ECONOMIC EVOLUTION OF AFRICA

4 April 1960

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INDUSTRIAL COLLEGE OF THE ARMED FORCES

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ECONOMIC EVOLUTION OF AFRICA

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MR. POLUHOFF: Gentlemen, we continue our studies in economic capability this morning with a discussion on the economic evolution of Africa.

Dr. Andrew M. Kamarck has been on a number of economic missions in many parts of the world, and has just returned from Africa. I know Dr. Kamarck will have a great deal of interesting things to tell us about African economic development. Dr. Kamarck.

DR. KAMARCK: General Mundy, Gentlemen: I'd like to start by giving you some of the dimensions of Africa.

Africa is roughly four times the size of the United States, with a population of 280 million, which is about one and a half times that of the United States.

For an economist, an important dimension is that its gross national product, that is, the total of the goods and services produced in Africa which are sold for money, is probably somewhere in the vicinity of about $20 billion a year. Twenty billion dollars a year compares with a gross national product of the United States of about $500 billion a year. So that the whole continent of Africa has a gross national product about one twenty-fifth that of the United States.

Now, of these 280 million people, in addition to the native African people, there are about 6 million people of European origin. About half of them are in the Union of South Africa; about a third are in what used to be French North Africa; in the rest of the continent there are about 300,000 in the Federation of Rhodesia and Nyasaland, about 200,000 in the other former French territories, about 100,000 in the Congo, 100,000 in the Portuguese territories, and about 60,000 in East Africa. There is also an Asian population of around 800,000 along the East Coast, from Kenya south.

We don't really know how rapidly the African population is growing. There are figures, but most of the figures are very poor. For example, in Ghana the official population figure is just under 5 million people, and

the rate of growth is officially something like 1.5 percent. Now, I'm sure that there are at least 6 million people there; and the present census might even find as many as 8 million people. And the rate of growth is certainly higher than the official 1.5 percent.

Censuses that have been taken in the past usually have either been carried out poorly; or, as often would happen, when the census taker would come in one end of a village, the people would go out the other end into the bush. People were afraid that the census taker had some connection with tax collecting and usually in a sense he did, because one of the basic taxes in Africa is the poll tax.

Probably a number of the African countries--we know that this is true in Rhodesia already--are beginning to approach a rate of growth of population of around 3 percent per year. Three percent a year means doubling in less than 25 years. This is the population explosion that is happening in other parts of the world; and, as I say, we suspect that it is beginning to happen in Africa.

When you have to increase production to keep up with a rate of population increase of about 3 percent per year, and then on top of that try to improve the standard of living, it's very difficult. The long-term rate of increase of national income in the United States, as you know, is only about 3 percent per year. If population grows at 3 percent per year and national income grows at a rate of 3 percent per year, there is no improvement in the standard of living. Production in the African countries will have to grow more rapidly than population if they are to bring about some improvement in the standard of living.

The existing standard of living is very low. Over most of the continent, the per capita money income of the Africans averages $100 or under $100 a year. In most cases it is considerably less than $100 a year. The exceptions are Ghana, Tunisia, Algeria, Morocco, which probably have a per capita income of $150, up to but probably under $200 a year, which is still a very low income.

What I have been saying in essence so far is that Africa is still very much an undeveloped continent. An economic map of Africa, aside from the Union of South Africa, would show little islands of modern development scattered over this enormous wasteland that is most of Africa. These islands would be strung out almost like beads on a string, but some distance apart. The strings, of course, would be the railways.

The money economies of these countries are all what we call dependent economies. That is to say, of the commodities that are produced for sale, anywhere from a quarter to a half, and in some cases more than a half, are sold abroad. And that also means that a corresponding fraction of the commodities in most cases that the countries buy are imported from abroad.

The trade of the African countries, on the average, is 90 percent with countries outside of Africa, not with other African countries. Africa is not an economic unit. It's really a set of economic islands that have their contact with the rest of the world rather than with one another.

Of this 90 percent of trade that is outside of Africa, 90 percent is with Europe. The United States buys about $600 million worth of commodities from Africa a year. Europe buys about $4 billion a year. Consequently, Europe is the continent that is most important as far as Africa is concerned.

The economic development that has occurred in Africa so far can best be understood by looking at it as the result of two migrations. One is the migration of Europeans, with their capital, their officials, and so on, into Africa; and the other is the migration of the Africans out of their primitive, subsistence economies into the money economies that the Europeans brought in.

The corollary of this statement is that those territories that developed the most, are the ones that received the greatest migration of trained European people and capital. It's not entirely a coincidence that the two countries that maintained their independence have been among the slowest in economic development.

This dependence on trade and European capital is matched with dependence on what the West Africans call expatriates, that is to say, non-Africans working in the country. This varies from country to country, but still today every country depends upon expatriates in most of the segments of its economy. Ghana is probably more advanced than any other African country in this regard. But when Ghana became independent, of the top civil servants, the people who make or recommend policy, only one-third were Ghanians. The other two-thirds were expatriates. Three years later, after three years of independence, one-half of the top people are still expatriates. The permanent head of the Ministry of Finance is an Englishman. The governor of the central bank is a German. The head of the army is an Englishman. The head of the air force

is an Indian. And so on. You can go through all of the key positions and you will find that many or most are held by non-Ghanians.

In four or five years, with the intensive program of education and training that Ghana has under way, most or practically all of the top positions will be taken over by Ghanians; but Ghana will remain and continue to remain dependent on technically trained people for a long time to come, from abroad.

As I mentioned, Ghana is more fortunate than the other countries. In Tunisia and Morocco, when they became independent, the bulk of the civil service was composed of Frenchmen. Even postmen often were Frenchmen. In the Belgian Congo, which is becoming independent at the end of June of this year, of the 10,000 civil servants that are running the country, practically all are Belgians. The Congolese have posts as minor clerks, messengers, and so on; but the country is becoming independent with all of the key posts manned by Belgians.

Africa is, and will remain for a long time, also dependent on capital coming from abroad for development. The Union of South Africa is the only exception. The Union of South Africa is the only part of Africa that is now able to grow economically without having to depend on a continuing inflow of capital from abroad.

Up to World War II there was not very much foreign capital invested in Africa aside from the Union. Since World War II there has been an enormous amount of capital that has come in to help in the development of Africa.

The French in this regard have invested more public funds than anyone else. The French have invested something around $2 billion in Africa south of the Sahara, in public investments of various kinds. They have put in about as much as that into North Africa; and they are still investing enormous amounts of money today both south and north of the Sahara. During this period this investment has produced a very good infrastructure in all of the French territories--roads, ports, railroads, airports, public buildings, and so on. Judging as an economist, the French may even have put in much more than the territories really needed.

The British have not done as much, largely because the territories were able to do more for themselves. But the British have put in about $300 million in grants into these territories. The British Government's

Colonial Development Corporation has invested about another $150 million in various projects. And finally the African territories were encouraged to borrow in the London market, by selling their bonds there; and they raised there about another $350 million in this way. And, of course, there has been a substantial flow of British private investment into these territories. Whereas in the French territories the bulk of the money that went in was public money and private investment has been slow, in the British territories, if anything, the private investment moved ahead of the public investment.

In the Belgian territories, there has been a lot of Belgian private investment. With the Congo becoming independent, the Belgian Government has had to start to put money in; and this year the Belgian Government is making a grant of $50 million to the Congo Government; and they have also been making grants to Ruanda-Urundi.

The modern development of Africa was first largely undertaken by large private corporations, who were given large concessions of land to exploit. Rhodesia, for example, was the private property, both southern and northern Rhodesia, of the British South Africa Company; and it remained the private property of this company until 1923-1924. Even today in northern Rhodesia all of the mineral rights belong to the British South Africa Company. In the Congo very large tracts still belong to private companies.

This was true of much of the rest of Africa. But also, except for the examples that I have cited--the British South Africa Company and the companies in the Congo--most of these chartered companies lost their money. In fact, it's really remarkable how much money they were successful in getting out of private investors in Europe to do the basic investment. Most of these companies at one point or another went broke, and the governments had to take over.

But even today, large corporations are very important in the development of Africa. In northern Rhodesia the economy is very little more today than the sum of the Rhodesian Selection Trust, which is a little bit more than half owned by an American company, and the Anglo-American Corporation, which has no American capital in it, from South Africa. These two companies together own the copper mines in northern Rhodesia; and the economy in northern Rhodesia is very little more than the copper belt.

The World Bank just recently made a loan to Mauretania, the extreme western point of Africa. The economy of Mauretania at the present

time consists of about 600,000 people, mostly living off cattle and camels. Their total national income, if you were able to add it all together, probably doesn't amount to more than about $20 or $25 million a year. But in Mauretania there are very large iron ore deposits, and the Bank has just given a loan to help develop these deposits. The loan is at least three times the size of the present economy of Mauretania; and the income that Mauretania will get from the development of this iron ore deposit will be two or three times the present national income. So that in the future the economy of Mauretania will be heavily dependent on this company that has just gone in.

Outside of the Union of South Africa, industrialization in Africa is just beginning. The Union is already an industrial economy. Manufacturing provides about one-quarter of the gross national product. But, in spite of the growth of the industries in the Union, these industries largely produce consumer goods that are consumed inside of the Union, with the exception of some that get exported to Rhodesia. So that even the Union is still in the first phase of industrialization.

In the rest of Africa, there is some industry in the Rhodesias, in the Congo, in Algeria, Tunisia, Morocco; these industries produce somewhere around 10 percent of the gross national product. So that industrialization has started, but just barely.

Over the long term the possibilities of growth in industrialization are probably greater than they are in any other phase of the economy. But here they depend upon the growth of the income of the Africans to provide a large market. You can't have manufacturing without a market. And since most of the Africans at the present time are farmers, this means the development of agriculture.

The development of agriculture in Africa encounters a lot of obstacles. Over the centuries that civilization has developed in the world, most of the problems that have been encountered in agriculture have been in the Temperate Zone. Over the centuries we have learned most of the answers on how to farm in the Temperate Zone. In the tropical areas there is still a tremendous lot that we don't know. In fact, in this regard, Africa is definitely still a dark continent.

I was in Ghana about a month ago, and this was brought home to me very sharply. In the northern region of Ghana, within a few miles of each other, there are two projects going on. Both projects are agricultural projects, and both are designed to help the African farmers in this

area. One project is run by an American contracting firm. It has gone in with characteristic vigor, and is busy with bulldozers building dams all over the place. It has built something like 65 dams in the last couple of years to create reservoirs of water for livestock and human beings.

A short distance away there is another project under way. It was started by the British and now is run by a Singhalese. He also is building dams, not for livestock, but to irrigate land. And when you talk to both groups, you find that both of them are convinced that they're doing exactly the right thing; and both are equally convinced that the other group is doing exactly the wrong thing.

Now, which is right? The Ghanian Government doesn't know. Frankly, I don't know. They may both be right, or they may both be wrong, because we just don't know enough about it to know what should be done there.

By the creation of these pools of water, the ideal natural conditions are created for the spread of Bilharzia. This is liver fluke, a parasite that is debilitating. This is spreading all over Africa. There is no really good, easy answer to it yet. But both projects are going ahead with full consciousness that this is increasing the danger of Bilharzia. But something has to be done; so they're going forward with them.

Both projects are also going ahead in full consciousness that in the rainy season, when the water pours over the spillways, the spillways are going to create spray, and this spray presents the ideal conditions for the life of a fly that is known as Similium damnosum. It lives up to its name, because it has the unpleasant habit of laying its eggs in a human being which hatches out into a little worm, that eats off the back of the eyeballs. This caused the so-called river blindness. There are many thousands of people in Ghana that already suffer from river blindness. But one can't wait until we know all the answers, and the projects are going ahead.

There are many other problems connected with agriculture in the tropics that we haven't begun to learn the answers to.

Another urgent problem in practically all of Africa is the need for change in land tenure. At the present time over most of Africa, land is held under communal land or tribal land tenure. The individual farmer who is farming a piece of land does not have unrestricted rights to that land. He can't sell it, and he can't be sure that it's going to pass on to his heirs.

This complicates economic development in many ways. All over the world one of the best bases for bank credit is property in land. But in most of Africa you can't take land as collateral, because in case of default, the bank can't take over the land.

An industrialist may come in and buy land from the person who claims he owns it. After the purchase has gone through, two or three months later, another man shows up and says: "The land really belongs to me. I've been away working and I just found out about this." Sometimes a piece of land can be paid for two, three, or four times over; and even then the title is shaky.

So this has to be changed for economic progress. But at the same time it's very difficult for it to be changed, because the relationship of the people to the land is the basis of the whole social system. It can't be changed quickly. It has to evolve. But in the meantime it's holding up economic progress.

Another one of the big obstacles to economic development in Africa, is, one might say, the personality of the African. This doesn't at all mean a change from a less attractive to a more attractive personality. It's probably the other way around.

One example: An anthropologist made a series of experiments in a tribe called the Bemba, in northern Rhodesia. He found a little boy about five years old and he gave him a piece of cake. Well, we know what would happen in this country if we gave a little boy a piece of cake. He would run off somewhere where nobody would see him and eat the cake. But in the case of the Bemba child, he immediately called his friends and shared the cake with them.

When a Bemba grows up, he goes off perhaps to work in the copper belt several hundred miles away. He doesn't worry about taking along enough money so that when he gets there, he'll be able to rent a place to stay in. When he gets there, he stands on the street until he sees a tribal brother. Then he'll attach himself to his tribal brother and go home with him. And this isn't a matter of hospitality. It's a matter of obligation and right. Over the centuries the tribes learned that they could only survive in Africa by everybody sharing alike.

Now, this is very admirable, but it doesn't work in a modern economy. I talked to a director of a bank, which operates in most of the West African countries. He said: "You know, it's very hard sometimes to teach an African that he must put loyalty to his employer ahead of loyalty to his family."

Essentially what I'm saying is that one of the big obstacles in African economic development is that the African is not yet a selfish-enough being. He's got to become selfish.

There's another change necessary. In a technological society like ours, work becomes almost a psychological and physiological necessity. We work simply because we feel it's necessary to work; not because of what we're going to buy with the income from work. The tribal African is more unsophisticated--or maybe more sophisticated. He works only if he wants to buy something. He's a "target" worker. He works until he accumulates enough money to buy what he wants, and then he quits. If rapid economic development is going to take place, the African has to get the attitude toward work of the advanced, industrialized societies like the United States and Germany.

During most of the economic development that has occurred up to the present time in Africa, the search for and the development of minerals provided the stimulus. This was true in the Union of South Africa and Rhodesia. Even today, diamonds, gold, and copper are important constituents of a number of countries' exports--diamonds and gold, for example, in South Africa, Sierra Leone, and Ghana; copper in Rhodesia, the Congo, Uganda, and so on.

As the United States and Europe exhaust their mineral resources, more and more of the minerals of Africa become of economic interest. The United States in the postwar has reached this stage. The United States is not a "have not" nation, but the United States has definitely become a "haven't enough" nation. And in the postwar period, as a result, more of the minerals of Africa, that before were not exploited at all, have become of interest to Europe and to the United States.

Of these minerals, two minerals in particular have become important. One is bauxite and the other is iron ore.

The export of bauxite began in Ghana during the war. Since then it has become important for Guinea also. Bauxite is found, as I mentioned, in Ghana and in Guinea, in the Congo, in Nyasaland. In fact, if one searches very hard, probably one would be able to find bauxite in most of Africa.

In this connection, probably the most important bauxite deposit anywhere in the world is the one in Guinea. The deposit at Boke is unquestionably the best bauxite deposit anywhere in the world. It's the richest

and the biggest. There's enough bauxite there to take care of the needs of the aluminum industry of the world at the present rate for over a thousand years.

In iron ore, there have been since the war exports from Liberia, Tunisia, and Morocco. I mentioned this loan that the Bank gave for the development of iron ore in Mauretania. And in the Gabon--just above the Congo--one of the French autonomous republics now--there is an enormous iron ore deposit--Mekambo--which is regarded as one of the best in the world. So far there aren't any concrete plans for its development.

Closely related, there is the export of manganese from Ghana; and a new large deposit of manganese, again in the Gabon, whose exploitation the World Bank helped finance last July. This is the so-called Comilog deposit, which is to provide manganese for U.S. Steel and for Europe.

Oil is also becoming of great importance in Africa. The Saharan oil discoveries in Algeria and Libya indicate an oil field which is not as rich as that of the Middle East, at least as far as we know now, but is as rich as, say, the midcontinent field in the United States. And the French, as you know, are engaged in a major effort to develop it.

In the case of Libya, that looked for a long time to be an economy which could only be kept alive by grants from the United States and the United Kingdom. In the next few years it will find itself in a position where it will have a great difficulty in spending intelligently the sums of money that are going to come in from the oil royalties.

There is also oil, less important but in commercial quantity for development, in Nigeria, where the two British companies are involved, and where they are going to be putting up a refinery. And also there's a little bit of oil in the Gabon and in Angola.

Another resource, which is of a great deal of interest, is waterpower. This is paradoxical. One of the reasons that Africa remained undeveloped for so many centuries is that it was impossible to penetrate into Africa because many of the major rivers of Africa, as they near the coast, fall off the African Plateau. It was impossible to sail up the rivers as in the United States and in South America to open up the continent for development. Now, with the cheap waterpower resources of

the United States and Canada approaching exhaustion, and the same being true of Europe, the waterpower resources of Africa are of great interest to all sectors that need cheap electricity.

Africa has a waterpower potential which is greater than the sum of the two Americas and Western Europe put together. And in the last few years, there is beginning to be an interest in the development of these resources.

In Rhodesia, the large Kariba project, which has gotten a bit of publicity in recent months, has just been completed. This again is one of the projects that the World Bank has financed in Africa. It has a potential of about a million and a half kilowatts. This is bigger than anything in the United States, I believe, other than Grand Coulee. Kariba will form a lake that is going to be the largest manmade reservoir in the world.

Along the West Coast of Africa there are large potential projects--in Guinea, in Ghana, in the French Congo, and finally in the Belgian Congo. The latter, Inga, may become one of the most important projects anywhere in the world if it ever comes off. In just one site on the Congo River, about 15 or 20 miles up from the port of Matadi, at a place called Inga, there is a potential of 25 million kilowatts. That's 10 times the size of Grand Coulee. It staggers the imagination. But it has been impossible to develop it, because there's no sense in developing it unless there is a market for it; and there has been, of course, no market for it.

The Belgians have been working on this in the last few years, trying to cut the project down small enough to be handleable.

One of the reasons that this has so much importance at the present time is that the aluminum companies (which are especially interested in cheap electricity because electricity is one of the major parts of the cost of the production of aluminum) are interested in Africa because of the large bauxite deposits there. So that many of the aluminum companies, I think it's fair to say, are convinced that a major expansion in the production of aluminum in the future will take place in West Africa. With the good bauxite available and the cheap waterpower available, it seems to be a natural for the aluminum industry.

At the present time there is only one small African plant, Edea, in the French Cameroons, that has a 45,000-ton capacity. It's a small plant

in relation to the other plants that I've talked about in Africa. But it produces almost a third of what the French produce at home.

I mentioned the problem that Africa is dependent on the continued supply of capital from abroad. This is something that one hears a great deal about, and this is something that probably is closer to solution than the other problems that I've mentioned. Just in the last couple of years the British have made arrangements for a system of special loans to their former colonies in Africa as they become independent, to help them continue to develop. The French are making arrangements to continue to provide aid to the newly independent countries in their area, with the exception of Guinea, of course. And the United States is in the field with the ICA and the Development Loan Fund. The European Common Market countries have an Overseas Development Fund; and they also have a European Investment Bank that can be authorized to lend in Africa by a special vote of its board of governors.

The World Bank has been quite active in Africa. It has made a total of some $700 million in loans there. The member governments of the World Bank are considering a proposed charter for a new organization, the International Development Association (IDA), which would make investments in countries that are not able to service loans with the normal charges. So this would take care of countries like Somalia, which are very poor in resources and have difficulty in borrowing.

Altogether, for good, economic projects in Africa, there are many institutions ready and willing to lend. In fact, one of the big problems in Africa may be the problem of coordination.

The other problems of economic development that I have mentioned, that are faced by the independent countries--and they are all becoming independent very rapidly--are much harder to solve and much harder for people outside of Africa to solve, because you can't solve them by just taking a checkbook and writing a check.

So far I may have given the impression that with independence the economic problems become more difficult to solve. But sometimes with independence some of the problems become easier to solve. In fact, sometimes I have gotten the impression that popular government, self-government, is more effective than so-called efficient government.

For example, in Ghana, prior to independence, there was a severe threat to the cocoa industry which provides two-thirds of the exports of

Ghana. There was a disease, "swollen shoot," attacking the cocoa trees, and the only answer was to cut down the trees affected.

The colonial government knew what to do, but found it practically impossible to convince the African farmer to cut down the trees. They could see what they were losing but they couldn't see what they were gaining. When Ghana got self-government, once the government became convinced that it was necessary, the government put in compulsory cutting down of trees; and, this being their own government, the peasants are cutting down the trees and this disease is practically no longer a threat.

One of the most encouraging features of independence is that every newly independent country has given top priority to education. Many of the problems that I have mentioned are fundamentally problems that depend on the level of education. In every independent country in Africa, one of the first things that the government does is to embark on an expanded educational program. And this, as far as the future is concerned, is bound to be very helpful.

With all that they can do, the newly independent African countries face big economic problems. The broad, sustained economic development that they need and want, if it's to take place, will take capital from abroad. It will take help in developing entrepreneurs. It will take education, training, and know-how. But the thing that is especially hard for the new countries to realize is that whatever else it takes, economic development takes time. Detroit, like Rome, cannot be built in a day.

Thank you.

MR. POLUHOFF: Dr. Kamarck is ready for your questions.

QUESTION: Doctor, in our studies on Africa we have studied about Africa south of the Sahara with the possible exception of the Portuguese overseas colonies. I read a report recently where the Portuguese said they were making tremendous progress. What I'm interested in is if there is any threat that they pose to their possible independence.

DR. KAMARCK: The Portuguese provinces in Africa are one part of Africa that not much is known about generally. The Portuguese have recently started to put some money in. Just the very fact of slower economic development has also led to slower political development.

I don't think it was any coincidence at all that, for example, Ghana and Tunisia and Morocco were among the leaders in national independence in Africa. They are ahead of most of the rest of Africa, economically speaking and it makes sense that they are also ahead politically speaking. The Portuguese territories are near the bottom economically speaking.

QUESTION: You mentioned that changes in land tenure are needed, which brings up some very basic legal questions. What bodies of laws have these newly emerged countries based their law on? For example, in the former French colonies is it the Napoleonic Code, or in the former English colonies on the common law?

DR. KAMARCK: Yes.

STUDENT: Have they brought in tribal laws? What is the basis of the legal system in these countries?

DR. KAMARCK: The primary basis is in each case, as you mentioned. The French brought in the Napoleonic Code, the British brought in the common law. As the countries become independent, they take over these codes and continue them. In all of these countries there are enormous areas that are still living under tribal law. All of these countries are having to face this problem. If the educated people who are at the head of these governments continue to remain at the top, then one would say that over the long run all of the people will come under some kind of modern law.

Of course, if you, the educated elite, lose control of the country and traditional tribal leaders take over, then you can't tell what's going to happen.

We have a very short period of history on this. In Africa, history has moved very rapidly. Up to the present time we have tended to think that Ghana, Tunisia, Morocco, Sudan are examples of what's going to happen to the other countries. But actually those countries are ahead of most of Africa. In other countries, the experience to date may not be a guide at all to what will happen, because they may have much smaller elite there; and these may or may not be able to maintain control.

QUESTION: Sir, would you discuss the problem of the control of disease and how it relates to economic development, since by controlling

disease you lower the death rate and increase the population and increase your problems?

DR. KAMARCK: It's one of these things that happen. I'm not a public health expert, and I hope that I don't go too far off the track. There is no doubt that population grows when you control disease.

On the other hand, when you control disease, you also improve productivity. For example, I remember talking to an executive of the Nyasaland railways. On the Nyasaland railways, there is no discrimination between Europeans, Africans, or Asians. He told me that he figures that one European could do as much work as two or three Africans, because the African, as he is growing up, is undernourished and riddled with disease.

Now, if the African got better food, and the diseases were eliminated, he could produce twice as much.

QUESTION: What is going to happen when the present expatriates that are advising these newly independent governments die or retire? Is there any replacement system for them?

DR. KAMARCK: That is one of the big problems. In a country like Tunisia or Ghana, it's not too bad because the Ghanians and the Tunisians are being trained very rapidly and, as the expatriates leave, they can take over.

In the other countries I think it's going to be very difficult: take the Congo. When the Congolese become independent, they will have their own government. They will have their own ministries and so on. But all of the people they will have to work with are Belgians. I would think that after a while it's going to become politically intolerable; and they're going to want to replace them with Congolese. But they are not going to be able to replace them rapidly enough. There will be a deterioration, and a severe deterioration, unless by some miracle--and I don't think this is likely to happen--the Congolese are going to be willing to have the Belgians remain.

Under the colonial system it was possible to recruit young people to go out, and you might get able, sometimes very able, people--people who might become dedicated, because they saw a lifetime career ahead of them. But now it is not going to be possible to recruit young people, because they can see that sometime in the future they're going to lose their jobs. There's no career, there's no future in it.

The kind of people that one can recruit are people near the end of their careers, who are willing to come out and spend three or four or five years. But they want top jobs. One can't recruit people for the junior and the middle jobs any more. It's going to be a very, very difficult problem.

QUESTION: I share your optimism about the future mineral resources of Africa, but I'm still reeling from your comment about the aluminum potential from the bauxite in Ghana.

DR. KAMARCK: Guinea.

STUDENT: You have mentioned a million years potential there. It seems to me that if the aluminum people mine this bauxite with the same enthusiasm with which they apparently have developed these other ore reserves, there won't be much land left in Ghana to put cocoa trees on. Run the figures through again, sir. I don't know just what is involved in your statement.

DR. KAMARCK: Well, I'm talking about Guinea. This is the Boke deposit in Guinea that I'm talking about. In Ghana there are also large bauxite reserves, but not as large as that.

This estimate that I gave you about a thousand years at the current rate of consumption is one that the aluminum industry came up with.

QUESTION: The World Bank, when it goes into Africa, I would say might have some difficulty about to whom they give their money. Do they give it to a private enterprise? Do they give it to these governments? How do they keep their money from getting into the pockets of the leaders?

DR. KAMARCK: Well, the World Bank can only lend to governments, public agencies, or private enterprise with the guarantee of the government. So that the two loans that I mentioned in the French territories--Comilog and the Gabon--and Miferma in Mauritania--were to private companies with the guarantee of the local government; and since the local governments were part of the French area and France is a member of the Bank and they were not, the French also guaranteed them.

Now, what keeps the money from being misused? It's the system of disbursement. First of all, a study is made of the projects and an estimate is made of the cost. One of the requirements of the Bank is that

the contract be let on an internationally competitive basis, so that it goes to the lowest qualified bidder. Then the money is disbursed only against the progress of the project, either against bills or other documents. This way the Bank can check and make sure that it knows where the money goes. So I would say that in the Bank projects the money is not siphoned off.

QUESTION: Can you carry that out a little further and tell us a little bit more about a typical loan-- when repayment starts, and the interest rates, and whether they are competitive with the rules that the Soviets put on in this area?

DR. KAMARCK: As far as the World Bank is concerned, let's take the biggest loan that it has made in Africa, in fact, the largest project loan that the Bank has made anywhere in the world--the Kariba project. Let's run through this very briefly.

When the Government back in 1955 couldn't make up its mind as to whether it could do as large a project as that, it asked the World Bank for an economic mission to advise them as to whether or not this was within the capabilities of their economy. The Bank sent in a mission, and it said: "Yes. This makes economic sense."

In 1956, they brought in consulting engineers; in fact, a firm of French and British consulting engineers, and the Bank engineers also studied the project. The Bank also got other financial agencies to come in and participate in its financing. So that in addition to the Bank, help was secured from the Commonwealth Development Finance Company, a British outfit; the Colonial Development Corporation, a British Government outfit; the British South Africa Company, that used to own the Rhodesias; Barclay's--D.C.&.O.--the Standard Bank, both operate in southern Africa; the Anglo-American Corporation of South Africa, the Rhodesian Selection Trust. All of these financed this project.

The main contract was awarded to an Italian firm. There was a howl in the House of Commons about this. But the British Government stood up to it, and this Italian firm has completed the project.

They ran into a great deal of difficulty, and the Bank engineers kept in touch with it as they went along. Engineers design dams, you know, to withstand a hundred years' flood, a thousand years' flood, ten thousand years' flood. Three years ago there was a hundred years' flood, and the bridge across the Zambezi River, across which the equipment

was moved, was just barely saved. They had to put a lot of extra cables on it and weights and so on. Everybody breathed a sigh of relief after that was over.

In the following year, there was a thousand-year flood. The cofferdam was overtopped, the bridges went; everything went. In fact, water poured 80 feet over the top of the cofferdam. Nobody knew what was left underneath it.

The flood went down. The dam was still there. The Italians went on, and they completed the dam on schedule. It is producing power already, and it's going to be formally inaugurated in May.

There will be a grid that goes from the Zambezi right in the middle of the Federation of Rhodesia and Nyasaland--right up to the northern border of northern Rhodesia. There is already a transmission line leading up to the Katanga--the richest part of the Belgian Congo. And it will reach from the Zambezi down into the southern part of southern Rhodesia. There will be a grid of 1,000 miles in the heart of central Africa, a hightension grid--330 KV--which is almost three times a higher voltage than the normal grid in this country.

QUESTION: What does it cost for all this loan, and how long do they have for repayment?

DR. KAMARCK: This is a 25-year loan. They have to repay it over a period of 25 years with a five-year period of grace. That is, for the first five years, while the dam is being built, they don't have to repay any of the principal. Then after that they have to start repayment. It's like buying a house under FHA. The interest rate was 5 percent.

Right now bank loans are 6 percent. The bank lends at 6 percent, because the interest rate on bank loans is set in accordance with what it costs to borrow money, because most of the money that is lent now comes from selling bonds to private investors. To this interest rate 1 percent is added for a special reserve and a quarter of 1 percent for expenses, and that fixes the rate; and now it's 6 percent.

QUESTION: This mosaic is an invention of the Europeans and I understand that it bears very little resemblance to the old tribal boundaries. Does this present a problem in the development of Africa? Are there any important, deep-seated hatreds among these old tribes that present problems?

DR. KAMARCK: That is one of the big problems in Africa--in that, as you say, the lines were just drawn there without any relationship to the underlying tribes. And there are a number of tribes that the boundaries just cut right through. One of the most important is the Ewe tribe, along the coast in both Ghana and Togo.

In the lower Congo, there is a tribe in the French and Belgian Congo and the Portuguese territory. And the tribe, of course, wants to be reunited. This is going to be a difficult problem as these countries become independent. Just exactly how it's going to be solved I don't know. If you could block off Africa from the rest of the world for four or five years, and the rest of the world didn't pay any attention to it, at the end of that time one might have national boundaries that would be tolerable, because the Africans would have worked them out for themselves. But at the present time, with the rest of the world putting its fingers in the pie, what's going to happen I don't know.

And then there's the problem of tribes within a country.

One of the big dangers that countries face when they become independent is that the people who lead the independence movement, and the people who are the head of the government now, may come mostly from one or another tribe that got educated first. The other tribes may resent their greater predominance in government.

This is part of the reason why there may be infringements on the working of the democratic system after independence because there is fear of intertribal warfare within the country. And in some of the countries this fear has been realized. The tribes say: "The Europeans are leaving; now is our chance to settle up a few old scores."

QUESTION: You spoke of Ethiopia having been long independent and that they had not developed very much. Recently Haile Selassie has been in Moscow and apparently was promised some assistance and so forth from the Communists. Do you view this with any alarm? Is this a gateway there that he has of crossing Nasser there in the Sudan country?

DR. KAMARCK: I am not competent to discuss political questions in any way that would contribute much. I have my own personal views, but they are not any more useful than those of the man in the street. This is a problem, I think, for the U.S. Government.

MR. POLUHOFF: Dr. Kamarck, it appears that we have no more questions for the moment. You have given us a very enlightened and interesting discussion. On behalf of the Commandant and the Industrial College, thank you very much.

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