

MANCHESTER STATISTICAL SOCIETY.

as by Sir ROBERT GIFFEN, K.C.B., LL.D., F.R.S.

the Society's Annual Dinner, October 17th, 1900

It is an honour to propose to you the toast of the Manchester Statistical Society. I ask leave to do so, although your guest, being entirely a stranger. I have been present at one of your meetings, a good many years ago, I fear, and I may claim some acquaintance with your proceedings and your distinguished members now and in former times, beginning with Professor Jevons, and coming down to yourself, Mr. Sidgwick, whose reputation is a growing one, and whose labours in the study of statistics and economics, it may be said flatteringly, will certainly in due course occupy a considerable part of the world.

It is a privilege to have this opportunity of bearing my testimony to the statistical and economic work of Manchester. Owens College is so strongly that while older universities like Oxford and Cambridge, established as places of learning exclusively, or almost exclusively, have their special educational value, still a university situated in an industrial capital like Manchester possesses advantages of its own kind, and especially advantages in connection with the study of statistics and economic learning. Whether by papers read at the Society's proceedings, or by papers which, though produced elsewhere, have been inspired or stimulated by the spirit of Manchester, the world is greatly indebted to you, Sir, and to your society as a centre, for economic ideas

and instruction. I would refer especially to such papers that of Professor Adamson, on the Money Question, one of the most valuable, if I may venture to make comparisons, to be found in the literature of the subject; to the numerous inventions of Professor Jevons; and more lately, Mr. President, your own contributions to the study of foreign trade statistics. The ideas and information thus contributed to the learning of such topics as cycles in trade and industry, the nature and course of changes in the money market, and the course of prices, amply demonstrate the importance of the Manchester centre in statistics, and account for the value which outsiders like myself attach to its development and prosperity.

The present meeting takes place at an interesting date. We are within a few weeks of the close of a century which, historically speaking, the statistical century *par excellence*. There were statistics, of course, before the Nineteenth Century. People made statistical statements and compiled statistics before they were called statisticians. The business of statistics could not, in fact, have gone on at any time without statistical knowledge, and statistical statements are to be found according to the records of Egypt, Assyria, and Babylonia thousands of years ago, just as they are to be found in old European chronicles and histories long before last century. But while people have for a long time, like the Frenchman in the play who talked of being statisticians without knowing it, it is towards the end of the Eighteenth Century, and at the beginning of the nineteenth century now expiring, that statistics began to be recognised as a distinct branch of knowledge. From that time attention has been explicitly and increasingly given by governments to the collection of statistics. Statistical offices have been established for births, marriages, and deaths, for statistics of foreign trade and movements of shipping, for agricultural statistics, and for many more subjects, as well as central offices for statistics generally. Last, but not least, with the commencement of the century, we had the institution of the census in this country following the example of the United States a little while later.

and other experiments, chiefly in the Scandinavian countries, in the Eighteenth Century. Decennial and frequently quinquennial censuses have already become almost universal throughout the civilised world. To all this must be added a wide cultivation of statistical methods apart from government. Associations like our own have been formed to promote the study. Professors of statistics have likewise been set up in the universities, though fewer, much fewer, in this country than in Germany, France, and the United States. Men of business have also been turning their minds to the subject till almost every sort of business and administration—financial, banking, railway, insurance, etc., etc.—has each its own statistics, while business and economic journals, all dealing largely with statistics, are to be counted by scores and hundreds.

All this makes the expiring period characteristically a statistical century. What is gained, then, it may be asked by a gathering like the present, by all this figuring and adding which hardly existed in the world by comparison before last century began? To answer this question would be to engage in a discussion on the utility of statistics which would be common to a statistical society. The question also answers itself, for statistics would have been abolished by common consent long ago if people in business, for instance, had not felt the convenience of following the statistical position of their different trades, and public men had not found it equally necessary and convenient to acquaint themselves with the facts of trade and social conditions which the census and the records of the Registrar-General's public offices give them.

In attempting to answer the question fully, however, for the same use and interest, I hope, to draw attention to the following statistical ideas which the statistics of the nineteenth century, when a general survey is made, cannot

This is not a new topic with me, as it is the subject of my addresses to the Royal Statistical Society of London sixteen years ago. The lapse of time since then, however, has made the figures even more decisive and impressive than

they were, just as the close of the century gives us a more definite period. I trust I shall be excused, then, for returning to the topic. When your invitation was received there was a chance that we should by this time have the exact figures of the American census for this year, so that it might be possible to compare actual progress since 1880 with the rate of progress before that, but the chance unfortunately has not come off. Still there are materials for the discussion proposed, as the results of the census within limits are no way in doubt.

A leading idea, then, which the census figures of civilised countries supply is the prodigious rate at which the civilised world—the community of European nations and nations of European origin—is growing. The population of Europe and of nations of European origin, like the United States, may now be put at something over 500 millions. The United States themselves may be put at nearly 80 millions; Russia, in its recent census, shows a population which must already have grown to about 135 millions; Germany, about 55 millions; the United Kingdom, with the self-governing Colonies of Canada and Australasia, and the white population of South Africa, 55 millions; Austria Hungary, 45 millions; France, 40 millions; Italy, 32 millions; Spain and Portugal, 25 millions; Scandinavian countries, 10 millions; Holland and Belgium, 10 millions; and other European countries 20 millions. These are all round figures, of course, and if they are not exact at the moment they will certainly be exceeded in a year or two, so that they are safe round figures to take as the total numbers of the peoples concerned at the end of the century. We are quite within the mark, then, in saying that the total population of Europe and of nations of European origin, excluding the subject peoples of the English Empire, exceeds 500 millions. A century ago, however, the corresponding figure to this 500 millions would not have been more than about 170 millions. A French statistician, M. Moreau de Jonnés, whom I quoted in 1885, gave the figure in 1788 for Europe alone, excluding the United States, as a little less than 150 millions, and making one

or two corrections and allowing for some growth in the interval from 1788 to 1800, we cannot arrive at more than 170 millions a century ago for comparison with the 500 millions of the present time. The United States which now counts for nearly 80 millions was only about 5 millions at the beginning of the century; Russia did not count for more than, perhaps, 40 millions at the outside; the United Kingdom, which had then hardly any Australia or Canada, 15; Germany, 20; France, 25; Austria Hungary, 20; Spain and Portugal, 15; Italy, 15; Scandinavia, 5; other European states, 10—total about 170. In the century, therefore, Europe and nations of European origin have grown to three times their former numbers; and this, without counting the population of Mexico and South America, amounting now to 45 millions, which ought, perhaps, to be included as Europeanised, though not wholly European in race. When I wrote formerly, dealing with the figures up to 1880, the populations in question numbered less than 400 millions. More than one-fifth of the 500 millions is an addition of the last twenty years!

Not only is the century interesting, therefore, as a characteristically statistical century, but the statistics themselves are in the highest degree surprising. For generations and centuries the growth of Europe must have been slow, owing to war and pestilence and the other checks to population of which Malthus wrote, and then all at once in a single century we have this sudden multiplication of numbers. In my former addresses I discussed some of the causes of this change—the growth of large states, the profound peace existing as compared with former times, and the occupation of new lands in America and elsewhere—but it would occupy too much of our time now to resume the discussion, and I can only note its importance in passing, especially the importance of the transitory nature of one of the causes, the occupation of new lands, which has given Europe a breathing time for a few generations, but for a few generations only.

The economic development of the people, I need hardly say, is

even more marvellous. Agriculture has extended indefinitely over the new territory, and there have been vast improvements in new and old territory alike; the figures of trade have been multiplied ten times and more; the wealth of the peoples all told, which would probably not have been reckoned at more than five thousand millions sterling at the beginning of the century, must be reckoned now by tens of thousands of millions. It would probably not be far short of the mark to say that while the millions of the advanced portion of the human race have increased in numbers as described, each unit on the average is two or three times better off than the corresponding unit at the beginning of the period.

Again, the development is for the most part not uniform among the European populations; it is most marked in the Anglo-American section. The increase here is from a population of not more than about 20 millions, which was the population of the United States and the United Kingdom together a hundred years ago, to a population of not less than 130 millions at the present time. Russia and Germany also show remarkable increases, but nothing like this; while the other nations of Europe are by comparison nowhere as regards this increase, France especially being nearly stationary. The Anglo-American section shows an even more significant economic development, which it is needless to enlarge upon. It is the United States especially, again, which has been advancing the most rapidly of all. One explanation, of course, is that to some extent the overflow from Europe, including Russia and Germany, has gone to the United States, which is a reason for taking all the countries together in a general survey; but, none the less, the gain is to the United States which absorbs the immigrants and transmutes them into Americans—part of the foremost nation of the time, and not members of the nationalities from which they sprang.

This astonishing growth of population means a great change in the relative position of the European nations in the world—their relative weight in international politics. Practically, the

non-European races of the world have all the time been stationary, except in India, where the *pax britannica* has permitted the native population to expand. They have been living in the same places and under the same conditions as they have done for centuries, peopled up to the limits of subsistence under those conditions, and, therefore, incapable of expansion. The result is that the forces of civilisation as against those of the black and yellow races have become practically irresistible. The numbers are relatively far greater than ever they were before, and the economic force is indefinitely greater.

A great change in the distribution of political power among European nations themselves is also indicated. The existence alone of the United States implies an immense change. If we consider that an empire like that of Britain, has its strength rather diminished than increased by the possession of territories like India, then the United States, having a larger European population than that of the British Empire, may be considered the most powerful state in the world, as far as population and resources are concerned. The white population is over 70 millions as compared with 55 in the British Empire and an equal number in Germany, and much smaller numbers in any other state except Russia. No doubt, Russia has much larger numbers, but the inferiority of the units is so great that the pre-eminence of the United States is not in question. And this is the position of a new state which had birth a little more than a hundred years ago. At the same time, Germany, Russia, and the United Kingdom have all grown, while France and Austria have, by comparison, remained stationary; so that now the great world powers are four only—the United States, Britain, Russia, and Germany, with France a doubtful fifth. The extent of the revolution that has taken place in a century is evident and obviously accounts for much that is going on in international politics.

There is yet another aspect of the statistics which we cannot leave out of sight. The changes which have occurred in the past century are still going on. The statistics are those of

growing forces, and as the rest of the world is stationary, while there is unequal growth among the European nations themselves, the international position cannot but be modified at some near date in the future. An absolutely definite statement cannot be made as to what lies before us, because tumults and revolutions from which history has never been free may change so much. We may recognise, however, that if the forces now in existence continue to operate as they have done in the past century for only a few more generations, the close of the coming century must witness a farther transformation, whose beginnings will be apparent in the lifetime of some amongst us. It is a reasonable probability that unless some great internal change should take place in the ideas and conduct of the European races themselves, the population of 500 millions will, in another century, become one of 1,500 to 2,000 millions. The black and yellow races still remaining, as far as one can see, comparatively stationary, this will make a greatly changed world. The yellow peril, for instance, of which we hear so much, will have vanished, because the yellow races themselves will be so outnumbered. What will be the 400 millions of China compared with 1,500 or 2,000 millions of European race? Farther progress must also be made in the re-distribution of power among European nations. The next century will not be far advanced before the United States, which is already in reality the most powerful single state in the world, will be generally recognised as such. By 1930 its population will, probably enough, be 150 millions, as compared with about 90 millions of European race in the British Empire, with about 80 millions in Germany, and with the numbers not so much increased, compared with the present, in other countries of Europe. Russia may then, perhaps, have a population close upon 180 millions, but the units unequal to those of the United States. As the century advances, moreover, Russia will probably be surpassed even in population, and the pre-eminence of the United States will be unquestioned. Other nations like France will have fallen still more into the background, and international politics will be more and more

limited to the affairs of the United States, United Kingdom, France, Germany, and Russia.

In all this let it be repeated there is no attempt at prophecy. It is merely a bare statement of what must be, assuming the continuance for a generation or two only of the present conditions as to the growth of population and wealth in the countries referred to. Should the assumption fail, however, this will of itself imply other changes of a remarkable kind. Population cannot stop growing at the prodigious rate of last century or something approaching it, without a great deal besides happening of an astonishing nature. Looking at past experience, however, the probabilities are entirely against a speedy check to this growth.

The most serious problem will, of course, be whether the dilemma stated by Malthus, and which has been rather put aside for a century in consequence of the occupation of new lands by the growing European populations, will, at length, become an urgently practical question. Sir W. Crookes's paper at the British Association two years ago, though it was not without defects, may be taken as evidence that the idea cannot be easily got rid of. It is simply impossible not to wonder which of the two forces—the growth of population and the increase of the needs of the growing population on the one side, and the growth of invention and mechanical power in supplying human wants on the other side—will gain as time goes on. It is hardly possible that there can always be equilibrium, or that the conditions of the Nineteenth Century, in which the growing population has always been provided for, will continue indefinitely. A turn may come at any moment in the opposite direction. Possibly the force of the dilemma may be first felt in our dealings with those black and yellow populations which are subject to civilised rule, and which begin to increase under that rule without any proportionate increase of their resources; but the conditions of the dilemma are always there, and the statesman of the future must certainly look out for difficulties of a formidable kind. It is not merely a question of food we

must remember. As the rest of the world long ago pointed out, it is a question of everything necessary to supply human wants; the metals presenting as much, or even more, difficulty than food.

To turn from these topics I should like to advert for a moment to yet one more conclusion, which seems to be suggested by the statistics, and which may not be without practical value in economic discussion. Many people are puzzled by what they speak of as the necessity of finding new markets, with competition on all sides increasing around us. For this reason they are anxious to obtain possession of the territory occupied by black or yellow races, or to prevent the exclusive occupation of such territory by rival powers. The same idea has obviously dominated the politics of Germany and France, and it has not been without some influence perhaps even in the United States, which is now to be included among the countries manufacturing for export. But the figures we have been dealing with point to quite another source of new markets, within the control of the very peoples for whom there is so much anxiety. Surely, there can be no lack of new customers if the 500 millions of the advanced races themselves are to be doubled in 30 to 50 years, and trebled or quadrupled in a century. With such a growth of population there must be growing markets, each nation having its own share, apart from any possible improvement among the black and yellow races, though such improvement as a source of new trade is not to be ignored or despised.

In this view, then, the statistics as to the actual growth of population in the world are re-assuring. We have the same certainty of growth that people would have had a hundred years ago, if they had foreseen the discovery and occupation of region upon region inhabited by uncivilised tribes which has been one of the features of last century's progress. To create a new population comes to the same end as finding a population already existing. The latter can no longer be hoped for as the world is being explored and occupied; but the former remains, and it is the more important factor in the progress of trade.

In conclusion, may we ^{are already} the hope that the coming century, like the one ^{is} passing away, will be characteristically a statistical century. We have had satisfactory experience so far of the uses of statistics, and the problems before the world where statistics can help are likely to be not less, but more, difficult and anxious than they have been. Politics must be more and more governed by true ideas drawn from statistical information, and as time goes on the statistician should be more and more recognised as preceding the "statist" and economist. Associations like yours must also prove of increasing interest and importance, and for this final reason I have the greater pleasure in proposing the toast intrusted to me. It is an additional pleasure to me to couple with the toast of the Manchester Statistical Society the name of your president, Professor Flux, of whose merits I have already spoken not more than they deserve, and who needs no commendation in your presence.