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WORLD DEMONGRAPHY

Dr. Philip M. Hauser

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Reviewed by: Colonel J. H. M. Smith, USAF

Date: 5 December 1960

INDUSTRIAL COLLEGE OF THE ARMED FORCES

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31 October 1960

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Reviewed By: Col J. H. M. Smith, USAF Date 5 Dec 1960

Reporter: Grace R. O'Toole

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COLONEL SMITH: I think Monday morning is a good time to have a talk on the subject of World Demography. I am sure that each of us as we drove in this morning thought, "People, people everywhere, and not a place to park."

So, as we turn then in our study of resources to human populations, we are interested in the status and trends of population development all over the world. We are interested in the significant economic and political problems raised by the recent rapid population explosion as explained by Captain Powell earlier.

As you could see from his biographical sketch, Dr. Philip M. Hauser, of the University of Chicago, has had a long experience in this field in government, in teaching, and in research. In addition, he has traveled extensively in many parts of the world that are subject now to most severe population pressures.

Dr. Hauser informs me that he has been at the College in other capacities earlier in its history, and therefore we are very happy that we do have the opportunity to hear his talk this morning on the subject of World Demography.

Dr. Hauser.

DR. HAUSER: Thank you, Mr. Chairman. Gentlemen: The task that I have set for myself this morning is one that reminds me of a situation which I think you can appreciate, namely, that of the gentleman who was having his first airplane ride in a jet plane. He strapped himself into a seat and then heard the following announcement from the cockpit:

> "This is your pilot speaking. You are now in the largest and fastest jet liner in commercial service. The ship has a wing span of 165 feet and a fuselage of 155. These Ford jet engines rev up to over 50,000 pounds of thrust. Because of a Federal-regulation requirement, we must tell you that we will be traveling at an altitude of 35,000 feet. An oxygen mask will be automatically ejected to each of you should our pressure system fail. The stewardesses will demonstrate the use of this mask as soon as we are airborne. Since our flight is partly over water, in accordance with Federal regulations, the stewardesses will demonstrate the use of the life jacket after we are airborne. We shall proceed to our destination at a speed of 620 miles, with a tail-wind assist. And now, just as soon as I get enough guts up, we are going to take off."

Now, it takes a certain amount of intestinal fortitude on my part, because what I want to try to do today is to provide you with perspectives,

retrospective and prospective, about world populations. I am in part drawing from the past, in which much of what we can put together is based on fragmentary data, for the first census of all of mankind has yet to be taken, and I shall be looking into the future with the only devices available to mankind, namely, a projection of what we know about the past. Both involve the kind of risk suggested in my opening observation.

I would like to start out with a consideration of the facts, follow it with a consideration of implications along the way, and close with some consideration of the evaluational aspects of the problem. I notice from your program that your seminars will go into the detail of most of the essential areas of the globe which have special significance for your purposes. So I regard my task really as one of providing these overall perspectives in the light of which I think your subsequent seminar discussions can be more meaningful.

Let me start out with a historical summarization of what we know. It takes very few figures to set the stage. The population of this finite globe is estimated at around 10 million persons about the end of the neolithic period in Europe about 10,000 years ago. At the beginning of the Christian era the population of the world was estimated at 200 to 300 million. At the beginning of the modern era, the mid-17th century, the population was estimated at about 500 millions. At mid-century 1950, the population of the world was estimated at 2.5 billion persons.

Those four numbers tell one of the most dramatic stories about man's occupancy of this globe. An analysis of these numbers indicates why it is that the demographer, in an effort to convey implications, whether on a global, an international, or a regional-local basis, uses admittedly colored and flavored purple language in referring to the population explosions. This is colored language designed to get listeners a little agitated and interested in doing something about it. But I think the language is deliberately chosen and has some justification.

Let me consider the implications of these numbers on a global basis and in fact point out that the global consideration differs from what we might think of as the international consideration, and that the global implications are the kind of thing that an international government, were there one, might be concerned with. Now, there is no international government. The United Nations is an agency of sovereign states, as you are aware.

But there are certain types of problems that transcend national boundaries and cannot be contained within national boundaries--weather, health, fallout, exploration of space, to mention a few. What I am suggesting is that the population problems, similarly as global implications, transcend national boundaries, and that the implications are implicit in an analysis of these four simple numbers.

Well, what does the analysis indicate? For one thing, it takes very

little skill in elementary forms of mathematics to demonstrate this fact: Two dozen people, increasing at the rate of 2 percent per century, could have produced the entire population of the globe as of 1950. An analysis of these figures indicates that the rate of increase of population has proceeded from something less than 2 percent per century. Man has been on this globe, according to my colleagues in anthropology, at least 100,000 years, and something awfully close to man, if not man himself, as long as one million years.

Man's occupancy of this globe, therefore, was characterized by an increase for most of the period of less than 2 percent per century. But an analysis of these numbers indicates an acceleration in rate of increase from a level of about three-tenths of one percent per year at the beginning of the modern era to a level approximating 1 percent per year for the globe as a whole in the pre-World-War-II period.

Now, you might well say, So what? Those of you who are fortunate enough to have funds out in investment are not too impressed by a 1 percent return. But it turns out to be an utterly fantastic rate of population increase. I can document this in a hurry and you can check it yourselves.

How large a population would we have on the globe today if 100 persons--and let's assume a proper sex distribution--reproduced at the rate of 1 percent per year--not for the 100,000 or one million years

that man has been on the face of the globe but for the 5,000 years of human history? The answer is so fantastic that I won't bother citing the number, but let me put it into meaningful terms, the terms to which the Chairman referred, namely, that under those conditions—100 persons and 1 percent for 5,000 years--we would have today a population of 2.7 billion persons per square foot of land surface around the globe. I dare say, gentlemen, your parking problems would be considerably worse than they are.

These are arithmetic exercises. There are other types of projections. There was this one I just mentioned, one which I happened to calculate. If you want the champion projection of all time--arithmetic exercises, not indications of what will happen or could happen, but nevertheless exercises with significant conclusions, or exercises from which significant conclusions can be drawn—my colleague at Princeton University, Anthony Cole, has indicated that at the present rate of world population growth, not 1 percent per year but 1.7 percent per year, which is about what we have averaged since the post-World-War-II situation, in 6,200 years, which is still a relatively small amount of time in the evolutionary prospective of man's development, the mass of human flesh generated at this rate of population increase would have a radius expanding more rapidly than the speed of light. Now, I hope none of you has a sensitive stomach or is likely to be upset in your sleep

during the course of the evening.

What does a demographer do with these kinds of arithmetic exercises? The conclusion that can be drawn is a significant one, namely, that observed rates of population increase of the globe as a whole--1.7 percent per year--could not possibly have gone on for very long in the past, not can they possibly go on for very long into the future. This is a perfectly obvious thing. In fact, with the present rate of world population increase, the 1.7 percent per year, we are adding 50 million people a year in round numbers to the population of the world, as many people as in all of France, and we would, under the medium projections of the United Nations, have a population of 3.8 billion in the world by 1975--it is approximately 3 billion as of now--a population of 6.3 billion people in the world by the year 2000, using these medium, relatively conservative projections.

Let me say a word about projections, and I will have other cases to refer to before I am through. Projections are not to be confused with predictions. Anyone who says he can predict the future population of the world or of any nation on it, including this Nation, is in my judgment either a fool or a charlatan. We don't know how to predict the course of the birth rate, which is the main problem involved. We know that the birth rate is highly correlated with the business cycle, for example, as is also the marriage rate. We know that the birth rate is very much affected by the advent of war. If the economists could

predict the business cycle, the demographer could come a lot closer to predicting the course of the birth rate, and, if the economist could predict the course of the business cycle, and I knew what it was, I wouldn't have time to talk to you this morning.

If the political scientist could predict the course of war, its onset and duration, we could come a lot closer to predicting the birth rate. He can't, and we can't.

A projection, as distinguished from a prediction, is building a model. The fact that it is fictitious, which admittedly it is, does not mean it is not useful, because it is a model that indicates the course of events which will hold if the assumptions on which it is based hold. But no man knows whether those assumptions will hold.

But intellectual history and the history of science is full of nothing but fictitious building of models as the basis for the progress which we have made on many fronts. The triangle, for example, is nothing but a model. It does not exist in nature. It's a figment of man's imagination, but it is a right useful thing.

Now another step. If we raise the question--and I would like to conclude this global business in a hurry because it sets the stage for what is much more relevant to your purposes and needs and interests--let me put it this way: All these numbers of projections become meaningful only if you have some kind of benchmark against which to evaluate them. Such a benchmark perhaps is given if we consider briefly

what is the population-carrying capacity of this globe. No one knows. Here again we are in the realm of arithmetical exercises in a way. Most of the calculations that were made when I was a student, about a generation ago, indicated an upper limit of about 5 billions, an upper limit pretty much given by the food-carrying capacity of the finite globe, with all known methods of production and foreseeable improvements in production at the time.

The highest estimate of the population-carrying capacity of the globe that I have ever seen in print by a responsible scholar is that of Harrison Brown, the geochemist, who sets the figure at 50 billion. That is, the world could sustain indefinitely 50 billion people, but only under the following 2 or 3 assumptions: One, that we have adequate control or direct control of solar energy or nuclear energy so as to make the cost of energy something awfully close to zero. Under such circumstances, all people concerned with the conservation of natural resources can pack up their kits and go home, because, under such circumstances, there are enough things we need in the atmosphere, in rock, and in the sea, and if energy is cheap enough we could sustain a population of 50 billion people indefinitely.

The second assumption may be a little more restrictive in some ways. The second assumption is that man in time would be content to subsist primarily upon algae--that is, yeast-manufacturing plants--foregoing not only meat but also vegetables, to sustain a population of

this size indefinitely. This is it. This is an upper limit based on reasonably extreme assumptions.

What does the present rate of world-population increase portend with respect to such a limit? Well, I want to conclude the implications of the global character of observed rates, the contemporary population growth of the world as a whole, with this observation: The continued present rate of increase, let alone the higher rates which the United Nations project in terms of specific trends in various parts of the world in birth rates and death rates, indicates that we would reach this upper limit of 50 billion people in less than 200 years. And a continued rate of growth would in less than 800 years provide one person for every square foot of land surface on the globe.

Now, for 200 years and 800 years you can say this is academic. But if measured in the evolutionary perspective of man it is a relatively short period of time and one which might well concern a global government, were there one. It is, as a matter of fact, of increasing concern to the United Nations and its very specialized agencies.

The long-run problem, then, in terms of the population explosion, is posed by the problem of the exhaustion of space itself. Incidentally, given the finite globe--only 200 million square miles, only 50 million miles of which are land, only 10 percent of which is arable, and at the most perhaps another 10 percent which might be made arable--almost any rate of increase necessarily means that the time comes when you

exhaust space. A high rate means you exhaust it more quickly. A low rate means you exhaust it less quickly. But on the finite globe an indefinite population increase becomes impossible--you exhaust space.

Let me get at the short-run implications that are global and then get on into the international aspects. The short-run implications I think are given by what in my judgment may be the most single important problem affecting peace or war in the coming decades, and for that matter several human generations, and that is the problem of the levels of living for mankind.

Let me put it this way: If we raise the question of what is the population carrying capacity of the globe, one auxiliary question has got to be, under what level of living. If you take the mid-century as a benchmark and draw on the United Nations estimates of world income by region, these conclusions become quite apparent. If you are asked this question--how many people could the earth have afforded in 1950, having in mind the aggregate production of all goods and services, at the North American level of living--U. S. and Canada—? the answer is 500 million. The population at the time was 2.5 billion. How many people could the aggregate world product have supported at the European level of living in 1950? The answer is 1.5 billion. The world population was 2.5 billion.

The difference between half a billion or 1-1/2 billion and the actual population of 2.5 billion can be interpreted in either one of two ways:

One, that, given a standard of living such as that which obtained in North America or in Europe, the world was overpopulated by the difference between those figures; or, two, given the population, the world was underproducing by the difference in their gross national or continental product figures. In fact, this simple arithmetic, oversimplified as it is in some respects, answers another very basic question around which will hinge peace or war in the coming decades or generations, namely the answer to the question in much of the mass poverty, chronic malnutrition, the fact that most of the world's population probably does go to bed hungry every night, that this can be resolved through a more equitable distribution of the world's products.

The arithmetic I have just cited indicates what nonsense this position really represents. To redistribute the entire world's product as of 1950 so that everybody has a just share would produce an average level of living for all of mankind which would be one-fifth of that which we enjoy in North America, three-fifths of that in Europe. The problem of raising the world's level of living is not a problem of a more equitable distribution, although this may in some way help . The problem is one of low productivity. The only road to increasing levels of living for mankind as a whole is to increase productivity of most of mankind.

In fact, the short-run implication, and let me stress this, of the rapid population increase in the global sense, is not that, let us say, over the course of the remainder of this century, population is growing

so fast that it is going to outrun food supply. This is a bogey-man that is just not so. With a population of 6.3 billion by the end of the century, there is no danger that there will be millions starving to death. Similar projections by food and agriculture organizations, for example, indicate that food supplies keep up pretty well. This isn't the problem.

The key problem--and this gets translated in a regional way with important implications for defense and national security--is that rapid population growth of this kind places an almost insuperable burden on the efforts of those who would increase the aggregate product or increase productivity so as to make it possible for the have-not nations of the world to raise their levels of living.

Let me summarize it and then get into the international as distinguished from the global picture, with just this observation: In order to match the European level of living for all of mankind about the year 2000, given the rates of increase which I have been projecting, aggregate world product must be increased four-fold in the 50 years between 1950 and the year 2000. This is a 300 percent increase. This means that total world product of goods and services must increase by an average of 6 percent per year for all of mankind for the rest of the century, beginning with 1950. And look—we are having a pretty good political debate now as to whether 3 percent per year is enough for the United States. The best promises we are getting from either party don't exceed

5 percent per year for the United States. To match the European level of living by the year 2000 would require a 6 percent increase for the whole world, including mid-Africa, for every year from 1950 to the year 2000.

If you are talking about matching the North American level of living, the aggregate product of the world must increase 12-fold in these same 50 years. That is an 1100 percent increase. It's an increase, therefore, of more than 20 percent a year in gross national product for the entire globe for the rest of the century, beginning with 1950. This is another way of saying that it just isn't going to happen.

It is out of this context that I think the more specific problems emerge, to which I now wish to turn. Let me start out with some historical perspectives on regional-continental differences. Over the modern period, in which we can pretty well trade differential rates of increase, while the world has increased 5-fold curing the past three centuries, Europe increased about 6-fold. North America, incidentally, increased 166-fold. There were around a million aborigines here when the Europeans first came over in the middle of the 19th century. Latin America increased 23-fold, Africa perhaps 50 percent.

If you take Europe and descendants of European population that spill over into the Americas and Oceania, the increase was 8-to-9 fold, as contrasted with a population in Asia increase of about 4-fold.

These differentials are explained when we ask the question, Why?

This becomes relevant to my discussion toward the end. What the demographer presents is the theory of the demographic transition. Let me sketch this briefly for you on the blackboard, because its implications, as I say, are important later.

The theory of the demographic transition, briefly oversimplified, has three stages through which we have observed the population increase of mankind. The first stage is one in which death rates are relatively high and irregular. The irregularities are peaks, representing famine, endemic and pandemic disease. By "high" I mean a death rate say around 48 deaths per thousand per year. This is characterized by a high birth rate. By a "high birth rate" I would mean about 50, correspondingly defined.

Without getting into an explanation of why a high birth rate and death rate, let me suffice to say that the high death rate is still observable in many parts of the globe, pre-industrial in character, where man in a sense has very little control over nature and where mortality is largely the result of nature's controlling the way in which man dies. The high birth rate similarly does not require too much explanation. I generally have a little fun with my students, especially those from the Orient, when I say, "How do you account for a high birth rate?" They tell me things such as an agricultural economy, which requires more farm hands, and they are free, that ancestor worship requires lots of children, et cetera, et cetera. Let me suggest that a lot of this

is simply a way of filling up a textbook so that it becomes a sellable product.

I find a quite adequate explanation for a high birth rate in the fact that Homo sapiens is the biological animal he is. What you have to explain about the birth rate is not that it is high. You have to explain it wherever it is low.

This is called sometimes Stage I, the period of the demographic transition. Then something happens. This is something around the middle of the 17th century. As the result of a number of things, the death rate began to fall and fall precipitously. The birth rate under this theory remains relatively high. The population explosion is primarily not the result of an increase in the birth rate but of a decrease in the death rate, the result of death control. In fact, over this period--and at the risk of oversimplification--from this high death rate, let us say, of about 40, we have now achieved in the more developed parts of the world death rates down to about 10.

What reduced that death rate? As a quick overview, about 10 points of this reduction was due to nothing but improvement in levels of living--better food, better housing, and the like. Another 10 points was due to environmental sanitation--potable food and water, which are still the most important single factor as a difference between the death rates in an advanced country and in an economically underdeveloped country. Only the last 10 points was due to the miracle of modern

medicine, including the antibiotics.

In fact, at the risk of getting a heated discussion , perhaps, during our discussion period, let me point out that it wasn't until the last part of the 19th century that one could demonstrate that the medical profession kept more people alive than it killed. It took about 100 years of experience in hospitals, beginning about the middle of the 18th century, before the patient who went to one had some chance of dying from the disease which brought him there. He was more likely to die from infection he got from having gone there. The last 10 points--the miracle of modern medicine. This is the population explosion, the increase in natural increase.

Then in the later stage, Stage 3, so called, the birth rate begins to come down, the death rate slows up, and you get to a point, before the war, where the death rate, at least in France, is actually below that of the birth rate.

These are the three stages. They are oversimplified, but they show you enough about the mechanism--the interrelations, the fertility, and the mortality--to explain the why of this population explosion. And this theory tends to explain the observed facts, including the differentials to which I have just referred, in population growth by continent.

The explosion first occured among those nations which experienced the industrial revolution, which produced factors that greatly decreased

mortality, and this process is still under way.

What are the long-run implications of these differentials by region? Let me summarize this quickly in a sentence or two, by saying this: In the long run the outlook and the implications of observed rates of population increase for any region of the world is precisely the same as for the world as a whole. If it is a high rate we run out of space faster, and if it is a low rate it takes more time. In the long run the problem becomes space.

Short of one possibility--some articles are already being written to this effect, that perhaps spacial exploration points to the fact that it is the destiny of the human race to populate outer space. Well, this is one I am going to leave for science fiction. But, if you talk about people having to live on this finite globe , the long-range implication for any region, like that for the globe as a whole, until someone can synthesize space, is that that is the limit.

The short-run ones are much more significant, and are those, I think, that very definitely affect war and peace in the coming decades.

How do we get at these short-run implications? Let me suggest in an effort systematically to present what I regard as the most relevent factors that the short-run implications can be observed in the interplay of five fundamental factors or forces which are at work.

The first of these forces or factors which are involved is the fact that there is an inverse relationship between the rate at which different

regions of the world are growing and their economic levels. As a second factor, there are great differences among the nations of the globe in levels of living. There are have and have-not nations.

Third, the gap between the have and the have-not nations is increasing rather than decreasing, from whatever evidence there is available.

Fourth, we live in a bipolar political world characterized by two antagonists, the free world and the Communist world, and a large third neutral bloc.

Fifth, the rapid rate of urbanization of the world's population, including urbanization in the underdeveloped areas of the world.

Let me go briefly into the way in which each of these factors is operating, and point to, in a sense, the destiny of mankind in the decades that lie ahead. Let me start with the fact that there are differences in the levels of living among the peoples of the world. This can be summarized very quickly. Asia, if I take the extreme, has about 53 percent of the world's population, using 1950 as a benchmark, and 11 percent of the world's income, and about 18 percent of the world's land surface. North America has about the same proportion of land surface or a little less--16 percent; it has about 9 percent of the world's population; and it has 44 percent of the world's income. North America and Europe combined has a fourth of the world's population, 70 percent of the world's income. Per capita income in 1950 for North America was

$1100; per capita income for Asia in 1950 was $50. This was income per year per capita. As of now income per capita in North America is around $2000, or over $2000. In Asia it is under $100. These are the contrasts.

Now, you can say, "So what?" As long as human beings have inhabited this globe there have been have and have-not nations, and there have been have and have-not peoples within nations. But something new has been added to the generation in which we live. As a matter of fact, Toynbee was asked at one time to answer the question: For what will our generation of man be known? He gave as his answer not the fact that we conquered nuclear energy, and he didn't say anything about the hydrogen bomb. What he had to say is that we will be known by future generations of men as being the first generation of mankind in which there was no place left on the globe which did not aspire to a higher level of living, as high as anyone's. And, if they had not yet achieved independence, they aspired to be independent. This is the first generation of mankind in which these differences have become felt differences, and they enter into the national aspirations of the entire world. This is the revolution of expectations. This makes differences between have and have-not nations quite different from what they were, say, in the Roman times. This is a fact of life.

Second, a very curious thing. As I say, there is this inverse relationship between the rate at which a country is growing and its

economic level. Drawing again on the medium projections of the United Nations, and let me focus on the last quarter of this century, 1975 to 2000, by that time the rate of population growth of Europe is likely to be something like 1.2 percent per year--a decrease in present levels. The rate of growth i n North America, drawing on these projections, is likely to be down to about 1 percent per year. The rate of growth of Asia will be 3 percent per year. That's a doubling of population every 23 years. The rate of growth of Latin America in the last quarter of this century, with present trends, will be 3.8 percent per year--a growth of doubling the population in less than 20 years.

These are what the projections indicate--an inverse relationship between the rate of increase and the present level of living. This is what enters into the problem of increasing the gap rather than decreasing the gap in levels of living that obtain around the world. In fact, the way in which population increase is exerting a tremendous burden on efforts of these people to raise their levels of living I have recently calculated, and let me just try to give you very quickly some feeling for this situation.

I have already indicated that for the world as a whole aggregate product must increase four-fold between 1950 and the year 2000 to match the European level of living, and 12-fold to match the North American level of living. However, if you take into account the medium projections of the United Nations for population increase by broad continent,

and ask this question, By how much must these continents raise their aggregate product to match either the European or the North American levels of living by the year 2000, to match the levels of living as we enjoyed them in 1950? the answer is really startling.

Latin America, to match the European level of living by the year 2000, as it was in 1950, must, with its projected population increase, increase its continental product eight times in that 50 years--a 700 percent increase in 50 years, a well over 10 percent per year increase in gross national product. Can they do it?

To match our level of living in North America, Latin America must increase her gross national or continental product in that same 50 years 23-fold--by 2200 percent--over 40 percent per year increase every year for 50 years.

Asia, to match the European level of living, must increase her continental product 21-fold--again a 40 percent per year increase. To match our level of living by the year 2000 as we enjoyed it in 1950, Asia must increase her continental product 62-fold--a 6100 percent increase--that is a doubling of her continental product every year for 50 years, at their present rate of growth.

This is a way, gentlemen, of saying this isn't going to happen. Realistically, all that confronts us about the tremendous implications of the gap between have and have-not nations must deal with the fact that efforts to raise levels of living with projected rates of increase

turn out to be utterly impossible burdens.

Let me get to the third factor. We live in a bipolar world, I said. We do live in a bipolar world. It has some rather interesting demographic dimensions. About one-third of the world's population as of 1950 was in the free world, about one-third was in the Communist world, and about one-third were uncommitted or neutral nations. Why have South and Southeast Asia suddenly become such an important thing in our headlines and over the TV and radio? A predominant proportion of the uncommitted nations of the world are in South and Southeast Asia. You've got a situation here where the Communist world on the one hand and the free world on the other are focusing on the uncommitted nations of the world in an effort to win their allegiance. Should either of these great antagonists succeed, this may well determine the destiny of mankind for generations to come--if not the 1,000 years to which Hitler once referred.

What are the Communists doing about it? They have three main weapons--one, the weapon of propaganda, and a very effective weapon I must report to you, gentlemen. I sat in Asia for a couple years listening to Radio Moscow with very effective propaganda in terms which those people were understanding. And they were being reached. They have overt aggression, and you know the history of this. Pravda doesn't call it aggression. They have now a new weapon and a weapon that may be

the most important of all. This is their programs of economic assistance, mixed with propaganda, to the underdeveloped regions. What have we got? We've had propaganda. As I heard the Voice of America in Asia and other parts of the world, I certainly didn't feel it was anywhere near as effective as what the Russians had in reaching these people in terms of their cultures. We have programs of economic assistance. As a matter of fact, this is the perspective which may be one of the very vital clues again to peace and war in the coming decades.

I want to emphasize this, because our various programs of economic assistance, many of which have practically new names every year, simply reflect the fact that the Congress of the United States and the people in the United States are still suspicious of what we call give-away programs. We are giving it away. And yet this perhaps is the most important contest short of overt conflict not only in the contemporary world but one that will remain the most important contest for decades to come. What the Communist world is doing is exploiting the differences between the have and have-not nations, firing up their new expectations, this revolution of expectations. They are saying in brief that the differences between the have and have-not nations are the result of the exploitation by the imperialist capitalist powers of the exploited colonial people of the world. They say the reason for this is imperialism and capitalism associated with what we call the free world. They say the Communist way is quicker and slicker in the effort to raise levels of living. They

have within the last year or two challenged us formally and have said that the Communist way of life will outproduce our way of life, that their economy will grow more rapidly, and that they will catch and overtake us. This is Khrushchev's boast.

The most important race in the world at the moment with implications for peace, national defense, and security as well, is this challenge that the U.S.S.R. has flung down to us. Of equal importance from the standpoint of the allegiance of the underdeveloped world, and perhaps of even greater importance, is the race between India and China. Here are the two most populous nations on the face of the globe--China with 600 million around 1950 and with trends which indicate an additional 300 million by 1975; India with 375 million in 1950 and with trends that indicate something like 200 million more people by 1975--each of them with aspirations to raise levels of living, one of them using the Communist way and one of them using the free world way, relatively.

Should either one of these nations be successful in demonstrating that their way is the superior way to raise levels of living, this is going to have profound implications for the rest of the uncommitted part of the world, and profound implications for part of what we call the free world, or Latin America, which is an underdeveloped part of the world.

Alinements in terms of national interests can shift tremendously in the years which lie ahead. I made some rough projections, drawing

largely on the United Nations' ones, of the free world, the Communist world, and the neutral world in the year 2000. This has implications, incidentally, for power alliances, and also implications for those--and you hear some voices raised to this extent--who feel that what we must try to do is outbreed these potential adversaries. Hopeless. By the year 2000 the world, as I have said, may have 6.3 billion people--the free world 1.8 billion people, the Communist world something like 2.2 billion people, and the neutral world, by that time, about 2.3 billion people.

Over the 50 years from 1950 to the year 2000, with present trends, the free world can add something like 900 million people; the Communist world something like 1.3 billion people, and the neutral world something like 1.4 billion people. But look--that 1.3 billion people that the Communist world can add include about 250 million people in Russia--that is the U.S.S.R. and Eastern Europe under Russian tutelage, countries behind the Iron Curtain. A billion will be added in China, Red China, in that same 50 years.

You look at the increase of 900 million for the free world. What part of that is North America and Europe? The answer is just about 250 million. North America and Europe together can add about 250 million during the period when the U.S.S.R. and Eastern Europe can add an equal amount, and China can add another billion.

The manpower situation is one factor. Outbreeding is nonsensical. It just isn't in the cards. And, should the underdeveloped part of the

world, including Latin America, get from this lesson of history in the race between the economically developed countries and the underdeveloped countries, and the race among the underdeveloped countries between those following the Communist way and those following the free-world way, in the next few decades, a demonstration of the superiority of the Communist system, how much of this free-world line-up do you suppose you could really count in our racks? These are among the realistic things that must be faced.

Now a brief point about the evaluation and I'll close, and perhaps I'll bring in the fifth of the factors--urbanization. Why is that significant? Well, during the 19th century the rate of world urbanization was largely shored up by the rapid urbanization in Europe and North America. We tend to associate the city with Western civilization, but the fact is that there are more large cities and more people living in them in Asia than in either Europe or North America. And during the 20th century the rate of world urbanization has been shored up mostly by rates of urbanization in the underdeveloped areas of the world. That is urban populations are increasing much more rapidly in the underdeveloped parts of the world today than they are in North America or Europe. We've gotten there. This is what is shoring up world urbanization.

Projections I made for a meeting in Japan a couple years ago indicate that for Asia the picture is about the same as for the rest of the underdeveloped world. Between 1950 and 1975 urban population will

increase by two-thirds, even if the rate of urbanization doesn't go up at all, but simply through population increase alone. If you put together the population increase plus the rate of increase per proportion of people living in cities, urban populations in Asia and in much of the rest of the underdeveloped world will triple within that same 25 years.

Why is this significant? Mass populations, mass poverty, mass communications--put these things together and the message of communism to these people, and what you've is a good important part of the answer to why the political instability and the domestic unrest that you see in the large cities in at least four big trouble spots on this globe--Latin America, the Near East, the Far East, and the sub-Sahara in Africa.

Urbanization makes these things almost tinder boxes in terms of mass population subject to manipulation with modern mass methods of communication in the context of the interaction of these five forces to which I have referred.

Let me conclude and get to the evaluation, perhaps, now, and perhaps to the discussion period. What can you do about this with what seems to me to be the major message that I have tried to bring you this morning? Mankind is the only culture-building animal on the face of the globe. He not only adapts to environment--he creates the environment to which to adapt. In the process of building the world in which we live, we have completely upset and changed the

rythm of our own reproduction. We are reproducing at rates which have long-run implications of exhausting space and short-run implications of terrifically exacerbating political instabilities and increasing the dangers of conflagration of a world torn asumder by free and Communist ideologies and conflict at every front--political, social, economic, and from time to time militarily with the major threat ahead.

Population becomes important because population is one of the major obstacles to many of these nations in achieving their national aspirations of raising the levels of living. Should they fail to raise their levels of living--and by "they" I mean the underdeveloped parts of the world, whether they are now in the free bloc or the uncommitted bloc--in that failure and the frustration which accompanies it they may be much more amenable to the blandishments of the Communist world, which says "Our way is quicker and slicker."

When you start adding up manpower and manpower blocs in the potential of the framework I have just laid out, the picture just isn't very pretty.

This is a dismal message for a Monday morning, but I think these are the facts of life.

CAPTAIN SMITH: Dr. Hauser is ready for your questions.

QUESTION: You mentioned the fact that part of this might be due to the lack of productivity of these other people. Will you speak to that a little further, please?

DR. HAUSER: The most important single factor in different levels of living of the peoples of the world is to be found in differentials of productivity. Again let me state the mid-century benchmark figures. In 1950, behind every head in this country, there were over 10,000 kilowatt hours of non-human energy for production, per capita. In Asia that was 280--a ratio of 10,000 per capita to 280 is the difference in our levels of living.

To raise the levels of living of mankind--and here is a place, incidentally, where the arithmetic I presented indicates the fallacy of the socialist position that all you need is a more equitable distribution of the world's wealth, or, for that matter, the fallacy of the position of the Vatican, which takes that position with respect to the total population of the globe. You can get that distribution, but all you would do by complete distribution would be to make everybody poor. The only way you can raise the level of living to approximate the European and the North American levels of living is to get that non-human energy behind the workers in the underdeveloped parts of the world. This means capital outlay, it means investment, it means the application of technology, it means the industrial revolution, the kind of thing that

we have achieved over the last two centuries and that they arejust beginning with.

QUESTION: Dr. Hauser, you talked about the three kinds of conflict--propaganda, economic warfare, and direct conflict. Then you stated how the growing differences between the have and have-not nations accentuated this. Do you think that it will be accentuated in any one of them more than in the others, or would they all be about the same, relatively, as they are today?

DR. HAUSER: Well, this is a matter of speculation. I don't pretend to have the answer. Let me put it this way: I think as one foresees the future, the assumption that I think is realistic--though now and then when I see a man with his shoe off and waving it I modify it--is that we are in an atomic stalemate, and that we are not likely to have mass overt war because it means mutual annihilation, and the only part of the world which is willing to risk this at the moment seems to be Red China. This is the only place left in the world today where I am aware that mass population can still be an element of national strength. This is the position which China seems to have uttered and reuttered: "Let's have nuclear war if necessary to get the socialist system to triumph over the capitalist system, because, if you kill 400 million Chinese we will still have 300 million left, and you've got nothing." This is the bald mass utilization of personnel for national strength.

But I think the U. S. S. R., with a 50-year investment that she now

has in plant and wants to preserve, and the Western world with 2 or 3 centures of investment and a civilization that we want to preserve, make the chances seem that there will not be this kind of holocaust. With this assumption, and only if this assumption holds, the answer is that the war will be fought on an economic front and on the educational, ideological, and propaganda front.

The cheapest way for this country and the Western world to maintain its way of life in competition, if I may put it most succinctly, is to do those things that are necessary to enable the underdeveloped parts of the world to raise their levels of living without resorting to totalitarian methods. The cheapest way for our own national security and the preservation of our way of life may be to get a concrete case, to make sure that we leave nothing undone in helping India to raise her level of living in her race with China by methods which are not repugnant to us but are consistent with our way of life. This may be much cheaper than anything else we can do in preserving our own national security.

QUESTION: I don't believe you mentioned birth control or birth-control programs. Will you speak on that, please?

DR. HAUSER: Well, I am delighted you brought it up. That's what I had mind by an evaluation. There are 3 or 4 observations I will make. I ran out of time before. There is so much to say on this front and 45 minutes is not a very long time in which to say it.

If you ask the question, How come the population explosion? Why

the pressure of these rapidly mounting numbers against resources and the way in which they affect levels of living? the answer is that mankind over the years has achieved death control before he has achieved universal birth control.

In the Western world we have birth control. You've seen in the international press and in the national press a lot of debate around this, around the value question. The value question is to be differentiated from the facts. The fact is we have death control. There is this gap between the birth rate and the death rate. It is that which constitutes a tremendous increase, a natural increase, which is the population explosion.

Nobody planned it that way. These are largely byproducts of man's activities as a culture-building animal. We are faced with new problems we ourselves have created. These are the facts.

What do you do about them? Well, there are two international value systems which have real questions about controlling fertility. One of these international value systems that objects to any fertility control is socialism of both the Communist and non-Communist varieties. The position they take is the position of their interpretation of Marx, which in effect says that there is no such thing as overpopulation or surplus population. Wherever you have poverty, it is not because of too many people in relation to resources, but merely because of the inequitable distribution of the product because of greedy capitalistic

incursion. This is the official position.

At a meeting of the International World Population Congress in Rome in 1954, I got into quite a hassle with some Communist representatives on this issue. They were coming forth showing that in a healthy socialist state increased birth rates are possible and there is no population problem and no unemployment, et cetera, et cetera. This is an interesting thing, and I am trying to relate this to the international situation as well. Red China broke with Russia on this business after she took her census in 1953 and discovered she had 100 million more people than anyone ever estimated for China and began to dispense birth control kits with every copy of Marx and Lenin. This is literally what happened. Now they are in a sort of suspended situation on this thing, because it turned out that their efforts to control fertility in China failed, for a number of reasons, not all of which we understand. They have begged off now, partly because they don't know how to do it. They haven't succeeded. There are some basic problems there.

Now Russia can afford the luxury for some time of being against any control of fertility. She's got one-sixth of the land surface on the globe. She's got an empty Siberia, and is maybe somewhat concerned by the possibility that China may spin over there from Outer Mongolia. But China is in a different situation. They broke once and may break again.

Look at the Western world. We are arguing. The second value

system is the Catholic Church. This position is greatly misunderstood. Pope Pius XII made it perfectly clear that there is a population problem. He made it clear that it is permissible to regulate family size. They don't like the words "birth control" but they think it is all right to say "regulate family size," not only for biological but for economic and social reasons. This is important. In that respect Catholicism differs from communism. The Communists say there is no need to regulate families. The only problem about Catholicism, then, is that in their interpretation of the Divine Will. There are only three methods by which families can be regulated in size. One is the deferment of marriage; one is abstinence; and one is the rythm method, which is a perfectly acceptable way of controlling fertility.

Now, this is the key point. The American people and the Western world at large control fertility. In the midst of our baby boom, postwar, our birth rate at the level of 25 per thousand per year is only half of what it was in 1800. In order for us to get our population growth into balance we've got only to do more of what we already do. It's as simple as that.

Let me say this if I can within the confines of this room. Let's not kid ourselves about this. Everybody is doing it. A survey, for example, made of American women, a cross-section, here a couple years ago showed that the American people control fertility--period. Let me confratize this by drawing on some census data. The Director and the

Deputy Director of the Census are in the room this morning. What do you suppose is the religious group with the highest birth rate in the United States? The answer is the white Baptists. This birth rate is higher than the Roman Catholic birth rate. Why? The white Baptists are mostly in the rural areas. The Roman Catholics are in the cities. Whether your birth rate is low or high depends more on whether you live in a rural or urban area than whether you are Catholic or Baptist. This is an indication of the way the wind is blowing. Everybody practices some form of family limitation. This is the Western world.

They key point I want to make now on the other side is this: The reason why the underdeveloped part of the world is not controlling fertility is not because they are concerned about what are the right ways or wrong ways, moral ways or immoral ways. It is because, first, they have no desire to control family size. The motivation is not yet there. Second, if they had the motivation, there are no known methods today which with any assurance will control the birth rate in the underdeveloped part of the world. Experiments with the methods we employed so far have been continually negative. There is only one Oriental nation in the world that has reduced its birth rate, and that is Japan, and they have done that through a method repugnant to much of the Western world, namely, abortion.

What I am getting at now are two conclusions. In the United States

and in the Western world at large, the population problem is becoming increasingly recognized, fertility control is increasingly coming into play, and much of the noise about what is the right method is freely noise, if I may use such language, because there is enough diversity of method so that everybody can find a method consistent with his own moral precepts. This is true in the Western world. Anybody can find a method which is consistent with his religion and his value system.

In the Eastern world the problem is quite different. There is no motivation. If there were motivation, there are no known methods that would necessarily work for them. This is why the all-contraceptive is so important. The real issue is that they have got to want to do this, know why they want to do it, and have a way to do it, and none of these things exist at the present time.

QUESTION: Do you see any relation historically and for the future between climatology and demography?

DR. HAUSER: Yes, there always has been and certainly there will always be, in this sense: The human being was obviously devised, invented, developed, or created--take your own choice of language, depending on your own theological background--to live, apparently, in the tropics. But we have long since left that stage, which is why we look so funny to each other when we don't wear any clothes at all. As a culture-building animal, what we do is put clothing on, and then create

boxes like this one so that we carry our own climate with us. We live all over the globe now because, among other things, man has controlled his climate. This is what housing does for us. We spend 80 percent of our living time in boxes like this one to substitute for the tropical climate which apparently we were designed to live in, or to make it cooler, as the case may be. We create our own climate.

Now, man has so much controlled nature in this respect, just as he has controlled his death rate, that man's numbers and his way of life are no longer much affected by climatology. They are much more affected by what man himself, as a culture-building animal, does to create the kind of world in which he wishes to live--period.

QUESTION: Sir, one area that has not been touched on too much is the significance of the figures that are used in talking about demography. Will you comment briefly about the validity of the figures that we are hearing?

DR. HAUSER: I gave you four figures to begin with in summarizing the historical development of man and his numbers. The error in these figures is tremendous. The first complete census of mankind has yet to be taken. But, from what evidence there is, I don't think there is any question in my mind or in the mind of any scholar who has worked over these data that the general conclusions to be drawn remain the same, even if there are tremendous errors in individual points historically. This is readily demonstrated.

With respect to prospects, again, all these projections are exercises. They don't predict what the population will be. If anyone really worried about it, we would never have a population of 2.7 billion persons per square foot of land surface. We'll be eating each other up first. The hydrogen bomb got invented just in time—or whatever the answer may be.

These are projections. These are fictions. But these fictions tell us and give us a basis for very important conclusions. In fact, one reason we make projections is that the human being--again, may I say--is a culture-building animal and has a capacity that no other animal enjoys. That is, by projections into the future, we see implications as the result of which these projections never come to pass. We are able to go back and change the trend. This is how we are differentiated from the rest of mankind.

The kind of figures I am talking about and the fact that I am presenting them, even with considerable error, permit conclusions that do not depend on the magnitudes of error involved in these things--don't depend on that at all--which will make human beings modify and alter these trends.

If you look at the contemporary figures, how accurate is the contemporary measurement of 1.7to 1.8 percent per year increase? That gets awfully close. You've got a very small margin of error. You had over 60 nations with a census in 1950 under the egis of the United

Nations World Census Program. There may be 90 nations taking a census as of 1960. We've got most of the world's population by far censused, and there is enough accuracy in that measurement so that any of the kinds of things to which I referred would not be affected—that is, the conclusions would not be affected--by the admitted errors in the data.

CAPTAIN SMITH: Dr. Hauser, on behalf of the Commandant, the faculty, and the students, thank you very much for coming down here and for giving us such a very excellent presentation.

DR. HAUSER: Thank you.