

Population

By

A. M. Carr-Saunders

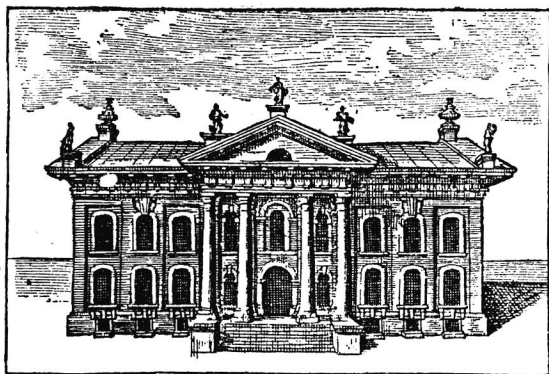


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The *Frontispiece* is a portrait of Thomas Robert Malthus, from the copy at Jesus College, Cambridge; reproduced by their kind permission

THE first census was no doubt made by the chieftain of some tribe who wanted to know how many fighting men he had at his disposal. This it will be remembered was the motive that led David to order Joab to number the people. Joab did not find out the total population, but merely the number of 'valiant men that drew the sword'. At a rather later period of history when conditions became more settled another motive arose. Rulers wished to know the number of their subjects in order that taxation might be made more effective. Whatever reason may have originally induced the Romans to undertake a census, it is clear that at the period to which the Gospels refer the census was an instrument of taxation. 'There went out a decree from Caesar Augustus that all the world should be taxed.' The word which is translated as 'taxed' in the Authorized Version is translated as 'enrolled' in the Revised Version, though the enrolling was clearly only a prelude to taxing.

These early censuses aimed at ascertaining, not the total number of the people; but merely the number of a particular element in the population—at one time the number of men of military age, at another time the number of men who could afford to pay taxes. The very fact that there were these motives in taking the census must have made them often inaccurate. It is said that when in 1711 a census was taken in China in connexion with the poll tax and military service, the total arrived at was 28 millions, but that when some years later another census was taken with a view to certain measures for the relief of distress, the total arrived at was 103 millions. Since, however, ancient records have nearly all perished, we

need not concern ourselves with their accuracy. The system of taking a census of the whole population was begun little more than a hundred years ago and for earlier periods we can only make guesses. For certain periods material exists which enables us to calculate the population of particular countries with a fair degree of accuracy. Thus Domesday mentions 283,242 people, but as it omits women, children, ecclesiastics, and the whole population of four counties we can only form a rough estimate of the total population. Generally speaking, the earlier the period the less reliable is any guess that can be made.

The taking of accurate censuses began in some countries in the eighteenth century. The first census in England was taken in 1801, and was due in part to the impression made by the famous book published by Malthus a few years before, of which more will be said later. A bill had been introduced into Parliament some fifty years previously providing for a census, but it was defeated. The dire results of the census which David forced Joab to make were quoted by those who opposed the measure, and it was prophesied that some 'public misfortune or an epidemical distemper' would follow if an enumeration was attempted. All civilized countries now take a periodical census. The most remarkable achievement has been in India, where the difficulties are obviously very great because so large a proportion of the population is illiterate. It is estimated that about three-fifths of the population of the world is now periodically enumerated by a census taken in such a manner that a high degree of accuracy is ensured.

Thus those countries for which trustworthy figures are available are the countries inhabited by white men, and countries such as India and Java inhabited by races over which the white man rules. Primitive races have not reached a stage at which the uses of a census are apparent to them, while the

idea of so doing is abhorrent to the oriental mind. The oriental view of the need for a census is well illustrated by the reply which an Englishman once received from a Turkish official to whom he had applied for statistical information. 'The thing you ask of me is both difficult and useless. Although I have passed all my days in this place, I have neither counted the houses nor inquired into the number of the inhabitants; and as to what one person loads on his mules and the other stows away in the bottom of his ship, that is no business of mine. But, above all, as to the previous history of this city, God only knows the amount of dirt and confusion that the infidels may have eaten before the coming of the sword of Islam. It were unprofitable for us to inquire into it.'¹

So when we ask what the total population of the world amounts to we can only make a guess, because trustworthy figures are available only for some three-fifths of the world's inhabitants. Nevertheless it is unlikely that our estimate is seriously inaccurate. It works out at 1,700 millions. This fact in itself means little or nothing. When, however, we go a little farther and inquire how this figure is arrived at, we soon meet with facts that suggest interesting and important problems. We can find out what proportion of the total population the white, brown, black, and red races of mankind respectively contribute. We can analyse further, and ascertain the populations of the various countries occupied by the white race. Then, since we know the area of the different countries, we can calculate and compare their populations in respect of density, that is to say, the number of inhabitants to each square mile or to any other unit of area. The population of each country can be divided into those who live in towns and those who live in the country, and the comparison of one country with another in respect of the proportion which the town-dwellers bear to the total

¹ McDougall, *Social Psychology*, 10th edition, p. 316

population yields very interesting results. We can analyse the population in respect of sex and find out whether the men outnumber the women or vice versa. We can analyse the population in respect of age, and such an analysis brings to light the interesting fact that in some countries the young people form a much larger proportion of the population than in others.

It is obvious that in the analysis of the figures obtained by a single census there is a very large field of inquiry. There is, however, another aspect of the whole matter which is disclosed when we compare the results of a census taken in any year with the results of censuses of the same country taken in other years. Such comparisons show that the total population of any country rarely remains the same even for a short period. The figures show that the population of almost every country has been increasing with considerable rapidity during the last hundred years. It is calculated that the population of the world is increasing every year by some 15 to 20 millions. In other words, the annual increase of the population of the world is equivalent to between two and three times the population of Belgium. Clearly the questions connected with the increase of population are of greater interest than those connected with the analysis of the population as it exists at any given time. Further, an inquiry into the increase of population leads us directly to study the fundamental matters which govern the whole situation. It is evident, therefore, that it is with this aspect of the matter that we may best begin our present inquiry.

It is common knowledge that for the last hundred years the population of England has been increasing. It is also generally known that the population of nearly every other country in which a periodical census is taken is on the increase. That population should increase has thus come to seem 'natural'. The condition in France in which the increase has now for some time been negligible appears to be abnormal. Most men if they were asked what the normal condition has been throughout recorded history would no doubt reply that an increasing population was normal. Let us ask how far this view of the history of population is correct.

It has been explained that accurate figures are available only for the last hundred years or so. For earlier periods we have to rely on estimates. Though the estimates for the population of England and Wales for any date before 1800 vary, they do not vary so considerably as to invalidate the broad conclusions that we shall draw. We may therefore take the estimates of one authority without discussing how far they may be in error because, had we taken the figures of any other authority, they would have led us to the same general conclusions.

ENGLAND AND WALES

<i>Date.</i>	<i>Estimated population.</i>	<i>Density per square mile.</i>
1066	1,500,000	26
1381	2,350,000	40
1415	3,000,000	52
1509	4,000,000	69
1528	4,356,000	75
1603	5,000,000	86
1625	5,500,000	95
1660	5,500,000	95
1714	5,750,000	99
1760	7,000,000	121

Population

From 1801 we have the census figures.

ENGLAND AND WALES

<i>Date.</i>	<i>Population.</i>	<i>Density per square mile.</i>
1801	8,892,536	153
1811	10,164,256	175
1821	12,000,236	207
1831	13,896,797	239
1841	15,914,148	274
1851	17,927,609	309
1861	20,066,224	346
1871	22,712,266	391
1881	25,974,439	448
1891	29,002,525	500
1901	32,527,843	561
1911	36,070,492	621
1921	37,885,242	649

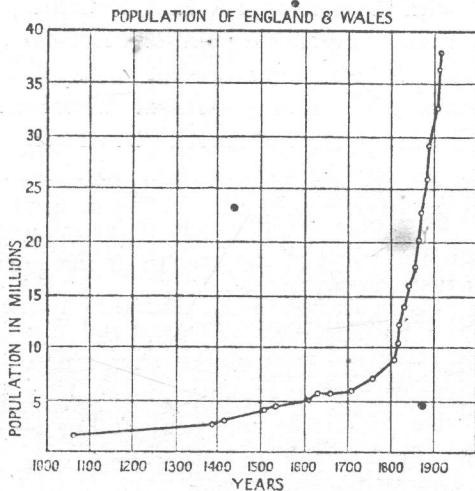
The significance of these figures is easier to grasp if we put them in the form of a graph which, if inaccurate in detail, serves to show the trend of the growth of the population of England and Wales in the last 900 years.

We see that the population of England and Wales increased slowly for 700 years, and more quickly from 1700 to 1800, and then shot upwards with a rapidity previously unparalleled. During the same period the continent of Europe was more subject to the effects of war and other devastating influences than England and Wales; but figures, so far as they exist, show that the same general tendencies were at work. As in England and Wales, the population tended to increase slowly for many centuries, and then in the nineteenth century increased with very great rapidity.

So far it seems that the common opinion to which we have referred has some justification in fact, though it is not generally recognized how rapid has been the increase in the last century compared with the times that went before. Some three or four thousand years of recorded history lie behind the earliest date to which we have referred, but since for these periods material

to form estimates as precise as those which we have quoted is lacking, we must postpone what there is to be said about the movement of the population in those times until we have discussed a still more distant period.

Behind the six thousand years or so of recorded history lie tens of thousands of years of which there are no records. For a very long period before the 'dawn of history', perhaps for



100,000 years and very likely longer, men had been making tools, using fire, and no doubt ordering their lives according to an elaborate code of rules. To gain any real understanding of the history of such a subject as population, we must not leave this period out of account. If we do so, we arrive at an altogether distorted view. But, it may very well be asked, how can anything be known about this period, seeing that the history of it was unrecorded? The answer is that while nothing is known about the period directly, there is a method by which we can throw light upon it.

From the scanty remains which men of this period have left behind them, it appears that for the greater part of the time, for not less than perhaps 100,000 years, they supported themselves by hunting and fishing, knowing nothing of agriculture. Now it so happens that some races of men never discovered a better way of making a living, and have continued to support themselves in this manner to the present day. Such is the case, for example, with the natives of Australia. Other races learnt the arts of primitive agriculture and of the domestication of animals; but again, some of them went no farther and never, for example, learnt the use of the plough. That is the position of many of the native races of Africa. Other races learnt the use of the plough and again some of them progressed no farther, while others became acquainted with those arts which are regarded as part of the equipment of the so-called civilized races. Here then is a method by which we can gain an insight into the conditions that men lived under during the prolonged period before the dawn of history. From the study of existing hunting and fishing races, we can learn something of the manner in which our own ancestors lived for many thousands of years. Similarly, we can employ our knowledge of existing primitive races which practise an elementary form of agriculture in order to throw light upon the next stage in the 'prehistoric' period.

Let us therefore inquire what information we have regarding the density and rate of growth of population among primitive races. First as to density. There are no accurate figures. We have merely a number of estimates. It is estimated that in Australia before the arrival of the white men there was about one man to every 15 square miles. Population may have been even more sparse among other races, and, generally speaking, we may say that it is very unusual for a race that has no knowledge of agriculture to reach a greater density than one to the square mile. How sparse a population even such a figure

indicates may be gathered when we recall that in 1921 there were in England and Wales 649 people to each square mile. Among races that practise a primitive form of agriculture the number may rise from something over 1 to 10 or 20 or even to 30 or 40 to a square mile. No rule can of course be laid down. But from a survey of different races employing different forms of skill in order to procure food, it appears that the more skilled a race is, the denser is its population, at least as a general rule. Agricultural races are more skilled than hunting races, and have as a rule denser populations; while the more skilled agricultural races have a denser population than the less skilled agricultural races.

From a study of existing primitive races, therefore, we learn this much about the conditions under which our forefathers lived before their doings came to be recorded and handed down to subsequent generations as history: Population was very sparse, but where skill was greater it was rather more dense. But improvements in skill were made very slowly. We know this because the implements which our forefathers used are found in the soil in the floors of caves and other places, and, rough as our calculations are, we can estimate that thousands of years must have elapsed between the time when the lower and the upper layers were deposited, during which time very little advance, relatively speaking, was made in skill. We are thus led to believe that in those times population must have been stationary as a general rule; for long periods of time there were no improvements in the arts of food production and so no change in the density of the population. Further, when improvements did take place they were small improvements, and probably came slowly, with the result that such increase in density as they permitted must have been imperceptible to any one then alive.

This early period of which we have been speaking was many

times—perhaps twenty or thirty times—longer than the whole historical period put together. It follows, therefore, that if we take a long view and study the human race from the earliest times, we must regard an increasing population as less usual than a stationary population. By taking a long view we see present conditions in their proper perspective, and are led to inquire whether there may not be a return in the future from the present condition of rapid increase to the more normal condition of a stationary population. That is one of the many points that await discussion. Meanwhile it may be noticed that increase during the historical period has, as a general rule, been continuous and, compared with earlier times, rapid. Even the rate of increase during the period succeeding the Norman Conquest which we called slow compared with the rate of increase during the last century was infinitely more swift than any which could ever have taken place in 'prehistoric' times.

3

WHEN we recall how great the power of increase is with which the human race is endowed, these facts as to the increase of population become still more remarkable. Many calculations have been made to show how huge this power of increase is. It has been calculated, for example, that the descendants of a single pair of human beings increasing at the rate of 1 per cent. per annum would amount in a little more than 2,000 years to 1,700 millions, that is to say, to a total equal to that of the present population of the world. Now 1 per cent. per annum is about the present rate of increase of the population of the world as a whole, and it is obvious to every one that only a fraction of the power of increase is actually realized at present. Many people do not marry, many married couples are childless, and few have as many children as they might have. Therefore even such a rate of increase as that which is now taking place

falls very far short of the possible rate of increase. Or the facts may be put in another way. Let us suppose that the 1,700 millions of people now inhabiting the world were to continue to increase at the present rate, namely 1 per cent. per annum, then in 500 years from now the population would amount to 246,114 millions. Why, throughout great tracts of human history, has not this vast power of multiplication resulted in any increase of population? And why, at other times, has the increase realized fallen so far short of the possible increase?

It might of course be urged that the power of increase has not always been of the same strength. In fact, it has often been suggested that the power of multiplication has changed in the course of human history. Herbert Spencer, for example, was of the opinion that as men become more intellectual their power of increase, or what we may for short call their fecundity, decreases. Our knowledge concerning this matter is incomplete, but there is no evidence in favour of Herbert Spencer's suggestion, and therefore no support for those who would explain the decline in the birth-rate at the present day by a decrease in fecundity. There is a considerable amount of evidence, on the other hand, to show that in early days fecundity was not as great as it is now. Existing primitive races seem to have a smaller power of multiplication than civilized races, and it is reasonable to suppose that our forefathers were in early times in the same position as these races. But this is after all only what we should expect. When wild animals are domesticated, their fecundity increases; the pig is more fecund than the wild boar. Now domestication means improved shelter and better and more regular food, and in this sense civilization may be regarded as the domestication of human beings. Thus if domestication increases the fecundity of wild animals, so civilization may have increased the fecundity of the human species.

Yet, even if the power of multiplication has increased, the