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Publication No. L55-30

INDUSTRIAL COLLEGE OF THE ARMED FORCES

Washington, D. C.

Mr. Norman Lawrence, a lecturer and consultant on population and manpower, is a demographic statistician in the International Population Statistics Section, Bureau of the Census. He was born in New York City in 1918 and received his education in the schools of that city. He has a B. S. degree in mathematics from the City College of New York. He has been employed in the Bureau of the Census since 1940, excepting 3 years of military service as a statistical control officer with Headquarters, Far East Command, Manila, and in the Okinawa Air Depot at Naha. He was a key figure in the Census program for developing techniques for population estimation and projection, and in the development of concepts, definitions, and procedures for the taking of the 1950 census of population. Since 1951 he has devoted himself to foreign population and manpower studies. At present he is in charge of a program sponsored by the Directorate of Intelligence, USAF, for developing population and labor force estimates for selected areas within the USSR and European satellites. He is a member of the Population Association of America, the American Statistical Association and a former member of the Statistical Control Association. His publications include: "Housing Market Analysis--Limitations of Population Data" The Journal of Housing, September 1946; "The Current Status of State and Local Population Estimates in the Census Bureau" Journal of the American Statistical Association, June 1949; "Population Trends Since 1940" Public Management, August 1949; and others. This is his first lecture at the Industrial College.

THE MANPOWER RESOURCES OF EUROPE

30 September 1954

MR. MASERICK: General Niblo, members of the class of 1955, and visitors: This morning we continue our study of manpower with a lecture on the manpower resources of Europe. The address will include the manpower of the USSR.

Our speaker this morning is a lecturer and a consultant on population and manpower. He is a demographic statistician in the International Population Statistics Section of the United States Census Bureau. In the 1950 census of population and for many years before that, he was a key figure in the development of techniques for population estimation and projections; and in the development of concepts, definitions, and procedures.

Since 1951 Mr. Norman Lawrence has devoted himself to foreign population and manpower studies. At present he is in charge of a program for developing population and labor force estimates for the USSR and its European satellites.

It is a pleasure to present to the Industrial College and our visitors Mr. Norman Lawrence.

MR. LAWRENCE: General Niblo, Mr. Maserick, and members of the class of 1955: The topic this morning concerns population and manpower in Europe. The announcement which I received some weeks ago covered a fairly large number of subtopics; so large, in fact, that it would require a course of perhaps a year or more, meeting several times a week, to cover adequately all of that material. We can't do that this morning. I have had to select certain aspects of the subject, which, even so, I will be able to cover only from the bird's-eye viewpoint. I have, however, prepared a series of working tables, and I believe you all have copies of these.

In them I have tried to bring together the most recent information available on certain aspects of population and manpower that I believe will be of significance and of interest to you in the work you are pursuing.

Now, any of you who have ever worked with population and manpower statistics of the Soviet Union and its satellites will realize that there is an extraordinarily difficult problem of getting accurate information. I might say, especially for the visitors that we have here today, that a number of the figures I have assembled for you are necessarily estimates or guesses, based on an interpretation of both statistical and nonstatistical material. Some of the figures are rather weak. But, if you will use them with an eye for the weaknesses, and remembering that the figures themselves are intended to be nothing more than our best approximation of the truth as we are able to figure it out from the limited material available to us, I think you will get a fairly good picture of what the population structure and the manpower structure of these countries are like.

Some of the figures I have for the other countries of Europe are also subject to similar qualifications, although not to as great an extent.

The topics we will deal with this morning will include population size, composition, and distribution; projections of the population; the labor force; manpower potential; and health and living standards, including education. These will be touched on in one way or another as we proceed.

In this discussion the statistics presented for Europe and the European countries are divided into three principal blocs. This division conforms to the political divisions that now exist in Europe. But it is entirely one of convenience. It is simply a way of talking about figures for the countries in the three major blocs--the NATO countries, the Soviet Bloc, and the rest of Europe. We shall deal mainly with summaries which cover these three blocs separately. Of course, the underlying material for each country has also been developed. If you want to get information for specific countries similar to that given for the three blocs, it may be had.

Let us look first at Europe as a whole. It has about 600 million people, approximately one-fourth of the population of the world. It is the most densely settled land mass in the world, with roughly 80 persons per square kilometer; you may compare this with the earth's average of about 18. Looking at Europe, we find that almost half of its population, 49 percent, as closely as we can figure it, resides within the Soviet bloc.

One particular aspect of the population size that we might look at before we proceed to more detailed matters is the question of urbanization. Urbanization is characteristic of and generally associated with industrialization. You will note, I believe, in the tables, that in Europe the most urban countries are the NATO countries, and the least urban those of the Soviet bloc. This is correlated with the extent to which the population of these areas is dependent upon agriculture for a livelihood; and is also correlated with the presence of the ability and the skills necessary for operating an industrialized economy. You will find that the proportion of urban population varies from country to country within each of these three major blocs; but, if you summarize the figures, you will find that almost two-thirds of the population of the NATO countries live in urban areas, whereas little more than one-third of the population in the Soviet bloc countries is urban.

I want to touch for a moment on the question of the relationship between population and the labor force. A conventional way of analyzing the contribution of a population to the labor force is to study the group age between 15 and 59 years. We find for all of Europe a remarkable consistency in the proportion of the population of working age. It runs about 60 percent, no matter what country we take. There are some extremes in individual countries. There are some as low as perhaps 55 or 56, while some are as high as 65 or 66 percent. But, taking these countries in the blocs that we have set up, the averages run 61 percent, 60, 62 percent. If we want to see how this compares with the United States, the figure for the United States is almost exactly the same as it is within these European countries.

So we find that throughout most of the civilized world, three-fifths of the population fall into the age ranks which contribute heavily to operating the economy and providing the manpower for all purposes, civilian as well as military.

Yet there are differences between the blocs of countries. For example, some 55 percent of the children of Europe are in the Soviet bloc, although only about 49 percent of the population of Europe lives there. This reflects the considerably higher fertility rates which exist in the eastern European countries. It also has some implications for the future. As these children get older, they will graduate into the working ages in far larger numbers than will be the case in the rest of Europe.

On the other hand, among the aged population, which we may here consider as persons 60 years and over, we find that, although 49 percent of the population of Europe is in the Soviet bloc, only 35 percent of the aged live there; whereas the NATO countries, more developed industrially and with a longer history of better measures for health, have 40 percent of the aged. For the most part, the population 60 years old and older is no longer economically active, but they are a part of the population. They are being fed. They do draw on the resources of the countries in which they live.

So this seems to be about the situation: In the middle range, the economically active ages, the proportion of the population that is working is about the same, but in the NATO countries there is a surplus of aged persons relative to the Soviet bloc; and in the Soviet bloc there is a surplus of children relative to the NATO countries. These differences have important implications for the future development of the population.

I don't know if you have ever come across the concept of demographic evolution. This is a term that population specialists use to discuss the evolution of populations from primitive stages, through the transitional period, to what we consider the developed stage. In the primitive stage of population growth you find typically a relatively low population growth. There are high birth rates, but also high death rates. And so the advances, so far as gaining in size is concerned, are wiped out. A large number of persons are born, but they die very young. They don't realize the potential usefulness of a full life, and their personal contributions to the development of the society in which they live is unfortunately curtailed.

In the transitional period of demographic evolution birth rates remain high, but death rates begin to fall. Through the fruits of the industrial revolution in the past, or through the various programs of help to underdeveloped countries which are now being carried on, new ways of controlling death and lengthening life are brought to relatively backward societies. Drugs, medical care, and modern sanitary standards are brought to people who didn't possess them before; and their lives are lengthened.

The forces which tend to sustain a high birth rate are more social and cultural forces than they are forces affected by short-run economic changes. Thus, when births continue to be high and deaths drop off

sharply, the population rises very rapidly in the area, and generally overloads the economy and intensifies its problems.

In the final stage of demographic evolution we have what we might consider the development of a balanced population. Death rates continue to be low, but the birth rates too begin to fall. As the birth rates fall, the rate of growth of the population begins to decline.

I don't see a blackboard here, but there is a familiar analogy to this type of development in what we call the Pearl-Reed curve, or sometimes, the logistic curve. It is a curve which is very low at the bottom, rises very sharply in the middle, and then levels off at the top. That curve has been used to predict the growth of a tadpole's tail; the number of flies which will develop on a limited amount of food in a closed bottle; and, curiously enough, the number of people living in a geographical area. As a matter of fact, despite all the refinements of population-estimating techniques which have been used to project the demographic development of this country, this Pearl-Reed curve or logistic curve was better able to predict the population of the United States in 1950 than any other national long-range technique. I don't want to prophesy unduly, but this curve very typically describes best what happens in the various stages of growth of a population.

(A blackboard was brought in and put on the platform.)

This curve (drawing on the blackboard) sort of looks like the half of a cross-section of the Liberty Bell. In the first stage you have the stage of a primitive development of the population with low rates of increase. The second stage is the period of transition, with very high rates of increase reflecting high birth rates and low death rates. In the third stage there is a leveling-off as birth rates drop.

That is what has happened in Europe. The different countries of Europe are now in different stages of demographic development. You can go to the statistics of population development of the various countries and find that each country has had a growth that may be characterized by a curve of that general shape, and that some are at present further along the curve than others.

Let us turn for a moment to Europe's birth and death rates. Europe has a birth rate of about 22 per thousand population and a death rate of about 11. The natural increase, the difference between those two numbers, is about 11 per thousand. In the NATO countries that

rate is about 7.4; in the Soviet bloc it is a rate of about 15; and in the other countries a rate of a little less than 9.

What that means is that as of right now relatively speaking, the Soviet bloc countries have a natural increase of about twice that of the NATO countries--15 per thousand per year as opposed to 7.5 per thousand per year.

Now, each of these countries in these blocs, as I said, has different trends. They are at different stages in their demographic development. But, taken together, we can estimate what the population will be some years from now, according to various hypotheses about the rates of change in the birth rate and the death rate. This is what we find, using the best information available:

By 1970 Europe will have a population of approximately 727 million, of which almost 200 million will be in the NATO countries. Approximately 400 million will be in the Soviet bloc. The other countries will have about 135 million.

While all of Europe will grow by about 22 percent between now and roughly 1970, our NATO countries will grow by about 10 percent, the other countries of Europe by about 11 percent, and the Soviet bloc by about 36 percent. Thus, according to the best information we now have, more than one-third of the growth of population in these countries during the next twenty years, more or less, probably will be in the Soviet bloc.

Well, there are some predictable changes in the distribution of population between these three blocs of countries as the result of these differences in patterns of growth. For example, the NATO countries, which now have 31 percent of the population of Europe, will have about 27 percent by 1970. The other non-Soviet countries of Europe will barely change. In 1950 and 1951 they had about one-fifth of Europe's population. By 1970 they also will have approximately one-fifth. But the share of the Soviet bloc will increase from 49 percent of Europe's population to 54 percent.

This is almost inevitable, barring some major catastrophe that we ought not to predict in this type of analysis. The growth is occurring. The people are there. The changes which affect fertility and mortality have been going through the typical evolution which these things have had in most countries of the world. Although an individual

projection may prove to be in error by a given percentage, the discrepancy between the 36 percent increase for the Soviet bloc and the 10 percent increase for the NATO countries can't be wrong as far as direction is concerned. It might be wrong as far as our estimate of 36 percent is concerned. It might prove to be 40 or 30, but the gap is there. It is one of those facts of world population that these countries must contend with.

Let us skip over to a discussion of the labor force. When we talk of the labor force today, we are talking of the employed and unemployed population available to work, rather than the population which comprises persons of working age.

In our analysis we divide the labor force into two principle groups: the civilian labor force and the armed forces. The armed forces in Europe constitute about 3 percent of the labor force. This is so in the NATO countries, and it is almost so in the other non-Soviet countries. In the Soviet bloc it runs about 4 percent.

The relative contribution of the labor force to the armed forces in each of these countries is almost a constant. In absolute terms, however, they differ in size. About two-thirds of the total armed forces of Europe belong to the Soviet bloc, and only one-quarter belong to the NATO countries.

Now, to balance the superior size of the Soviet bloc armed forces, the NATO countries would have to divert about 7.5 percent of their labor force into the armed forces. No doubt this could be done in an emergency. In the middle of 1945 in the United Kingdom we had about 24 percent of the working population in the armed forces. In the United States during World War II, I think we reached about 18 percent of the labor force in the Armed Forces, under emergency conditions. So, if it proved necessary, the non-Soviet areas of Europe could develop their armed forces to balance that which the Soviet bloc now has.

But we must remember that this capacity to mobilize additional persons into the armed forces exists also within the Soviet bloc. It would be an endless race, with the rest of Europe forever unable to catch up with the Soviet bloc countries in gross number of persons under arms. And the numerical potential of the Soviet bloc for expansion of its armed forces is far greater than that of the rest of Europe combined.

The principal component of our labor force is the civilian labor force. And the principal feature of interest about that which I want to call to your attention is the extent to which women participate in the different areas of Europe. Notice that in Europe as a whole approximately 40 or 41 percent of the labor force consists of women. In the NATO countries it is only about 30 percent. In the other non-Soviet countries of Europe, it is about 32 percent. But in the Soviet bloc at least half of all the workers are women.

Under emergency conditions the expansion of the labor force by increasing the employment of women is a real possibility. In fact, it is one of the most obvious sources of an additional labor supply. The non-Soviet part of Europe is, you might say, in a relatively fortunate position in that respect, for there the persons employed include a far smaller proportion of their potential female labor force than in the Soviet bloc. Therefore, relatively speaking, any expansion of the labor force in these countries might be somewhat greater than in the Soviet Union.

But, again, this is all relative. In absolute numbers, the massive size of the population on which the Soviet bloc can draw for its workers and for its soldiers so far overshadows the rest of Europe that it seems an almost hopeless situation to think of the non-Soviet areas ever trying to catch up to the Soviet bloc.

Consider next the ratio of the labor force to the population of working age. For all of Europe it runs about 771 persons in the labor force per thousand of population 15 to 59 years of age. In the NATO countries it is a little lower--about 721. In the Soviet bloc it is about 817.

There isn't very much more room for expansion when you get as close to a thousand as is the case in the Soviet Union. My suspicion is that a very large proportion of the employable persons within the Soviet bloc are already employed in some capacity or other. It is true that the stress and strain of war can generate a great push, but the relative capacity for expansion seems to be greater for the non-Soviet part of Europe than for the Soviet part.

Another characteristic of the labor force that we ought to look at is the extent to which the population participates in agriculture for its livelihood. For all of Europe some 45 percent of the labor force is engaged in agriculture. In the NATO countries the figure is only 27 percent, whereas in the Soviet bloc it is almost 60 percent--57 percent, as closely as we can estimate it from the rough figures available.

On the other hand, when you get to the fields of mining, manufacturing, and construction, the situation is reversed. About 36 percent of the labor force in the NATO countries is in mining, manufacturing, and construction; whereas only 22 percent of the Soviet countries' workers are in these fields.

The economic structures of these three blocs of European countries apparently have some significant differences. In the Soviet area they depend very largely on agriculture for a livelihood. In the rest of Europe much less so. Much more do they depend on industrial activities.

Let us talk for a moment about health, living standards, education--some of the social and cultural topics. One interesting feature is that death rates vary very little by blocs of countries. They range from 7.3 to 11.8. In the United States the death rate is about 9. A low death rate is an indication of a fairly good living standard.

I might say, before I proceed further, that it is not hard to determine that some countries, generally speaking, are better off than others. There are a good many standards that can be applied. We can measure such things as income, health, the percentage of the population in agriculture, illiteracy, and the availability of facilities of various kinds. If a country ranks low with respect to a good many of these criteria, it is fairly clear that it is an underdeveloped country. It is not as well off as other areas are. This is the approach I am trying to use here in discussing some of these figures which are collateral to the manpower statistics themselves.

Consider infant mortality. Infant mortality is one of the most valuable indicators of the level of living of a society. If the society is an underdeveloped one, infant mortality tends to be very high. The conventional way to express infant mortality is deaths per thousand births. Well, what do we find? 48.3 deaths of children per thousand born in the NATO countries. In the Soviet bloc it is estimated at about 75. The United States is doing very well. There are only about 29 infant deaths per thousand births in this country.

Let us consider the expectation of life at birth. This is a figure that is customarily associated with life insurance. Literally it represents the average number of man-years of life that a group of persons born during a year may expect to attain if age-specific rates remain at specified levels throughout their lifetime.

You can compare the expectation of life at birth for different areas; and, if you find that the expectation is low, you may say, "This is a relatively backward area." If it is high, then you may say, "It is a well-developed area." We find that the expectation of life in the Soviet bloc is only about 57 years, as compared with roughly 63 years in the NATO countries and about 67 years in the United States.

Interestingly enough, the highest expectation of life is found, not in the United States, but in northwestern Europe--in Denmark, the Netherlands, Norway, Sweden, and the United Kingdom.

What does expectation of life mean so far as the labor force of a country is concerned? If the expectation of life is low, you will find that many persons never contribute fully their potential to the country in which they are born. They die before they live out their full working life--a good many of them do.

Although this is not an extremely accurate way of dealing with the numbers, you might say that if you subtract roughly 15 years from the expectation of life, it will give you a crude notion of how many working years will be left on the average to a person in these countries. There is a better way of doing that by reference to life tables, but it gets somewhat too complicated to go into here.

This means that in the Soviet bloc, when a person reaches his fifteenth birthday, he has on the average about 41 or 42 years of working life left. In the NATO countries this figure would be about 47 years. You must remember that at the end of that period, as he grows older, his economic contribution lessens as his capacity lessens. So the expectation of life is a rough measure of the labor potential.

Another indicator sometimes used to compare different countries so far as living standards are concerned is illiteracy. We find that the Soviet bloc has a relatively high rate of illiteracy, the highest of all the areas we are concerned with. The NATO countries have a very low rate; and the United States, fortunately, still lower. As it turns out, the illiteracy rate in this country runs about 8.4 percent of the population 10 years old and older. It is about 8 percent in the NATO countries, and about 18 percent in the Soviet bloc.

This may not be a feature which will persist. We will see why in a moment. The Soviet bloc countries are going all-out in the development of their educational system. Relatively speaking, they are doing

very well in the provision of facilities for education. What the content of that education is I can't state. But we do know that the number of children of school age going to school is quite a respectable proportion of the number who should be going.

Well, another indication that we look at sometimes is the number of hospital beds per 10,000 inhabitants. It is estimated that there are about 106 hospital beds per 10,000 inhabitants in the NATO countries, and only 51 in the Soviet bloc.

Another indicator is inhabitants per physician. Here the rule works in reverse. The larger the number of inhabitants per physician, the poorer the situation. The Soviet bloc has about 1,600 inhabitants for each doctor. The NATO countries have about 830. In the United States the figure is about 750.

Or, consider per capita income. That is a similar measure. The Soviet bloc ranks lowest, the NATO group the highest. None of these come anywhere near the per capita income in the United States. The per capita income in the United States is well over 1,000 dollars per person.

Then there is food supply. This is a very interesting measure for comparison of areas. Take cereals--we find that the Soviet bloc ranks highest in the world in the available supplies of cereals, and the NATO countries lowest. The United States is still lower. But in terms of meat per inhabitant, the Soviet bloc ranks lowest in Europe and the NATO countries the highest. The supply is about 74 kilograms of meat per inhabitant in the United States, as compared with 38 kilograms in the NATO countries and only 21 in the Soviet bloc. Thus we see that the food supply available to the population in these areas differs considerably. The emphasis in the Soviet bloc is on grains and cereals, whereas in the NATO countries and in the United States the emphasis is more on meats, fats, and milk. In the West the consumption of these more desirable foods is considerably higher despite their greater cost.

I mentioned education a moment ago when talking about illiteracy, and I said that, although the illiteracy rate was at present considerably higher in the Soviet bloc, it might not be expected to remain so high in the light of the very great emphasis now placed on education within the Soviet bloc. There is a remarkable concentration of people in the primary schools and the higher schools in the Soviet bloc.

Roughly 57 percent of all the elementary students in Europe are in the Soviet bloc. This corresponds approximately to the proportion of children in the population. Roughly 55 percent of the children are in the Soviet bloc, and they have 57 percent of the elementary students. At the college level, however, we find a little bit of a surprise. Roughly 64 percent of all the recorded enrollments in higher educational institutions in Europe are within the Soviet bloc. This perhaps reflects the fact that higher education in this area was not too well developed before the war, and also incomparabilities in the available statistics.

In view of the rapid industrialization of some of these areas, the need for a skilled and educated managerial force, as well as a technical engineering and professional force, has become so great that institutions of higher learning have been set up and persons forced through them, sometimes against their preferences, simply to man the establishments which these countries are now putting into operation.

I think that I have perhaps spoken too long. I will try to summarize briefly what I consider to be the demographic elements of strength and weakness.

In population size we find the Soviet bloc to be in first place. From the growth rate standpoint we find the Soviet bloc in the first place. In terms of age distribution we have the Soviet bloc in a relatively favorable position.

The industrial labor force level is stronger in the non-Soviet areas. These have a larger proportion as well as a larger absolute number of workers in industrial pursuits. On the other hand, the reserves that can be drawn on to provide additional industrial workers are greater in the Soviet bloc, because the Soviet countries have so many persons in the agricultural labor force. This assumes, of course, that agricultural productivity can be improved to the point that agricultural workers may be spared.

The number of women in the labor force is susceptible to relatively greater expansion in the non-Soviet areas of Europe than in the Soviet bloc.

Living standards are less favorable in the Soviet bloc.

Many of these are points which you would have expected without looking at these figures. Monday's "New York Times" (27 September

1954) carried a mention of a congressional study by the Joint Committee on the Economic Report, trying to answer this question: "Is the Communist world taking such great economic strides as eventually perhaps to outstrip the free nations in production, living standards, and capacity to wage war?" This study will be completed in a few months. I think that is very valuable work, which you may wish to consult in your studies. What we have gone over today with respect to manpower permits us tentatively to anticipate one of its conclusions. As far as manpower is concerned, leaving other economic factors out of consideration, numerical advantage of the Soviet bloc is on the increase.

MR. MASERICK: Mr. Lawrence is now ready for your questions.

QUESTION: Isn't the high predominance of women in the labor force in the Soviet bloc and the rest of Europe due to the way they utilize women in agriculture rather than in industry?

MR. LAWRENCE: That is an important factor. As a result of the war, the Soviet Union suffered a very heavy decimation of its young adults, particularly young men. So, to man its industrial installations, there has been a steady stream of agricultural population to the cities, leaving behind to operate the farms largely a female labor force. In other countries, where the impact of the war was not so heavy, you do not find as heavy a concentration of women in agriculture. That is correct.

QUESTION: From the data you have on the secondary school enrollment of the Soviet bloc, it appears that the number is hardly sufficient to maintain the input into the technical and higher school enrollments. Does that mean a tapering off; that they have enough technicians and are just working to maintain the rate of input?

MR. LAWRENCE: I don't believe so. The figure that we have for secondary school enrollment is some 4 million, and that is incomplete. There must be a considerable number in East Germany, but the figure for that area was not available to us. In any event even complete and accurate figures would not alter the general pattern very much.

What seems to be the case in Soviet bloc education is this: About three-fourths of all enrolled students in the Soviet bloc are in the USSR itself, and the pattern there would dominate and determine the pattern for the entire bloc. They do have a compulsory 7-year educational

system, and now, at least on paper, an 11-year educational system, which operates very well in the cities and less well in the rural parts. Theoretically, persons who complete their primary education have an opportunity to enter into secondary schools. But in practice the opportunity is somewhat limited outside the cities.

These are some of the limiting factors which make it appear that the number in secondary schools may not be large enough to sustain or increase the input of students into technical and higher schools. First, we have mentioned that opportunity to enter secondary schools is limited in rural areas. We have some information that the secondary school system, where it does exist, is not meeting the requirements that the Soviets themselves have set up in their planning. Persons supposed to be attending school, particularly primary and secondary school, often do not. School administrators have been known to falsify the statistics to show that people supposed to be in school are in school. These are complaints that the Soviets make about themselves. You can find them in their daily press. They gripe about them very frequently. I recall that a few months ago our State Department published a little pamphlet on this subject in which this situation was discussed.

Second, the students in secondary schools, say in 1952, were born during the thirties, during the years of collectivization, when the annual crop of births was relatively small, and then the hardships of life were intensified. A larger than usual proportion of their generation never survived infancy and never even entered the school system.

A third limiting factor is the demand for labor which is so persistent that a fairly large proportion of the persons eligible to attend secondary schools are siphoned off into production, either immediately, or after a period of training through the state labor reserves program. We know that the last war made heavy inroads into their labor supply, and we know also that their industrial activities are getting top priority and are expanding. Part of the needed labor supply is gotten by cutting short the education of their youth.

In addition to these factors there is a certain amount of confusion, inherent in the figures themselves, which may mislead us about the relationship between the number in secondary schools and the number in technical, special, and higher schools. Some of the technical schools and special schools would be more properly classified with secondary schools rather than with higher schools. It is possible to attend some of these without having had any secondary education. They

do not necessarily have the normal progression and entrance requirements in terms of previous schooling that we are accustomed to in our country. But we do not have the information to make an entirely accurate classification and we must take these figures as they are, knowing that the secondary school figure is too low and the figures for technical, special, and higher schools too high.

As it looks, your question seems to be well taken. It doesn't look as if the present secondary enrollment is going to be large enough to sustain the higher education enrollments at even the present level as these children grow older. But this is only a surface impression, and when we look at it more carefully we see that the picture is not entirely as it might seem. We have to remember also that there is a lot of schooling going on in the Soviet bloc which is not reflected in these figures; this would include full- or part-time factory schools run by Ministries other than the Education Ministry, correspondence courses, and perhaps other kinds of schools.

QUESTION: This is more a statement than a question. I can't help but wonder about the ability of the Soviet bloc to control the bloc countries. I wonder if you would comment on the effect it would have if they could not control them. On the assumption that these figures include the bloc as such, how many would you anticipate would take part in the Soviet effort?

MR. LAWRENCE: If you remove from the Soviet bloc the European satellites, you still have left the bulk of the population, some 70 percent, and the bulk of the population of working age. So far as future population is concerned the Soviet Union will still be the principal provider of population and manpower in this bloc, certainly through 1970, and doubtless for a long time beyond then. If it were unable to control and utilize the manpower resources of the rest of the bloc, it would still have a formidable strength all by itself. Is that what you had in mind?

QUESTION: Yes. In considering the skilled and the higher-educated groups of people, both in the Soviet Union and outside.

MR. LAWRENCE: There will be, of course, some significant losses. The loss of the industrial complexes in Czechoslovakia and Poland would be serious to the Soviet system. There are qualitative differences between the skilled labor forces of the component countries of the Soviet bloc. These countries differ from one to another in their

educational systems and in the social, cultural, and philosophical determinants of the quality of their labor forces. They may differ too in the capacity to resist the efforts of the Soviet Government to bend their people to its own philosophy. If the Soviets do not succeed, they will no doubt lose the support of a relatively small but quite important industrial group.

Numerically speaking, it is pretty hard to say that it will affect the situation by so many men, or by so many units of output. I am just not in a position to develop that in detail.

QUESTION: Concerning the growing size of the population aged 60 and over, I was under the impression that this was kind of an American innovation; that for some of these countries this is not really accurate. Am I right?

MR. LAWRENCE: The population of all countries takes shape something like this (drawing on blackboard). It is what we call an age pyramid, a tool for analyzing population. It is broadest at the base, where the children are, and narrows to a very small point at the top, where we have no more survivors. This pyramid begins at zero and goes up to 100 years. As the age increases, the cross-section narrows. When we reach age 50, we are up about here (pointing). The proportion of the population over age 60 is very small. Even if these folks do continue to work after they have passed age 60, their numerical contribution to the labor force is small. This is particularly true of women. Although women survive in larger numbers, because they have lower age-specific death rates, they tend to drop out of the labor force earlier.

QUESTION: There is a great discrepancy between the Soviet bloc figure on the percentage of the civilian labor force in agriculture above other countries. Is there any indication in your own study of these figures of a change in the past 10 years, a downward change of the percentage as a country becomes industrialized?

MR. LAWRENCE: We know that there is that change. In Czechoslovakia it has been working. We know that the official five-year plans are heading in this direction--to take workers off the farm and put them in industry. In one region of Czechoslovakia, namely, the Slovak region, in the two and a half years from 1948 to the middle of 1950, about 100,000 farm workers were brought into industry. This same thing is taking place in Poland. I have noted it taking place elsewhere throughout the Soviet bloc.

As we approach 1970, which we have used as sort of a terminal point in these projections, I think we will find that there will be a significant alteration in these percentages. But to reduce the Soviet bloc percentage of the labor force in agriculture down to anything like the 27 percent which exists in the NATO countries is not a very great possibility.

QUESTION: Would you discuss the methods of census taking in some of these countries, so that we might get a better idea of how much faith we can place in the figures we have? In other words there are something like 180 ethnic groups in Russia. I should think the census takers would get into some tight places when they get to the outer fringes.

MR. LAWRENCE: The last census that the Soviet Union took was in 1939. The results of that census have never been fully published or made available to us. Some fragments of it have become available; also some analytical discussions of the census-taking procedures.

Theoretically their instructions to their enumerators and their office staffs on how to conduct the census are essentially correct. They anticipate the problems that are likely to arise in taking the census. They know in theory what to do. But how well this theory is put into practice is a matter of real question.

We know, for example, that there was an abortive census taken in 1937; that the results of this were never officially released; and that the members of the staff were punished, some very severely and some permanently. We know that in the earlier censuses, such as that in 1926, there are startling discrepancies in the figures for some of the ethnic minorities of central Asia.

There are certain things you can come to expect in a census. You can expect that at birth there will be approximately 106 boys to every 100 girls born. You can expect that this ratio will change at a fairly predictable rate, because it does so throughout the world. But in the Soviet Union, particularly in some of the minority groups, you get the most erratic pattern of sex ratio at different ages in that earlier census I am speaking of, indicating, not that they didn't know what they were supposed to do, but that there were practical operational difficulties which prevented them from getting an accurate count.

504 I am not speaking at all on the subject of whether they are trying to conceal anything. I am for the moment giving full faith and credit to the tables they present as being the real outcome of their studies. But, even when you take those, you do find that it leads you to believe that they didn't do a good job.

Now, since 1939 we have had no census of the Soviet Union. They have taken so-called short censuses, spot censuses. They compile records on births and deaths. They have a system of keeping inventory of the personnel working on collective farms. They have population registers and passports which they use to control the internal movement of their people. This system no doubt provides them with the necessary administrative statistics that they need to operate their elaborate governmental establishment.

I am sure that if we had such a system in the United States, the need for a census, as far as political purposes are concerned, such as representation in Congress, would be largely met. For the most essential purposes, the most practical purposes, a good registration system will answer almost all your questions. How good their system is I don't know. They don't publish any results.

Now, when you look at the satellite countries, they do very well. Poland took a census in 1946. It took another one in 1950. The results of the earlier census are widely known. The results of the latest census--well, it stopped telling us things about that time. But, from what we know of the earlier census, it is a good census. In fact, Poland had conditions of enumeration which would stagger us in the West in trying to take such a census here in this country.

The Czechoslovakian census gives evidence of being essentially a good census. There are few, if any of these hidden clues to bad field-work. They don't appear to any great extent in the Czech census.

Rumania took a census, but there we don't know how well it was carried out, principally because the amount of detailed information it has released is not sufficient to permit us to make a judgment on its statistics. The former director general of the Rumanian central statistical office, Dr. Manuela, is now in this country, working in our organization. I have discussed with him the measures taken by the organization in Rumania in the conduct of the census. He was in on the planning of the 1948 census until he left the country on about a 24-hour notice. From what I can gather from him, the Rumanians knew as

much about what was needed to be done in taking a census as we know here. But the problem of going at it when you have a certain amount of politics mixed into it, where you have self-serving local officials who have a position to maintain in the party hierarchy and must produce acceptable results if they are to maintain their position--these cause some doubts to creep into your mind about the efficiency with which they carried out those plans.

QUESTION: What is the reason behind that decrease in the 20-year growth rate in East Germany contemplated by your estimates? I notice all the other countries show a big increase.

MR. LAWRENCE: East Germany is an interesting case. The problem there is out-migration, which is not really allowed for in the other areas. East Germany has been losing population at a fairly large rate to West Germany in the last few years. Because of the proximity of the two countries, we have had, despite the precautions of the Soviets, some hundreds of thousands of people crossing the borders. That was taken into account in making this projection. It anticipates that there will be a continuing loss of East German population to the West German side.

QUESTION: For twenty years?

MR. LAWRENCE: We don't know. It may stop sometime, or it may be less for some of the years. We were not able to take that into account very precisely.

MR. MASERICK: Mr. Lawrence, on behalf of the Industrial College and our visitors, thank you for your very fine lecture on European manpower, and also for the interesting question and answer period which you have provided. Thank you very much.

(25 Apr 1955--250)S/gmh