THE FREE WORLD FOOD SITUATION AND ITS IMPLICATIONS FOR ECONOMIC MOBILIZATION

13 October 1954

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INDUSTRIAL COLLEGE OF THE ARMED FORCES

Washington, D. C.

Mr. Stanley Andrews, Kellogg Foundation, is Director of the National Project in Agricultural Communications at Michigan State College. He was born in High Point, Missouri in 1895. After interrupting his studies to serve two years with the AEF during the First World War, he was graduated from the University of Missouri with a B.J. degree in 1921. Between 1921 and 1934 he was reporter, editor, and publisher on various newspapers in Arkansas as well as owner and operator of a radio station. Subsequently he held executive positions with CCC and FCA, and acted as consultant to the Secretary of Agriculture. During World War II he was a military officer, during which time he had responsibility for supervising the feeding of Italy after its occupation. He was later appointed chief of Food, Agriculture, and Forestry Group in the Military Government of Germany, and was responsible for integrating British, American, and French staffs dealing with food, agriculture, and timber economy of Western Germany. Here he supervised an elaborate system of planning production quotas, collections, distribution and rationing of all Germany's food resources, culminating as adviser to General Clay in supervising the procurement, distribution, and supply of food for the Berlin airlift. In 1949 he returned to the U. S. Department of Agriculture as director of the Office of Foreign Agricultural Relations. Upon the death of Dr. Henry G. Bennett, Point IV administrator in 1951, Mr. Andrews was selected to carry on the Africa and Asia program which Dr. Bennett had begun. In April 1952 the President named Mr. Andrews as administrator, Technical Cooperation Administration. He resigned this position on 1 September 1953 to accept his present assignment with the Kellogg Foundation.

THE FREE WORLD FOOD SITUATION AND ITS IMPLICATIONS ECONOMIC MOBILIZATION

13 October 1954

DR. CLEM: Ladies and gentlemen: I suppose that for most of us the monthly grocery bill is a grim enough reminder that food is still very much a sine qua non of human existence. Any course in natural resources must recognize this fact by giving high priority to an examination of our food producing resources. Our subject today, therefore, is "The Free World Food Situation and Its Implications for Economic Mobilization."

Our speaker is Mr. Stanley Andrews of the Kellogg Foundation. The biographical data sheet appearing on your weekly schedule gives you a little glimpse of the extensive background and rich experience of this gentleman in dealing with problems in the related field of food and agriculture. I should like to add merely this, that since Mr. Andrew's first lecture here in 1951 the Industrial College has looked to him as a guide, philosopher, and friend in exploring the food and agriculture facets of the problem of economic mobilization.

Mr. Andrews, it is a pleasure to welcome you to this platform again this morning and to introduce you to the class of 1955.

MR. ANDREWS: Dr. Clem, Admiral Hague, and others: I got a kind of a joke the other day from a very distinguished educator, Mr. Russell, for many years the dean of the Teachers' College of Columbia University. He said in practical effect that his 40 years of experience as an educator proved to him that students and people got absolutely nothing out of a classroom lecture. So if you don't get anything out of my lecture, I will assume that we are running according to tradition. He did say, though, that the closer you could move your theoretical classroom method to the actual doing of things, the more you began to get something out of them.

I am going to start this lecture--being on a campus now--as a lot of professors do, with some assumptions. You know when I was here in Washington as a bureaucrat, we used a sort of dichotomy of words. There were two words we used all the time: One was "coordinating" and the other was "implementation." If you couldn't use coordinating and implementation, you were not a bureaucrat.

I am around the college atmosphere now and I find two words which are something you must have in your vocabulary if you are around a college: One is "assumption" and the other is "dilemma." I have been trying to figure out what those two things mean in the general area of a school curriculum. I have about decided that "assumption" is something you start on when you have nothing else to start with, and "dilemma" is something you hang up on when you don't know where you are going.

For the purpose of this talk, I am going to make three assumptions on the present general world situation:

1. That we are in for a rather long period of "strained coexistence" with Russian communism and that a third world war is off for several years, possibly many years ahead, and possibly might be avoided.

2. That this coexistence will make necessary a heavy commitment of the free world to military defense and that we will have to keep our warmaking potential high.

3. That we will have threats in the form of localized wars around the perimeter of the free world.

There is a fourth assumption and that is that in all mobilization and in the economies throughout the world, particularly the free world, in the next 10 or 15 years, there is going to be a degree of state direction whether we like it or not. We talk about free enterprise, free trade, free capitalism, and all the things that we like to have and say we are going to have, but we are just not in that kind of world. We are not going to be. There is going to be a certain amount of direction in economic mobilization right within our own country, and state direction in the development of natural resources and agriculture in areas throughout the world.

So with that little picture, we will pick up more or less where I left off last year and look at the world situation, where we are with respect to food and what the actual picture is.

The agricultural situation in the years since 1945 has been on the whole pretty hectic, reflecting some serious dislocations in production and changes in the trade pattern. This has caused surpluses to pile up in some areas while near famine developed in others.

The principal postwar problem for the free world, and to some extent the Iron Curtain countries, was the restoration of agricultural production in the areas torn up and dislocated by the actual fighting during World War II. These countries are pretty well restored so far as production capacity--industrial and agricultural--is concerned. They are almost back to where they were prewar. This restoration was accompanied by a whole series of readjustments which have been brought about by the so-called Iron Curtain trade pattern and the Iron Curtain production pattern in food and agriculture.

Another readjustment, which is more significant in my opinion than that of the Iron Curtain, is the one necessitated by the breakup of the colonial empires of England, Holland, and Japan, as well as the restoration to sovereignty of the mandated areas of the Middle East. Since the war, we have had 11 new sovereign nations coming into existence. The mandate powers in the Middle East in theory were preparing those people for sovereignty, but actually their production was directed to supplement the economies of the mandate powers. Even in the case of the Philippines--and I don't think any more benevolent power ever lived than the United States--their production efforts were directed to fit our economy here more than to make the Philippines as such a viable unit within itself.

Some terrific readjustments have had to be made because these new sovereign people are not interested in doing what a lot of us thought they ought to do. They are going to make their mistakes. They are going to make their decisions. That readjustment is not complete, but it is gradually forming into a pattern. So we have that picture when we talk about food and agriculture. We will try in the next few minutes to relate this to economic mobilization.

The general food situation on the side of the free world has substantially changed since my appearance here last year.

First, 1954 is the second year in a row when world food production has equaled on a per capita basis what it was in pre-World War II. That takes in the increased population. Further, it is the second year since World War II where the rate in increased agricultural production has equaled the rate of increase in population. Up until last year, the world population was increasing about 13 percent every 10 years; food production on a per capita basis was increasing only about 9 percent--so we were growing faster with people than we were growing with agriculture. But now, in this year particularly, the rate of increase is just about on a par with population increase.

A second point, and to some extent offsetting all the more favorable factors as we look at it today, is the loss by the free world of the Tonkin Delta of Indochina, one of the most prolific areas of rice production in Asia. This fact, and what might happen to the rest of the surplus areas of South and Southeast Asia, has profound implications for the free world as well as for Communist China. We will talk about the significance of that later.

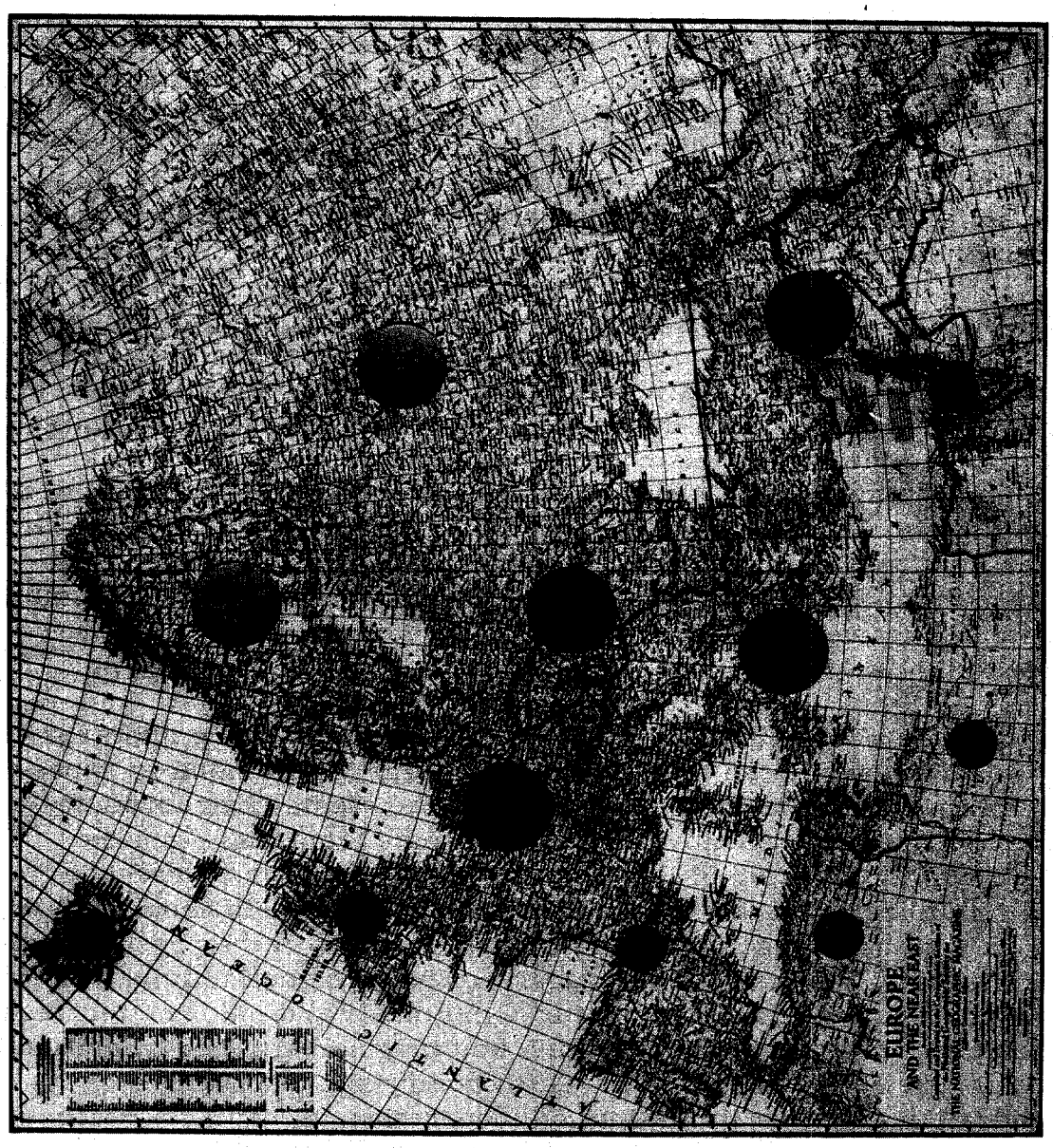
Map 1, page 5.--This map is familiar to some of you. This is confined to western and central Europe. You will note the Iron Curtain line which runs from near Lubeck on the Baltic Sea to the Black Sea. We pick up this same line on the shores of Turkey. We'll trace that line along the borders of Russia and Turkey clear across Iran and Pakistan to the borders of China and India. This curtain or line is a political and ideological barrier that affects economics, politics, and even production of food as between these two great half worlds called the free world and the Iron Curtain countries.

Now back to Europe--the first fact about the Iron Curtain is that 270 million people live west of the Iron Curtain in western Europe and the Mediterranean. They must get from somewhere outside their borders one year to another roughly 30 percent of the food products and nearly all of their fibers, save wool and hemp. This is the greatest area of industrialization on the Continent, and if we deal in terms of the concentration of industry, the greatest concentration in the world. The industrial capacity of the United States is superior to all of Europe in terms of capacity to produce and the resources to back it up. However, Europe's industrial capacity to produce is crammed into a smaller area.

These industrial countries cannot live at their present standards within themselves. They must trade and that is a significant political and economic fact. Two hundred years ago, with far less population than this area has now, famines were frequent. The rise of mercantilism, land transportation, and international trade plus the use of fertilizers, banished famines. The food resources of the Danube Basin and the Russian Ukraine plus the opening up of the United States changed the picture in Europe. Not only did great industries rise in western Europe, but built around the trade which these industries forced came financial mechanisms and trade patterns complimentary to these areas.

That is all pretty badly dislocated today for two reasons: One, of course, the cold war; second, the political unrest and the breakup of landholdings in the Danube Basin. This has seriously affected productivity.

MAP No. 1



This, plus rising populations and the slow advance of technology, means that the foods which used to come from the Danube Basin simply are not produced now. There is little likelihood that this area will be in years to come an important exporter.

A few years ago we had a conference in Geneva in which the Russians insisted on opening up trade with eastern Europe as it used to be. They talked about shipping 12 million tons of foodstuffs to the West. The State Department and our own people were quite worried because they didn't want to be in the position of opposing this but they were scared to death that something like that would happen.

At that time I was mixed up with the Foreign Agricultural Service. We had people all over that area and they gave us reports. We argued--with our fingers crossed, but it turned out to be right--that the Russians didn't have it. I said, "Call their bluff. When you get there, say 'We are glad to see these products come out of there.'" They were talking about 50 million bushels of course grains, for instance. I don't guess a million bushels of stuff ever came out of that area. They didn't have it. It was all bluff. It is still bluff in these areas. Until technology is developed and until there is more incentive for people to produce, Russia and eastern Europe, in my honest opinion, are never going to export supplies to the West.

It will take a long time and intense development to bring this area back. Russia seems to be doubting the long-time trends here or it possibly is preparing for some sort of war with the West. Extraordinary efforts are being made to move and settle people from these general areas far into the interior of Russia. There is, however, a reduced emphasis in Russia and the Balkan countries on the development of heavy industries and there is some turn to consumer goods in the present "new look" in Russia. Further, there is less emphasis on collectivization and more on cooperatives as a means of applying mass and machine techniques in agriculture. The only country which was originally in this Iron Curtain bloc and is now out is Yugoslavia. This country has had to abandon its collectivization and even its system of cooperatives is having a pretty hard struggle. Yugoslavia, for centuries a surplus producer, in more recent years has been a deficit country and has had to import foods from the West. Western Germany has had a 35 percent increase in food production since the war, yet the Germans are only supplying 50 percent of what they must have. Italy has come up tremendously and is almost self-sufficient, but it must have a marvelously big amount of other things.

As I have pointed out in previous lectures here, either by accident of history or whatever you want to make it, you see the Russians in the divide-up got the surplus areas, with the exception of a little area in Northern Europe.

While we are with this area and this map, we may as well take a quick look at the Middle East. Here are some rather extraordinary things taking place in these old lands which for centuries have been either pretty dormant or have been exploited by one power or the other.

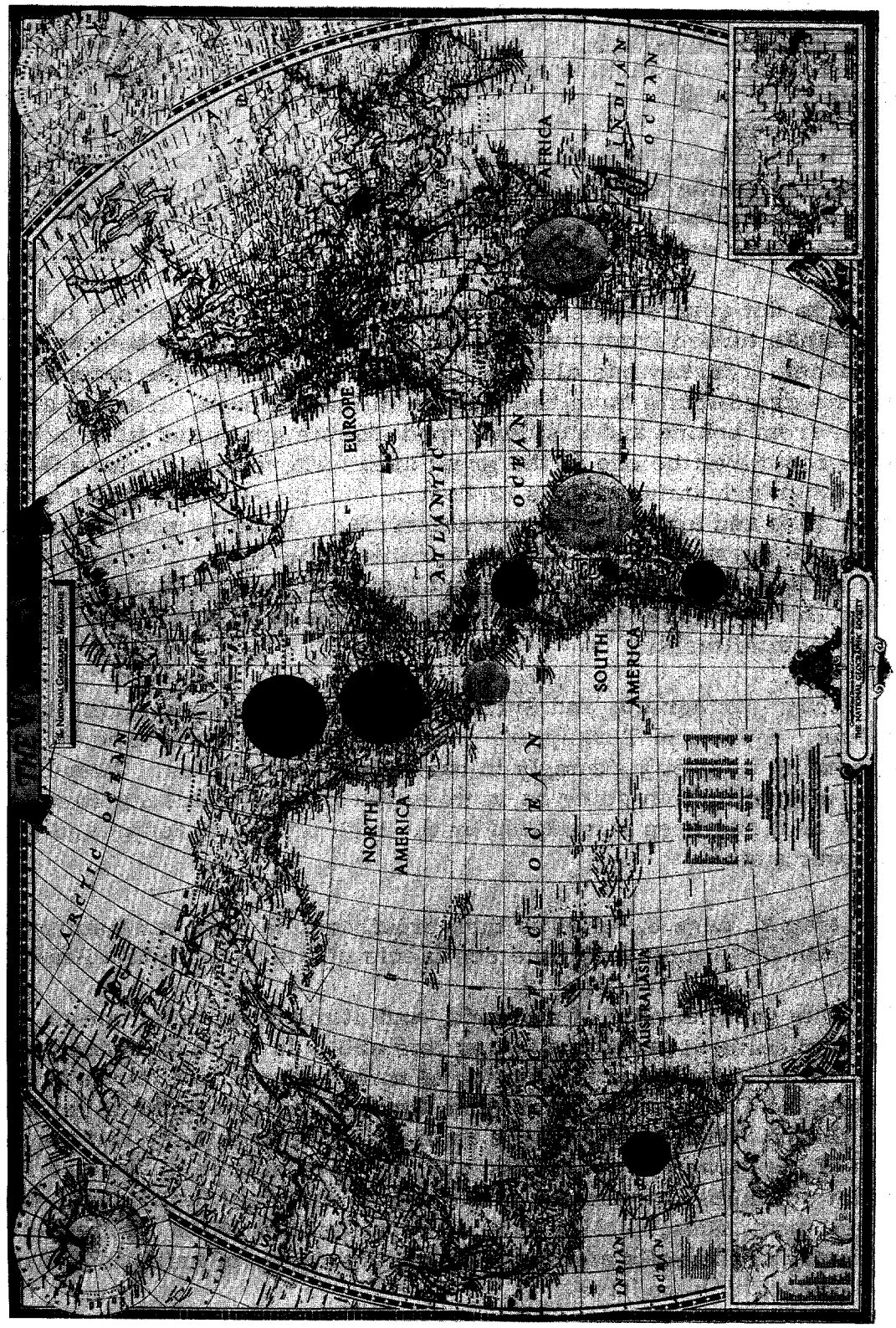
I'm not quite ready to say that it will stick, but Turkey in recent years has turned from a deficit country in cotton and wheat to a surplus producer. Turkey has always produced tobacco for the outside world and its dried fruits have been known the world over. Turkey also has come from behind and has developed sizable grain and fiber production. This could well be one of the great areas where in the future Germany and other industrial nations of Europe will be getting a great deal of their food and agricultural raw materials. A rising economy in Turkey means a big market for Europe's industrial goods. Turkey had about one million tons of wheat to export last year and Syria about a half million. However this year both countries are having trouble meeting their commitments.

Iraq, farther up, and Syria both are experiencing agricultural booms. Syria and Turkey are pretty important cotton exporters. Iraq is coming up pretty strongly in barley and feed grains. There is a good deal of exploitation going on in this area in what I call suitcase farming. A lot of it has been stimulated by the high prices of cotton and grain in postwar items.

Map 2, page 8.--Let us turn briefly to the Western Hemisphere and look for a moment at the continents of North and South America.

The great source of strength, and at the same time one of the serious agricultural problems facing this area, is the high concentration and exceedingly large production of most agricultural crops in the United States and Canada. We have gone through an agricultural revolution in the United States so far as the application of machinery and the reduction of manpower in production per unit is concerned. We are in the midst of another revolution in the use of chemical fertilizers, insecticides, pesticides, biotics, and other measures which increase the productivity of the soils and improve the efficiency of animals and of the facilities which we have.

MAP No. 2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AFRICA
INDIAN OCEAN
SOUTH AMERICA
AUSTRALASIA
PACIFIC OCEAN
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These revolutionary techniques, if universally applied to all American farming, could well boost American production another 25 to 40 percent. Similar progress is being made in Canada. We find the United States and Canada with a greater capacity to produce, with more resources, capital, and management behind agricultural production than either our own people or the world can absorb.

It appears that one way or another we are going to have to reduce for a while some of the resources behind agricultural production in this area and through some sort of soil bank or other arrangements preserve this potential as a hedge against another world emergency; at best keep it in a high productive potential to take care of the growing population of this country. With maximum use of our land and water resources plus the application of known techniques, I would hesitate to suggest just how much this country could produce. Since 1945 we have shipped out of the United States an average of about 11 million tons of grains and for the four years previous to World War II our average was about 1 million tons. That will give you some idea of the tremendous expansion which has taken place.

When we turn to South America we get a different picture and a disturbing one in many ways. Here is a part of the world with a vast potential that is actually falling behind. To some extent this is caused, first, by the breakup of the systems which have been in vogue there for centuries; second, by failure of the countries to provide education for the lower levels of the population; third, by failure of its schools and experiment stations to keep up with and extend new technology; and, fourth, by the growing population of the areas brought on largely by improved health conditions.

Many of the countries down there are exploiting their industrial agriculture to the limit to secure foreign exchange for the vast attempts at industrialization and urbanization now going on. This is true of Brazil with its coffee and cotton crops; Argentina, with its wheat, flax, and cattle; Mexico, with its sisal, henequen, and cotton; Colombia, Equador, and Peru, with their sugar, rice, and cocoa. Though rice is largely locally consumed, since World War II, Brazil, Chile, Uruguay, and Equador have been exporting about 300,000 tons of rice per year to Europe and Asia.

Argentina within the past two years has returned again as an important factor in the wheat and corn grain export business. The government has reversed its policy somewhat and is now courting agricultural

production with better prices and conditions. In the years during and after World War II, Argentina followed a policy of exploiting agriculture in favor of the laboring population in the cities and by government-controlled trade in agriculture bought low from the farmers and sold high on the world markets. The farmers put up with that for five or six years and then went on strike, virtually going out of agricultural production. This not only nearly ruined agriculture but caused a loss of exchange.

Brazil is moving some in the direction of developing more wheat lands, thus becoming more nearly self-sufficient than at present. Brazil also has been exploiting industrial crops in order to industrialize. In other words coffee, rubber, sisal, and various wood industrial crops in Brazil have nearly all been going to buy steel for new automobiles and apartment buildings. It is pretty fast building a tremendous level of urbanization with little to back it up. One of these days, when these people get tired of pressing one another's pants or renting houses from one another, Brazil is in for real trouble. Within the last six months, however, there has been an almost direct reversal of policy headed toward the redevelopment and revitalization of agriculture.

Brazil was sitting behind coffee, not noticing the fact that Africa is going to be the real coffee producing area of the world. The first thing Brazil knows, it will be in real trouble with coffee. It is just waking up to that fact.

Bolivia has a new famine this year in the midst of the greatest potential in Latin America. There is a new highway from La Paz down to the jungle area which is about the size of Texas. That is inhabited mostly by a few Indians. You can grow almost anything you want to grow in that area. They will give you 1,000 acres of ground if you ask for it and agree to develop it.

I know some fellows who bought some broken-down tractors and trucks and took over some land in there. I was down there a year ago and they were getting a bale of cotton to the acre on that raw land. The potential down there is fantastic.

I noticed Bolivia is moving Japanese, Czechs, and other people in there. It has had a policy for a long time of not letting settlers come in. That policy is being reversed.

They have milked the tin mines there in the mountains. There is a small group of very, very wealthy Bolivians going on just as they

always have. The poverty ridden Indians are also very much as they have been for centuries. When the new Pan American highway opens up the jungle there, the same thing could happen in Bolivia that happened when the railroad broke through the prairies in this country. This is one of those terrible paradoxes. Here is a country rich in resources and potential; yet we had to give them a million tons of food grains six months ago to keep them alive.

In our conversation before we entered this lecture hall, I was telling the gentlemen here that the Indians still farm with a wooden spade hewn out of a tree. I described how we had taken a Japanese rice hoe, adapted it to Andean conditions, and showed the Indian how he could more easily prepare a lot more ground in a day. He was delighted with it, but we couldn't figure out a way to get him the hoe. You can't give every Indian in Bolivia a hoe. If you modernize a hoe, you have to find some way of getting it to the guy who is going to use it. But how can you get everyone a $2.76 hoe? It is just that simple. A lot of people think about tractors and all these things, but we had better start with a good hoe on that particular deal.

That is the picture of the Western World. The trouble here primarily is that grain bins are filled up around the world, cotton bins are filled up around the world, and with the tremendous crops in this country, we are worried about surpluses. The only thing I want to say is--I don't want to get into politics or policy. We are putting too much resources, labor, capital, technology, and fertilizer back of our agricultural production in this country for the market we now have. In other words we are producing more than we can use at home and more than the world can absorb on our terms--our terms being that we are going to sell it rather than give it away. To stave off disaster for this country we must cut back resources behind agriculture for a short time.

The thing I am saying is that from the standpoint of economic mobilization and from the military standpoint, we must figure out some way to put some of this land resource into mothballs, to build a soil bank. If the worst does happen, this production right here can sustain the free world. It did for at least six years after World War II ended. If it hadn't been for the production of the United States and the ability to produce more and move it across, there wouldn't have been any Europe as we know it today. It would have exploded with its own force there.

I believe in one previous lecture, I said at one time in Western Germany we had food riots in the Ruhr, with 300,000 people tramping

the streets; mothers with babies crying for food. Part of it was a political demonstration; part of it actual fact. We had an eight-day supply of food in Western Germany to feed 50 million people. We had to have food and we had to have it quick.

The one place on earth where there was food that could be dropped in there to save that situation was here in the United States. Whether you realize it or not, some of you fellows who have been in military operations, I would like to say a good thing about the boys over here in the Department of Agriculture.

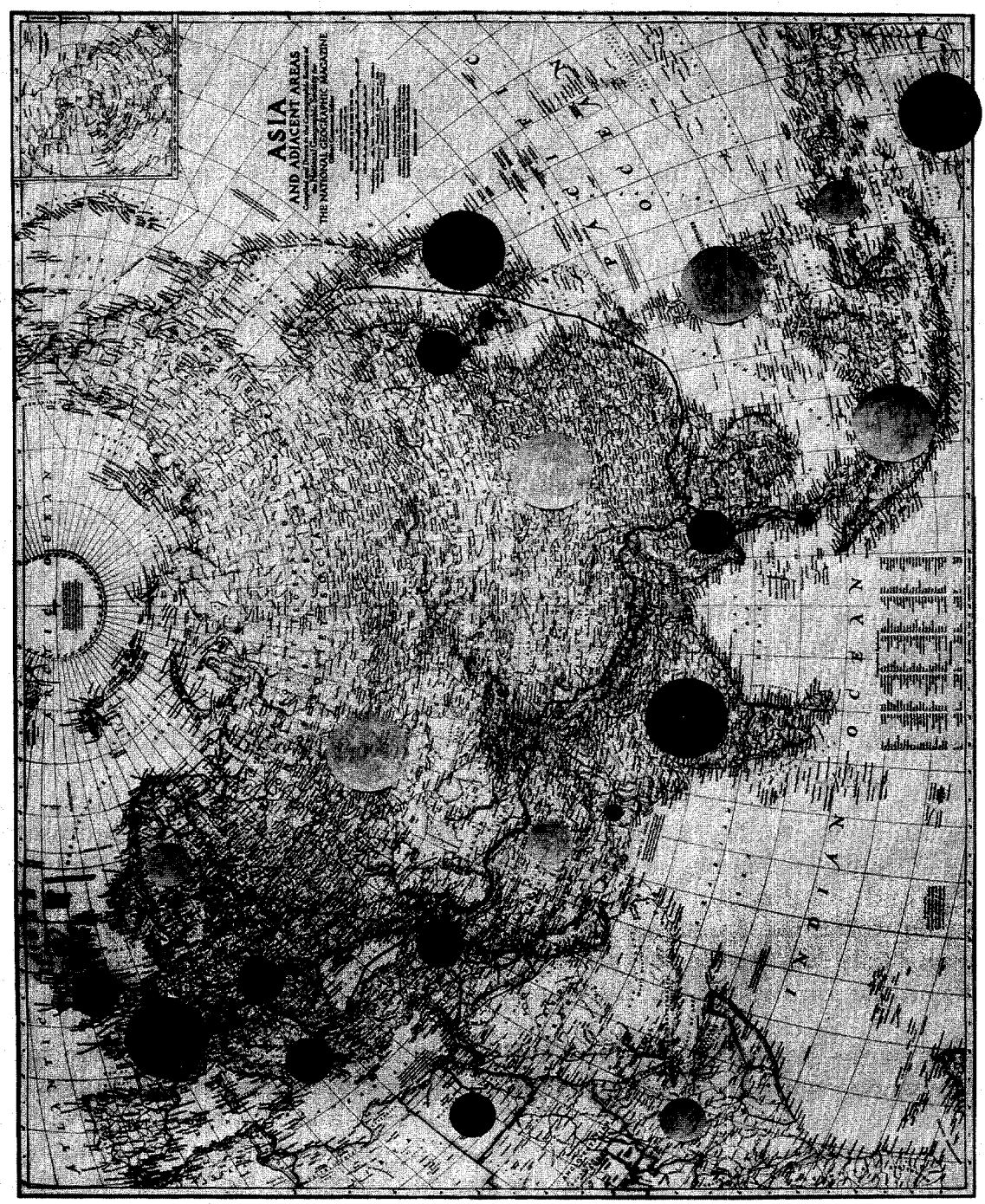
We started moving into Germany about 100 million dollars' worth of food--corn ships, wheat ships, and everything else--and sustained that population through that period when it was really rough. If we hadn't had this potential back here to draw on, I don't know what would have happened. At that time Germany was getting 1,500 calories a day.

That is one thing I want to bear down on, economic mobilization or whatever you want to call it we must have reserves here just the same, by jingo, as we have a Naval Reserve, an Army Reserve, an Air Force Reserve, or a reserve production potential in industry to back that up. I am philosophizing and editorializing--I apologize for that.

Map 3, page 13.--Let us now look at this map of Asia, the Middle East, and Africa. This by all odds is the most intriguing, the most uncertain and explosive area in all the world. Here the ideological battle is keenest and with no clear lines yet on what the outcome will be or where the bamboo curtain will finally move. Food here is a critical item. Here, too, the industrial crops are important to the West--jute from India and Pakistan; rubber from Ceylon, Malay, and Indonesia, plus a whole list of agricultural exotics and medicinal products, fiber, vegetable oil, and other materials which are vital to the United States and even more vital to Europe and Japan.

At the beginning of this lecture, we referred to the loss of Indochina north of the 17th parallel as an important new factor in the food situation in this area. This rich Red Delta area above the 17th parallel is the chief rice producing area of Indochina. It is by no means the only place, but out of it came most of the surplus rice which Indochina moved to the Western World and the Orient before World War II. As high as 1.3 million tons per year moved out of the three Indochina states. The exports have averaged about 200,000 since the end of the war and with the present division of the Tonkin Delta this will probably fade away.

MAP No. 3


ASIA
AND ADJACENT AREAS
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PACIFIC OCEAN
INDIAN OCEAN

Thailand is now back to its full prewar export and a considerably higher total production because of a rise in population and better consumption at home. Burma, with 3 million tons export per year average before the war, has managed to get back to only 1.5 million tons the past year. Ceylon, Indonesia, the Philippines, South Korea, Pakistan, Afghanistan, and many of the small island groups are areas which are one year to another usually self-sufficient, though in recent years have had to buy from the outside.

Take a look at South Korea and its relation to Manchuria shown here as a surplus area. Here, prior to World War II, grew most of the soybeans which went to Europe in a large volume and which helped Japan in actual control of this area to keep a pretty well-balanced economy. Formosa, as a Japanese colony, was a large surplus area. It is barely self-sufficient now with its boosted population from the mainland.

Pakistan was once the cereal basket for India, and was and still is the principal raw jute producing area in the world. Pakistan is still a surplus producer of rice and when the waters come down from Kashmir in volume into the lower Indus and Ganges, it still produces wheat, corn, oats, and sugar in volume, some beyond its needs. Last year Pakistan had a near famine in the Indus Valley, and the United States supplied it with about 600,000 tons of gift wheat. We likewise sent about 15 million dollars' worth of wheat up to Afghanistan though that country from one year to the next eats what it grows and grows what it eats.

I know some of you will be inclined to ask how it is that China, which normally before World War II had trouble feeding itself, now seems to be a surplus producer. I think the answer probably lies in the fact that China and the Russian Communists have control of the Manchurian production which the Japanese more or less used to control. They are directing that food trade to suit their particular needs at this time without very much regard for other parts of China.

If present efforts to industrialize China are to succeed, trade must be expanded with the western powers. It is doubtful whether Russia will be able to supply the industrial materials and machine tools which China must have to accomplish what it has set out to do. This means that strenuous efforts will be made to restore some sort of trade of the traditional agricultural products--soybeans, cotton, dried eggs, hog bristles, and what have you--for industrial goods. This is made to order for Japan, of course, and it will require some pretty serious choices for this country in our trade policy. This also is one of the economic reasons why Communist China is interested in all of Indochina.

This would really round out the picture for Communist China. It would give the Chinese food, minerals, timber, and other resources which they must have if they are going to industrialize much more in China proper.

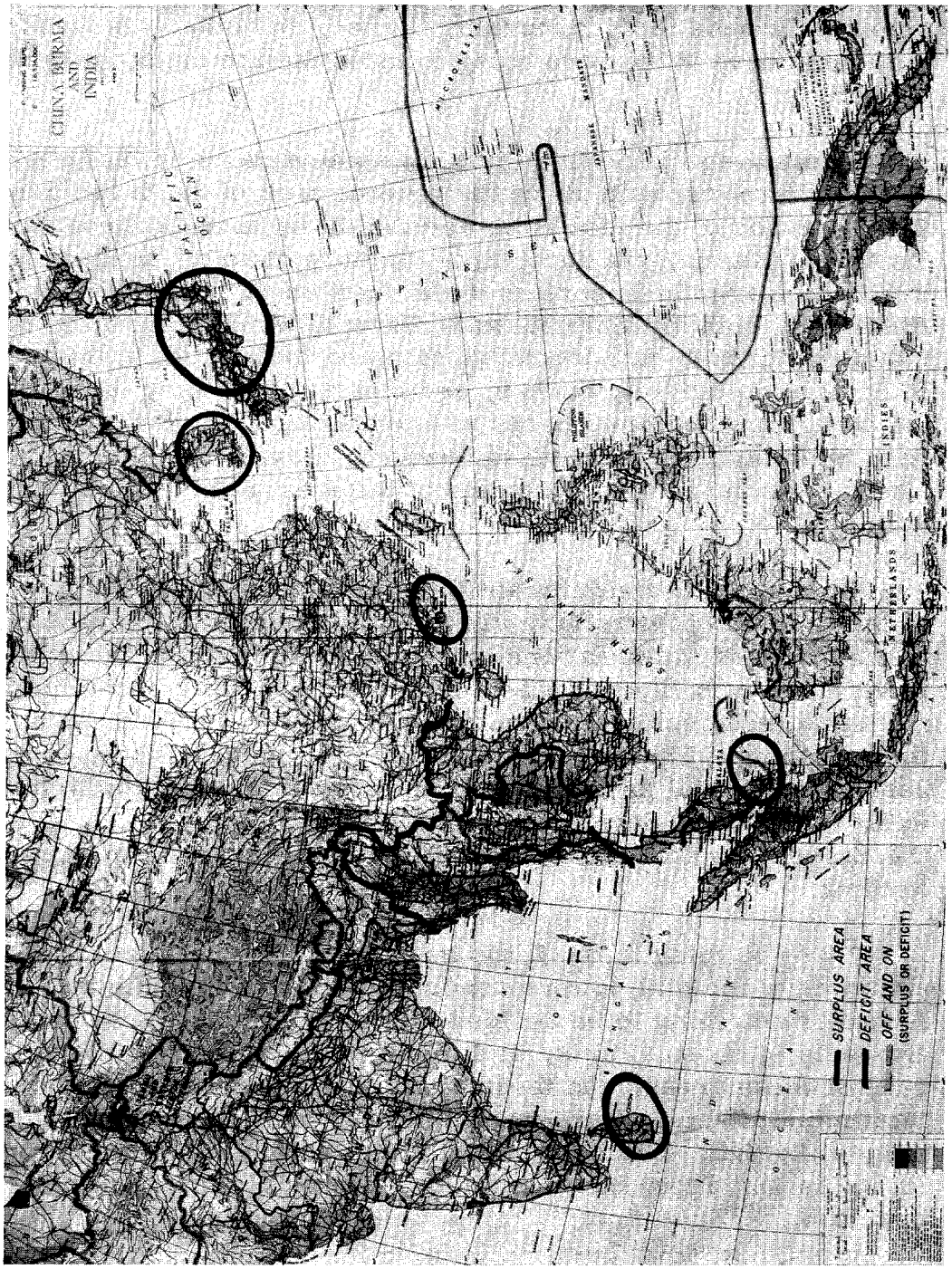
Map 4, page 16.--Here is a map which more or less reemphasizes what we have just said about the general area of South and Southeast Asia. The position of the rice bowl--or the three important countries of Thailand, Burma, and Indochina--is more clearly shown on this map. This whole area is important to the free world, especially for the raw materials, both agricultural and mineral, which come from here. Great industrial crops--jute from Pakistan and India; sisal and abaca from the Philippines; palm oil, rubber, and myriads of lesser items ranging all the way from medicinal herbs to hog bristles, dried albumen, tea, pepper, teakwood, elephant tusks, and what have you. These are not absolutely essential in the economies of the West but they are very convenient.

To my mind, a significant thing developed at the Ottawa conference of the Colombo powers last week. The admission of Japan and Thailand to the group of Asian nations built around the British Commonwealth powers and carrying out a 5-billion-dollar, 5-year economic development and technical assistance program leaves the Philippines out of that grouping. The entrance of Japan into the Colombo plan means that Japan's industrial know-how and manufacturing skills will gradually enter these newly developing areas where once the Dutch, the French, the British, and the United States had a virtual monopoly in one way or another.

I am not going to touch too much on Africa because it is still an area where colonial powers dominate policy, and whatever is done in Africa is not going to be decided there. It is going to be decided in Brussels, London, Paris, or Lisbon. The metropole countries still control these areas, and these areas are largely supplemental to the metropole powers. Our interest here is palm oil, lobster tails--a few things like that. Uranium is a big item also. Foodwise, overall, Africa is just about self-sustaining. It could be tremendously more than that.

Of course, you know the experience of the British in trying to produce cattle, chickens, and so forth down there. There might be a little irony in that. It reminds me of a little incident. The British decided they could grow poultry down there so they went out to the

MAP No. 4


CHINA, BURMA AND INDIA
PACIFIC OCEAN
PHILIPPINE SEA
MICRONESIA
MARIANAS
PALAU
PHILIPPINE ISLANDS
INDIES
NETHERLANDS
SURPLUS AREA
DEFICIT AREA
OFF AND ON
(SURPLUS OR DEFICIT)

University of Missouri and got a poultry expert. They had baby chicks and eggs shipped in. After spending 20 million dollars, somebody woke up to the fact that it took feed to produce chickens. One might just as well haul feed to London as to Africa so that was a bad deal. You can do almost anything anywhere if you have all the things you need to do it with. If you are going to start a chicken business in Africa, be sure you have a feed supply. You can't produce the foodstuff in Africa. Think a little bit about that.

The acquiring of the Sudan by Egypt will without a doubt have a genuine influence on Egypt's trade pattern and its future balance of payments.

Ethiopia is a sovereign nation with immense potential in food production. If Haile Selassie continues the trend--and that is one of the miracles of modern time--it will show that there is an absolute emperor who before the war seemed to be interested only in collecting gold in taxes to keep an important country going and that his people pretty well tribesmen have switched almost completely and are trying to set up an area in the western pattern. They even have a national bank now. Ethiopia could be one of the really great cattle and cereal producing areas of the world.

There is another tremendously important factor and that is that four of the six great industrial nations of the world--the United States, Canada, Italy, England, Japan, and Germany--cannot live without food and agricultural raw materials from the outside. That is a pretty serious thing from the overall standpoint because those countries, nearly all of them, produce the same industrial goods as we do, and we are the only country which is self-sufficient in those things.

To some extent, we are becoming competitors for the world market, yet those people don't live unless they can trade with some other place for food products and certain raw materials. There are only three places to get them, the United States, Canada, and Latin America. The big problem is to keep them on our side with this tremendous economic potential for war and to let them live some way without being taken into the Iron Curtain countries. You know about the pressure of England. There are some real problems that come up over this simple food question, the fact that before people can produce industrial goods, they have to eat.

Now, let us look briefly at the picture on a strictly commodity, and to some extent a trade pattern, basis. Maybe we can highlight

the shifts which have come about as a result of World War II and the cold war years which have followed. Let's take soybeans as an example.

Before World War II Manchuria, you will recall, was the big producer and shipper of soybeans to Europe. The United States was often an importer and certainly a minor factor in world soybean and vegetable oil trade. But North America now, including Canada, is not only the chief producer of soybeans in the world, but is the biggest shipper in international trade.

In 1938 we exported 157,000 tons of soybeans. In 1953 we shipped 1,240,000 tons. Asia's trade in soybeans dropped by one-half. Between wars and in the late thirties, United States wheat made a bare ripple in world trade and was much less than 1.5 million tons per year and only about 100,000 tons to the Orient. Now the Orient is becoming a great wheat consuming area and wheat eaters are multiplying. Our total world exports have averaged about 11 million tons to 1954.

Rice is still the first food crop in the Orient. America and the West used to be only a very small factor with largest shipments going to Cuba. Now we are high in rice moving in international trade, ranking next to Thailand and Burma. Two crops--cotton and tobacco--have not changed much either in volume or pattern from the pre-World War II period. There has been an increase of cotton production in the Middle East--Syria, Iran, Iraq, and Turkey. There has been some dropping back again to cotton production in Brazil, some increases in Mexico, and entrance into the western European market of a small amount of Russian cotton. The shift has been by no means as spectacular as vegetable oils, wheat, and some other products. Rubber production generally is declining. Coffee production seems to be shifting toward Africa.

This perhaps does not mean so much except as it is related to other phases on international trade, particularly oil and some of the rarer minerals and metal ores. These, no doubt, you will be hearing about in future lectures.

Now, after all this talk, what would seem to be the implications of this for economic mobilization in the free world? These are the highlights:

1. Food production in the free world in the overall is now the highest since the beginning of World War II and there is likelihood that,

barring too much return to trade restrictions upon the part of the United States, this production will keep advancing something near the rate of population increase.

2. Four of the five great industrial powers--Great Britain, Italy, France, and Germany--the United States excepted, cannot live within their own food resources. They must exchange industrial goods for food. This emphasizes the necessity for wider trade and growing markets.

3. The former principally raw material areas controlled by these powers are now free and sovereign. They are driving toward self-sufficiency in food and trying to industrialize to a degree which will take care of some of the consumer manufactured goods needs.

4. This will make industrial mobilization in these areas less difficult and may lessen the drain on the bigger industrial producers for consumer goods in favor of heavy machinery and military goods in the event of war.

5. Too heavy exploitation of agriculture by the lesser developed countries to force and speed up industrialization has backfired and there is a tendency to slow down this exploitation and give more attention to agriculture.

6. Regardless of the trends now in vogue to lessen government interference and reduce government direction in economic mobilization and development, we are in for many more years of it in nearly all parts of the world.

7. Private capital--United States or western European--will not meet the needs and the demands of the rising new nations in the Far East and Middle East. West European governments especially will play an increasing role in guarantees for risk capital by private concerns in this development.

8. Much of this new development will have to be on a partnership basis rather than on a concession basis such as has been the pattern of the past.

Thank you very much.

QUESTION: Mr. Andrews, your biography shows that you are connected with the National Project in Agricultural Communications. Will you explain what that is, sir?

MR. ANDREWS: That is just a high-sounding phrase for saying that we have to make ourselves understood in agricultural colleges. Actually, what it is, the Land-Grant Colleges of the United States, as you know, are set up by Government act, and they are colleges which are a little bit different. They are under legal obligation to extend their knowledge and their services. The average college that is endowed can do as it pleases. Students go there, they teach them, and that is all there is to it. But the Land-Grant Colleges, of which there are 51 in the United States, are set up by congressional act. They are supported by the people. One of the fundamentals is that they shall extend an agricultural technical knowledge to all the people. We have been doing that for a long time, but we haven't always been communicating or transmitting the technical idea here to the guy out there as well as we might.

The Kellogg Foundation sponsored a drive trying to improve the transmission line from the classroom demonstration plot research laboratory on scientific and economic data to the door of the farm families, not so they are exposed to it but so they can use and act on it.

Every day these colleges put out bulletins in fantastic numbers, but what do you hit and what part of the exposure sticks? What we are trying to find out is what and how you can make this material stick. How you can stimulate or motivate a fellow to take on this new technology and improve it. How you can get it across.

I may speak a language that my colleague will understand, but maybe you or the fellow out here may not get it at all. Communication is putting across the story by using new and modern methods such as audio and visual aid, gadgets which you probably have here--television, radio, bulletins, the printed word--as teaching media rather than merely for information.

You get lots of information but what good is it. You know there are so many rabbits in Australia, but what does it mean unless it is related to something of importance to the guy you are telling about rabbits.

In my opinion television, properly used, is going to be one of the greatest media for the transmission of technical know-how that we have come across yet because you can get a million people closer to the

demonstration than I can take you people here, teaching how to run a lathe or tie a knot. You can get your face right down in it--make a pie, whatever you want to do.

We are doing research. The Army and Navy have done a tremendous amount of research in the use of motion pictures. The impact of controlled television programs related to the ordinary classroom type of the same thing is quite remarkable.

QUESTION: On one of your charts you showed Turkey, Iraq, and Iran as being promising areas. What effect or what influence has our foreign agriculture assistance program had on that area and in general what effect has it had all over the world?

MR. ANDREWS: Let us go back to the so-called Point IV program which originally had as its purpose the developing and improving of technology, agriculture, public health, and education. About all we were able to do in the so-called Point IV program up to the time it went into FOA was to demonstrate what you could do with good seed, fertilizers, and so forth.

I would not want to give the so-called Point IV program credit for what has happened in India, but in a period of about four years India has jumped from a normal of about 7 million tons deficit to less than 2 million tons. When you have a growing population of 360 million people, that is a terrific thing. Some of that was done on the part of the Indians themselves; some of it was done by the United States by helping them help themselves.

In nearly every country there is knowledge about what the country needs and what can be done to better the conditions, but it churns around among a bunch of guys who talk to themselves. But one thing the United States has is the technique of widely distributing knowledge and information to the masses of the people. We are so far ahead of the rest of the world on that it is pitiful. Yet we are weak in many places. That has had a tremendous stimulation in Iraq, Iran, and Turkey.

In Turkey you have that Anatolian plain, black dirt--wonderful, but the Turks are trying to plant in the traditional way. A Montana farmer went out there to help them on their agricultural program. He had graduated from an agricultural college. He figured out the weather cycle--when the snows fell, when they melted, when the hot winds hit.

First, he got to work on a quick maturing wheat; second, he got some tractors and mobilized that big area where there is lots of land. Just before the snows came, he planted the wheat. The snow came and lay over that wheat and when it melted it provided the wheat with moisture. The wheat matured before the hot winds hit it. It was not as simple as I have said it but things have happened on grain in Turkey. Turkey had gone to town with its wheat crop just on the simple matter of spacing planting time scientifically and taking advantage of the normal weather conditions. That has had a tremendous effect on agricultural production in an indirect way.

In Iraq, the people are opening up oil production and with the oil revenues they are reconstituting those great irrigation ditches that existed in the Euphrates valley when 30 million people lived in that valley. It is the same water and the same land that has always been there. That now is being opened up, the land is being reconstituted, the salt is being taken out of it.

We are helping to settle the so-called nomads. There has been a big argument because people have always said that the nomads won't settle. They will if you give them a chance. The nomad follows his flocks because he has to find places for them to graze. In the last couple of years there has been a fantastic production of barley right there along the Euphrates.

The Iraqians feel that they have got to grow up with these new developments. I was talking to one of their top ministers recently and he said, "If you go ahead to the ultimate on that and build this dam, you fellows would still have to run it. For centuries our facilities have been run by somebody else. We haven't the technique to manage an intricate irrigation system,--dam system or power system. You will have to be patient with us. If you go in and spend the money as you want to do"--some people did; I didn't--"All you will do is put something in there that you fellows will have to come in and run. Be patient and let us build up to it." A lot of things are happening. We can't tell what will come out of it. I just hope we won't have too much of this cold war. We must work with these nations as partners. We should let these people kind of work out their destiny and not be so impatient with them if they do not want to immediately line up with us on the cold war. If we do, I am not so sure we wouldn't all be better off.

QUESTION: I read quite a bit last year of the possibilities of Japan, India, and other similar places, instead of raising rice in the rice paddies

to raise algae and convert it by the sun's heat to protein, increasing the yield per acre by some tremendous amount. Is that being done by the Kellogg Foundation?

MR. ANDREWS: That is being done by the Carnegie Institution. Dr. Vannevar Bush has been working on it. It is being tried out in Japan now. Japan is one country that could make good use of it. A small amount of land can grow a large quantity of algae. The great weakness out there is the protein supply. It is perfectly possible to produce this edible protein at something like 20 cents a pound. The Japanese are trying it out. Incidentally, I helped Dr. Bush get started on this project which is going on in Japan. I don't know what the results have been in the last two years but there is a genuine possibility there.

Here again there are economic factors that might make it work in Japan and not in India and some other places.

One really bright spot in the food situation is wheat. They are processing wheat until it looks and tastes pretty much like rice. With the low cost, wheat in many places is replacing rice. There has been a tremendous rise in the wheat eating population in all of the Far East. The amount of wheat being eaten out there is 10 times what it was during the war. People were starving and there was nothing but wheat to feed them. They learned to like wheat; That created a demand for wheat.

There have been a lot of changes. Instead of eating soybean cake and tea for breakfast, they are having toast and margarine. A 30-million-dollar margarine plant is going up in Japan to meet the demand of the Japanese population for margarine.

QUESTION: We have heard a lot about land reform. Referring specifically to Italy, what is your opinion of the effect of land reform on Italy's ability to be self-sufficient agriculturally?

MR. ANDREWS: Well, with the exception of Japan, every country in the world that has broken up the big commercial estates and divided them into small freeholdings has had a reduction in production. Those are facts of life. There have been certain social advantages gained, but with the paralleling of the breakup of the land with the introduction of technology and the teaching of this little boy to use his little land better, you can have land reform without reducing your production.

That is what is wrong with the Balkans and Russia right now. That land reform simply hasn't pulled off. There are a few big areas in Japan where land reform actually increased production, but it was followed by an intense educational process in which this Japanese, who in effect was a little gardner, now was followed up carefully with nearly 5,000 technical, agricultural agents, mutual cooperation, and everything else. Japan has been one country that has done that.

After land reform gets going and you supply credit facilities and other things to produce with, you can make land reform go. Take Iran--the Shah of Iran is giving away 2,000 of his villages out there to the people who have lived in them for centuries. When you add this up, it represents about 12 acres per family. In these villages a fellow who has been on this place, owned in effect by the king for centuries, wakes up some morning and finds he has 12 acres of land. But what has happened? The king's messenger who supplied the credit, the supplies, the supervision is gone. This chap sitting on 12 acres of land can't do much.

One thing the Technical Assistance Program tried to do was to introduce a system of local mutual cooperation which would take the place in credit, supervision, and supplies that the king's messenger used to have. In the test villages out there, of which there are several hundred in Iran, it is quite a phenomenal thing.

Just before I left there, we had gotten the credit side of this thing going. We had a bunch of credit and supervisor training schools where we trained them in how to handle credit. They went back to the villages and became credit supervisors of those villages, loaning money like nobody's business at 8 percent instead of 40 percent. The little farmer could then go over to the supply depot and buy fertilizer and wheat and go back to his place and plant it. We loaned plenty of money but we didn't know whether we would ever get it back.

I had a great thrill down in Tennessee the other day. I was making a talk and I mentioned this credit experience. A young fellow from Iran got up in the audience and said, "Listen, I am going to set your mind at ease. Ninety-five percent of those loans were paid back by the 30th of April and they weren't due until the first of July." By golly, that made me feel awfully good. There were 80 or 90 of those villages. It does represent a pattern of what could be done if you can mobilize the people.

QUESTION: Do we share our agricultural experiments and our joint agricultural-medical experiments with other countries?

MR. ANDREWS: Yes, completely; the thing that I would brag about in this so-called Point IV program--many people said it was a bold new program. It was neither bold nor new. Missionaries have been doing the same thing for centuries and we have been doing it in different ways. But it was bold and new when a great nation like this one says, "We will give our know-how, whatever it is, to any country that wants it and wants to help itself.

Remember this--the first textile mill in the United States came to America in the brains of a man. He sat down and using a mental pattern of the British mill put the first textile mill in Rhode Island 150 years ago. There was a law in Britain about the export of the technique of building a textile mill and running a textile mill. It was something when the United States said, "Whatever we have, if we can help you, we will. Whatever we have in technical assistance, it can be passed on and used." To me that is a source of great national pride.

DR. CLEM: Mr. Andrews, on behalf of the Industrial College, the faculty, and the student body, I thank you for a very excellent lecture.

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