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POPULATION PROBLEMS OF CENTRAL AMERICA

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PROMISES OF AN ABUNDANT LIFE AND FREEDOM FROM WANT are usually made with no consideration of the population problem. Yet in most of the world rapid population growth is the major obstacle to higher living standards in the economically underdeveloped countries. In order to improve living conditions it is necessary that agricultural and industrial production increase faster than population growth. Otherwise any increase in the output of food and industrial products will be absorbed by the growing population and the only result will be more people living in poverty.

Rapid population growth is a very recent event in human history. It has been estimated that the world population grew at the rate of only about .03 to .04 per cent annually during the hunting and food gathering stage of man's economic evolution. Growth rates probably did not reach 0.1 per cent until the beginning of the Christian era, long after the development of agriculture. By the 18th century the rate reached 0.3 per cent and for the 19th century the world population grew at an average annual rate of about 0.6 per cent. The world growth rate is now more than 1 per cent per year— thirty times as fast as it was 10,000 years ago.

The recent increased rate of population growth has resulted in a four-fold increase in the world population during the past 300 years —from about 600 million in 1650 to 2400 million in 1950. During the past *three* years the world population has increased nearly 100 million. If present

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growth rates continue the world will have to provide food, clothing and shelter for at least 300 million more people during the next decade, and the world population will exceed 4000 million before the end of this century. Yet more than half of the world's people now live little above subsistence levels, with inadequate food, shelter or medical care.

What are the reasons for this unprecedent rapid growth of the human race during the past few hundred years? In order to answer this question we must look back at man's early history. In his early history man depended upon the food which nature provided —the fruits and nuts from the forests, seeds of the native grasses and perhaps some of the smaller animals. His food supply was meagre and uncertain. He fared a little better when he invented simple weapons and was able to kill the larger animals, which provided both food and clothes. But life was precarious. With uncertain and often inadequate sources of food, with little or no protection against the weather and no control of disease, the death rates must have been very high. As late as the early Bronze and Iron Age the expectancy of life in Greece was probably no more than 18 years.

Under such adverse conditions the birth rates had to be high if the human race was to survive. Women with high fertility were selected by nature to perpetuate future generations. Otherwise the human race would have become extinct long ago.

There is no evidence that this innate trait of high fecundity has declined in modern man —or more specifically, in modern women. But the expectancy of life of modern man has increased greatly in recent times, and in some countries is approaching 70 years. The science of agriculture, technology and medicine has provided better food, housing, sanitation and medical care. Most communicable diseases are now under control and modern surgery and medicine have added greatly to the span of human life in much of the world.

The control of the death rate, without a corresponding control of the birth rate, has been responsible for the recent rapid growth of the world population. With annual death rates of about 40 per thousand of population, primitive man had to have even higher birth rates to insure survival

and a slowly growing population. With modern death rates of 10-15 per thousand of population —characteristic of many nations today— the primitive birth rates of 40-45 would result in a population growth rate of 3 per cent per year. This rate has been attained in a number of countries in recent years, but in many countries the decline in the death rate has been accompanied by a decline in the birth rate, and in the countries of Europe the population growth has seldom exceeded a growth rate of 1.5 per cent annually.

The recent world population growth rate of even 1 per cent annually can not long be continued. At this rate the world population would increase from 2.4 billion to 300 billion in 500 years, and in another 500 years the problem of standing room on the earth would become critical. Paradoxical as it may seem, the greatest growth, or greatest potential growth, is in those countries where the living standards are the lowest. In some, the resources, even if fully developed, could provide good living standards for little more than the present populations. Actual or potential population growth is the greatest obstacle to economic and educational progress in these areas.

The population problem in Central America has reached a critical stage, and with the exception of Asia is the most difficult one to be solved. The countries of Central America now have the highest rate of population growth among the major areas of the world. More than two-thirds of the people are engaged in subsistence agriculture. Industrial development has hardly begun. Agricultural and industrial resources are limited. Yet the population continues to grow rapidly.

Perhaps the people of Central America would not care to pay the price of the industrial culture and the luxuries of their neighbors to the north. Such a culture is costly in terms of spiritual values, and leaves little time for living. But they would like to have more and better food, mechanical power to lighten their physical labor, universal education, better housing and more public health services and medical care.

The economic development of Western Europe and North America during the past 150 years has shown that poverty and low living standards are not inevitable. The

people of the underdeveloped countries are aware of the possibilities of human advancement, but they are not aware of problems and difficulties which must be met if they are to effect their demographic transition —the transition from a culture with high birth rates, high death rates and low living standards, to a culture with low birth rates, low death rates and high living standards.

A study of the demographic transition in the countries of Western Europe and North America will show that some of the paths of escape from excessive population pressure are no longer open to the people of Central America and that other paths of escape are long and steep.

Western Europe began the demographic transition about 150 years ago with ample farm land and generous resources for industry. With fertile land and advances in agriculture it was possible to increase agricultural production and efficiency so that manpower could be released from food production to engage in the development of industry and the arts and sciences. Industrial development aided agriculture by providing better tools and fertilizers and eventually only about a quarter of the labor force was needed to produce the required food.

For many years the countries of Western Europe enjoyed an industrial monopoly and were able to export machinery and other industrial products in exchange for raw materials and food. Thus it was possbile for some countries to support populations in excess of local food production. England now imports nearly half of her food.

The frontiers of the New World provided not only raw materials and food for the mother countries, but provided homes for millions of emigrants. There are now about as many people of European origin in the Americas and other parts of the world as there are in Europe. The emigration relieved population pressures in the home countries and the new frontiers provided ample space and resources for the immigrants. Without the new frontiers of land and resources it is doubtful if the demographic transition would have been possible in Europe.

The advances in agriculture, industry and medicine led to a decline in the death rate and populations grew rapidly. But it was not possible to reduce the death rate as rapidly

as it is today. The decline in the death rate was followed by a decline in the birth rate so that the population growth rate seldom exceeded a maximum of about 1.5 per cent. Eventually the low death rates were nearly balanced by low birth rates and population growth was reduced to 0.5 per cent or less in the decade 1930-40. Without the decline in the birth rate it would not have been possible to raise living standards.

The demographic transition is essentially completed in North America. The post-war birth rates have been relatively high and the populations of the United States and Canada have been growing at the rate of nearly 1.5 per cent annually in recent years, but agricultural and industrial growth has been even more rapid. With ample land, enormous industrial resources and a very small initial population North America has had no problem of population pressure.

The United States has, however, exploited her resources recklessly and even now imports petroleum and iron ore from her southern neighbors. If the fantastic consumption of energy and metals continues, she may deplete the industrial resources of the underdeveloped countries of the world before these countries even begin their industrial development. This rapid expansion of industry and agriculture has more than kept pace with the rapid post-war growth rate of nearly 1.5 per cent per year, but eventually population growth must be reduced to more moderate levels.

The most critical aspect of the demographic transition is the inevitable rapid population growth which has occurred during the transition from high birth and death rates to low births and death rates. If comparable increases must occur, many countries will be unable to meet the needs of the expanded population.

During the demographic transition the population of Western Europe increased nearly three-fold in 150 years. In England the population increased five-fold and the people of English ancestry about ten-fold between 1800 and 1950. Even with a borrowed industrial culture, and an industrial monopoly in Asia for many years, Japan could not have made the transition with less than a three-fold increase in population. It is possible for a country to become industrial-

ized much more rapidly now, but it is also possible to reduce death rates much more rapidly. It is unlikely that any country can complete the demographic transition with less than a three-fold increase in population, if the decline in the birth rate must follow the same cultural pattern that it did in the countries of Europe and North America.

What are the prospects of a demographic transition in Central America? The first step must be the development of a productive and efficient agriculture. There must be adequate food to maintain health and vigor. In order to provide adequate and nutritions diets for all, the food production in most Central American countries should be doubled. The average food consumption per person is about 2000 calories per day, compared with the United Nations Food and Agriculture Organization's recommendation of 2500 for that area. The caloric consumption alone, however, does not tell the whole story. In general the diets are low in meat, milk and eggs, and these are expensive items in terms of land and labor to produce them. Agriculture must also be efficient so that at least half of the working population is released for work in industry, transportation, education and science.

More food can be produced either by increasing the yields per acre or by bringing more land into cultivation. In many areas it should not be difficult to double the yields per acre by using better crop varieties, better equipment, more fungicides and insecticides and more mineral fertilizers. In some areas more land can be brought into cultivation, although perhaps at considerable expense. The pressure on the land in much of Central America has already led to the cultivation of land on mountain slopes which should have been left forested. Much must be done to repair the ravages of soil erosion and the loss of water sources. It may be possible to provide adequate food for the present population in all countries, and to permit moderate population growth in a few, but if the population of Central America must increase 3-fold, it will require a few miracles to provide ample food for all.

More than two-thirds of Central America's labor force is engaged in agriculture, largely subsistence farming. Industry must absorb a third of the agricultural workers, but, as

is evident from the consumption of energy per capita (Table 1) there is little industrial development. Nor is there much prospect for heavy industry since Central America has no coal. There are, however, ample opportunities for light industry and the production of minerals and timber. If, however, populations continue to grow as rapidly as they have in recent years, industrial employment would have to expand

Comparison of the Demographic Status of Panama, the Central American Republics, Mexico and the United States,

	Costa Rica	El Salvador	Guatemala	Honduras	Mexico	Nicaragua	Panama	United States
Population Million[1]	0.8	1.8	2.8	1.5	25.4	1.0	0.8	150
Birth rate per thousand of population[1]	46.5	48.7	48.7	(45)	45.7	41.4	33.4	23.4
Death rate per thousand of population[1]	12.2	14.8	21.5	(20)	16.7	10.9	9.9	9.6
Annual Increase %	3.4	3.4	2.7	2.5	2.9	3.0	2.4	1.4
Hectares of Cultivated Land per capita[2]	1.0	0.3	1.1	0.2	0.3	0.7	0.2	1.55
Percentage of working population in agriculture	H	H	71	H	65	73	52	22
Food per capita Caloris/day[4]	2014	1944	—	2079	1855	—	—	3098
Energy used per capita H.P. hours/day[5]	1.4	0.6	0.6	1.4	2.2	0.7	12.3	37.6
Income $ per capita 1939[4]	76	45	48	45	61	50	71	554

1. Population Index (1950). 2. F.A.O. (1948). 3. U. N. Report (1948). 4. Point-4 (for 1934-38). 5. U. S. Dept. State Guyal Report (1934-38). H = High.

TABLE 1

at the rate of 3 per cent annually, just to take care of the increased population. This rate of industrial growth is not likely to be attained in the near future. Nor could agriculture long support such a rapidly growing population.

Even if industry were to be highly developed in Central America it would not permit large food imports as it did in some of the countries of Western Europe. The United States does have surplus food for export, but she also has a highly developed and efficient industry to supply her needs. Argentina and Canada also have surplus food, but they, too, are industrializing rapidly and growing rapidly.

Emigration relieved population pressure in Western Europe, but this path of escape is no longer open to the countries of Central America. There are no new frontiers of fertile land. Some migration within Central America would relieve local pressures, but emigration offers no hope for escape from continued population pressure.

The demographic transition of the industrialized Western Nations would have been impossible without the control of the birth rates. No country can long support a population resulting from a primitive birth rate and a modern death rate, even with an industrial monopoly and colonial empires. The motives for lower birth rates developed with urban life and education. The means for reducing birth rates involved the delay of marriage and the practice of contraception. The artificial control of the birth rate has been known for thousands of years, but its almost universal practice in a population is a recent innovation.

The control of the birth rate developed slowly in Europe and North America due to ignorance, ancient mores, religious taboos and legal restrictions. Since high birth rates were essential for the survival of the human race in man's early history, it is only natural that the large family tradition became accepted as desirable. These traditions were incorporated in early religions with the development of the fertility cult. They still survive as part of ancient folklore and religious traditions, and are still fostered by the Roman Catholic Church and the Marxian Communists.

With the aid of modern medicine it is possible to reduce the death rate very rapidly and to very low levels, even in areas where the people live in poverty. Under such condit-

ions it is essential that birth rates also must be reduced rapidly if excessive population pressure is to be avoided. The people of Central America can not wait for the economic and educational development which led to controlled birth rates in Europe. It is improbable that they will control birth rates by celibacy or late marriage, as have the Irish, or that they will soon adopt the methods of contraception now used in Western Europe and North America.

Ancient taboos are an obstacle which will delay, but not prevent, the practice of contraception in Catholic and Communist countries. As a matter of fact, France was the first country in which birth rates dropped below 20, and in the pre-war years her birth rate was below 15 for several years. Birth rates have been below 15 in Belgium and Austria, and below 20 in Ireland, Spain and Italy at various times during the past two decades, not including the war years. In 1952, Italy's birth rate had dropped to 17.6. Robert Cook has estimated the birth rate in the U.S.S.R. has dropped to between 25 and 30 during recent years. Economic and educational progress lead to low birth rates in spite of religious bans and legal restrictions. In many areas, however, the population pressure is too acute to await the cultural changes that are necessary.

Several years ago J. B. Conant, former President of Harvard University, predicted that science would soon develop a simple inexpensive oral contraceptive which would be acceptable to religious leaders who now oppose the use of mechanical or chemical methods. Such a contraceptive is being developed and should be available in a few years. Taken as a pill, or mixed with food or drink, such a contraceptive simply prevents ovulation. According to Rev. W. J. Gibbons, S. J., in an address at the annual meeting of the Population Association of America in 1949, "By artificial birth control the Roman Catholic Church means the use of any mechanical or chemical contraceptives resorted to for the purpose of keeping the male seed from reaching the uterus and thus penetrating to the Fallopian tubes". Obviously the prevention of conception by preventing ovulation could not be classed as artificial birth control, and should meet the approval of the Roman Catholic Church.

Unless population growth in Central America is checked by reduced birth rates it must soon be checked by higher death rates. Even under the most favorable circumstances no country can support a population growing at the rate of 2 or 3 per cent annually. Population growth can be controlled at moderate levels either by high death rates or by low birth rates as is shown in Table 2. Population growth rates of 0.5 per cent annually are characteristic of some of the countries of Western Europe where birth rates are low, and in many countries a hundred years ago when death rates were high.

A growth rate of 2 per cent annually would result in a population increase of nearly 200 per cent in 50 years and 600 per cent in 100 years. If a country could maintain a growth rate of 3 per cent annually for 100 years the population would increase 16-fold, and even in 50 years it would increase 4-fold. Obviously growth rates of 2 or 3 per cent can not be long maintained. The vital statistics of most Central American countries are based upon incomplete surveys or even estimates, but growth rates certainly exceed 2 per cent and may be as high as 3 per cent in some of these countries. Yet as is shown in Table 1 the agricultural production is not adequate for the present populations, there is little industry to permit food imports, and incomes are low. Continued rapid population growth can only further depress the already low living standards of the people.

If birth rates can be reduced as rapidly and as much as have the death rates, there would be reasonable prospects for improving living standards. Considerable progress can be made in developing agriculture and industry. If the greater productivity is not swamped by population pressure, living standards will rise permitting greater education. In future years the new frontiers of science may make possible the development of new sources of energy and new methods of food production. Atomic energy for peaceful purposes may be an important source of power in 25 years, and new and more productive methods of food production may be available before the end of the century. But the fruits of science can be digested only by a people who have the necessary education and technical skills. Education should be given a high priority in the future development of Central America.

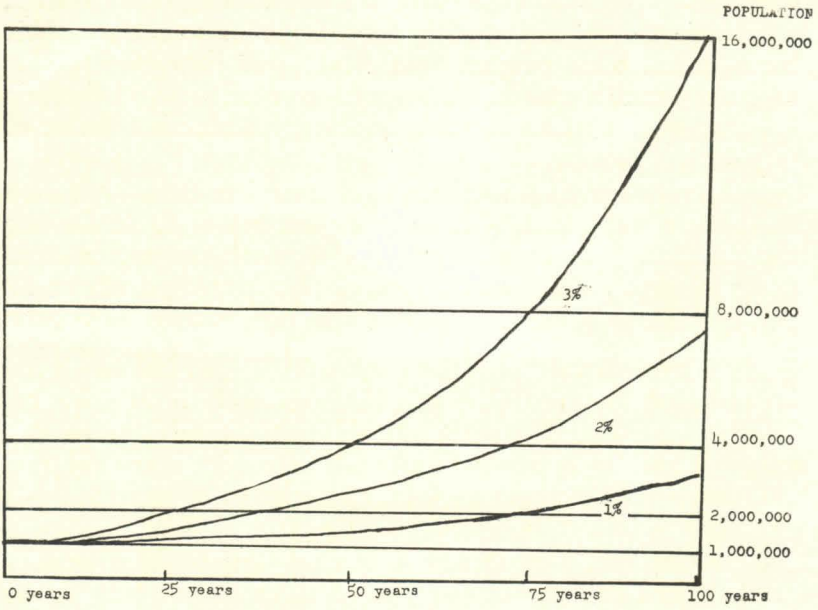

TABLE 2

POPULATION GROWTH DURING 100 YEARS AT GROWTH RATES OF 1, 2, AND 3 PER CENT ANNUALLY.

The United States will be glad to help her neighbors, but our experience in Puerto Rico has shown that financial aid and good intentions are not enough. The experience of the Rockefeller Foundation indicates the need of a completely balanced program. For many years a public health program had been conducted in Mexico. The public health program was very effective and death rates were reduced rapidly. Birth rates remained high and the population grew rapidly, even though dietary standards were low. The Foundation saw little virtue in preventing death from disease if the people were to die more slowly from starvation and maltnutrition. In 1943, the Foundation established an agricultural project, in cooperation with the Mexican government, to increase food production. This project, too, was very successful, but the population grew even faster. The Foundation then realized that the basic problem was the control of the birth rate, and in 1947