parts of the world?

To the first three of these questions we find answers given in the publication by H. Wagner and A. Supan entitled, *Bevölkerung der Erde*,* the eighth edition of which appeared in 1891. For a large part of the earth these answers do not pretend to scientific accuracy because they are not founded on an accurate census, or counting of the people, but the estimates have been carefully made after comparing all the information available from various sources, including especially the careful study of this subject made by M. Émile Levasseur of the Institute of France and published in the Bulletin of the International Institute of Statistics in 1887 and 1888.

According to Levasseur, the total population of the earth in 1886 was 1,483,000,000, according to Wagner and Supan it was in 1891 about 1,480,000,000, the difference being mainly due to differences in the estimates of the population of China and of Africa. The figures of Wagner and Supan include 836,000,000 people actually counted or registered, or a little over 56 per cent of the total mass.

The numbers in each of the great geographical divisions of the world, and in some of the more important countries, are as follows:

Europe (excluding Ireland, Nova Zembla, and Atlantic Islands),	357,379,000
Asia (without the Polar Islands),	825,954,000
Africa (without Madagascar),	163,953,000
America (without the Polar Regions),	121,713,000
Australasia,	4,000,000
Oceanic Islands,	7,420,000
Polar Regions,	80,400
United States,	62,622,250
Canada,	5,075,855
Mexico,	11,395,712
Brazil,	14,600,000
Argentine Republic,	3,203,700
Chile,	3,165,300
Colombia,	3,100,000
Venezuela,	2,238,900
Peru,	2,980,000
Bolivia,	1,434,800
Ecuador,	1,204,400
Uruguay,	711,700
Guiana,	373,900
Russia,	117,736,331
China,	361,766,000
Turkey,	21,075,000
Afghanistan,	4,000,000
Japan,	40,072,000
Korea,	10,519,000
Persia,	7,500,000
Arabia,	2,272,000
Beloochistan and Afghan-Indian Frontier,	1,020,000
North America,	79,656,000
Central America,	3,231,400
West Indies,	5,482,800
South America,	33,342,700
South Sea Islands,	2,454,600
Islands in Indian Ocean,	4,139,900
Atlantic Islands,	825,357
German Empire,	49,424,135
Austria-Hungary,	41,284,966
France,	38,095,156
Great Britain and Ireland,	37,888,152
Italy,	30,158,408
Spain,	17,246,688
Belgium,	6,093,798
Sweden,	4,774,409
Portugal,	4,306,554
Netherlands,	4,558,095
Switzerland,	2,933,334
Denmark,	2,172,205
Norway,	1,999,176
British India,	286,136,000
French Further India,	18,914,000
Siam,	9,000,000
Ceylon,	3,038,000
East Indian Islands,	39,458,000
Morocco,	8,000,000
Egypt,	6,818,000
Congo State,	14,100,000
Angola,	12,400,000

Over half of the people of the world, then,

* German for Population of the Earth.

live in Asia, and nearly one fourth of them in China, which slightly exceeds the whole of Europe in population. India contains a little over one fifth, and Africa about one ninth of the world's people. Less than one fourth belong to what are ordinarily known as civilized nations, and of these nearly one third, or about one thirteenth of the total population of the world, belong to the English-speaking peoples.

The density of the population of different parts of the world varies greatly in different countries—being greatest in Belgium where it is about 535 to the square mile. The number of persons to the square mile in different regions and countries is as follows: Europe, 95; Asia, 48; Africa, 14; America, 8; Australasia, 1.3; Belgium, 535; England, 480; Netherlands, 357; Great Britain and Ireland, 311; Italy, 272; German Empire, 236; Japan, 271; China, 226; India, 187; Switzerland, 186; France, 184; Austria-Hungary, 170; Denmark, 146; Portugal, 124; Spain, 89; European Russia, 49; Sweden, 27; United States, 17; Mexico, 15; Norway, 15; Canada, 2. A large part of the world is not crowded yet. If it came to close packing, the entire population of the earth could stand on an area of about 250 square miles, in fact it might be possible that they could be compressed to within the limits of the city of Chicago, which includes 160.54 square miles and has a population of about 6,850 per square mile.

In the United States in 1890 there were 592,037 square miles which had a population of from 2 to 6 per square mile, 701,845 square miles with a population of from 18 to 45 per square mile, and 24,312 square miles with over 90 persons to the square mile. The most densely populated city was New York with 37,675 per square mile, and, in the most densely populated ward, i. e., ward 10, there were 474 persons to the acre.

The most densely settled state was Rhode Island with 318.4 persons per square mile, and then come Massachusetts with 278.5, New Jersey with 193, Connecticut with 150.4, New York with 126, and Pennsylvania with 116.9. At the other extreme are Nevada with 0.4, Arizona with 0.5, Wyoming with 0.6, Montana with 0.9, Idaho with 1.0, New Mexico with 1.3, Utah with 2.5, and Oregon with 3.3 per square mile. The center of population has been moving westward nearly on the parallel of 39° north latitude for the last hundred years, and in 1890 it had moved about nine and a half degrees in longitude, and was a little west of south of Greensburg, the county seat of Decatur County in southern Indiana.

The following table shows for each census the total area which the country had at the date of the census, together with the average number of inhabitants to the square mile:

Census years.	Area.	Density.
1790, ...	827,844 . . .	4.75
1800, ...	827,844 . . .	6 41
1810, ...	1,999,775 . . .	3.62
1820, ...	1,999,775 . . .	4.82
1830, ...	2,059,043 . . .	6.25
1840, ...	2,059,043 . . .	8.29
1850, ...	2,980,959 . . .	7.78
1860, ...	3,026,500 . . .	10 39
1870, ...	3,603,884 . . .	10.70
1880, ...	3,603,884 . . .	13.92
1890, ...	3,603,884 . . .	17.37

In Australasia the density of population is only 1.30 per square mile.

In Europe there are more females than males—1,019 females to each 1,000 males; in the United States there are but 952 females to each 1,000 males. The difference in this case is mainly due to the fact that more males migrate than females. In the older states there are more females than males; thus the total percentage of females in the total population in Massachusetts is 51.42; in Rhode Island, 51.37; in Connecticut, 50.48; while in Montana it is 33.50; in Wyoming, 35.19; Nevada, 36.16; and in Washington, 37.73. This unequal division of the sexes greatly affects the birth rates of the different states if they are calculated as rates per 1,000 of total population instead of being calculated, as they should be, per 1,000 of women between the ages of 15 and 50. In all countries there are born more boys than girls in the proportion of about 105 to 100, but the boys die much faster than the girls in the earlier years of life. Of the proportions of males to females in savage and barbarous tribes we have little definite information, but the number of males appears to be, usually, greater than that of females.

In those nations which have a fairly accurate registration of births, the birth rates vary in different years, ranging from 21.8 per 1,000 in France in 1890 to 45.3 per 1,000 in Hungary in 1884. Taking the averages for the 20 years 1871–90, the birth rate was, for England and Wales, 34; for Scotland, 33.6; for Ireland, 24.9; for Denmark, 31.7; for Austria,

38.6 ; for Switzerland, 29.4 ; for the German Empire, 38.1 ; for the Netherlands, 35.2 ; for Italy, 37.3 ; for Belgium, 31 ; and for France, 24.6 per 1,000. The birth rate for the United States during the same period was probably about 34 per 1,000. In almost all civilized countries the birth rate is diminishing ; thus for 1890 the following figures representing these ratios may be compared with those given above as the average of the last twenty years, viz., England and Wales, 30.2 ; Scotland, 30.3 ; Ireland, 22.3 ; Denmark, 30.6 ; Austria, 36.7 ; Switzerland, 26.6 ; German Empire, 35.7 ; Netherlands, 32.9 ; Italy, 35.9 ; Belgium, 28.7 ; France, 21.8.

The death rates are also diminishing, but not so much as the birth rates—they vary from 18 to 36 per 1,000. The high birth rates and the high death rates usually go together ; high death rates are chiefly due to excessive mortality among infants, and the sooner a nursing infant dies the sooner another one is produced. This brings us to what are the really interesting questions with regard to the population of the earth, namely, at what rates are the different groups increasing, how are they migrating and mixing, and what are the probabilities as to their future development ? Taken as a whole, the population of the world has increased considerably during the last hundred, and especially during the last fifty years, but we have no accurate knowledge as to the rate of increase.

In 1660 Riccioli [rēt-cho'lee] estimated the total population at 1,000 millions ; in 1810, Malte-Brun [mawl-te-brun'] gave it as 640 millions ; in 1840, Bernoulli [ber-nool'ye] gave it as 764 millions ; in 1858, Dieterici [de-teh-ree'tsee] estimated it at 1,283 millions ; and in 1868, Kolb gave it as 1,270 millions. In 1872 Behm and Wagner issued the first of their reports on this subject, estimating it at 1,377 millions. In 1880 they reached the figure of 1,556 millions. In 1882 they rejected the result of the so-called census of China in 1842, taking 350 instead of 405 millions as its population, which reduced the total result to 1,434 millions, equivalent to 1,401 millions in 1880. In the figures of Wagner and Supan for 1891, a further reduction is made of 46 millions, 38 millions being dropped from Africa alone. According to these revised estimates, the population of the earth increased in eleven years from 1,355 millions to 1,480 millions, giving an average annual increase of 0.84 per cent. With this we may compare Bodio's figures for the yearly rate of increase in certain countries, considering such increase as being in a geometrical progression, which figures are as follows : United States (1860–80), 2.36 ; Russian Poland (1867–79), 1.84 ; England and Wales (1861–84), 1.32 ; Russia in Europe (1867–79), 1.29 ; Holland (1859–83), 1.02 ; Scotland (1861–84), 1.02 ; Denmark (1860–83), 1.01 ; Prussia (1861–83), 0.94 ; German Empire (1861–83), 0.84 ; Belgium (1860–83), 0.83 ; Austria (1860–83), 0.77 ; Italy (1861–84), 0.70 ; Spain (1860–83), 0.33 ; France (1861–81), 0.25.

The ratio of increase in the United States for the years 1880–90, as shown by the census, was 2.48 by an arithmetical, and 2.24 by a geometrical progression formula such as is used by Bodio. In Australasia it has been about 3.7, in the Argentine Republic the same, in Cape Colony and dependencies 2.9, in Brazil 2.5, and in Canada 1.79. These rates, however, are considerably affected by migrations, which increase the rate for the United States and diminish the rate for Europe. If we take the average annual increase due to excess of births over deaths for the period 1871–80, we find that it was in England and Wales, 1.5 ; in Sweden, 1.3 ; in Prussia, 1.3 ; and in France, 0.5. Taking into consideration the fact that excessive death rates prevail in semicivilized and barbarous nations, it seems probable that the average annual increase by excess of births over deaths is certainly less than 1 per cent of the population of the earth, and that 0.84 per cent is a reasonable figure for it.

During the ten years 1877–86, Sweden and Norway lost over 50 per cent of their natural increase by emigration, Great Britain and Ireland 32 per cent, Germany 20 per cent, and Italy 22 per cent,—and the greater part of these emigrants came to the United States. During the ten years ending June 30, 1890, about 5,250,000 immigrants arrived in the United States, and, as the total increase in the population of this country during that period was about twelve and one half millions, it follows that about 40 per cent of this increase was due to immigration, and hence that the average annual increase by excess of births over deaths was about 1.5.

The important migrations which have been going on for the last ten years, and which still continue, are toward the United States, or Canada, Australasia, South Africa, and the central portions of South America, chiefly

to Brazil, and are mainly from Great Britain and Ireland, Germany, Austria-Hungary, Scandinavia, Russia, and Italy. The average numbers of emigrants from each of these countries annually are—from Great Britain and Ireland, 248,000; from Germany, 130,000; from Austria-Hungary, 40,000; from Scandinavia, 62,000; from Russia, 75,000; and from Italy, 80,000. France, Belgium, Holland, and Spain furnish very few emigrants; Portugal 15,000, and Switzerland 8,000.

The greater part of all these emigrants, except those from Portugal, go to the United States, which now has over 65,000,000 of inhabitants, or more than any country in Europe except Russia. The census of 1890 gives as its population 62,622,250, of which 9,249,547 were foreign born, or a little over 17 per cent; 7,470,040 were colored, or about 13.6 per cent.

The United States is the great mixing ground for races in modern times, yet this mixture does not take place indiscriminately, and is a slower process than many people might suppose. Between the white and colored it is now comparatively slight. The great bulk of the colored population are in the south, and in three states they exceed the whites in number, namely, in South Carolina, which has 1,491 colored to 1,000 white; Mississippi, with 1,362 colored to 1,000 white; and Louisiana, with 1,001 colored to 1,000 white. The Russian and Polish immigrants belong mainly to the Jewish faith and keep in separate communities, chiefly in our large cities; the Scandinavians form comparatively distinct settlements in the northwest; the Italians congregate together; and the Germans also tend to occupy special districts. The chief mixing of bloods is occurring between those of English and Scotch and those of German and Scandinavian descent, all being branches of one race—producing fertile marriages and healthy offspring.

Emigration is not always a loss to the mother country, nor is immigration always a gain to the receiving country. Taken as a whole, the present migration to the United States will probably injure rather than benefit the great mass of the people of this country, while it is undoubtedly beneficial to the countries from which the migration occurs.

Speculations as to the future increase of any great mass of people for any considerable number of years are of little value. Probably the best formula for predicting the population of the United States in the near future is that of Prof. H. S. Pritchett, which is as follows: Commencing at 1840, let t equal the number of decades or periods of ten years which have elapsed, then at the end of any complete decade the population will be, in millions and fractions of a million, as follows: $17.47969 + 5.0988\ t + 0.634506\ t^2 + 0.0307275\ t^3$. For 1890 this would give $17.47969 + 25\ 4940 + 15.86265 + 3.84093$, or 62,677,280, while the actual figures, according to the census count, were 62,622,280, the difference being unimportant. By this formula we find that in 1900 the population will be 77,472,000; in 1910, 94,673,000; in 1920, 114,416,000; in 1950, 190,740,000; in 2,000, 385,860,000; and for the year 2500 A. D., 11,856,000,000, or about eight times the present population of the earth.

Very probably this formula may hold good for the next twenty or thirty years, but the rate of increase which it involves will almost certainly become less within fifty years, and perhaps much sooner if immigration is checked by legislation.

During the last fifty years, in connection with the use of steam as a means of transport by boat and rail, there has been in this, as in most other civilized countries, a strong tendency to the aggregation of population in cities. In the United States between 1880 and 1890, the population living in cities of 10,000 and upward increased more than twice as fast as the population of the rest of the country. This increase will probably continue until the price of coal begins to rise decidedly in consequence of the exhaustion of those supplies which are easily accessible, and then, unless some new means of storing the force of the sun's rays, or of the tides, be discovered, the growth of large cities will be checked—and ultimately they will begin to diminish in size owing to the excessive cost of providing their inhabitants with food and fuel brought from a distance. This probability does not, however, concern this generation, and the chief question of interest to the people of the United States at the present moment are—Do we want the tide of immigration to continue at its present rate and of its present character? and—if it be agreed that we do not, is there any way in which it can be checked without running the risk of doing more harm than good? The future of the colored race in this country probably depends upon the answers given to these questions within the next twenty years.