The World Demographic Transition

Kingsley Davis

Annals of the American Academy of Political and Social Science, Vol. 237, World Population in Transition (Jan., 1945), 1-11.

Stable URL:
http://links.jstor.org/sici?sici=0002-7162%28194501%29237%3C1%3ATWDT%3E2.0.CO%3B2-Q

Annals of the American Academy of Political and Social Science is currently published by Sage Publications, Inc..

The World Demographic Transition*

By Kingsley Davis

VIEWED in long-run perspective, the growth of the earth's population has been like a long, thin powder fuse that burns slowly and haltingly until it finally reaches the charge and then explodes. For a million or more years our species increased with infinitesimal slowness, flourishing temporarily in some areas, hardly getting started at all in others. Throughout at least 99 per cent of its history it remained extremely sparse. Sustenance was obtained by hunting, fishing, and gathering, which required huge areas for few people, sometimes as much as 200 square miles per person.[1] Not until the beginning of the Neolithic era, some eight to seventeen thousand years ago, when agriculture, domestication of animals, pottery, and textiles were invented, did greater density become possible. After that time cultural evolution moved at a faster pace, for eventually metallurgy and writing were invented and agriculture and transport improved; but still the world's population, as distinct from that of particular areas, grew so slowly as to seem stationary by modern standards.

The first real burst of world population growth came with the latest stage in cultural progress—the Industrial Revolution. Not only did this change, considered in its broadest sense,[2] give an unprecedented impetus to population growth in Europe, but its rapid diffusion to other regions extended its influence around the globe. For the first time the world's entire population could be regarded as a single entity responding in varying degrees to one dynamic process. For the first time the movement of human masses across large oceans became feasible. For the first time a new type of balance between births and deaths, a balance less wasteful than the old, began to manifest itself. And finally, also for the first time, the arts of demographic accounting became sufficiently exact to yield a reasonable estimate of the earth's total inhabitants.

Modern Increase of Numbers

Although no reasonable estimate of the world total can be made for dates earlier than the seventeenth century, various scholars have worked out figures for subsequent times. These estimates are by no means exact, and indeed the world's population is not known accurately today, but they are sufficiently accurate to give us a notion about the rate of growth for the globe and for the various continents.[3]

The accompanying chart depicts the relative growth of the world population and its continental components from 1650 to 2000. The projections to the year 2000 for each continent are tentative, especially for Africa, South

* From the Office of Population Research, Princeton University.

[1] A. B. Wolfe, "The Fecundity and Fertility of Early Man," *Human Biology,* 5 (Feb. 1933), pp. 36–39; Grahame Clark, *Archaeology and Society* (London: Methuen, 1939), pp. 174–82. Clark believes the population of Mesolithic England and Wales could not have exceeded 3,000–4,000 persons.

[2] The term "Industrial Revolution" should not here be construed narrowly, because it involved economic, social, and political changes equally as fundamental as the technological. Louis W. Moffit, *England on the Eve of the Industrial Revolution* (New York: International Publishers, 1925); Abbott Payson Usher, *The Industrial History of England* (Boston: Houghton Mifflin, 1920), Chaps. 4 and 10.

[3] World estimates have been re-examined by A. M. Carr-Saunders, *World Population* (Oxford: Clarendon Press, 1936), Chaps. 2 and 3.

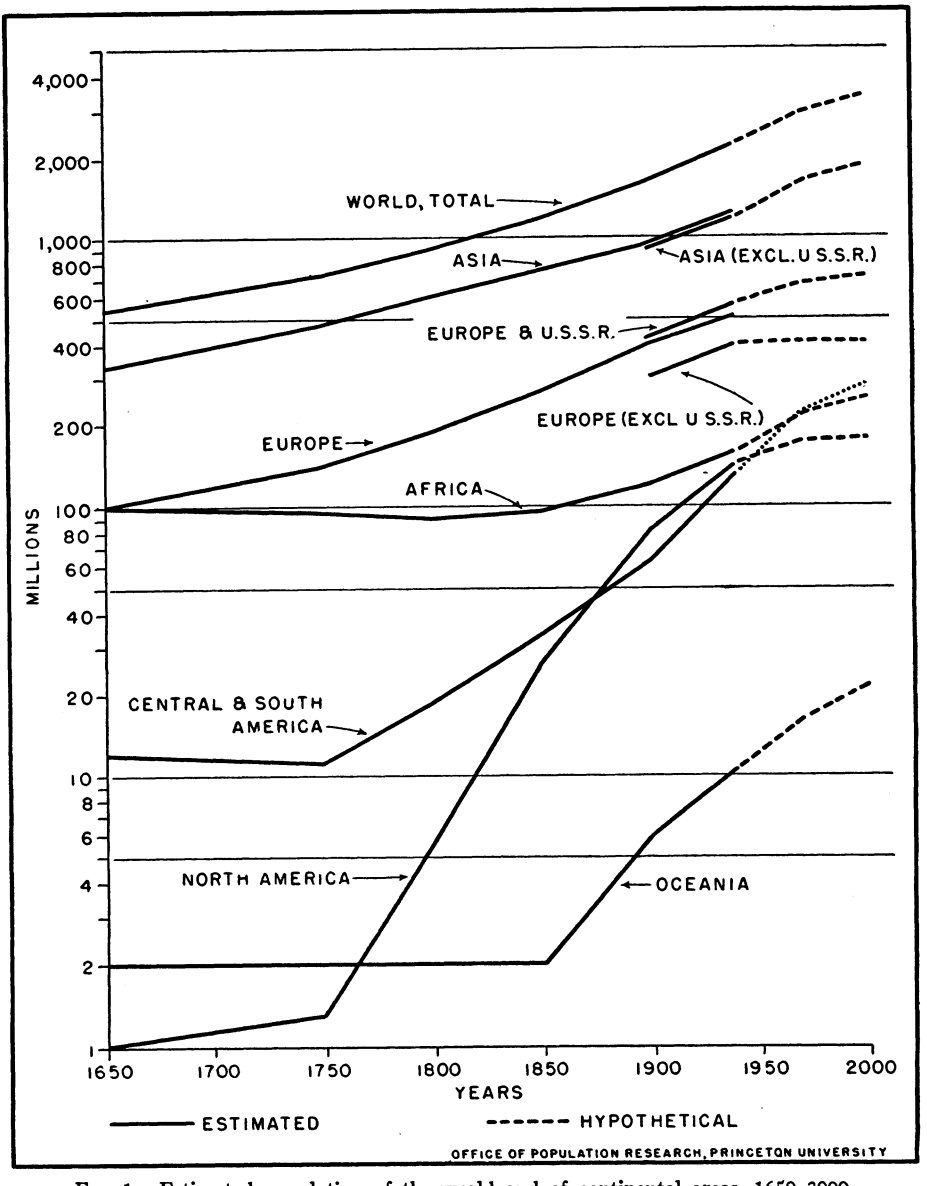

FIG. 1.—Estimated population of the world and of continental areas, 1650–2000.

America, and Asia, but they give some notion of potential trends.[4] Table 1 gives the historical growth of the world population, and the average annual rate of increase for different periods.

It appears that between 1650 and

[4] The projections are described by Frank W. Notestein, "Population—The Long View," in *Food in International Relations,* Harris Foundation Lectures, 1944 (Chicago: University of Chicago Press, to be published soon). The chart is a combination of two charts that appear in Notestein's paper.

TABLE 1

Date	Estimated World Population (Millions)[a]	Annual Per Cent Growth During Preceding Period[b]
1650	545	—
1750	728	0.29
1800	906	0.44
1850	1,171	0.51
1900	1,608	0.63
1940	2,171	0.75

[a] Figures except that for 1940 are taken from Carr-Saunders, *op. cit.*, p. 42. The 1940 estimate is taken from the *League of Nations Statistical Yearbook for 1941–42*.

[b] Average geometric rates calculated by the exponential formula.

1750 the rate of growth was already so high (0.29 per cent per year) that it could not have been in effect very long. The strange thing, however, is that this rate of growth, though probably unprecedented in the world's history, was the lowest rate for any major period in modern times. From 1750 to 1800 the rate climbed to a figure half again that of the earlier period. Yet, after 1800, the rate continued to rise. Indeed, it continued upward during the entire period from 1650 to 1940. In the most recent period it has been at 0.75 per cent—a rate that would cause a doubling of the population every 92 years. The acceleration shown by these figures may reflect, in part, inaccuracies of estimation; but the consistency and the magnitude of the gain suggest that it is not all due to sheer error. The direction of the trend is clear; the growth of world population shows no signs as yet of having reached its peak.

Actually, these rates of growth of less than one per cent per year do not *seem* high to us. We know that in particular regions they are several times as high. The population of the United States between 1850 and 1900, for example, increased at an annual rate of 2.36 per cent per year. The population of the U.S.S.R. between 1927 and 1939 increased at a rate of 1.25 per cent per year. It happens, furthermore, that most of us who can read and write were born in these regions of rapid increase. In any case, we were born in the present epoch of fast growth; so that an expanding population is a part of our ordinary thinking, a criterion of normality.

Yet, even though the modern rates for the world as a whole do not seem high, they *are* high. Should the present global population continue to increase at the same rate that prevailed between 1900 and 1940, the earth would hold over 21 billion inhabitants by the year 2240, a total that is hard to conceive.[5] The present rate must obviously be temporary.

CAUSES OF MODERN INCREASE

Demographically speaking, the growth of world population is determined by only two factors—fertility and mortality. All other factors, whether biological or sociological, must take effect through these. In attempting to explain the unprecedented growth of modern times, therefore, the first step is to ascertain the relative responsibility of these two variables.

The evidence all points to declining mortality as the major cause. If increasing fertility were responsible, we should expect to find indications of it;

[5] Robert R. Kuczynski, who discusses various estimates of the ultimate population the world can hold, believes that 11 billion is about the maximum. *Population,* Harris Foundation Lectures, 1929 (Chicago: University of Chicago Press, 1930), pp. 283–86. Most such estimates rely upon calculations of the world's potential food production. They are unrealistic for two reasons: first, it is impossible to guess what technological improvements will be made during the next few centuries; second, it is by no means certain that the maximum population will be determined by the food supply. It may well be that comfort and convenience will determine the limit.

but no proof is available that in any significant part of the world, birth rates have risen in modern times. On the contrary, there is plenty of proof that birth rates have declined. In extant primitive and archaic societies where modern civilization has penetrated only slightly, birth rates are generally high, indicating the probable condition throughout the world before the dawn of the present age. In countries where industrial progress and population growth have been most rapid, on the other hand, the early birth records generally show lower rates, with a tendency to decline throughout the entire period of reliable statistics.[6] In Sweden, for instance, the birth rate in 1751–60 was 35.7 per 1,000 persons. This rate, considerably lower than that existing today in a place such as India, was never equaled again in Sweden, but instead there was a continuous decline. In Europe as a whole the decline was noticeable, and tended to accelerate as time went on, slackening only after 1933.

The expansion in population must, by elimination, be attributed to the decline in mortality—a decline great enough not only to compensate for the loss in fertility but also to furnish a greater natural increase than ever before. The recorded statistics prove this decline. All indications are that the average expectation of life at birth has practically doubled since the late seventeenth century.[7]

It appears that the reduction in mortality was at first slow and gradual, and that it began primarily with a more abundant, regular, and varied food supply. This result was due in part to gradually improving agricultural techniques, but probably in greater degree to better transportation, which in turn stimulated commerce and handicraft production, and, through these, commercial agriculture. With expanding ocean transport, the agricultural techniques of Europe were applied in new and virgin lands, part of the produce becoming available for Europe itself. It was shortly after 1750 that England became dependent on the importation of grain.[8] When power machinery began to be applied to transport and manufacture, trade was enormously stimulated. The rapid movement of persons, ideas, and goods reduced the number of local famines. Agriculture increasingly supplied distant markets in return for manufactured articles. Some of the manufactured articles were useful in raising agricultural output. Each improvement in one part of the economic or technological system thus led to improvements in other parts. The parade of inventions gathered momentum and the effective distribution of agricultural products developed until, under the best methods, a rather small fraction of the population could furnish the whole with all the food it needed. The effect of this in reducing famine, undernourishment, and susceptibility to disease was enormous, and brought a sizable decline in the death rate.

Protection from disease through public sanitation and scientific medicine did not take effect until the end of the eighteenth century, and was very slow during the next fifty years.[9] Depending on the prior development of sciences such as engineering and biology, it was a late product of the social changes that were occurring. Once it appeared, however, it had a remarkable effect, and lowered the already reduced mortality still further. In northwestern Europe

[6] Warren S. Thompson, *Population Problems* (New York: McGraw-Hill, 1942), pp. 151–56.

[7] See the article by Louis I. Dublin and Alfred J. Lotka in this volume.

[8] Usher, *op. cit.* n. 2, p. 90.

[9] *Encyclopaedia of the Social Sciences*, "Sanitation," pp. 538–39, and "Public Health," p. 648.

the decline reached its fastest pace during the half-century from 1880 to 1930.

It is clear that behind the specific factors causing the unprecedented decline in mortality there was the general and all-inclusive change through which European society was passing—a change from illiterate agriculturalism to literate industrialism. Compared to previous cultural changes, this one was quite rapid, although it took centuries and, even in Europe, is still incomplete. Some of the most important developments were doubtless intangible—the growth of democratic institutions, scientific ideals, humanitarian sentiments. The decline in mortality was itself a cause as well as a result of the social transformation, because it made possible a longer and more efficient use of human energies.

NEW DEMOGRAPHIC BALANCE

As noted above, fertility tended to decline during the period of modernization. It did not decline as fast as mortality, however, and the difference between the two provided the tremendous growth of the European population. Eventually, however, the competitive, individualistic, urban society that had risen made large families a handicap rather than a blessing. At the same time the extreme reduction in infant mortality meant that the old fertility patterns, if they were to continue, would produce even larger families than formerly. Consequently, there was every incentive for couples to reduce the number of births, and it was not long until the same scientific approach that had been applied to the limitation of death was also applied to the limitation of births.[10]

As the birth rate dropped to lower levels, the point was reached in northwestern and central Europe where the rate of population growth began once more to approach stability. At present this fact is still masked by heavy numbers in the reproductive ages, but techniques of analysis reveal that in future this area will have a stationary or a declining population.[11] Mortality has been reduced so far already that further reductions can no longer compensate for future declines in fertility.

Thus in Europe, and in Europe overseas, the sociocultural transition known as the Industrial Revolution has been accompanied by an intimately related demographic transition, representing an astounding gain in human efficiency. Under the old regime of high fertility and high mortality, women frequently experienced the drain and danger of pregnancy to no purpose, because a large proportion of the offspring died. Furthermore, energy was spent on the surviving offspring, only to find that many of them died before or during early maturity. Thus too much effort was spent in trying to bring each new generation to full productive maturity. Too much energy was lost in sickness, malnutrition, and preoccupation with death. The new type of demographic balance released a great amount of energy from the eternal chain of reproduction—energy that could be spent on other aspects of life.

EXPANSION AND DIFFUSION FROM EUROPE

By virtue of having originated the industrial and demographic transition, European peoples acquired the means for world dominance. They increased at a much more rapid rate than the rest of the world's population. In three centuries they multiplied themselves more than seven times, while the other

[10] Cf. E. F. Penrose, *Population Theories and Their Application* (Stanford University, Calif.: Food Research Institute, 1934), pp. 115–20.

[11] See the article by Dudley Kirk in this volume.

peoples increased only three times. In 1650 they numbered about 100 million; in 1933, approximately 720 million. Their proportion of the world's population rose from 18 per cent at the earlier date to 35 per cent at the later one.[12]

Moreover, this numerical expansion was accompanied by an enormous geographical expansion, for the Europeans settled some of the sparsely populated "new" lands that they discovered. The movement was greatest in the nineteenth century and involved, between 1846 and 1932, an emigration of more than 50 million, the bulk of whom remained overseas.[13] Thus both European stock and European culture were transplanted to huge new continental and island areas—Australia, New Zealand, Siberia, South Africa, North and South America. Displacing sparse native populations, the Europeans applied their advanced techniques to the new soil and achieved an abundance of food sufficient not only for their own maintenance but for huge exports as well. In most of the new areas they eventually began to industrialize, first on borrowed and then on domestic capital. Freed by geographical distance from the traditions and handicaps of the home environment, they made rapid progress in the modernization of life. They began with rapid population growth—the most rapid ever known—but reached the point of a stationary or declining population at about the same time as northwestern Europe. This was pre-eminently the history of North America, Australia, and New Zealand.

In areas where the native population was more abundant, and especially where the transplanted European culture was not that of northwestern Europe, the transition was not so rapid. In Latin America, for example, economic development and population growth proceeded at a slower pace. With the possible exception of Argentina, this region is now in the midst of an expanding growth cycle instead of at the end of it.

Even in regions where the Europeans did not settle in large numbers, they exerted their dominance and diffused their culture. In Asia, for example, they found indigenous civilizations of an advanced and complex type, with populations already massive in size. Whether they "conquered" or merely dealt with these peoples, they managed to dominate them politically and economically. Using their own capital and skill, the Europeans set up commercial agriculture in the fertile areas. The products, as well as the profit and interest, went to the industrial peoples and their representatives. The native peoples served as a rural proletariat, working often for bare subsistence and thus reaping few of the potential advantages of participation in the world economy.

Although other factors were also responsible, there is little doubt that the economic position of the Asiatics tended to retard the complete absorption of Western civilization. This was true despite the fact that the advanced stage of this civilization otherwise made rapid diffusion possible. The net result was that certain elements were diffused rapidly, others slowly. The techniques of reducing death rates (medical science, sanitary engineering, agricultural improvement, and better transport) were imported for both humanitarian and economic reasons, and proved one of the most acceptable features of European culture. The effect was counterbalanced in some regions (more in Africa and the Southwest Pacific than in Asia) by the transmission of European diseases, but eventually death rates in most areas touched by European contact began to improve.

Fertility, however, was not correspondingly reduced, first because re-

[12] Carr-Saunders, *op. cit.* n. 3, pp. 42–45.
[13] *Ibid.*, p. 49.

duction proved a less acceptable feature of Western culture, and second because the Asiatics, being for the most part a rural proletariat under European dominance, were on the more fertile side of the differential birth rate. The usual class differentials received geographical expression in this case—the Europeans representing the low-fertility upper stratum, the Asiatics the fertile lower stratum.

There has thus been repeated the usual lag of fertility decline behind mortality decline, and the inevitable result has been the commencement of a tremendous expansion of the Asiatic population—the first phase of a growth cycle apparently similar to that which the European peoples are just completing. Most of the Asiatic countries—notably India, Java, and Malaya—are already well into the heavy growth phase. One country, Japan, is just beginning to foresee the end of it. Others, such as Iran, China, and Borneo, have hardly started yet. Since there are already teeming millions in Asia, the future increments will be staggering. The growth, coming at a time when the Western peoples are reaching a point of stability, will greatly raise the proportion of Asiatics in the world.[14]

IMPACT OF DEMOGRAPHIC SHIFTS UPON THE WEST

As Western civilization spreads from its present centers to the rest of the world, carrying with it a wave of population growth, it becomes clear that the Europeans, by originating, utilizing, and diffusing their modern mode of life, have become its victims. The possibility that Asia's teeming millions will double or even triple within the next few decades, acquiring Western instrumentalities at the same time, appears as a Frankenstein appalling to many observers. The activities of Japan do not lighten the somber picture. There are, however, a few neglected points that may help to dispel the gloom.

The racialistic fallacy

One groundless basis for fear is the implicit racialism in most Anglo-American thinking. It is felt that the Asiatic hordes are inherently different from Europeans, and that if they become dominant they will "reduce" the whole world to the Oriental level. This view overlooks the likelihood that if the Asiatics make the changes that will give them dominance, they will lose a great part of their Oriental mode of life. They will become more like Europeans, and will eventually show a declining fertility. The case of Japan illustrates this, for she went farther than any other Oriental people in borrowing Western culture and thus increasing her power; but, as a consequence, her fertility also began to drop, so that, although her population will grow very rapidly for a while, she too will eventually approach a stationary population.[15] The existing civilization of the Orient is not fixed in the genes of the Asiatic races. It is rather a historical stage resembling in some respects the medieval civilization of Europe. It will pass irretrievably as the Asiatic peoples become westernized.

[14] Latin America is also destined to have a great increase, and Africa too. But in both cases the base population is so much smaller than that of Asia that the absolute increments will not be comparable, at least for a century or two.

[15] See the article by Irene B. Taeuber and Edwin G. Beal in the present volume. It is sometimes suggested that Japan has borrowed Western technology but not Western civilization. In a sense this is true, and it may be one reason she is losing the war. But what appears to be different may, from a functional point of view, be very similar. Modern Shinto, for example, is not an ancient thing; it is a nationalistic development similar in many respects to nationalistic cults in the West.

To think that the Asiatics can borrow and utilize successfully the instrumentalities of the West without also borrowing its other features is to commit a sociological error. The techniques of death control, for example, cannot be fully acquired and put into effect without also acquiring the science that underlies them, and the science cannot be acquired without also taking over the morality of science, the system of social selection of talented personnel, the capitalization of public education and free research, and other features. Western civilization is not an airtight system the parts of which fit together as neatly as the parts of an organism, but it is a sociocultural system in which most of the parts are functionally related. It may be borrowed piecemeal as long as the borrowers are a rural proletariat under European masters, but it cannot be borrowed piecemeal in such a way as to give dominance to a people. In short, if Western civilization is to be diffused to the whole world, as is apparently happening at the present time, there is no reason to fear that a growth of the Asiatic *races* is going to cause the whole world to "sink" to the level of present-day Oriental civilization.[16]

Invasion by migration

Not only is it feared that the Asiatics will gain world dominance by population increase and technological acquisition, but also that they will demand the right to migrate to regions now held by Westerners.[17] This problem, however, has two solutions. If the Asiatics come with the traits of modern civilization, there is little reason to exclude them any more than any other people. If, on the other hand, they come as representatives of a less efficient civilization, there is good reason to exclude them, except to the extent to which they can be fully assimilated.

An invasion of advanced areas by people with high mortality and fertility can scarcely be justified from the point of view of the people already in these areas. The region from which the migrants come will not be greatly benefited, and the area which they invade will be retarded. In short, a mere extension of current Asiatic civilization to new areas does not solve any problem, and to avoid such a result the European peoples would be justified in holding the lands they have, no matter how "vacant" these lands appear to the Asiatics. As Fiji, Trinidad, Formosa, Natal, and the Guianas illustrate, the Asiatics are capable of installing in new lands the same wasteful demographic balance that they preserve at home. On the other hand, as the cases of Hawaii[18] and the United States illustrate, it is possible for migrants to lose the cultural traits that gave them high fertility. It would seem, therefore, that the maximum limit on Asiatic migration into a Western country is the number who can be rapidly assimilated. Yet the confusion between race and culture makes assimilation difficult in some countries, and thus gives rise to economic conflict and minority problems.

A beehive world?

The fear of a beehive world in which ten to twenty billion people barely eke out a livelihood rests on illusion rather

[16] Of course, it must be admitted that if other peoples acquire our civilization, and *if* they become our enemies, they will be formidable by virtue of their acquisitions. But this has nothing to do with race as such. It is unlikely that future conflicts will be along racial lines unless our own prejudice fosters them. Fighting on the Allied side today are more Asiatics than Europeans.

[17] For an expression of this demand, see Radhakamal Mukerjee, *Migrant Asia* (Rome: Tipografia Failli, 1936).

[18] Andrew W. Lind, *An Island Community* (Chicago: University of Chicago Press, 1938), pp. 107–16.

than probability. It overlooks the inherent antinomy between a rising standard of living and a *proportionate* increase of numbers. It rests on the assumption that the resources of an advanced civilization may all be turned in the direction of feeding an ever greater population. Most modern inventions, however, are not designed to increase the amount of food, but simply to add to our standard of living in other respects. Indeed, the peculiar thing is that once a society abandons the subsistence idea, it can actually support more people. This is because technological advance, developed in many cases with no immediate thought of increasing the food supply, eventually turns out to be a help in this regard. But—and this is the point—having increased the food supply by this means, the society cannot retain this supply without also retaining the advanced standard of living. It cannot sink back to mere subsistence, because its food-producing capacity depends on all its other capacities, which would disappear under subsistence conditions.

Let us take as an illustration the United States today. It has low death and birth rates; but suppose that its fertility began to rise until it reached, say, 45 per 1,000, a figure which, under present conditions of mortality, would double the population every twenty years. What would happen? Obviously, at some point there would come a time when the demand for nourishment would take precedence over other things. One convenient thing to reduce would be education, because then the manpower of adolescents could be used to produce food. Another would be recreation, because this involves a waste of energy, food, and time. Still another would be the publication of books and magazines, not only because the population would not have the time or even the capacity to read, but also because books and magazines cannot be eaten, and their production takes valuable energy.

To keep people from starving, economy after economy would have to be introduced. For a while the country might gain in efficiency, but eventually it would begin to lose it, primarily because real cultural advance would stop. The medical profession, for example, would soon begin to go downhill, because it would be without the aid of research in pure science and thorough education of its members, and yet would have an increasingly heavy task on its hands as the standard of nourishment went lower and the number of pregnancies grew. Agricultural progress would be halted for the same reasons. In the end, then, the very economies that were enforced to secure adequate nourishment would curtail advances in food production. The death rate would begin to rise and would eventually reach the point where it balanced the high fertility. The population would then be "adjusted" to its environment, but the adjustment would be that of subsistence, not that of advanced civilization. Furthermore, the actual population would probably be less than that supported formerly at the higher standard of living.

The real danger is not that there will be a beehive world, but that cultural progress will stop at some point short of a complete transition from subsistence agriculture to industrial civilization. It is a contradiction to think that all the energies of the latter can be used simply to support the maximum population capable of being fed. One is prone to reason that with a given amount of resources and a given technology more people can live if they use their resources for the production of food than if they use them for other things. Such reasoning, however, bears testimony to the confusion which a Malthusian approach introduces into population theory. Actually, technology and consumption

are not separate variables. The most advanced technology requires a wide range of consumption. To narrow the latter necessarily involves narrowing the former. This is why an advanced society cannot use its cultural paraphernalia simply to support a huge population at the sustenance level.

FUTURE PROSPECTS

Statistical indices of nearly all sorts indicate that today throughout most of the world cultural development is going ahead faster than population growth. This suggests that the Asiatic peoples, and others as well, will acquire modern civilization in time to check their fertility and thus achieve an efficient demographic balance, instead of multiplying to the point where such acquisition would be impossible and a stationary but wasteful situation would be made permanent. We are inclined to think of future population increases as formidable. Actually, such increases can hardly occur on a purely agricultural basis. They require Westernization. This being true, the prospect that there will be too many people in the sense of too many to support at a higher level of living is not likely.

Literacy

An excellent index of modernization is literacy. According to census returns and systematic estimates, 59 per cent of the world's population age 10 and over in 1930 was illiterate. The continents, however, were extremely uneven in this regard, as Table 2 shows.

Those countries enjoying the lowest fertility—northwestern Europe, the United States, Australia, New Zealand, and Japan—are precisely the ones having the least illiteracy. On the other hand, those exhibiting the highest fertility are precisely those still having the greatest illiteracy. This suggests that when the latter countries undergo the social changes that reduce illiteracy, they will also experience a corresponding decline in fertility.

TABLE 2—LITERACY, FERTILITY, AND DEPENDENCE ON AGRICULTURE, FOR THE WORLD AND THE VARIOUS CONTINENTS, 1930[a]

Region	Per Cent Illiterate (Age 10 & Over)	Per Cent Dependent on Agriculture	Crude Birth Rates
World	*59*	*60*	*39*
North America	4	25	20
Oceania	14	30	23
Europe[b]	15	36	23
U.S.S.R.	40	67	45
South America	54	65	41
Central America & Caribbean	59	72	44
Asia[b]	81	69	44
Africa	88	77	48

[a] The figures represent the weighted average obtained by combining the official or estimated rates for all of the countries within the area.

[b] Exclusive of the U.S.S.R.

How long such changes will take we do not know, but there is some evidence that it will not take long. In 1875 Chile's population was 77 per cent illiterate; by 1930 it was only 44 per cent so. In 1897 Russia's population age 9 and over was 76 per cent illiterate; by 1939 it was only 19 per cent so.

Dependence on agriculture

Another excellent index of civilizational advancement is the proportion of the population dependent on agriculture. In 1930, judging by census returns and estimates, approximately 60 per cent of the world's people were dependent on this pursuit. Again, as Table 2 shows, the continents were unevenly divided.

It is believed that only a small portion of the population (say 20 per cent) need be engaged in agriculture to furnish the

total population with food under full use of *existing* techniques. The possibility of rapid industrialization in China and India (Bombay plan), in South America, Africa, and the Near East, is more than a dream. Already India is one of the world's leading industrial nations. The war has witnessed considerable advance in Brazil and Argentina. Palestine has gone forward rapidly.[19] With these prospects in view, a rapid growth of the world's population need hold no terrors. The world can probably hold several billion people with no great inconvenience. Already in what were once the world's fastest-growing areas the population has approached a stationary or declining state. It seems likely, then, that the next century will see the peak of the world's population growth reached and the new demographic balance spread throughout the world.

This is an optimistic conclusion, but it does not overlook the pains, imbalances, struggles, and injustices that will accompany rapid population growth in certain areas. As the cases of Russia (in retrospect) and India (in prospect) illustrate, it is virtually impossible to make the transition from an agricultural to an industrial regime without dislocating and disorganizing great sections of the population. The best that can be done is to use modern knowledge to make the transition as quick and as smooth as possible. There is ample room and indeed a great necessity for the development of a scientifically grounded population policy throughout the world.

[19] See sections on Palestine and Turkey in the paper by Ernest Jurkat and Louise Kiser in the present volume.

Kingsley Davis, Ph.D., is associate professor of public affairs in the School of Public and International Affairs and member of the staff of the Office of Population Research, Princeton University. He was formerly head of the Division of Sociology at Pennsylvania State College. In 1940–41 he held a postdoctoral fellowship from the Social Science Research Council for the study of population. His main demographic research has been connected with India and Latin America.