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WORLD DEMOGRAPHY

Dr. Philip M. Hauser

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Reviewed by Col E. J. Ingmire, USA on 29 November 1963.

INDUSTRIAL COLLEGE OF THE ARMED FORCES

WASHINGTON, D. C.

1963 - 1964

World Demography

20 November 1963

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Reviewed by: Col E. J. Ingmire, USA Date: 29 November 1963

Reporter: Albert C. Helder

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20 November 1963

COLONEL INGMIRE: On next Monday we will begin Unit IV, "Human and Material Resources." On that day you will receive detailed orientation on the conduct of the Unit from you Committee Faculty Adviser. During Unit IV we will examine the relationships of human and material resources to national power, and appraise the problems involved in the management of these resources. Our study of human resources begins today with the background survey of world demographic trends and their implications for international stability.

Our distinguished lecturer, Dr. Philip M. Hauser, will address us on the subject of "World Demography." In two days Dr. Hauser will be in the Far East, and has, in spite of his extremely busy schedule, very graciously consented to come to the college to talk to us on this subject; hence his appearance here before the start of Unit IV.

Gentlemen, it is my pleasure to introduce to you for his third lecture at the Industrial College, Dr. Philip Hauser, Professor and Chairman, Department of Sociology at the University of Chicago. Dr. Hauser.

DR. HAUSER: Thank you, Mr. Chairman.

Admiral Rose; General Stoughton; Gentlemen:

We live in a polite society and most introductions are generally over-introductions. I'm always reminded after being presented in this fashion, of an observation attributed to Winston Churchill, which you may know. He was one time asked what he thought of Clem Attlee, the labor leader. He said, "Well, Clem is such a modest little man, and he

has so terribly much to be modest about.

Now, it's my function within 45 minutes to set before you some highlights with respect to world population, particularly as they bear on the problem of social unrest, world instability and power. I'd like to begin by calling your attention to four numbers which, in my judgment, should be known by every mortal on the face of this earth. To know them and to understand their implications, I believe provides one with some indication of his relation to his fellow men; of the same character that one would get out of a course in astronomy in providing perspective about the earth as an element in the solar system, in a galaxy and in the universe.

Although the first census of mankind is yet to be taken, we are able reasonably well to reproduce population at different points in world history. For example, at the beginning of the neolithic period it is estimated ~~it's estimated~~ that the world's population was probably around 10 million. At the beginning of the Christian Era the world's population was estimated at 200 to 300 million. At the beginning of the Modern Era, setting it at, say 1650, the world's population reached 500 million. At the present time, going now on much better data, as well as some estimates through the United Nations, the world population may be set at 3.2 billion.

Now, a relatively simple analysis of these numbers discloses that something extraordinary has occurred in the way in which the rates of world population growth have accelerated, particularly during the three centuries of the Modern Era. For example, without having time to get

into the methodology involved, we can pretty well document the fact that during the paleolithic period - 600,000 years - mankind could not have grown much more than 2% per millenium. And yet, during the Modern Era alone, world population growth has increased from around 4/10 of 1% per year to about 1% per year during the inter-war years, and to where it approximates 2% per year at the present time.

Now, some of you may say, "So what." If you're fortunate enough to have funds out on investment, 2% per year would seem like a niggardly return indeed. But 2% per year turns out to be an utterly fantastic rate of world population growth, and this is readily demonstrable. For example, I'll draw some calculations I had occasion to make recently for the Voice of America Broadcast - a whole series of things on population being beamed to the entire world.

If you ask this question, "How long would it have taken 12 persons" - and for a sophisticated audience of this type, let us assume a proper sex distribution - "to reproduce the entire population of the world today, increasing at 2% per annum?" The answer is 976 years. And anybody can check this out if you still remember a compound interest formula and how to use a logbook.

Now, we don't know quite how long homo sapiens has been on the earth - our particular variety of man - but we do know there were an awful lot of us running around Europe 25 or 30 thousand years ago. And, since my ex-colleague, Professor Libby, has come up with his Carbon 14 dating technique we're reasonably good at setting up these dates. And yet, with homo sapiens alone having been around 25 or 30 thousand years, this rate of growth would have produced the entire world population of 12 to 976

years.

If you want to state it another way, "How many people would there be on the face of the earth if the same dozen increased at 2% per year during the Christian Era?" The answer is, there would be 300 million persons for every one now on the face of the globe. And on a proportionate basis this auditorium would be considerably greater than would its inhabitants.

Now, what's the point to demographic arithmetic of this type? Well, frankly, it is to draw what I will now state is an incontestable conclusion, although you're perfectly free to contest it during the question period. That is; that the contemporary rate of world population growth could not possibly have persisted for any long periods in the past.

Still another way to grasp the meaning of what a 2% per year rate of increase means, is to make some projections. What does it mean looking ahead? Well, if the present world population increased at 2% a year it would produce a population of 50 billion in about a century and a half. Now, why do I say 50 billion? This happens to be the highest estimate of the population-carrying capacity of this globe, that I've ever seen published by a responsible scholar, Harrison Brown, a prize-winning geochemist, and also a previous colleague of mine at the University of Chicago, now at CalTech.

And such a population could be sustained indefinitely, contends he, under extreme assumptions. I don't have time to elaborate the assumptions which would require a control of power, the direct solar or nuclear energy which would make the cost of power something approximat-

ing zero. Out of those conditions, all the things other than food necessary to sustain life for a population of that size could be obtained from the atmosphere - from the sea and rock.

The second assumption is somewhat more strenuous. A man would not only have to forego meat as the Hindus have already done, but also vegetables. You are aware, undoubtedly, that it takes five or ten pounds of dry matter to produce one pound of meat, which is why the pig and chicken are so popular in underdeveloped areas of the world; they're the most efficient machines for converting vegetables into meat. But we would also have to forego vegetables. Mankind with such numbers could subsist only on yeast produced in factories and on algae raised in the oceans. He would still have all the nutrients and all the calories needed, but food - to use a philosophical expression - would have lost its Judamonic value.

You can imagine a wedding anniversary at which yeast and algae are the piece de resistance. Now, let me proceed to document what this 2% per year means. In less than 2½ centuries enough human beings would have been produced so that in lock-step we could reach from the earth to the sun;in less than 6½ centuries there would be a human being for every square foot of land surface on the globe, including desert wastes, arctic caps and mountain tops. In less than 15½ centuries you would have a mass of human flesh generated that would weigh the weight of the planet itself.

And if I may conclude with one projection probably designed to end all projections, I would use not a 2% rate of increase now, but 1.8%

per annum increase, which is what the world has averaged since the end of World War II. This is a projection by my friend and colleague at Princeton, incidentally, Anthony Coe, who I think addressed this group a year ago.

In 6,200 years - and I hope there is no one here nightmare-prone; if you are you should leave the room before I proceed - which is looking forward not much more than what we can look backward with the beginning of human history - looking forward not much more than what you can see looking backward if you visit the Oriental Institute of the University of Chicago. Or, for that matter, the Smithsonian here. In 6,200 years the mass of human flesh generated would have a radius expanding at the speed of light.

Now, what's the point to projections of this type? Well, it's to produce what I will now contend is the second incontestable conclusion - and I'm inviting you to contest it during the question period - namely, that the present rate of world population growth cannot possibly persist for very long into the future.

Now, the long-run implications of the present population rates of increase are perfectly clear; let me dispense with them because I want to devote most of my time to the short-run which gets us into the problem with which you are concerned. Let me conclude the long-run by saying this; in the long-run everything that's said about the ingenuity, the sciences, the marvels of the sciences, the ability to raise food, and what-not, is so much eyewash, if I may be as succinct as possible. That is, it's completely irrelevant and immaterial because in the long-

run such rates of growth - and think about this one - in the long-run, given a finite planet, any rate of population growth has as its upper limiting influence the exhaustion of space itself. In the long-run any rate of increase exhausts space on a finite globe. And it is a finite globe; only 200 million square miles; only a fourth of which - roughly, 50 million square miles - is land surface.

So, in the long-run present rates of growth are utterly impossible because you exhaust space itself. I used to be a little more definitive about that than I am now, before Sputnik. Since then, of course, there have been articles published about the possibility of exporting human beings to outer space. Well, let me make two quick observations and go on to the short-run implications.

First, the articles that have been published on the feasibility of exporting human beings to outer space show that it's an utterly fantastic thing by any stretch of even science-fiction imagination. It raises some nice moral issues; one, namely, have we done so remarkably well on this planet that we owe it to somebody to populate the rest of the universe? The second is, you can think of the questions - and presumably this might be the subject of future elections - we may be deciding in elections whether, henceforth at some distant date, whether it's Republicans or Democrats who will be exported.

In any case, besides getting into science-fictions of this type, the long-run implications are clear. Now, it's around the short-run that our problems really lie. To get to the short-run, first of all, let me call your attention to some numbers which, in my judgment, set

the props for the rest of this section.

In 1950 the population of the world was put at 2.5 billion persons. Some of you familiar with United Nations literature may remember that figure of 2.4. Well, that was the number they originally published, but that was before Red China took her census in 1953 and discovered that there were 100 million more Chinese than anyone had ever estimated. So, this number has to be revised upwards. Of that 2.5 billion, 800 million are in the economically advanced areas of the world. And the remainder of 1.7 billion are in the economically underdeveloped areas of the world, or the "developing" areas, as the new language is beginning to say.

By the Year 2,000 - looking at the short-run now, and I'm going to use the high projections of the United Nations - the world as a whole may have 6.9 billion. I'm using the high projections because, although the United Nations made these projections in the 1950s, even the high ones have turned out to be too conservative as the 1960 census results are coming in.

India, for example, had 8 million more people than what the United Nations' high projections indicated it would have in 1961. So that, even these are too conservative - 6.9 billion. What's likely to be the number in the economically-developed areas of the world, largely Western civilization plus Japan? Well, the answer is it will increase 4,600 million during the last half of this century, to reach about 1.4 billion. Whereas, the economically-underdeveloped areas will increase to the amazing level of 5.5 billion, more than triple, during the second

half of this century.

Let me call your attention to something that's really dramatic and that has implications for every aspect of life during the second half of this century; namely, the underdeveloped areas alone will, during the second half of this century, increase 3.8 billion persons, by a number greater than all of mankind has generated in all the time that man has been on the face of this planet, right up to the present instant. The underdeveloped areas alone will increase by more people during the second half of this century than all of mankind has produced simultaneously alive in all the time we've been on the face of this earth.

I might bring one other thing close to home, the Western Hemisphere. In 1950 there were 6 million more people in Northern America, North of the Rio Grande, than there were in all of Latin America south of the Rio Grande, including the Caribbean. By the end of this century, despite our own post-war baby boom the prospect is high that there will be 300 or 350 million more people in Latin America than there will be in Northern America. Because, Latin America increasing now 3% per year is the most rapidly-growing continent on the face of the earth. And it's growing at a rate which will double its population every 23 years.

What brought this about? How come the fantastic acceleration in rate of world population growth which I shall summarize now by calling your attention to this phenomenon. It took all of the millenia that man has been on the face of this earth, until 1850, to produce a population of 1 billion persons simultaneously alive. To produce a *second* billion simultaneously alive required only the 75 years between 1850

and 1925. To produce a third billion simultaneously alive required only 37 years between 1925 and 1962. That number was achieved last year.

At the present trend the fourth billion will take an additional 15 years, and a fifth billion will require less than an additional ten years, thereafter.

Incidentally, these numbers are why the demographer student of population frequently uses emotionally-laden propagandistic language in referring to this phenomena when he talks about the population explosion. In examining these numbers we have frightened ourselves to death; which is why we use such propagandistic language. What brought this about? I don't have time to get into the details. Let me say the explanation is to be found in terms of what we call "The Theory of the Demographic Transition."

In brief, and although there are important variations, the variations are minor compared to the major themes. We state it this way. For most of the time that man has been on the face of the earth we've been characterized by very high birth rates. And by high I would say at a level of about 50 births per 1,000 persons per year. The birth rate in the United States in 1800 was 55. The birth rate in the United States during the post-war baby boom which we have experienced, and which has now been sloughing off for the better part of two years, was 25 - less than half. There was a boom because it was way above the level of 18 that we experienced during the depression, when the bottom dropped out of the marriage market as well as the stock market; but less

than half what our birth rate used to be.

The death rate under these conditions for most of the time that man has been on the face of the earth was also high, with sporadic peaks representing famine, pandemic, or epidemic disease. By high let us say 48; natural increase with the excess of births over deaths would then be 2 persons per 1,000 per year, or 2/10 of 1% per year increase.

Now, what happened? During the Modern Era, without time to elaborate, what happened was that in the industrializing nations you began to have a dramatic decrease in the death rate, while the birth rate remained at a relatively high level. What produced the explosive increase was this great increase in natural increase, the gap between mortality and fertility.

To demonstrate this, I'll give you some documentation on it. Just think of this. Confining our attention for the moment only to Western Civilization, in 1850 out of all the youngsters born in a given year 1/4 would be dead by age 10; 1/2 would be dead by age 45. A century later in Western Civilization, in 1950, 1/4 the children born were not dead until the age of 60. That is,a probability of birth today of surviving to age 60, as great as it was to survive to age 10 a century ago. 1/2 are not dead until age 70. In fact, for the first time in our history white males achieved an expectation of life at birth, of 70 years, only last year. White females have become virtually indestructible. Their expectation of life is now, at birth, in excess of 76 years. Incidentally, although I don't have time to pursue this, since our longevity has increased, the gap between the sexes has increased. So that, it's

perfectly apparent who shall inherit the earth.

Now, it's that dramatic decrease in death rates that accounting for this tremendous acceleration of the rate of world population growth, and specifically in the rate of growth in the underdeveloped areas. Think of it this way; to reduce the death rate in the United States by 50% required the first half of this century. To reduce the death rate of Ceylon by 50% after the war required 7 years. The same ship that comes to Colombo can import, or permits the Ceylonese to import all of the inventions, devices and techniques that it took us three centuries to produce in Western Civilization during the Modern Era. If we had time to go into the reasons for the decline in mortality it turns out that most of it was simply the result of the culture-building activities of man. And as a by-product, completely unanticipated and unplanned, our death rates declined.

Modern medicine didn't make an important contribution until the end of the 19th Century. 2/3 of the decline in mortality was affected before we had modern medicine. In fact, it wasn't until the end of the 19th Century - the last quarter of the 19th Century - that a person who went to a hospital acquired a 50-50 chance of dying from the disease that brought him there instead of the disease that he contracted while he was in the hospital. Modern medicine is a relatively recent contributor to the declining mortality.

The point is, this decreased death rate is now,because developing nations have access to all the know-how of the economically advanced nations, mortality is coming down at a rate much more steep than any-

thing ever experienced in Western Civilization. And in consequence, whereas most Western nations during the period of explosive population increase increased at a rate of something like 1% per year, the contemporary underdeveloped areas, many of them are now increasing at rates in excess of 3% per year. And most of the underdeveloped world will be at this rate, according to the United Nations' projections, before the end of this century.

Now, what is the meaning of all this? Now we get down to the heart of the matter. These data are significant, if I may now state my thesis in language that perhaps is closest to your own interest; let me say that total population and rates of population growth are, in my judgment, among the chief factors that may determine whether we have peace or war during the remainder of this century. They are primary factors relating to social unrest, political instability, and threats to peace.

Second; that total population growth will be a relatively minor factor in determining the outcome of conflict. They will be major factors in determining peace or war. But total population size will be a relatively minor factor in determining the outcome of war.

Let me proceed to try to document this proposition that I state here midway through my talk. The reason why the first of these propositions is true, I think, can be seen in the relation of population factors to economic development - economic growth, and the insignificance of economic growth in the contemporary world political order.

Let me proceed first of all, now, to a consideration of population as it effects economic growth. I think the simplest way to see the re-

lationship is to visualize this equation: L equals O over P, where L is level of living; O is the aggregate output; P is population. Now, you don't have to be a mathematical genius to realize that level of living as measured, say, by income per capita, cannot possibly increase unless aggregate output rises more rapidly than population. If you have a 10% increase in output simultaneously experienced over the same period of time of 10% increase in population, all you've got at the end of the period is more people at the same level of living as what you started with.

Nehru discovered this the hard way early in his career as Prime Minister. Following Gandhi, he was opposed to any form of population control. By dint of tremendous effort they achieved about a 12% increase in agricultural product in India. The purpose was to raise the level of living. Did it happen? By the end of that period the population of India increased by about the same amount. So that, Nehru had, at the end of the period, more Indians at the same miserable level of living; at which time he adopted as a matter of national policy a policy of population control. And India ever since has been writing birth control efforts into her five-year economic plans. And has increased her import in this regard in every plan they've had since. And as I say, up to this moment with no particular spectacular success; in fact, with very few successes of any kind to point to.

Now, this brings the general problem. To get any increase in the level of living one must increase output more rapidly than people. But it turns out that rapid population growth, however, obstructs economic

growth, particularly under the conditions of the underdeveloped areas. This is very easy to document in a number of ways. Let me point out for one thing, for example, that in most of these underdeveloped areas the typical capital income ratio is three to one. That is, it takes an investment of three increments of capital to produce an increment of one unit in income.

Under these conditions consider Latin America. Latin America is increasing at the rate of 3% per year. Simply to produce enough facilities for the production of goods and services necessary to maintain population growth, then, to maintain the same level of living, you must have 3 x 3 or 9% investment simply to maintain the same present level of living. Now, it turns out that the difference between an economically developed and underdeveloped area is pretty well put by the ability of that nation to save as much as 9% of its income for investment. Because, nations like families, follow Engels' Law of Consumption; the poorer the family or the poorer the nation, the greater the proportion of total product that must be consumed merely as food, clothing and shelter, or the necessities of life.

In fact, it is virtually impossible in underdeveloped areas to save as much as 9% or 10% of the national income for reinvestment. Yet, Latin America must do this with her present rate of population increase, simply to maintain the present level of living. And she must get savings far in excess of 9%, then, to affect any increases in the level of living through the increased product that would come with increased investment in productive facilities.

Let me turn to another aspect of rapid population growth which indicates the way in which population when you have high growth rates and high birth rates, impedes efforts at economic development. I refer now to what the demographer refers to as the "40% Rule." What is the 40% Rule? What it does is point out that wherever you have a high birth rate, 40% or more of the population is under 15 years of age. Incidentally, you don't have to go to underdeveloped areas. You can see this among the high birth rate population right here in the United States, the American Negro; or, the low-income white family.

40% of the population, approximately, or more, is under 15 years of age. Now, what's the implication of this in relation to economic development? Well, take it this way. Whether you put it at 15 years or 10 years, or whatever, is immaterial. The larger the proportion of young dependents, the greater is the ratio of mouths to be fed in relation to the hands that do the work. Consequently, where you have a large proportion of young people, all other things being equal, you have low income per capita - low levels of living.

In the United States, even with our post-war baby boom, something like 28% of our population is under 15 years of age. And in France, which has had a declining birth rate for a long time, it's close to 22% or 23% of people under 15 years of age, creating a quite different relationship between the hands that do the work and the mouths to be fed.

Still another way in which the 40% Rule impedes economic development; the underdeveloped areas characterize themselves by limited sav-

ings, as I indicated a moment ago. Out of these limited resources there is a problem set up as to the allocation of limited savings toward what you might think of as social investment; investment necessary to raise the next generation, as distinguished from productive investment; investment in the things which directly increase output, such as fertilizer, tractors, transportation, electric power, or whatever the case may be. Where you have a large proportion of the population young a disproportionate part of savings go into social investment and are therefore not available for productive investment, which impedes economic development.

Now let me mention just one other factor without trying to explore them all, because we just don't have that much time. Let me refer to the quality of a population. Without question a major factor that impedes economic development of the underdeveloped areas is the poor quality of the population. Let me say what I mean by quality. I do not refer to biological or genetic makeup. I don't think I have to stress here the fact that if we've learned anything in the social sciences it's that the differences within races are much greater than any differences between races as such.

With respect to any characteristic that you can mention, you measure them and you get within any sub-cultural or racial group something approximating a normal frequency distribution. If there were any differences between races it would be differences between medians or averages represented by these two ordinates. What we do know is that the range of differences with any race are much greater than the

range between races as such.

Or, to state it in another way, there is nothing that the members of one race can do that the members of the other races cannot do. We know that the basic thing is the quality of the human being apart from a relatively limited number of biological genetic defects. Quality is the function of cultural opportunity. The quality of a population is the function of what kind of education and skills are available to the human being.

Look at it this way; the higher the birth rate and the greater that population growth, the poorer remains the quality of the population. Or, to state it the other way around, the more difficult it is to improve the quality of the population so as to get the literacy, the education, the skills prerequisite to an economically-developed society.

Again, you can see this if I switch to the micro-familiar level; and we don't have to go to Africa or Asia or Latin America; come here again with the American Negro. The Negro family with six, seven or eight children; poor; underprivileged; cannot possibly get all those children through high school, which is why 78% of the American Negroes today in this country - adult Negroes - have less than a high school education. They put it on the ~~mackerel~~ macro level; the larger the proportion of the young, the less money there is available in a country with scarce resources, for investment in human resources, so as to upgrade the quality of the human crop.

So, the high birth rate, again, impedes economic development by impairing the ability of a nation to increase the quality of its popu-

lation and provide them with the education and skills requisite to economic advance. All of these ways in which population impedes economic development have a common solution; to dampen rates of population growth. There are only two ways by which population rates of growth can be dampened; you can increase the death rate, or refuse to lower the death rate; or, you can decrease the birth rate. And since there are no cultures that are for increasing their own death rate there remains only one feasible way and that's to decrease the birth rate. Let me say more about that at my close.

Now, this is the economic picture. What relevance has this got to the world political situation; the problem of peace or war; the problem of power? Well, I think this can be understood now if you take all that I have said and put it in the setting of the following series of propositions which I'd like for you to consider as a set of simultaneous equations. First, we live in a world characterized by have and have not nations. Asia has more than half the world's population, and a little over 10% of the world's income, the value of all goods and services produced.

Europe and North America combined have about 26% of the world's population and over 70% of the world's income. In 1950, income per capita in Northern America was $1,100 per year; in Asia, $50 per year; a ratio of 22 to 1. Incidentally, a major factor accounting for that difference is to be found in another set of numbers. Behind every person in Northern America there are over 10,000 kilowatt hours of energey - non-human energy - available for the production of goods and services.

Behind every Asian there were less than 300 kilowatt hours of non-human energy available for the production of goods and services. That 10,000 versus 300 is a difference represented by investment, technology, science, know-how, that provides us with the productivity and level of living we have.

In fact, some of the questions, generally, you run into that where poverty could be eliminated simply by better distributing the product, again let me say, because I'm in a hurry, and you'll forgive me if I say, Mr. Chairman, that at this stage I feel like that Egyptian Mummy - it's pressed for time - if you were completely to redistribute the world's wealth, all you would have is not the elimination of poverty, but whatever satisfactions there may come from the whole world being poor.

In 1950 there were 2.5 billion persons on the face of the earth, as I've already said. Suppose you consider the total world product, all goods and services produced; how many people could the world have supported at the European level of living - with a perfect distribution at the European level of living? The answer is that the total world product would have supported only 1.5 billion persons at the European level of living.

How many could the world support at the North American level of living - Canada and the U. S. combined? And ours is way above the level of Canada. The answer is 500 million people is what the total world product could have supported at our level of living in 1950. The difference between these numbers represents either over-population

or under-production, as you please. But the basic problem of mankind today is not distribution; not that this might not help, especially in some localities; but the basic problem is productivity. Most of the world's peoples do not have the know-how, the technology, the investment, to produce enough to raise the levels of living. This is where population comes in.

We have a great unevenness in the distribution of wealth; we always have had. And now I come to the second proposition which you can consider as a series of simultaneous equations; namely, we live in an era, to use Harland Cleveland, our Assistant Secretary of State's solicitous phrase, of a "Revolution of Rising Expectations." It has swept the whole world; it has swept the United States. The Negro revolt of 1963 is just one manifestation, if you please, of the same thing. What this means is that there is no place left on the face of this earth for the first time in human history, which does not aspire to higher levels of living, and if they've not yet achieved it, which does not aspire to independence.

The significant thing about this is that for the first time in the history of man, differences between have and have not nations have become felt differences. And felt differences make these differences of an utterly different order.

Third in this series of propositions, despite everything we've done so far through the UN, Point Four, the Colombo Plan, etc., what evidence there is indicates the gap between have and have not nations is increasing, not decreasing.

Fourth; there is an inverse relationship between the level of living of a nation and her present or projected rate of growth. The poorer the country the greater is her present rate of growth, and the greater the prospect for accelerated growth during the remainder of this century.

Fifth, we have an accelerating urbanization throughout the world and especially in the underdeveloped areas. During the 19th Century world urbanization, the proportion of the people living in the cities kept going up. Most of the impetus was given by Europe and North America. During all of this century the rate of world urbanization has continued to accelerate. But the impetus is being given by the underdeveloped areas - Asia, Latin America, and Africa. The significant thing about this is that poverty - mass poverty - is being crowded into the cities. Here it serves as a tinderbox, where social unrest as a result of continued frustration breeds political instability and contributes the headlines of the type that we have occasion to read virtually every day of the year, in the underdeveloped parts of the world.

The transfer of poverty from a rural countryside, where it has quite different political implications than when it's massed in the cities, with millions of people.

Now, place all these things in the final proposition; we live in a bi-polar world. It is characterized by the two most gigantic conglomerations of power the world has ever seen; the capitalist or Free World, led by the U. S.; and the communist world which, from our standpoint, fortunately, is no longer monolithic and is at the moment divided, led

by the USSR and/or China. The rest of the world is a third force,neutral and uncommitted. These three power blocs, incidentally, have interesting demographic dimensions, in the sense that about a third of the world's people are located in each one of these blocs. The most significant race in the world today, in my judgment, much more significant, incidentally, than what's going to happen to the football championship, either collegiate or professional, is the race between India and China.

Here are the two most populous nations on the globe, one trying to raise the levels of living by totalitarian communist methods; the other trying to raise the levels of living by relatively Free World free market situations, although, let's not kid ourselves, the uncommitted and neutral world - India and the other countries - also have a quite larger mixture of state socialism than was necessary, or that we still have anywhere in the Western World.

In any case, it's a relatively free way. Should either of these nations demonstrate during the remainder of this century that their method is a more effective one for raising the levels of living, you can be sure this message would be written large for the whole world to read. And this includes Latin America which I have placed in the Free World in my trichotomization, and which is already, in the instance of Cuba, no longer in the Free World Camp.

Should China or any of the communist nations demonstrate that they are more able to raise the levels of living than the Free World, you can be sure that nothing would hold Latin America from reading that

message. In fact, it's in this setting that you can better understand the role of foreign aid in the policy of the United States, and the implications of this, if it is true, if the foreign aid bill gets out of the Congress of the United States this time with the United States contributing less to all of Latin America toward economic development, than what the USSR is contributing to Cuba alone, you can be sure this will be understood by the peoples of Latin America even if it's not understood by the Congress of the United States.

Now, it's in this setting that I now get to the problem of what has population got to do with all of this. Well, to the extent that population serves as a barrier and obstacle to economic development it means frustration for the mass peoples of this world as they make efforts to raise their levels of living. And as they continue to be frustrated you can be sure that this will breed social unrest and continued political instability. And leave them much more open to the blandishments of the Communist World; which, in effect says, two things to the underdeveloped areas.

First, "You are poor because the greedy imperialistic and capitalistic nations have stolen your birthright." And second, "If you want to raise your levels of living you'd better try the communist way because it's quicker and slicker." This is, in effect, the message. In consequence you get down to the proposition I stated some moments ago; a rapidly-growing population for the rest of this century is without any question a major factor in continued social unrest and political instability, and constitutes a threat to peace.

Not all of this will necessarily work out adversely to our interests. Certainly a factor in the split between China and the USSR must be the teeming Chinese population now in excess of 700 million with a 15 million increase per year perhaps, and with a relatively empty Mongolia and Siberia to the north. In this lies hope, in some sense, for the Western World as regards the rest of this century.

Let me turn now to the question of control, if I may take just a moment or two more. In the Western World I'm going to state two propositions which I regard as incontestible, and again you're invited to debate them during the question period. First, there is no religion in the world, of any major sort - or values system - that is opposed to responsible parenthood and the regulation of family size.

Second; the spectrum of methods by which family size may be regulated is broad enough so that there are some methods consistent with every prevalent religious values system, including that of the Roman Catholic Church. In the West there are no nations - economically advanced ones - which do not practice both death control and birth control, or birth regulation of some sort. In fact, it's a rather interesting thing that the Catholic nations of the world - Italy, Belgium, France, Spain, Portugal - have lower birth rates than the United States does. And it's also interesting that despite the fact that the communist nations following Marx say there is no such thing as over-population, and they have been opposed until this past year to all forms of control - China broke with Russia on this in 1953 after she frightened herself and took her census; she's again trying to reduce her

population, - but the significant thing is that despite Russian ideological posture on this matter, the Russians have in recent years greatly freed the opportunity for regulating family size. Their birth rate is about that of the United States today. And the birth rate of the European satellites of Russia are below that of the United States, despite their ideology.

Now, let me conclude by turning to the underdeveloped world. Again I want to state two propositions that I think sum up the situation there. One; the fact is that we're so ignorant in the social sciences and elsewhere that we have not yet discovered how to excite incentive or motivation among the mass populations in the underdeveloped world, so as to get them interested in controlling family size.

Second; we are still so ignorant in the biological and medical sciences, we still know so little about what makes babies, that we've not yet developed methods of controlling fertility that are feasible, efficaceous and acceptable to the mass populations of this world. These two propositions, I think, must stand.

There may be some comfort in the thought that we are now investing more in the way of human resources - capital and know-how - in finding better methods of controlling fertility. And the thought is that there may be breakthroughs within the next five to ten years, more important, perhaps, than the breakthroughs we've already had with the progesterones and the oral contraceptives, that may be able to sweep the underdeveloped world. But at the present time success stories are very few, very limited, and very pathetic indeed.

So, what does this add up to? Well, it adds up to the fact that the chances are high that this type of population increase to which I refer will continue for the rest of the century; that we're going to have hungrier and hungrier and more frustrated people throughout the underdeveloped world; that there will be social unrest and political instability; that you do have a ripe situation for the expansion of communist influence, unless we find some way to counter it so that these people get enough in the way of achievement of their national aspirations to rising levels of living, so as not to be amenable to the blandishments of the communist world.

I think it would be foolhardy not to regard this situation as one filled with all kinds of threats to peace, and filled, among other things, with the possibility of Latin America going communist; or for that matter, large portions of the underdeveloped world, in Asia or in Africa. Population will continue to be a very significant factor in what the answer to some of these questions will be.

The other question, population size alone is not necessarily going to determine the victor in war. But I suspect you gentlemen know a lot more about that than I do.

Let me just close with the thought that I think this is here to stay. And among the elements involved will be such things only as technology and weaponry, but also more morale; also the psychological aspects of the whole situation. And on this front I can do no more than mention the fact that in the United States today with the divisiveness manifest around, say, the civil rights problem, with the problems generated by perhaps as many as 40 million people with low income who are

also generating social unrest and political instability in this country; that we may have some problems of morale that can affect us just as they may affect other parts of the world. And I can do no more than mention them in this talk.

Well, there never was a talk that was long enough for a speaker or short enough for an audience. So, in closing I'm reminded of this fellow trying to arrange for a talk. The fellow who was going to do the speaking said, "Well, how long do you want me to talk?" The wise old bird who was Chairman of the Program Committee said, "It will be your job to do the talking and it will be our job to do the listening. If we finish our job before you finish yours we'll let you know."

Thank you for not letting me know.

QUESTION: You painted a pretty dismal picture for the next 40 years, doctor. Do you foresee anything that we hope can be accomplished in this relatively short space of time?

DR. HAUSER: Well, I think that the prospects for hope are to be found perhaps in the considerations of this type; first, the amount of wealth, human ingenuity and work going into the business of increasing the control of population is now at levels that were just unthought of even two or three years ago. There's a tremendous amount of energy being put into this. One example of this is what has happened to the United States itself within the past year.

The report of the National Academy of Sciences; the report of the American Assembly at Columbia University, of which President Eisenhower

is the honorary chairman; all of which have taken very positive positions about the problem and what must be done. The actual appropriations of the Congress, both domestically and in connection with the Foreign Aid Bill, providing for more intensive studies that may lead to better solutions to the problem, on the biological front particularly. And I should say not least of all the dramatic change in the policy of the United States Government within the past year.

I was just saying to some of us who were chatting, "Remember President Eisenhower in that year just before the campaign, when the question was raised that birth control is not the business of the Government of the United States." I might add parenthetically that death control was; we were exporting it through the U. S. Public Health Service virtually every day of the year, and throught WHO and the like. But, President Kennedy completely reversed President Eisenhower here last spring when he made it the policy of the United States, first to get increased information about population control through the Public Health Service and other medical agencies. And second, when he declared it to be the policy of the United States to disseminate this kind of information to any country which requested this kind of assistance and aid in the matter.

I might also point out that General Eisenhower also reversed President Eisenhower in an article which he published in the Saturday Evening Post three weeks ago, in which he completely changed his position on this matter.

Well, now, these are all, as I say, hopeful signs. There are ex-

periments under way now in India and Pakistan, and in Taiwan, and in any number of nations throughout the world, suggesting for the first time that the world is beginning to look at the problem.

And finally, let me now make this observation; any number of nations now have positive policies of an effort to deal with the problem. India has such a policy. Pakistan. Nasser in Egypt adopted it only within the past year, and with good reason. He's worried that if they ever finish the high Aswan Dam and double the irrigated land in Egypt, within one human generation instead of raising the level of living in Egypt he can have just twice as many Egyptians at the same miserable level of living, unless population is controlled.

Turkey adopted this policy only within the past month. The point is there never was a time in history when as many people were facing up to it and trying to do something about it. This is the first step and this is reason for hope.

QUESTION: I understand that Japan has been relatively successful in population control. Would you comment on this?

DR. HAUSER: Yes. Japan is the only Oriental nation which has reduced her fertility. She has done so more rapidly than any other nation in the history of man. She has done so by methods, however, abhorrent to most of mankind. About half of all the conceptions that occur in Japan are each year terminated in abortion. This is the major method of restricting population growth. I might point out, however, that abortion in Japan is legal. The abortions are performed under clinical and hospital conditions that are first rate. Mortality by reason of abor-

tion is below that for normal childbirth, which is quite in contrast to the situation in the United States where abortion is illegal. It's done by people who are defined by law as criminals, under conditions which have high mortality.

Also, abortion in Japan is cheap; something like $3.50 for the average Japanese woman, in contrast with the price rates here. However, Japan mindful of the fact that the Christian, the Islam, the Buddhist, the Hindu world, etc. are all opposed to abortion, has been trying for some years now to induce their people to use some other means, with moderate success. But this is still the predominant method of regulating family size. In consequence, their birth rate is way below that of the United States, about 17 compared to our 22 now. As I said, our birth rate has been slipping for the better part of two years.

QUESTION: Dr. Hauser, you mentioned that Russia might have a serious problem in hanging onto Siberia in view of the Chinese population pressures. Are there any figures available which indicate that China has any land left for her northern frontiers? Is there any hope for Russia temporarily before she is over-run?

DR. HAUSER: Well, at this point may I suggest again that what I think we have reason for feeling good about from the standpoint of the Western World, is that there is bound to be a source of tension. Now, it's one thing for China to feel pressure which is undoubtedly behind her mashing around and the attitude she takes toward war at the present time.

China is the only country that can win an atomic war. She's bound

to have several hundred million left, you see. And I think this underlies her present intransigence in the contemporary world. Let me make a wild statement since this is all within the confines of an off-the-record basis. It's one thing for China to feel the pressure and it's another thing for her to be successful in taking it away from Russia as long as Russia is armed with nuclear weapons and China is not. Then, presumably, the ability of the Chinese to take it away is something close to zero.

I'm going to make this wild statement. Because of the conflict as well as coincidence of interest, it would not be surprising to me, or at least utterly fantastic, if within a decade Russia and the United States might be in exactly the same camp delivering an ultimatum to China that she is not to have any nuclear weapons, or else. To me this is not a fantastic proposition at all; fantastic as it may have seemed three years ago, at the moment it may still have elements of fantasy.

But, I think that if China maintains her present attitude, war is definitely the instrumentality by which she achieves her objectives of world communism and the rest of it. I think that Russia's own national position can be so imperiled over the long run as to lead, in my mind, to the possibility of collective action on this front. This is obviously speculation.

QUESTION: Since you say that the lower economic families in the United States are having the larger families and these are the ones with the least intelligence, is there any danger that eventually we may become a nation of morons?

DR. HAUSER: Well, you've got a hidden premise there which, first of all, I must take issue with. Low income families are not necessarily the less intelligent ones. In fact, you might take it for granted that no university professor could agree that income was the measure of intelligence. May I respectfully suggest that the same would go for any Army Officer, or government employee.

Now, simply to say a word or two about the same thing that I said about the quality of population. What is true is that in this country now it is only the poor and the uneducated who do not control the size of their families. Let me throw some data at you that I think are worth doing some thinking about because I think they're going to come up in terms of domestic problems and policy from here on out. 70% of the American people now control their birth rates deliberately. Another 11% - making 81% in all - control their fertility actually; 11% by methods of feminine hygiene they employ. It's not called birth control, but it has the same effect - the douche.

There is variation by religion of those who deliberately control their fertility; 75% of the Protestants; 87% of the Jews; 57% of the Catholic couples in the United States. Take couples that have been married ten years or more; over 90% of the Protestant and Jewish couples control their birth rates. 80% of the Catholic couples after ten years of marriage control their birth rate; 50%, incidentally, by methods not condoned by the church.

These data are all published. Look at the book, "Fertility, Sterility and Population Growth," by Ronald Freeman of the University of Michigan, P. K. Welkton of the Scripps Foundation for Population Research,

and Arthur Campbell of the Scripps Foundation for Population Research. They are based on a fine national sample of all couples in the United States, conducted by the Survey Research Center of the University of Michigan, the same outfit that does this consumer expenditure thing for the Federal Reserve Board.

Now, the point is, in this country despite what is said about the matter, births are regulated except by the poor and the uneducated, which includes, disproportionately, the Negro. And what happens is, the poor whites as well as the poor Negroes - and there are as many poor whites as there are poor Negroes; of course, there is a much larger proportion, after all, of Negroes, which is the real point to what your observation is, and it's a highly significant one; the point is that the poor and the uneducated are having a disproportionate amount of the citizens of the next generation. And because they are poor and uneducated they're not able to give those children the advantages of education to make them into the kind of citizens that presumably we want to have in these United States.

This is why in many states today you are now having some major battles over whether or not the state should provide information and materials for birth control purposes to the population on the relief rolls. When I talk about morale, there isn't a state in the Union that isn't beginning to have second, third and fourth generation families on relief doing nothing about the hordes of children which are being born on relief rolls, to remain on relief because these families like the underdeveloped world I talked about, simply can't get those kids enough educa-

tion so they can stand on their own feet. And this is true; we'll be breeding what may be a permanent lower class in the United States if we don't become hep to it.

Now, in Illinois, again, there is startling reason for hope. No one in Illinois, of which I am a citizen - where I was born - would have dreamt a year ago that today state funds would be expended to provide families on relief with knowledge and supplies for restricting their family size. At the moment we do it only if the relief couples are married and living together.

We have a commission studying, over the next two years, the proposition of whether to give this information to the unmarried who are on the relief rolls. We are in the striking position in the great State of Illinois, of saying if you are married and living with your spouse, and on relief, by all means, this is the information; restrict your family size. If you're on relief and unmarried, have as many children as you please.

QUESTION: You mentioned some of the problems of the increasing population under the age of 15. Would you discuss some of the salient implications of the increasing world population over the age of 65?

DR. HAUSER: Yes. A large proportion of the population of 65 and over is as recent a modern invention as the electric light. Old age was never a problem that afflicted most of mankind, from the time of the Egyptian Mummies. The expectation of life at that time was around 22 years at birth. At birth you could expect to live 22 years. You never had problems of sciatica, arthritis and bursitis. It was a great world because you were dead before you acquired any of these things.

In this country at the beginning of the century, expectation of life was 45 years at birth. As I indicated, it's over 70 now. Now, the proportion of a population having 65 and over, above various levels, has been classified by the United Nations, into three categories. Young populations are those with under 4% of their people 65 and over. Mature populations are those with 4% to 7% of their population aged 65 and over. Aged populations are those with 7% or more with populations 65 and over. Almost 2/3 of the world's population is still young on this basis.

And believe it or not - and here's a point that I don't have time to demonstrate - but, what makes the population aged is the declining birth rate more than it is the declining death rate. Age structure changes much more as a result of the decreases in the birth rate, than decreases in the death rate. And this is easy to demonstrate. The reason why we have a large proportion of our population - now about 8% 65 and over, is that our birth rate has been coming down for 150 years. France has an even larger proportion over 65 than we have.

So, my first point is that there aren't many nations in the world as a whole which have a problem of an older population. Most of the world have less than 4% 65 and over. Now, we have twice that percentage. France has three times that percentage. In our countries in the Western World which make up a small proportion of the total, the age problem is becoming a serious problem because we find we have more of them at the same time, when the changing pattern of life from an agrarian to an urban mass society has completely, in a sense, modified the role of the

older person.

Let me put it succinctly this way. In the traditional agrarian society the older you were the more powerful you were. For one thing, you owned everything. And for another, if you could remember everything you were the repository of wisdom. Now, in an urban mass society the older they are the more completely out of the world they are. Because, the young kids know you're out of step and dumb when they can get it in the Encyclopedia Britannica or in a library. The older person has had his role completely modified and is searching for a new role in society. I don't want to elaborate on this other than to say this is a new set of problems. This is what gerontology is all about.

This would be another lecture and I can't give you another lecture for just one honorarium.

COLONEL MULLER: Dr. Hauser, on behalf of all of us, I know you have to catch an airplane and I would like to express my sincere appreciation for a very fine lecture in getting off to a wonderful start in our study of human resources. Thank you very much.