L60-64
C. 1

RESOURCES AS AN ELEMENT OF NATIONAL STRENGTH

Colonel Philip B. Klein, USAF

NOTICE

This is a transcript of material presented to the resident students at the Industrial College of the Armed Forces. Members of the College may quote it only in student reports or publications for use within the College. Other persons may not quote or extract for publication, reproduce, or otherwise copy this material without specific permission from the author and from the Commandant, ICAF, in each case.

INDUSTRIAL COLLEGE OF THE ARMED FORCES

WASHINGTON, D. C.

1959-1960

RESOURCES AS AN ELEMENT OF NATIONAL STRENGTH

4 November 1959

CONTENTS

	Page
SPEAKER--Colonel Philip B. Klein, USAF, Chief Resources Branch, ICAF	1
GENERAL DISCUSSION	16

NOTICE

This transcript of material presented to the resident students at the Industrial College of the Armed Forces is furnished for official use only. Members of the College may quote it only in student reports or publications for use within the College. It may not be released to other persons, quoted or extracted for publication, or otherwise copied or distributed, without specific permission from the author and the Commandant, ICAF, in each case.

Publication No. L60-64

INDUSTRIAL COLLEGE OF THE ARMED FORCES

Washington, D.C.

RESOURCES AS AN ELEMENT OF NATIONAL STRENGTH

4 November 1959

COLONEL KLEIN: It is good to see so many of you here. I am sure that you are still laboring under the false impression that Captain Powell is going to speak to you this morning. They always say that if you want to follow the play and identify all the actors you've got to have a program.

Gentlemen, the program that you've got this week is a bit inaccurate. Captain Powell was supposed to give this talk this morning, but late last Saturday night he and his appendix decided to part company--after almost half a century. He is a little bit non compus poopus today. So we had to find another man, and, if you will permit me to paraphrase Matt Dillon in his radio version of Gun Smoke, I am that man, Philip Klein, Colonel, U. S. Air Force, probably the last man you expected to see here this morning and when you have heard me out probably the first you would like to see buried on Boot Hill.

Before I start out, I want to assure you that this is not one of those performances that has been strictly unrehersed. I am not going to jail for perjury or for perpetrating any kind of hoax. This has been rehearsed, in spite of what you may think, even if I happen to set back the noble art of lecturing for 300 years. I have rehearsed this.

Gentlemen, the act has changed, but the subject is the same, "Resources as an Element of National Strength."

CHART

Here are some of the things we are going to be looking into in this unit of instruction. In this study we are going to concentrate on the ethnic, cultural, and religious backgrounds of people. We are going to be looking at their social structures and their national aspirations. We are going to be looking at demographic trends. We are going to be looking at educational and health levels and standards. And then we are going to be looking into labor-management relations and see what effect technological advances have had on these very human relationships. Then finally, we will be looking into the subject of natural resources.

All of these are elements of national strength which contribute very directly to the power position of any nation in this world today.

Let's first look into human resources which make up the elements of national strength.

CHART

In any meaningful review of human history, I think it is pretty important that we take a look at man's progress over an extended period of time. Now, the written record is only about some 5,000 years old--that is, the written record. But the record of man's durable tools and his works, and his rubbish as well, is reputed to be somewhere in the neighborhood of 300,000 years old. That goes clear off the scale. These are the tries of man to raise his head or to raise his leg behind him, until now. They are scattered and straggled out through many stages in any column of progress. The rear of this column, you might say today, is where the head of the column was some 5,000 or so years ago.

As an example, look here. Only 80 percent of the world's people today use an alphabet or are familiar with an alphabet. Yet the alphabet has been known and has been in use for some 5,000 years. Actually only these four--religion, art, fine stone tools, and other basic tools--are known to 100 percent of the world's people today.

This is the long view of human history. In taking a somewhat shorter view of history, one author had this to say:

"Man learned some time ago that one way to settle an argument, one of the most efficient and effective ways of coming to a decision, (if not always an understanding) was to clout the other man with a brick. By knocking him senseless you get done what you became only frustrated in trying to do with words or reason."

You may think this sort of thing was learned just at the individual level. Let me read you the definition of national sovereignty which I ran across just a couple of weeks ago. "National sovereignty means that a nation retains the ultimate right to kill people in other nations in defense or in pursuit of what it judges to be its best interests." Gentlemen, we have come a long way since the caveman days, I'll tell you. Just where this bewhiskered beatnik that we've got today fits into this long process of human history, I don't know. Maybe you can tell me.

Today we find the world divided into two opposing camps. On the one hand there is a group of nations that are wholeheartedly and irrevocably dedicated to communism. On the other hand we have a group of about equal size in numbers of people who are dedicated to opposing

communism and who are dedicated to enhancing and advancing the dignity and freedom of man and the human race in general. In the middle we find yet another large group of people who, we say, are uncommitted. They have not yet sided with either one of these two powerful groups.

Now, in the course of our studies in this unit, we will surely try to find out what the reason for this rather artificial separation of people into such diverse national philosophies could possibly be. We will then try to relate human resources and natural resources to national strength and to determine, if we can, just how much of a nation's strength lies in the quality and quantity of its population and its natural resources.

Let's look into manpower for a moment or so and define what we mean by manpower, see how we apply manpower, and look at its role in a nation's destiny. Every government in every country has to make its own decision how best to employ and to allocate its manpower. In 1935, you may remember, when Mussolini sent his troops down into Ethiopia, I believe it was to preserve his oil rights down there, or on some other obscure pretext. Anyhow, the Italian soldiers were down there. The Emperor of Ethiopia, Haile Selassie, is said to have mobilized his manpower for war in these words:

"The country is now mobilized. All men and boys able to carry a weapon report for duty. Women with babies, the very old and the very young, stay at home. Married men bring wives. Others bring any convenient woman. Any man found at home will be hanged."

Gentlemen, all the necessary elements of manpower mobilization are there. This is pretty simple and it is pretty direct. I'll bet you that if the word really got around about that hanging business, there weren't many beatniks hanging around the family hearth quoting poetry to each other very long after that proclamation came out.

Of course we have a little more difficult problem than that; our society is so much more sophisticated. We have to plan for the proper use of our manpower not only for general war but for peacetime, and for cold war over a protracted period of time. This takes quite a bit of doing, to make all this come out even.

Well, let's get back. What do we mean by manpower? In the broadest sense, the manpower of a nation consists only of those persons capable of doing nationally useful work. It does not mean the total population.

CHART
3

You may recall the five M's of mobilization--materials, machines, money, management, and manpower. Among these, manpower is certainly rather special, because it is a nation's greatest productive resource, and of course it is directly related to the other four. Materials, of course, are discovered, produced, and used by man. Machines are invented, built, and operated by man. Money has no use, has no meaning, has no value, except to man. And management, I think you might say, is the mind of man at work.

Here are a few basic principles of manpower which I think may give us a better understanding of the role human resources play in making a nation powerful.

CHART

First, to survive, a nation must be able to feed itself. If this is true, then certainly a certain portion of manpower must be devoted to the production of food. For example, in Russia about one in every two persons is engaged in agricultural pursuits. In Asia the figure runs as high as three out of four. In the United States the figure is as low as 1 in 10.

The second principle: Mechanization releases manpower from agriculture to other pursuits. I think it is fairly obvious that mechanization on our farms is going hand-in-hand with mechanization of the rest of our industry in increasing our standard of living, and, believe it or not, today, with only 7 percent of the world's population we are producing almost 40 percent of the world's total goods and services.

The third principle: Manpower is a limiting factor in any future war. The capability to wage war, I think, is for all practical purposes pretty well limited by the quality and quantity of people that you have at the outbreak of the war. Certainly this is true in the case of all-out atomic war. Mechanical machines you can create, and they can become effective in rather quick order. Not so with the human machine.

The fourth principle: Modern war must be fought by a manpower team of two--the Armed Forces and the industry of a nation. Our motto here at the Industrial College is "Defense and Industry are Inseparable." The major portion of a nation's manpower, of course, is needed in the civilian economy to convert raw materials into supplies and into weapon systems, but, certainly, there must be an optimum balance in the division of manpower between the military on the one hand and the essential civilian economy on the other.

The fifth principle: As a factor of national power, quality of manpower stands even before quantity of manpower. No longer can we ever compare nations on a man-for-man basis. We've got to evaluate a nation's skills, its leadership, its morale, its technical progress, its health standards and its level of education, and all that sort of thing. These are just some of the factors which affect and measure the power of a nation.

Let's back off a little now and see just what it is that we want to find out about people. What are some of the most important factors that operate to convert human beings into national power?

CHART

Here is a chart that shows the growth of the world's population. For thousands of years, up until about 1800--you can imagine this thing stretching out for thousands of years--you can say that for all intents and for practical purposes that curve was level. Then, along about 1850 here (on the chart) look at the sudden rise. Look where it goes. In the last 100 years our population on this old globe has more than doubled. It is destined to double again in about 30 years. Wherever you see one person today you'll see two in 30 years, on the average. The present population of the world is somewhere around 2.7 billion people. It is increasing awfully fast. It is increasing at the rate of almost 50 million a year--50 million people a year.

CHART

Now look at this. Gentlemen, there is what you call a dramatic visual aid, I think. I am sorry I don't have sound effects with that one. This is what is called the population explosion. Some demographers predict that by the year 2000 there will be nearly 6 billion people to contend with on this old globe--6 million people--5 billion plus, anyway. Others go on to predict that by 2050--this is 90 years from today--there will be 14 billion people infesting this old planet--14 billion people. Gentlemen, you think you have problems trying to find a parking place. Before you die you are liable to have trouble finding a place to stand where you are not rubbing elbows with somebody. Fourteen billion people! Of course you are not going to be living then, but you'll get the backwash of this.

Maybe this is all just relative. Even back in old Daniel Boone's day--this is about old Daniel--it is said, Daniel Boone felt himself compelled to move on West, "because he heard the ring of an axe one

morning and knew that someone was settling within two miles of his cabin, and no one could abide living in a place where there was no longer room to breathe." So it may be all in what you are used to, what you grew up with, and we may be able to get by with 14 billion people on this earth some time. I don't want to be around at that time.

Now, a large population certainly does not guarantee power. Many other factors are involved, and I am sure that in this study you will soon learn that there are certain other demographic factors that affect the power role--for example, the proportion of old people, in a population and certainly of young people, the size of the labor force, the number of males as compared to the number of females, the death rate, the birth rate, health statistics, educational standards--and all of these things must be examined before we can really assess the population as an element of national strength.

To understand the full significance of the demographic factors affecting national power, we must not only know the census breakdown of these factors but also the rates of change.

CHART

Here is a chart showing large masses of population around in various parts of the world. Let's look at what we have. Here is the center of gravity of the population of the globe--631 million people in this general area here, 636 million people around in here, (indicating). Look at that! While in all of Africa there are only 208 million people, and in North and South America, only approximately 190 million each.

CHART

Here is a chart showing how closely these people live together. There are people all over the globe already! They are just scattered all over here. Notice here. The dark is the most densely populated. For example, in Holland there are about 850 people per square mile, in Belgium, England, and Wales, there are about 750 people per square mile, in Japan there are about 600 people per square mile. In the United States we have approximately 57 per square mile, and in all of the U.S.S.R., about 23.

Probably the most densely populated area in the world is right here in the Nile River Valley, where they have 1,700 people per square mile--1,700 people per square mile! Gentlemen, these are mostly Arabs, and any of you who fought the war in North Africa know that if you get yourselves interspersed among Arabs that are

packed in that close on a still, hot day, you are going to need your own supply of Airwick. They are really something. Have you ever thought about why the camel has that disdainful, supercilious, haughty, contemptuous look on his face? I have been told that this is because camels have followed close on the heels of Arabs for century after century. I don't know. I'll show you a picture of a camel very shortly, in connection with something else.

CHART

Now let's look at the world's population in a little different way. We see that the two columns here are divided up into about equal numbers of people. In the Sino-Soviet bloc there are about 950 million people. In the free world bloc there are something like 919 people. They are approximately equal, at least. Then, in the center here, in the middle, we have something like 980 million people. Again this is approximately equal. These are what we call the uncommitted people of the world. So here is the world divided into three practically numerically equal parts. The struggle to maintain a measure of equilibrium begins.

CHART

Whichever way this man here in the center throws his weight is going to determine in a large measure where the pressure of this uncommitted population will fall in the world's power pattern.

CHART

I think it is always interesting to look at the world as a whole pie. Then we will divide it up into different segments for specific purposes. We are going to do this now with race, religion, and languages. Here we see the pie is divided up first for races. Nearly half of the world's population, 40 percent, 4 out of 10, at least, are white. About 1 in 4 is yellow; about 1 in 4 is brown; and the rest are a mixture of Negro and American Indian. This, incidentally, is both North and South American Indians. There are certainly not that many North American Indians.

CHART

Here we have the pie cut up for the world's religions. You see there, about 1 person in 3 is a Christian. I'll bet you didn't know that. I didn't know that until I got to this school. I didn't know how to spell Buddhism, either, until I got to this school. There's a good

place to learn how to spell Buddhism, in case you didn't know. About 1 out of every 4 persons in this world is a Buddhist. About 1 in every 6 or 7 is a Hindu, an Islam, and so on.

CHART

Finally, we will take a look at the world according to languages. Languages have always played a significant role in the development of nations. Today there are some 2,800 different languages, actually, in use throughout the world. Nearly half of the people in this old world speak in a very old oriental tongue, 44 percent of them. About a third of them speak in the Western languages--English, Russian, Spanish, and other Western languages. All other miscellaneous languages comprise about 20 percent.

As you get a little further into the study of cultural factors of the human race, you will undoubtedly learn a lot more about the effect these factors have on the behavior of nations. Incidentally, at this point I can give you about as compact and terse a definition of culture as you will find. I quote: "Historically derived regularities and behavior that distinguish one group from another."

Much of our knowledge of culture, and the role it plays in the power position of nations, has been gathered only in very recent years. As an example of this I would like to cite the case of Pakistan. The differences in culture came into very sharp relief just prior to the creation of Pakistan. As you will recall, Pakistan was literally created out of the country of India back in 1947, when India was partitioned, and when India got its independence. Pakistan, of course, is a Moslem nation, and India is a Hindu nation. The differences between the Moslem and the Hindu cultures are very distinct, and are very often actually antagonistic in many respects.

In 1937--this was 10 years before the partition of India, which had been steaming along pretty well under British control for 150 years or so, with all the mixture of these people--Mohammed Ali Jinnah, the leader of the Moslems in India, explained his differences in this way. I am going to quote here now:

"How can you ever dream of Hindu-Moslem unity? Everything pulls us apart. We have no intermarriages. We have not the same calendar. The Moslems believe in a single God, and the Hindus are idolatrous. Like the Christians, the Moslems believe in an equalitarian society, whereas the Hindus maintain the iniquitous system of

castes and leave heartlessly 50 million untouchables to their tragic fate at the bottom of the social ladder. Now, again, the Hindus worship animals. They consider cows sacred. We, the Moslems, think this is all nonsense. We want to kill the cows, and when we get hungry, we will. We want to eat them. Another thing--no Hindu will take food from a Moslem. In fact, no orthodox Hindu will even touch Hindu food if the shadow of a Moslem or the shadow of a Hindu of lower caste has polluted the bowl."

Maybe a lot of you knew that. But this is a horrible state of affairs. This demonstrates very clearly the differences that cultures have on great, large segments of people. Some three years later Jinnah stated again:

"We are a nation of 100 million, and, what is more, we are a nation with our own, distinctive culture and civilization and literature, art and architecture, customs and calendar, history and tradition, aptitude and ambition. In short, we have our own distinctive outlook on life and of life."

Well, it was just seven years later that India was partitioned and the two countries were individually created.

Just a brief mention of health and education. Very vast improvements, of course, have been made in these fields, and a lot of them have been made in just recent years. Science is having its impact on sanitation and medicine, as you well know, and this will still further increase the rapid rate of population growth. This is simply because people no longer die as quickly as they did. They live longer, and, if you are not removing people at the top of the heap and you are feeding them in at the bottom, of course your population is going to increase.

Now, even though we have made these rapid advances in sanitation and health, all countries do not enjoy the advances that we have made.

CHART

This is the camel I promised to show you. If this camel ever reflected on the matter at all, he would know that he has a darn good chance of living to be 50 years old. The boy holding his head down there with a chain and a rope--otherwise his head would be away up, I am sure--can expect to live about 40 years. This is a pretty sad state of affairs, gentlemen, when a beast, who gets very little medical attention, I can assure you, can live longer normally than the boy. A comparative figure in Africa--in general, the life expectancy is 35 years. In India it is 27, and in the United States it is 70 years.

I think it is pretty striking, the progress that the medical profession has made in the last 300 years. I have another little bon mot here that I'd like to read to you. It is something that was taken from the official record of the last hours of King Charles II of England, who died back in 1685.

Picture this old boy. He is lying on his deathbed, and this is what they were doing to him. A pint of blood was extracted from his right arm and a half-pint from his left shoulder, followed by an emetic, two physics, and an enema comprising 15 substances. The royal head was then shaved and a blister raised; then a sneezing powder, more emetics, and bleeding. Mind you, this guy was fighting for his life. There was no particular advantage in being a member of the royal family, it seems to me. Soothing potions were applied, a plaster of pitch and pigeon dung on his feet, potions containing different substances, chiefly herbs; finally, 40 drops of extract of human skull. God knows why they gave him that. Then there was the application of bezoar stone, after which his Majesty died.

There are signs of really significant progress. Today, if we run into trouble, we take an aspirin. If that doesn't work we take a few sips of geritol. This is how far we have advanced.

Let's take a brief look at the literacy among the world's peoples.

CHART

As you know, in the United States we have very little illiteracy, but we must admit that we have about 3 percent. I suppose I can say they are in Oklahoma, because that's where I am from. I don't know where they are, but there are 3 percent of our people who we class as illiterate. In Russia at present the literacy rate is about 90 percent, but the literacy rate in Russia is practically 100 percent for everybody under the age of 25. The 1 man in 10 Russians who is illiterate today, you will find in almost every case, is over 25 years old. This certainly explains one reason why the Russians have made so many scientific scoops on us in the last few years. They are becoming a very, very literate population.

There are two other pictures here. In Mexico the literacy rate is 50 percent and in India it is 16 percent. This simply means that one person out of six in India can read and write. I guess there is no correlation on that cobra in the picture. He's just for local color, I guess.

One of our outstanding scientists, Dr. Edward Teller, said only last year, and I quote: "Ten years from now the best scientists in the

will be found in Russia. I am not saying that this will happen unless we take this or that measure. I am simply saying that this is going to happen." It's too late for us to do anything about it. This is a man who should know. That's a fairly ominous warning.

Well, all of these human factors that I have skipped over rather hurriedly this morning--race, culture, religion, language, skill, health and education--will give you some idea of the diverse characteristics of the 2.7 billion people that inhabit this world. Inescapably, I think, the dominant resource in determining national strength is the human being. All other resources play roles of varying degrees of importance but all are unquestionably subordinate to human resources.

So much for man. Let's now turn our attention to a few considerations of natural resources. Natural resources are things that come out of the ground, for the most part, and are things that man has learned to use to improve his lot and his enjoyment of life, and even to preserve his way of life.

CHART

Natural resources can be broken down in many different ways. I think the most usual breakdown is as shown here--first into mineral and agricultural. Then we get into the metallic and nonmetalic. We find first under metallic, ferrous. That simply means ores or minerals that have iron content. Also listed in that would be the so-called ferrous alloys or the additive metals that are added to iron in the making of steel, such as manganese, cobalt, tungsten, chromite, nickel, and that sort of thing. All other minerals are nonferrous. You can see the various categories there. An example of a base metal would be lead, copper, zinc, and so on. Light metals are magnesium, titanium, aluminum, and so on. The precious metals, of course, are gold, silver, platinum, and the rare metals we would list there would be uranium, cadmium, radium, beryllium, and many others that you seldom ever hear of.

Then the nonmetallic minerals include the fossil fuels, from which we get most of our power today and building materials, fertilizer, abrasive chemicals, and so forth.

Then, last, but not least--see that little one that hopped on the bottom--there is water. It has been only in the last decade or two that we have really started looking into our water situation here in our country. The future of our water supply, gentlemen, is at the

very best, bleak. This is probably one of our greatest worrisomes--if you will let me coin a word. We are worried more about our water supply in this country, I think, than any other of our natural resources. I won't to into that in great detail, but this is true. We can think of all kinds of uses for water, my goodness. Hydroelectric power is one of the best examples, but water is required in our steam generating plants, too. Water is used in the home very extensively, and it is certainly used in industry. For example--I'll bet you don't know this--it takes 65,000 gallons of water to make one ton of steel--65,000 gallons. This can't be just plain old salt water, either. It has to be fairly pure water. It can be brackish, but it can't be salt water. Then you use water in the public parks, in pools, in fountains, in sewage systems, and that sort of thing. Then, too, there are people who on some occasions drink the stuff.

Another broad category of resources is agricultural. They are self-explanatory. There is no use going down through those.

Now that we have established these broad classifications of natural resources, let's take a quick look at the natural-resources position of this country. I have touched on that a little bit in talking about water. Let's go back just about half a century. At the turn of the century we were just emerging as an industrial nation. There weren't many of us living then. But since 1900 our population has actually more than doubled, and our GNP has increased 10 times. Our materials consumption in constant dollars has increased, since 1900, from around $8 billion to $20 billion per year. Up to World War II the production of raw materials not only kept pace with it but exceeded the material consumption that was occurring in this country. We were exporting on a very large scale, and, I might say, quite profitably.

CHART

Look at what happened. Our consumption requirements now exceed the production capabilities here. This happened during the war. Where the lines cross there is when we ceased to be a materials-surplus nation and became a materials-deficit nation so far as the production of raw materials was concerned. Whereas we used to be a net exporter of almost everything, now we are a net importer of a lot of very important things--for example, lumber. Believe it or not, of all the forests we had here 100 years ago, we are importing very extensive quantities of lumber to meet the demands of our economy. I am not talking about paper pulp. We always traditionally got that from Canada. But this is lumber.

To satisfy our petroleum and iron-ore needs, we are importing more and more each year. Aluminum production 15 years ago in this country found us using 80 percent of our own bauxite. Now that figure is down to somewhere around 25 percent.

Those are just a few examples of our present position relative to self-sufficiency in raw materials. The changes in our economy during these past 40 or 50 years have certainly given us a materials problem, a problem that may be serious, may be very serious, or it may be of no particular concern if we just use a little judgment and a little common sense as we go along.

Whatever the nature and size of this materials problem, there are certainly things that we can do to alleviate any pinches that really start to hurt. First of all, we can increase our efforts to locate new domestic resources or reserves. This is going to cost money, but, if it pinches, remember I qualified this by saying that if it really pinches, really hurts, I am sure we can find more in this country. It is a matter of exploration, and/or we can use our known resources morefully. We can get oil from shales, for example.

Gentlemen, here is a statistic I wish you'd remember, one that really rocked me. I thought I had misunderstood it at first. In the Colorado Plateau, in the shale deposits out there, there is a known reserve of petroleum--500 billion tons. I thought it must surely be 5 billion tons. You could have shocked me if you said it was 5 million tons, but it is 500 billion tons. It isn't barrels, either--it's tons. That's a good figure to remember. You may hear this a little later on. We'll have a whole day devoted to petroleum, and I dare say you will hear that same statistic.

Another thing--we can get magnesium from the sea if we have to. We can get aluminum from clay, iron from taconite ores--which we are doing now commercially. There is an almost inexhaustible supply of taconite ores in this country. As they become commercially reducible to iron ore, we can get more from them.

We can shift from scarce materials to ones that are relatively more plentiful, such as substituting aluminum for copper, plastics for lead, and that sort of thing. Whenever we talk about substitutions this way, I am always reminded of the farmer--this was in Oklahoma, too. He had been to the big city. This was back in the days when refrigeration in the countryside was not universal, and there were very few farms that had iceboxes. Maybe they had a cyclone cellar and it was cool down there. So the average farmer never had a banana,

had never seen a banana at all. Well, this fellow picked up a sack of bananas. He was in town, and he thought he would take old Bill a sack of bananas and let him experience some of these new things. The reason he could do this was because he bought himself a car and he could get the bananas out there before they spoiled. Otherwise he'd have to go in a wagon. But he got the bananas out and left them with old Bill out there. Two or three days later he went back and was talking to Bill and he asked, "Bill, what did you think of those bananas?" Bill said, "Well, Jim, I'll tell you. I know what you are thinking." He said, "Those bananas look like corn, a little bit. They sort of feel like corn. But, Jim, they are never going to substitute for corn. You take those bananas, and, by the time you get the husks off and you throw that cob away, there's damn little left to eat."

A final thing we can do is, we can import more materials from abroad, of course, certainly in peacetime. That's enough for that, because this afternoon we are going to have a very interesting film on our natural resources, and it will point up some of the problems we are having in this field.

Certainly one measure of national power is the ability to wage war. This by no means is the only one, but adequate resources of one kind or another have always been essential in any successful venture involving the use of force of arms. Of course in prehistoric times a man got along pretty well with just flint and stone. Then when the mediaeval knight came along he found that he needed a little iron in his shield and in his spear and in his sword. Then a little later England came along and ruled the world pretty well by adding big timbers and making ships and by the addition of gunpowder to the military arsenal.

Today just about all of the natural resources known to man are required someplace in our modern weapon systems. To maintain a capability to wage war, then, a nation must either have these raw materials within her boundaries or she must at least have access to huge quantities or supplies of raw materials.

CHART

Here is a chart that shows the relative position of world production. I am not going to dwell on this too long. Let's take this one, for example--iron. We see that 75 percent of the world's production is in the free world. Breaking that down, 35 percent of the world's production is in North America. That's not 35 percent of 75 percent. That's 35 percent of the world's production--about one-third of this strip here (indicating)--is in North America, 30 percent is in the European complex,

and about 10 percent is in the balance of the free world. That leaves, then, 25 percent of the world's production in the Soviet bloc. This, since it is production, gives a sort of measure of industrial activity in the two blocs. It doesn't mean warmaking capability, but it does give you a measure of the industrial activity.

CHART

Let's take a quick look at this chart. Let's see if we can determine the difference between the use of natural resources and the mere possession of them. To do this we come to a look-see at three very important natural resources--iron ore, coal, and petroleum. You will notice that the U. S. S. R. and the United States, both of which are underlined here, are in each case within the top seven. But look at some of those other countries. Look at Kuwait, for example, for oil, and at Iran, for oil. Look at India, for iron ore, and at Brazil, for iron ore.

I think a little study of this chart makes it very clear that the mere possession of resources does not give a nation any measure of power per se. India, in regard to iron ore, and Kuwait and Iran in regard to petroleum, are certainly not nationally powerful, but, because of these natural assets that they have within their borders, they are powers to be reckoned with--lest we ever forget the difficulties we had in the Middle East some three years ago. Look in this column and see if you can find France, Germany, or England. Look in any of the columns and see if you can find Italy or Japan. They are not there. Yet these countries are certainly comparatively great powers today.

Manufacturing nations certainly enjoy strength almost in direct relation to their ability to produce durable goods--again citing England, France, the United States, Germany, Japan, and Canada. A key to this power, of course, is access, I think, to large quantities of raw materials, coupled certainly with the availability of adequate, properly trained, educated human resources. Don't ever forget that human element. Without people, nothing means anything.

I think it all boils down to this--and I am about through, gentlemen, so don't get to stirring too much. In the final analysis, the natural resources that a nation has at its command--not necessarily within its borders--but the natural resources that it has as its command--may well determine its power position in the world; that is, if everything else is relatively equal. History teaches us that a nation in need of raw materials will get them in one way or another--by conquest, or colonial expansion, or by developing them without conquest, permissively, in foreign countries, or, in the final analysis, by purchasing them.

A powerful nation cannot remain powerful without them. If she hasn't got these resources she will surely fight for them if she has to.

Gentlemen, my time is up. You have been very patient in listening to me. In conclusion I want to say that I think we have put together a pretty good course of instruction in Unit III. We will have about 20 very excellent lectures, and some very interesting seminars. We certainly hope that you will enjoy it and get a lot out of it.

Let's take a 10-minute break and then come back for questions.

COLONEL KLEIN: Gentlemen, the sooner we get started, the sooner we can get out. I invite any questions that you may have or any observations that anybody wants to make. Anybody who wants to make an OP can on this subject. Before we start with that I would like to inform you that this is a little gem that I ran across just yesterday. On CBS television, on November 11--that's Veterans' Day--at 10:00 o'clock, for an hour, between 10:00 and 11:00 P.M., there is going to be a program called "Population Explosion," believe it or not, and, if you are really interested and have a TV at home, I suggest that you look at this. Usually these CBS productions are really good. That's CBS TV, 10:00 o'clock, November 11, 10:00 o'clock, P. M., "Population Explosion."

Does anybody have any desire to hold up his hand for any reason at all?

QUESTION: You mentioned literacy. Will we get into education in this area, ignoring our scientific race with Russia? I am talking about the simple higher education problem in the States.

COLONEL KLEIN: Yes, sir, we very definitely do. That's one of the things we highlight, in fact. We have a lecture on that very thing. Let me see if I can find the date here. On November 23, the subject is Education and National Security. This will be a sort of sophisticated lecture. That's certainly true. But, in your area studies devoted to the improvement of personnel and the utilization of personnel, you will be studying that yourselves. In that area we will be studying education, and we will be reporting back to the section.

STUDENT: I don't see that in the area. We have human resources.

COLONEL KLEIN: Education is in there. It was on the chart, you remember. This is one of those things that we certainly will be studying. Whether or not it is spelled out anywhere, it is one of the most important things about human resources.

QUESTION: In your pie chart on religion, where does the U.S.S.R. fall? Is it spread out?

COLONEL KLEIN: I can't answer that. I don't know the answer to that. There are a good number of Christians in the U.S.S.R. Mind you, this chart does not necessarily mean the so-called open, practicing religions, probably. This means faith more than anything else, dedicated faith. I should say it is spread out. I think logically it would be spread out. Of course there are Christians, there are Jews, there are Moslems, there are everything in the U.S.S.R. I know there are lots of Moslems over in the eastern part of Siberia, on the borders of Afghanistan. That's what causes most of those border wars up there, in fact--the Moslems.

COMMENT: I have two observations, sir. First of all, you say there are many Christians in Russia. I would like to say that there are probably less than 3 million Christians in Russia. From our present observation--and these figures come from the Baptist World Alliance--the biggest group of Christians are Baptists. The Baptist Church is still operating there. My second comment is, on your literacy chart you show 2-1/2 percent illiteracy in the United States. If this means that they can't learn by themselves and they haven't graduated from the third grade, there's about 11 percent.

COLONEL KLEIN: This is a good extension of that. Thank you very much for that information. Here is a man who is expert on these things. You find this all the time. We certainly welcome things like that. Consider yourselves put straight on that one.

COMMENT: I have a question to raise on that. I was under the impression that the majority of Christians in Russia were Greek Orthodox.

COMMENT: The Baptists don't recognize them.

COLONEL KLEIN: Gentlemen, these are interesting points. I suggest that whoever gets into the area of cultures look this up and be able to report back to the other sections what the facts are. There seems to be some differences of opinion.

QUESTION: Could you expand just a little bit on how the course is going to be conducted during this unit with respect to the individual area studies and how they are brought together.

COLONEL KLEIN: I can do that, yes, sir. Right after this meeting, at 10:30, we will have a section on orientation and it is planned that this will be explained to you there, but I'll go over it briefly. The first phase, what we call Phase I, is the research and study phase. This lasts about a month. I think it is until the third of December. It's somewhere along in there. Each committee will send at least one representative, and not more than three, to each area of study. We'll have eight area studies that have delegates or representatives from the eight sections. The area study will have no chairman, as such. The faculty moderators will conduct all the proceedings and moderate all the discussions that you have in your area seminars. Mind you, this first month of study is research study and seminars. Don't count on the two seminars you have in your area to give you all the information that you are going to need or going to want to report back to the sections when you go back after a month's study.

Does that answer your question? If you have any specific questions on things like how the course should be run or is going to be run, you can save them for the next meeting. That's what that meeting is for. It's planned that way.

I would like to say one thing here while you are all assembled, and that is, we have learned from experience that, where you don't have a committee report to write up, you do all this research, make a lot of notes so that you can go back to your areas and report, and, once the unit of study is over and you go on to something else, you chuck those notes into the wastebasket and you have no record of human effort. Comes the springtime when you are studying economic capability for international conflict, when you study not only human and natural resources as a part of economic capability but you run into power, into transportation, and into all these other things that affect economic capability for any kind of international conflict, and then is when you will have use for these notes again. Finally, you will need them in the final problem. So whatever notes you take, and whatever references you make as a matter of record, for goodness' sake, keep those. Don't throw them away.

Anybody else? O.K. Let's call it quits.

Thank you very much.