

RESTRICTED

715

NONFERROUS MATERIALS

30 October 1952

CONTENTS

	<u>Page</u>
INTRODUCTION--Colonel B. S. Waterman, USA, Member of the Faculty, ICAF.....	1
SPEAKER--Mr. Samuel G. Lasky, Interior Department, Member, Interdepartmental Stockpile Committee.....	1
GENERAL DISCUSSION.....	10

Publication No. 153-47

INDUSTRIAL COLLEGE OF THE ARMED FORCES

Washington, D. C.

RESTRICTED

RESTRICTED

716

Mr. Samuel G. Lasky, Department of the Interior, Member of the Interdepartmental Stockpile Committee, was born in Denver, Colorado, 22 July 1901. He received his E.M. degree from the Colorado School of Mines in 1922, and his M.S. from Yale University in 1929. From 1922 until 1928 he held the following positions: refinery foreman, mill shift boss and superintendent of construction, New York and Honduras Rosario Mining Company, Honduras, Central America; instructor in chemistry, Colorado School of Mines; mine shift boss, Phelps-Dodge Corporation, Morenci, Arizona; Mining Engineer and Geologist, Kennecott Copper Corporation, Kennecott, Alaska. In 1929, he began his government work, holding the position of geologist with the New Mexico Bureau of Mines and Mineral Resources, Socorro, New Mexico. In 1931 he joined the Department of the Interior Geological Survey as a field geologist; during the war, he was regional geologist in charge of strategic materials investigations in the Western States, and later became chief, Mineral Resources Section. He was a student at the Industrial College of the Armed Forces, 1950-1951. Mr. Lasky is the author of many articles and books of a technical and scientific nature and the editor of "The Mineral Position of the United States." He holds membership in the following professional societies: American Institute of Mining and Metallurgical Engineers, Geological Society of America, Society of Economic Geologists, and Geological Society of Washington. During the past year he occupied the position of special consultant to the President's Material Policy Commission.

RESTRICTED

RESTRICTED

717

NONFERROUS MATERIALS

30 October 1952

COLONEL WATERMAN: This morning we progress one more step in our examination of the various important categories of natural resources. We have already had a good look at the situation with respect to petroleum, to the materials for the production of iron and steel, and to the light metals. I believe everyone here is able to think of a good many instances in our industrial economy in which such metals as copper, lead, zinc, and tin play a very important part. These nonferrous metals, though not used in the same great quantities as steel, are still an absolutely indispensable category of natural resource materials; and they deserve the special attention which we are giving them today.

Our speaker on the nonferrous metals has had a good deal of experience as a mining engineer and geologist. His ability to analyze the problems and the economics of the minerals industry has been recently recognized in his appointment as a consultant to the Paley Commission. As a matter of fact, he had a hand in writing the report of the commission, "Resources for Freedom," with which you have recently had a chance to become familiar. Furthermore, and certainly not the least important, he has had the benefit of the Natural Resources Course at the Industrial College.

It is a great pleasure to present to this class Mr. Samuel G. Lasky, of the Class of 1951.

MR. LASKY: Thank you, Colonel Waterman. Admiral Hague, General Greeley, and gentlemen: The assignment that has been given to me is to discuss the nonferrous metals most essential to modern industry, what are the world sources of them, what are the chances of diminishing our dependence upon imports of those materials, the relative position of the free world and the Soviet bloc, and the implications on United States policy. I shall follow the order of that assignment, but first let me make clear the two points that I would like to put across.

First, that the United States is dependent fundamentally on imports for all the nonferrous metals, but the free world as a whole is very well off. Only with respect to antimony and tin is the Soviet bloc well off.

The second point I want to drive home--and if I make no other point, I want it to be this--is that the raw materials of the free

RESTRICTED

RESTRICTED

718

world have to be considered as being available for the free world as a whole, and not as something that the United States can dip into at its own convenience.

Before going further it would be well, I think, to define what is meant by the term "nonferrous metals." The term itself implies all metals not related to iron and steel, in other words, everything except iron and the alloying materials--chrome, manganese, nickel, tungsten, cobalt, columbium, vanadium, and molybdenum. The precious metals, however--gold, silver, and the platinum group--have always had a niche of their own and in recent years the light metals have also become separately classified--magnesium, aluminum, titanium, and now zircon. That leaves a relatively small group, primarily the "big three"--copper, lead, and zinc--and cadmium, bismuth, arsenic, mercury, antimony, tin, beryllium within the last few years, and now germanium. Those of you who read the slick paper magazines have seen advertisements about the use of germanium in electronics. Up to now it has had only civilian application. In military applications its potentialities are tremendous, but there have been no circuits as yet approved. The production of germanium last year was, I think, somewhere about 5,000 pounds, at a price of about 350 dollars a pound.

It is difficult to try to talk about what are, or might be, the most essential of this particular group of materials because of the complicated intermeshing of use patterns. The petroleum enthusiast says that if we didn't have petroleum, our industry would fall apart. Well, so it would. But we wouldn't have a use for the petroleum if we didn't have, say, automobiles. The sulphur enthusiast would insist that our economy would fall apart without sulphuric acid; and I guess that is true, too. But we wouldn't be using sulphuric acid for fertilizers, its main use, if we didn't have mechanized farming. Sumner Slichter, the well-known economist, says that nickel is the key commodity.

We might look at the problem this way: Though first let me say that I don't see any point in listing all the uses and use patterns of this whole suite of minerals; you can get that information out of any one of a dozen reference books in the library. I would like to save my time to drive home the couple of points I have mentioned and for the question period.

One of the major characteristics of a modern economy is its dependence on communication, power, and transportation. These three essentials are constructed around the peculiar combined properties of the nonferrous materials. Your mind, of course, immediately jumps to the use of copper in power generation and transmission and in communication. Some of you may know, too, that one of the essential uses of lead is as cable covering, although plastics are being substituted.

RESTRICTED

When we think of transportation, we think variously, depending upon our background, either of railroads, aviation, or the automobile. We get into the habit of taking those things for granted. But you can remember that during the last war we had a lot of difficulty in getting men to and from work.

The average automobile uses about 50 pounds of copper, mainly in the radiator. It uses lead and antimony in the battery, tin and lead in solder, zinc in die castings, and, of course, lead in the gasoline. Tetraethyl consumes about 10 percent of all the lead used in the United States; and it is shot out into the air and forever lost.

All except germanium and arsenic of the nonferrous metals are on the strategic and critical stockpiling list.

These materials are scattered worldwide and their trade routes are well established. So far we now know that there are eight copper jack pots in the world. Nature has for some reason concentrated copper in a peculiar fashion, in a way that she has not done for other materials. Four of those jack pots are in the United States. They are: Michigan; Butte, Montana; an elliptical area enclosing parts of Utah and Nevada; and a circular area around southwestern New Mexico, southeastern Arizona, and running down into northern Mexico. In mining lore these are names to conjure with. The other four include the nickel area of Sudbury, Ontario; the Braden and Chuquicamata areas of Chile; and the balogna-shaped area down in Northern Rhodesia and the Belgian Congo. It is estimated that Chile alone has 75 million tons of copper, contained in 5 billion tons of ore. Explorations over the past three or four years by the American Smelting and Refining Company in Peru are bringing to light what may turn out to be one of the six largest copper deposits in the world.

Politically speaking, there are five copper regions: the United States, Canada, Chile, the Belgian Congo, and Northern Rhodesia. They account for 80 percent of the world's production, and we estimate that they contain 80 percent of the world's reserves. Russia appears to rank fifth as producer and fifth as well with respect to reserves.

Having mentioned reserves, let me digress for just a moment to explain that term, because it is so ill-understood and so much abused. "Reserves" means ore reserves. Ore is something that can be mined at a profit, or at least that can be mined and processed without loss. If it can't be mined and processed at a profit, it isn't ore. When we speak of reserves, we are always aware of the facts that there is additional material in the ground that is submarginal in grade. Unless

RESTRICTED

720

the cost of mining and processing that submarginal stuff can be cut down low enough, or the price of the metal goes up high enough, it is not included in the estimated reserves. Reserves are the working inventory, of a mine or country something on the shelf. There is always some stuff also in transit, the material being made available by day-by-day improvements in technology and the new ore being found by day-by-day discovery. There is also material always on order, that is, that material that will become available as the result of long-term trends in technology and as the result of exploration that is being started now.

Now to get back to the metals themselves: Next of the "big three" are lead and zinc. Lead and zinc usually occur together, although there are some places that contain only one or the other. Nature did not create "jack pots" of them, as she did for copper, but she did concentrate them in areas that are peculiarly rich. The most famous include what is called the tristate district of the United States, at the junction of Missouri, Kansas, and Oklahoma; the Coeur d'Alene district in Idaho; and Broken Hill in Australia. Explorations made jointly by American capital and technology and French management have within the past few years opened deposits in Morocco and Algeria that promise to be as great as anything yet found elsewhere.

Politically there are four lead-zinc areas. They are the United States, Canada, Mexico, and Australia. These four account for two-thirds of the world's production of lead and zinc and about half the world's reserves. Runners-up at the present time are this Moroccan deposit, known as the Zellidja deposit; Peru; Germany; Yugoslavia; and Russia.

South China before the war contributed about one-half of the world's production of antimony. Now I don't suppose anybody knows how much it produces. Bolivia is the next major world source. Then comes Mexico, and following them in a moderate sort of fashion are the United States, South Africa, and again Yugoslavia.

The tin treasure vault of the world is that area from South China over to Burma, Siam, Indo-China, and down through Malaya and Indonesia. Bolivia is a second treasure vault. We get some also from South Africa, mainly from the Congo. Cornwall, in England, was at one time the source of the world's tin; the Cornish tin miner has moved across the world and left his mark on the mining technology.

Mercury is the last on the list. About two-thirds of the world's supply comes from Spain and Italy; a little comes from Canada; a little from Mexico; a little from Yugoslavia, Russia, and the United States.

RESTRICTED

Mention of mercury in the United States leads to the next part of this assignment--namely, the possibility of lessening our import requirements--because whereas the United States used to be self-sufficient in mercury, we now import 90 percent of our needs.

The present situation in the United States is like this.

	<u>Production,</u> <u>percentage of the free world</u>	<u>Consumption,</u> <u>percentage of the free world</u>
Copper	36	49
Lead	26	48
Zinc	32	51
Antimony	10	
Beryllium	8	46
Tin	0	50
Mercury	4	
Bismuth	26	
Cadmium	51	

In copper the United States produces 36 percent of the free world production; we produce 26 percent of the free world production of lead, 32 percent of zinc, 10 percent of antimony, and so forth. We can forget about the last two--bismuth and cadmium. If there are any among the nonferrous materials that we can say are not particularly essential, they are bismuth, cadmium, and arsenic.

As you will note, there, our production ranges from zero percent of the free world production for tin on up to a little better than a third for copper. On the other hand we consume roughly one-half of the total free world supply.

Our import relationships I would like to make clear by giving the actual situation with respect to four of the critical materials--copper, lead, zinc, and mercury, mercury being one that really makes the point. The trend of copper production in the United States, going back for 110 years, is something like this:

The domestic copper industry reached its plateau of productivity about 1929, at a long-term level of about 750,000 tons a year. It has

RESTRICTED

722

reached a, much higher production at times, but only under forced-draft operation. This then is our long-term trend so far as we can see it, for well beyond 1975 at any rate. Sometime in about the early thirties we crossed the threshold from a net exporter of copper to a net importer. Back in those early days we produced much more than we consumed. Now we are consuming much more than we produce. Year in and year out we demand more and more copper and we import more and more copper; last year we imported about 450,000 tons. By 1975, according to the Paley Commission's estimate, we will import about a million tons. Last year's imports were roughly one-third of total consumption.

I might use that same sketch for zinc. The situations are identical, except for the value at the plateau, which is about 675,000 tons a year for zinc. The date when we became a net importer for zinc was in the late thirties. Last year we imported a little less than 400,000 tons, which again was roughly one-third of our consumption. By 1975 it is estimated that we will be importing fully 800,000 tons.

Lead gives us a sorry picture (drawing curve on blackboard). Lead records go back to 1820, but the data are poor for the early years. Some data indicate that we exported a little. Other statistics show that we imported a little. So for the purposes of this talk let us say that production and consumption stayed fairly well in balance until World War I, when we unequivocally became net importers. This curve shows the situation as it is now in the United States between domestic supply and the domestic consumption and demand; 1952 is just about there (indicating). Despite all the efforts we made to improve it during the war and during this current emergency, domestic lead production has continued to fall. It is my own opinion that within a couple of decades lead production in the United States will be down to its by-product relation with zinc. The Paley Commission doesn't go quite that far, but it went far enough to disturb some members of the lead industry. Current imports are about 565,000 tons a year; by 1975 they may be double that amount.

That is the domestic production picture for mercury (drawing another curve). The industry has gone through two cycles of life. It is now down in the doldrums. In the first cycle production reached a peak of 80,000 flasks, in 1880. In the second cycle the peak was 50,000 flasks. If we get into another war and the price of mercury goes up high enough, we will have a third cycle. But the chances are that it will be a small cycle and the American mercury industry will then, let us say, be dead. The American deposits of mercury contain pounds, whereas the foreign deposits are measured in percentage content.

There are two or three facts or additional items with respect to this situation which may help to make this particular point clear as to where we are domestically.

RESTRICTED

RESTRICTED

723

One of those is that in time of war in the United States, zinc and copper compete for labor. The Butte district of Montana, one of the major copper jack pots that I spoke of, is also the third largest zinc producer in the United States. The same company that mines copper mines zinc. In time of war it makes more profit out of the copper, and it diverts its labor from the zinc mines over to the copper mines. That is true also in a mild degree for an area down in New Mexico, which is also one of our major copper producers and is the sixth largest zinc producer in the United States.

Another fact is that the average copper content of our copper ores is .9 of one percent, or 18 pounds to the ton. The average copper content of foreign ores is about 4 percent, or 80 pounds to the ton.

The third fact is that if war comes and if Europe is overrun, European smelting capacity will no longer be available to us. The ore that is mined in Europe will head for the United States and our domestic production will have to drop, because we will be restricted by smelting capacity.

It is true that we do have a good deal of secondary recovery for all the nonferrous metals and there is some leeway still for improving that recovery. But the opportunity is relatively small, and it is not going to change the general story I have described.

Please don't be crossed up by the protestations that you will hear, some of them from this platform, that we have an abundance of the non-ferrous materials. The people who talk like that are talking about world production and not United States production. It is true that as the years go on, the free world will be able to develop enough raw materials to satisfy the free world demand, but no matter what the free world is able to produce, the United States won't necessarily get the stuff. The facts of geology determine where throughout the world we may look for mineral deposits and may mine them. But the facts of geography and the character of nations are what decide who will get how much out of whatever happens to be found.

Market routes and trade patterns for all these raw materials are well established. We will continue to rely on Canada and on South America for most of our imports of copper. The initial production from Africa will continue to go to the European market. We will continue to rely for the major part of our imports of lead and zinc on Mexico and on Canada. The new supply coming out of Morocco is going to France.

RESTRICTED

RESTRICTED

72A

Another factor is the growing nationalism throughout the world. Those nations that recently escaped from colonialism have become ultra-nationalistic in the process. The United States has 8 percent of the free world population; yet, as I indicated on the blackboard, we use about 50 percent of the free world's supply of raw materials. How long do we think the other nations of the world are going to permit that situation to continue? We might think about that, put ourselves in their shoes. They too would like a high standard of living, for which no one can blame them. They want to use some of these raw materials themselves instead of exporting them to us. If they can't use them all, they would at least like to process the stuff to some higher form of value, so they can get more money, so they can buy more things from us. Or they would at least like to control the marketing of their raw materials: Iran with its oil, Indonesia and Malaya with their tin, India with its manganese. Some of the older established countries are moving in the same direction: Bolivia and its move to nationalize its tin industry; Venezuela, with its desire for a steel industry; and Chile, with its desire to control the marketing of its copper. Not all the materials I have just mentioned are nonferrous, but the political facts are the same.

The nonferrous commodities, as you will note from the map, are scattered worldwide. You probably noticed the frequency with which some country names were mentioned--the United States, Canada, Mexico, Bolivia, and Yugoslavia.

The free world countries have about nine-tenths of the world's reserves of lead and of copper, about eight-tenths of the zinc, almost all the mercury (97 percent of it, one-half of it being in Spain alone), and three-fourths of the tin. China has tin and antimony, and China alone has the Soviet orbit's supply.

Unfortunately, that good statistical position is no particular cause for complacency. I have already mentioned the fact that we cannot count on getting what we want just because we want it. There is also, of course, the possibility of defection to the Soviet camp, or the possibility of military capture or destruction of facilities. It would be no more strange to think of a country that now appears on the free world list going over to the Soviet side than to think that Yugoslavia should go over to the free world's side a little while ago.

We know enough about the geology of Russia to say that it has a good opportunity to find new deposits of raw materials. We know enough about the geology of the United States--a good deal more than we know about Russia--to say that we are not going to find enough in the United States to change that demand-supply picture that I put on the board for you.

RESTRICTED

Russia has geared its self to self-sufficiency. No nation is completely self-sufficient in a strict sense; of course, no nation produces in its own borders all the materials it would like to use. But Russia has decided to be self-sufficient by simply deciding to get along with what it has, with the opportunity of finding more, and to gear its economy in that direction. The United States, on the other hand has lived with a luxury economy so long that we couldn't get away from it even if we decided we wanted to.

Come war, somebody is going to have one tough job deciding just what is essential in the civilian economy and making the people like it. If the people don't take it, let us hope the stockpile is full by that time.

Considerations like that naturally lead to the last part of this discussion. What does, all this mean in terms of American policy? I am not going to give you any answers: I haven't any. I am just a raw materials man. At any rate when we start talking about policy, we must talk about raw materials in general, not just about the nonferrous materials. When we think of tin, we think of Malaya. Just as soon as we think of Malaya, we think also of rubber. When we think of copper, we immediately think of South America and in the same breath we think of Africa. Just as soon as we think of Africa, we think of cobalt and tin, asbestos, uranium, manganese, chrome, and what-have-you.

The central policy issue, I think, is that the free world's supply has got to be considered as available for the free world as a whole. We can't dip into it at will just because we think we are entitled to have it; we will have to carry the brunt of the world battle.

That central policy leads immediately to the matter of protecting Europe's colonies and protectorates in case Europe is overrun. It leads us to the Point Four Program and to similar policy matters: international buffer stocks, international trade agreements, and the International Materials Conference. It leads to a consideration of tariffs, free trade, and stockpiling.

Stockpiling is a particularly complicated area of concern. There is a tremendous amount of raw material in the stockpile. Once something gets into the national security stockpile, we hold it there; it gets sterilized, emasculated; withdrawn completely from productive use. That is more nearly true if we stay at peace than if we go to war. If we go to war, some of it comes back as scrap. One of the things that we must think about is what is going to be the effect on the economy of the United States and the rest of the free world; the effect on prices worldwide, upon the countries producing raw materials, and upon the availability of supply to the industrial countries.

RESTRICTED

726

Part of the NATO concept is that each of the NATO countries will produce those particular end items it is most qualified to produce. But they are to do that, they are going to have to have the raw materials to do it with, and to be able to buy them at prices they can afford to pay.

I'll try to conclude by summarizing what I have said in the form of five points.

First, the nonferrous metals and groups of them are concentrated in certain parts of the world.

Second, except for antimony, the free world has most of the world's supply.

Third, China alone has the Soviet orbit's supply of antimony and tin.

Fourth, much of the United States supply comes from Canada and Mexico, and consequently is almost as secure as if it came from the United States itself.

Fifth, the free world's supply is not going to come to the United States as freely as it has in the past, but will have to be considered as available for whole free world use.

If I have managed to leave only one thought with you, there I hope it is that fifth point. The battle with Communism is not a battle between the United States and Russia but between the Communist world and the free world. We need the free world. The United States is literally a "have-not" nation with respect to many raw materials. I am willing to use that phrase now that I have given you the statistics. We don't produce any tin, we don't produce much antimony, we don't produce much mercury or beryllium. Our ability to produce lead is declining fast. We are only holding our own with copper and zinc, while demands are increasing fantastically.

And so, as a final sentence, let me repeat my major thought again: The free world's supplies have to be considered as available for the free world and not for us alone.

COLONEL O'NEIL: Will you discuss stockpiling further?

MR. LASKY: The stockpiling objectives in this country are determined, as you know, by first estimating as well as we can what may be the supply during an assumed war period. This estimated supply is then discounted in terms of transportation danger, and the political and

RESTRICTED

RESTRICTED

727

economic stability or instability of the producing countries. Alongside that we put the estimated requirements--military requirements as they are estimated by the Department of Defense and the civilian requirements as calculated elsewhere. The inventory objective for a material is the difference between this estimated supply and demand.

There is always some pressure to put a little bit extra into the stockpile as a matter of security. But if we do, we are faced with this problem: If we put in there more than is absolutely needed, what is that going to do to world prices? What might it do, let us say, to the economy of raw material producing countries, such as Bolivia and Malaya, that depend on only one or two materials?

When we are buying at a certain price and stop abruptly, what happens to the price? The price goes down. That again has an effect upon the economy of this and other countries. These fluctuations in price effect not only the countries producing the raw materials but they affect also the supply to the economy of the manufacturing countries.

QUESTION: Will you comment on the geological possibilities of Russia, Canada, and the United States? What is the comparative position with respect to future explorations?

MR. LASKY: My knowledge about the three countries is in the following order: the United States, Canada, and Russia. It deteriorates rapidly as I get outside the United States.

May I tie your question together with a question--that either you or one of the other students asked me during the recess interval--about the opportunities for discovery in the United States?

You may have heard the statement that only 10 percent of the United States has been mapped. That statement means that 10 percent has been mapped on a scale that is useful for modern needs. But we do know enough about the general facts of the geology of the United States to know what particular metals will be found in what parts of the country.

The nonferrous material deposits that are yielding our current production are those that cropped out or that we have found by mining down on them. But if we are going to meet the sort of picture that I drew for you for the future, we have to find tremendous new quantities of deposits that do not crop out. We do not now have the techniques for doing that. We have not carried over to the mining industry the geophysical techniques that are used so successfully in the petroleum industry. We have to work out ways that will hasten our ability to find the concealed deposits.

RESTRICTED

RESTRICTED

728

One important fact is that even if we had all the necessary techniques, it would still be 15 to 25 years before we could bring a newly discovered buried deposit into quantity production.

For example there is a great new copper deposit in Arizona, known as the San Manuel deposit. Drilling on this deposit, which incidentally actually crops out of the ground and has been known for years, began in 1941 or 1942. It is now 1952 and there will still be another five years before the deposit can come into any sort of quantity production--15 years even in this time of emergency.

Fifteen to twenty five years--what do we do for metals in the meantime?

As to Canada, we know enough about the geology of the country in general to know that it has fabulous possibilities. But it is still going to be quite a period of time before we can realize on these possibilities. New production is coming in daily, but it is going to be many years before that production will come in, in sufficient quantity to take care of the free world's needs and relieve the situation that I talked about. The long-run possibilities are probably greater in Canada than in the United States, because that country has not yet been explored as thoroughly as has the United States.

QUESTION: What about the Soviet possibilities and the time span?

MR. LASKY: A satisfactory answer is hard to give, first, because of the way Russia operates and, second, because of lack of factual knowledge. It is so hard to know how much mapping is done. I read a book a couple of years ago by Harry Schwartz in which he said that 80 percent of the country had been mapped geologically. That is nonsense, of course. To a geologist that statement means that 80 percent has been mapped on some sort of a reconnaissance basis. You can't make any comparison between that 80 percent and the 10 percent I spoke of for the United States. On a reconnaissance basis the United States is 99.99 percent mapped. There are only a couple of little holes on the map of the United States.

COLONEL CAVE: I have a question and an observation. My question is, I wonder how realistic this danger of sterilization might be if we are under some compulsion to buy this excess material because it happens to become available. My observation is this: Inasmuch as we have a basic assumption of a war, which may not be practical, there is a 20 percent margin of error just on that for each year. The other thing is even worse, it seems to me, and that is that if you were under some compulsion to buy copper when it became surplus, there would be terrific

RESTRICTED

resistance in the Department of Defense because the money to buy it would come out of the defense budget and therefore the Joint Chiefs of Staff would try to have it go into something that is more needed at this time.

MR. LASKY: We are not necessarily under the compulsion you speak of, for two reasons. One is legal resistance, because people have to live within the law. The law says the stockpile cannot be forced to take from anybody anything beyond what we have determined should go there--that is, above the calculated inventory objective. So, even if there is excess production, if the stockpile objective is already full, the stockpile would not have to take any unless the objective is raised or the law changed. If the stockpile is not already full, of course then we would be happy to get anything that became available to the extent appropriations permitted.

The other angle about the cost is this: If funds are not available, a government surplus may under some circumstances be transferred to the stockpile by the owning agency without cost to the stockpile, the Treasury being authorized to cancel the notes of the transferring agency. In the last year this was the RFC. At the present time, consideration is being given to the possible cancellation of the notes of DMPA.

Of course, when a surplus develops, the first thing people think of is "Put it in the stockpile." But I can't see any way it can go into the stockpile--if the stockpile is already full of that material--unless the Munitions Board and the Secretary of the Interior raise the objective. And they won't raise the objective unless they are quite sure they can justify that action before some congressional committee in the future. Even then I don't think they would raise the objective except under extraordinary circumstances if the Interdepartmental Stockpile Committee recommended against it.

QUESTION: Recently we read in the press about the dropping of lead and zinc prices a considerable percentage. Has manipulation on the part of the purchasing agencies forced these prices down, or has the demand stopped and the price automatically dropped?

MR. LASKY: I think the last is true. I am told that just within the last two or three days 23,000 tons went into the stockpile. The reason for the drop in price was overproduction and because the demand has slackened. The impetus seems to have come from the British. They started government sales of lead.

RESTRICTED

730

QUESTION: What is going to happen to the world market situation when we get our stockpile filled?

MR. LASKY: One policy question that hits us, of course, is whether to buy at a constant rate until the stockpile is filled or whether to taper off. If we decide to taper off, then we are faced with the questions of what level to begin at and whether to taper off at constant rate or to take only what industry leaves.

If we do stop purchases abruptly, it will have an effect upon prices. The government's purchases have an exaggerated effect upon prices, although I myself don't understand why they do.

QUESTION: It occurs to me that, with the United States being such a user of these metals percentagewise, and with the stockpiles we are building up, we are going to be more or less in the same position that we were in when we established the price of gold, and that therefore we should plan to control the price on the world market and buy at a price that we think desirable. Would you comment on that?

MR. LASKY: We are stockpiling the difference between the calculated supply and a calculated need. That doesn't put us in a position to manipulate world markets even if we wanted to.

Once the material gets in the stockpile, it can be withdrawn only by order of the President in time of war or by order of the President himself or someone that he delegates under an emergency that the President declares related to common defense. So that once the material gets into the stockpile, it just isn't going to come out at anybody's whim. It is going to stay there, we hope, and be available to make up the difference between supply and need during a war. It is not available as a means of manipulating the market.

QUESTION: But it would work that way if the stockpiling agency could manipulate the price?

MR. LASKY: Yes, if---. But we would then be losing the security value of the stockpile. That is another of the battles currently going on, because some people would like to use the stockpile the way you suggest.

QUESTION: Couldn't we manage to have a minimum level of the stockpile that would satisfy the emergency needs, and then have a flexible top to it that would allow us to go out and buy metal that is available at a reasonable price; and then, if the price starts to go up, we could release some of what we had bought above our minimum needs to the domestic market until it went down again?

RESTRICTED

RESTRICTED

731

MR. LASKY: The sort of thing you suggest is partly going on and partly being talked of.

There is established very loosely what is called a peril point. It has never been defined. It is just a concept. There is some minimum value of the amount we want, just as your wife keeps a minimum amount of food in the pantry to make sure there won't be some week end guests and no food.

We can establish some such level as that. Then, once we have passed that point, we can relax and taper off our purchases. We can set a final date for completion of buying, and then little by little taper off as we get close to the objective. At some point we can stop contract purchasing entirely and just buy on the market when the market gets soft. That is the kind of policy that is being talked over now; up to now the consensus of the 16 people dealing with it seems to be that that is the thing to do.

QUESTION: It would seem to me that there wouldn't be any reason why we shouldn't keep on buying as long as people choose to produce it at a reasonable price. Why isn't it to our advantage to keep on piling it in as long as we can get it at a reasonable price regardless of how much it is?

If we keep piling it in, as you say, we are taking it from others who may need it eventually, if not now. What then happens to the economies of the countries that we are counting on as our allies? If we expect them to increase their military capacity, they must have that material. They have to be able to buy it at a price that they can afford. What happens to Britain's economy if it can't get sulphur? That isn't a nonferrous metal, but the implications are the same. The British were in bad shape until the International Materials Conference arranged to send Britain some sulphur.

Anyhow, it may not make any difference what we decide about price. When people get nationalistic and emotional, they don't think of economics in the sense that we do. Take Mossadegh of Iran; Bolivia, Chile, and India may be other examples.

QUESTION: I read that some miners have found some tin in California and that they are going to drill or dig some mines there to produce some commercially for a period of time. Are there any tin resources in the United States? That is the only one of these minerals that seems to be produced in the amount of zero. Are there any possibilities?

RESTRICTED

RESTRICTED

732

MR. LASKY: Tin resources in the United States, yes; tin reserves, no. There are two places in California, one which is not far out of Los Angeles. There is some in New Mexico, two places in Nevada, some in Alabama, South Dakota, Colorado, Washington. But all the deposits are low grade and at least some are metallurgically hard to handle.

I may be the only geologist in the country who refuses to say there is no commercial tin in the United States, because I don't think we know enough about the geology of tin to say that we don't have any.

We don't know anywhere near as much about the geology of tin as we know about copper, lead, or zinc or any of the other nonferrous materials. As a matter of fact, I don't think we know as much about the geology of tin as we now know about uranium. Ten years ago we knew almost nothing about the geology of uranium, but we have learned a lot about it since then and as we learned, we found more uranium. I think if we knew more about the geology of tin, we might have a chance of finding some of it. Though I think I am awfully lonesome in thinking that way.

The total monetary value, when our stockpile is completely filled up, at 1952 prices, will be about 8 billion dollars. There is roughly between 3 and 4 billion dollars worth in it now.

COLONEL O'NEIL: Mr. Lasky, it has been a great pleasure for the school to have you back here to talk to us. I thank you on behalf of the college for a very interesting lecture and a very stimulating question period.

(22 Apr 1953--750)S/rrb.

RESTRICTED