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CONTROL OF MINERAL RAW MATERIALS IN PEACE AND WAR

by

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In order to clarify my position on the subject assigned me for this morning's talk, may I request that you keep in mind a statement made some years ago by E. C. Eckel in a lecture on "Strategic Minerals in War and Peace." 1/ In setting forth his views on the phenomena war and peace, Dr. Eckel states that they "do not coincide with those currently fashionable, particularly in advanced and intellectual circles." He states further that "the broadly popular view today, accepted in high places as well as by the mythical man in the street, is that peace is the normal condition of human progress, while war is an abnormal, archaic, and avoidable interruption of evolution." I agree with Dr. Eckel when he further states that "war is a necessary and normal phase in human development and that in our present industrial civilization it is merely an openly armed continuation of our peacetime business competition."

The industrial development of any nation is based upon - first, the natural resources found within its political confines, and secondly, the availability of imports of mineral raw materials.

If a particular country is to attain prominence in world affairs, it is not only essential that it have at hand the necessary industrial mineral raw materials, but its populace must have a knowledge of the commercial use of such materials. A nation might be rich in natural resources, yet never seem to emerge from the class generally known as "backward nations." As a rule, these nations have supplies of mineral raw materials which are drawn upon by various industries. To me an interesting example of such a nation is Spain. You may say that Spain never had the resources necessary for development of cheap power, and not having them, was unable to compete with nations more fortunately situated. Quite true. But even had the inhabitants of Spain been endowed with the inventive ability of the Anglo-Saxon, it is doubtful if the history of this country would have differed greatly from what it has been.

The early history of the Iberian Peninsula clearly indicates that one of the dominant characteristics of its inhabitants was the spirit of adventure and the avoidance of menial labor. The inhabitants of Spain, as is well known, lived for many years upon the plunder obtained from various

1/ Am. Inst. Min. & Met. Engr. Ser.: Mineral Economics; Strategic Minerals in War and Peace, by Edwin C. Eckel; 1932, pp. 173-187.

countries of the world. The degree of culture attained was largely derived from the Moors.

Turning from Spain to the Netherland East Indies, the query might be - "Had the Aborigines of the East Indies been left to themselves, would the resources of the Islands ever have reached the present day state of development?"

Spain has for some time supplied a large part of the mineral raw materials required by such industrial nations as France and England. For many years, practically one-eighth of the total lead produced in the world came from Spain. A large part of the sulphuric acid manufactured was derived from the reduction of the pyrite ores of this country. Both England and France have imported a large part of their high-grade iron ore requirements from the Bilboa District. With the exception of the manufacture of the smaller part of Spain's textile requirements, there are, broadly, no manufactured articles entering world market from this country.

The converse of this condition may be found in the smelting industry of Belgium. With practically no lead or zinc resources, there has flourished for many years an industry based upon the importation of the crude ores.

Assuming that the Commonwealth of Nations, the United States, Germany, France, Japan, Russia and Italy, are the dominant industrial nations in this present day world of ours, it is interesting to note that the nearest approach to self-sufficiency is found by the combination of the resources of the Commonwealth of Nations and the United States. Russia might be classed with the more fortunate nations, but, should the various economic plans of the Russian Government be successful, there is no doubt that even with its great resources, this country would be dependent upon imports for some of the basic materials required to maintain present day civilization.

It is quite apparent that those who plan our earthly destiny have given little thought to the consequences or to the problems that arise from industrialization. If we take the history of our own country or that of England, it is evident that one of the major problems is a biological one. We have an increase in population going hand in hand with increased mechanization. The United Kingdom, on account of its size, probably affords a more striking example of this than does the United States. Prior to 1820 it was

estimated that the population of England was in the neighborhood of 16,000,000, and that the United Kingdom was self-sustaining as regards its food requirements. As industries developed, the population increased so that today, the United Kingdom's 50,000,000 inhabitants could not exist for over a two-weeks' period without importation of food products.

Thus is indicated one of the major consequences of building up a manufacturing country without thought of the social conditions which go hand in hand with such development. Picture the plight of a nation, which is deficient in certain basic materials, such as iron ore, and therefore dependent upon imports, when for some reason or another the source becomes closed to it. There could be little doubt, that if the nation deemed itself sufficiently powerful it would ultimately have recourse to war.

The position occupied by minerals, controlling as they do, our every-day life, should make our legislators "Stop, Look and Listen" before enacting legislation which might, by provoking retaliation, make it difficult for our citizens to obtain materials on which large industries have been built. In my opinion, it is impossible to exaggerate the necessity of the control of essential raw materials if industrialization is the goal of any country.

It would seem that I have wandered far from the subject assigned me, but unless there is a thorough understanding of the peace-time importance of mineral raw materials, little need be said as to the control of raw materials in war.

Without mineral products a country would be unable to protect itself from the ravages of modern warfare. As one of the inherent characteristics of the human being is self-protection, the necessity of adequate supplies of raw materials to meet this demand becomes apparent. A nation without a sense of security becomes demoralized, and any advance along the lines of modern civilization is retarded or obliterated. There is little use of moralizing and saying that the world should be a very different place. What we must do, it seems to me, is to accept conditions as they are, and little by little attempt to improve them from the standpoint of protection of life and property, and follow the old adage of "Live and Let Live."

During the last few years much has been said and much has been written upon the subject of so-called strategic metals. I believe a better classification would be "Deficiency Minerals", rather than the present terminology, for in time of war all industrial minerals are strategic. Fortunately or unfortunately, war cannot be successfully waged unless it is a popular movement. This fact makes it almost imperative that civilian as well as military needs of all raw materials must be considered in any scheme for national defense. Planning merely for the needs of an army or navy would, in my opinion, result only in chaos in time of war.

For years the German general staff formulated plans for national defense, as well as offense. The calculations of this efficient group were in error as to the length of any war, and after two years of an aggressive campaign, Germany found itself in need of practically all materials of which it had been thought an adequate supply was available.

On the other hand, the United States is making elaborate plans for national defense. There can be but little doubt that from the standpoint of the mobilization of the civilian population, the regimentation of industry and the rate at which military requirements must be met, the plans are of a high order. Notwithstanding this efficiency, as far as can be ascertained, the question of adequate supply of deficiency minerals has been as yet unsolved. Should war be forced upon this nation, it would be the old, old story of "God will provide." This to me is highly presumptive. National security can be attained in part only by the most careful preparation to meet all of the many complex situations which must inevitably arise when nations are at war.

If mineral raw materials are important in the industrial development of a nation - (and we must assume that they are) - and when apparent security has been attained, and prosperity, tranquillity, as well as good fellowship prevail, what will be the reaction of a nation if deprived of an essential raw material by an enactment of a law by a nation supplying this commodity? Its people through habit have been led to believe that it was theirs by inherited rights.

Let us consider for a moment, in a hypothetical way, our relationship with Mexico, just prior to the World War.

What would have been the popular reaction if the United States had been short of gasoline or crude oil, and Mexico refused to supply our demands except at a very high price? Would General Pershing have returned to this country without forcing the Mexican Government to comply with what we thought was a reasonable request? The present situation with Mexico, which is a real one, again illustrates the part played by minerals prior to any open friction. President Lazoro Cardenas has promulgated the slogan "The Reconquest of Mexico for Mexicans." As a part of this movement, mines are being nationalized and properties practically confiscated. The actions have been of such a character that Ambassador Daniels in October indicated that the United States would be bound to take every step necessary to see that American citizens obtain justice in the development of Mexico's expropriation program. The threat of the commandeering of our $400,000,000 investment in the oil industry has apparently caused a bit of anxiety. The value of our Mexican holdings may in the near future be greatly enhanced by the diminution of our domestic oil reserves.

In November, 1937, the petroleum situation in Mexico became acute, indicating clearly the necessity of handling the investments of our citizens in foreign countries with an iron hand. What is seemingly necessary is that we demand the same treatment as that accorded other nations. The Mexican Government has signed an agreement with the Dutch Shell Oil Company, which may provide the Mexican Government sufficient funds to carry on its nationalizing policy. Practically all agrarian holdings of our citizens have been eliminated, and consequently it makes it possible to gradually freeze out our petroleum interests and industrial companies. The Dutch Shell Company is to pay the Mexican Government royalties ranging from 15 to 35 percent of the petroleum produced in lieu of the right to develop the Pozarica oil field.

In November, the United States oil companies held approximately 5,000,000 acres of potential oil lands. The restricted production, which has been in vogue, resulted in a production of about 12,000,000 barrels annually. The reserves have been estimated at about 1,000,000,000 barrels.

An attempt is being made, so it is said, by our State Department to protect the interest of our nationals in Mexico, a trading point being the renewal of the Silver Purchasing Act and the elimination of the $100 duty

exemption which is accorded to United States citizens on leaving Mexico.

The foreign situation might be summed up by saying that the conflict arising is one between those "Who Have" and those "Who Have Not". A brief resumé of some of the factors underlying the present unrest might be in order.

1. The political ownership of the Ruhr District.

2. The steel industry of Continental Europe is based upon the minnette ores of Alsace and Lorraine. The ability to utilize these ores depends upon cheap metallurgical coke. As you all know, the larger part of the iron ore reserves is owned by France, and the fuel by Germany. This uneconomic ownership led to the Franco-Prussian War, and was an unquestioned factor bringing on the World War.

3. The Moroccan War, whereby France acquired a dependable supply of high-grade iron ore and a source for its requirements of manganese.

4. The Spanish situation in which Germany and Italy have been lending assistance in order, no doubt, to obtain mineral concessions.

5. The active part of Great Britain to frustrate this ambition by the appointment of British agents to the territory held by Franco, and thus maintain the British investments.

6. The diminution of the iron ore reserves of Bilboa, and the political conditions of Spain have forced the development of a major reserve of iron ore held by the British in Sierra Leon. It has been reported that properties have been opened up and modern docks and loading devices installed, sufficient to assure the British ironmongers of an annual output of high-grade hematite in excess of 5,000,000 tons.

7. Japan's ambitions in the Far East. The necessity of Japan to acquire a dependable supply of iron ore and metallurgical coke.

With this sketchy background before us, I hope you will all realize the importance of mineral deposits during peace times. In times of war the problems which confront the

importer and exporter of minerals are dwarfed by the magnitude and multiplicity of the many adverse factors which must be met or the war become a lost cause.

One thing which I have advocated for many years is that the deficiency minerals should be taken care of in peace times by the stockpile method. If we were forced into war in the next few months, it would be necessary to use the larger part of the Naval force to police sea lanes. This would at once place the United States in a very unfavorable position, and would practically force our country to depend largely upon the British fleet. The equivalent of one superdreadnought in cash outlay would supply a sufficient tonnage of nickel, chrome and manganese to meet the United States military and civilian requirements for over two years.

More and more does it become apparent that there is no way to obviate the international friction caused by the unequal geographic distribution of the world mineral wealth. It seems to me that the better way is to accept the facts, and to administer our wealth of natural resources to the best advantage of the welfare of our people. On our ability to administer our heritage will depend the peace of the world, like it or not, as we may. Just as material wealth carries obligations and burdens to its possessors, so also does the wealth of natural resources. Since Sir Thomas Holland's suggestions as to the use of mineral sanctions as a preventative of open hostilities, much has been spoken and written on this subject. However, the field has been but little explored, and as all other means tried have failed, it might be well to carefully explore just how this powerful weapon could be most advantageously used.

Keeping in mind the statement that the only near-economic unit which can now be made of the known world resources of minerals is a merging of the holdings of the Commonwealth of Nations with those of the United States, and accepting this fact, may I call to your attention certain problems.

The demand of the "Have-Not-Nations" upon those who "Have" makes it evident that some policy must be formulated by the more fortunate nations in order first to protect that which they have, and secondly, to make clear to the unfortunates in no uncertain terms just what they can expect.

So far we have evidenced by discussion, such proposals as the return to Germany of its colonies. To me this is a suggestion made by Germany only to indicate to the world its desperate situation. In my opinion, Germany would be just as surprised as would be the people of England should the Allies of the World War grant this suggestion. In order to popularize a war of aggression, the government in power in Germany may well wish to say we are deprived of our just deserts; we cannot hope to cope with England on the high seas; we must have access to mineral raw materials or perish.

The Caspian area alone would be of greater value than all the colonies lost by Germany as a result of the World War. Let us once more promote the glory of the Fatherland, and the achievements of the German nation. We will take Austria, Hungary, Czechoslovakia, Bessarabia, Rumania, the Ukraine, North Caucasian Area, Union Soviet Socialist Republic, Daghestan, Georgia and Azerbayan. If such a corridor were taken by the Germans they would obtain the larger part of the minerals so necessary for their industrial development.

It is inconceivable to expect the possessing nations to turn over to the deficiency nations a part of their holdings. The millennium has not as yet even appeared on the historical horizon of human history.

A possible means of elevating the present strained relationships between nations would be a free flow of minerals. Even this simple balm would be very difficult to attain in that the commercial advantage of shipping finished goods to a nation incapable of producing them would be lost when that nation was supplied in abundance with the necessary raw materials. A policy of isolation is absurd if we wish to continue to advance industrially. Having once started on the road of a manufacturing nation, it seems almost impossible to turn aside with an ever-increasing population to counteract any such desire.

Were we to explore all the many suggestions as to possible remedies we would be here for many hours, and probably get no further than we were before we started. To me only one method of reducing the problem of the importance of minerals in times of war is to accept the fact that the English speaking nations could control the industrial destiny of all other nations. Knowing that, why not work to that end? Why not say to Italy or Germany:

"All right, if you wish to make the Mediterranean your sea, or, if you wish to destroy the peace of Europe, go ahead, as far as we are concerned, but the day hostilities start you can count on us for nothing." "Stew in your own juice and like it, but in the stewing, keep in mind there must be no spattering of grease and no interference with what we consider to be our vested right."

This policy is, of course, open to the criticism of greed and selfishness. There is little use wasting time trying to refute such charges, as life is a struggle of the survival of the fittest. Personally, I would feel much more comfortable if the thought were brought home to the balance of the world that notwithstanding our desire to increase international trade, we propose to promote peace through the power derived from the control of mineral raw materials, no matter what the trade financial consequences might be; that we are to all intents and purposes in the class of the fittest, and propose to stay there just as long as we are able - "Come what, come may".

In order to illustrate my theme, let us consider the Sino-Japanese War, for a moment. The rapid industrialization of Japan has forced that nation to search far afield for the raw materials necessary to fulfill its ambitions.

Japan is not self-supporting in its food requirements, but is dependent in part upon outside sources for its staff of life - rice. Japan appears to be self-sufficient for its total food supply in that during recent years it was an exporter of wheat flour, refined sugar and canned foods. But only 40 percent of the rice, the principal article of their diet, is obtained from Japan Proper. Chosen and Taiwan supply approximately 45 percent of the needs, and the balance is supplied by British India and French Indochina. Wheat is imported largely for export in the form of flour. Soy beans and peas, so necessary for the diet of the people, are obtained in sufficient quantities from Manchuria and Kwantung. There is an exportable surplus of sugar, which is supplied from Formosa. The salt supply can easily be obtained from Japan Proper. There can be little question but that were the supply of rice cut off, and the Alaska fisheries eliminated, Japan would be considerably embarrassed but not crippled in any essential way. However, when it comes to raw materials, Japan is vulnerable. It does not have adequate resources of coal, iron, oil, timber or alloying metals. It is

entirely dependent upon foreign sources for its raw cotton, 90 percent of which is derived from imports from the United States and British India. Cotton forms the basis for Japan's greatest industrial enterprise, producing a greater revenue than the export of silk. The rubber industry is dependent upon the plantations of the Malay Peninsula, Sumatra and Borneo, owned and operated to a large extent by the Japanese. Coal is supplied from the Fushun mines of Manchuria, approximately 70 percent of all requirements being obtained from this source. Two-thirds of the iron ore requirements are obtained from abroad; from the Yangtze Valley of China about 22 percent, and the balance from the Straits Settlement, British India and Australia.

The major problem of the steel industry of Japan is the inadequate supply of both iron ore and metallurgical coke. In Chosen and Manchuria, blast furnaces have been established, which produce pig of an inferior grade, having a high silica content. This output is supplemented by large tonnages of pig iron imported annually from British India and by scrap iron and steel from the United States. This latter raw material is as important as pig iron in Japan's iron and steel industry. Most of the production of steel in Japan, outside of that produced by the Japanese Steel Manufacturing Company is derived from small mills. These mills are operated on the basis of 30 percent pig iron, and 70 percent scrap. The United States supplies 80 percent of the scrap imported, while other sources include British India, Great Britain, Australia and Canada.

Japan depends upon Great Britain and the United States for the larger part of its requirements of Petroleum and its products. The reserves commercially controlled are inadequate. The development of a major oil pool in Dutch Borneo must be a great temptation to the Japanese.

For such metals as nickel, antimony, mercury, platinum, aluminum, molybdenum, etc., Japan is almost entirely dependent upon foreign sources. With the exception of Antimony and tungsten derived from China, and mercury from Spain and Italy, the balance of these metals must be obtained either from the Commonwealth of Nations or the United States. As regards zinc, India and Australia furnish nearly 90 percent of Japan's requirements. The increased demand for copper as Japan has advanced, industrially, has had to be met by importation largely from the United States, this country furnishing approxi-

mately 98 percent of the requirements over and above domestic production.

In aluminum, the United States and Canada supply the bulk of the imports, which amount to broadly 44 percent of the requirements; Switzerland supplying 14½ percent and Great Britain, 10 percent. The hope of Japan for self-sufficiency in this commodity is based upon the thought of processing bauxite to be obtained from the Netherland East Indies and Greece.

To go further into this question would take too much time, but I think it should be clear that Japan is largely dependent upon the Commonwealth of Nations and the United States for the essential raw materials, and in part upon France, through Indochina. It is my belief that should these nations honestly desire to put a crimp in Japan's ambition to become the dominant factor in the Far East it could be done in 90 days by the elimination of all trade with Japan. The problem would become not one of blockading Japanese waters, but of policing the ports of export of the three countries mentioned. In other words, the countries mentioned would have to control their own citizens and not the Japanese.

The Malayan States, as well as the Netherland East Indies would have to be protected by a part of the British fleet.

I hope I have made clear, in part at least, the potential power that the "Haves" have over the "Have Nots".

Discussion Following Lecture
"Control of Raw Materials in War".
by
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Q. I have had some information during the last two or three years that Japan has piled up reserves in a good many of these minerals for approximately two years' supply. In your studies, have you run into that at all?

A. Yes indeed. I think it was astonishing to everybody a few years ago when they had an earthquake in Japan and the oil tanks were broken down. The amount of storage oil was far in excess of anything we had any idea existed. I have tried to show this morning, in part, the interdependency of nations upon others for raw materials. We get statistics through the official imports of the countries under study. On the 14th day of August Japan ceased to issue any import figures. We have this statement: "Metals to the value of so many yen imported". That is all. In the old days you could not obtain the amount of material that was going into storage because it was imported by the emperor, it did not pass through the Customs, and no record was made of it. Concerning the reserves of Japan, there are always other things you know. You think you have enough, but you can not store for instance, when you think of the enormous demand, enough steel. Think of the amount that they have and the amount that they are using. Any stockpile of Bessemer passes out

very rapidly.

I ran across a thing that might interest you. Within the last two years there was a large tonnage of tin shipped to Malta, and we could not understand why the deuce it would go to Malta. We found that it was reconsigned from Malta to Yokohama. That is one way of avoiding making known where the material goes to.

Q. Colonel, one of the war-time essentials is mercury. The Almaden mines for years have been the principal source of Europe. What is the situation now in Spain regarding that?

A. Let us go back a little. As you know, the product of Europe was handled through a cartel. Italy put it over Spain, as I see it. They formed this consortium so they had at the outbreak of hostilities in Spain over a year's world's consumption on hand - 124,000 flasks, as a matter of fact. That has been practically absorbed. The Almaden mines are working now but shipments are relatively small. When you come to mercury for fulminate alone, the resources of the United States are adequate to meet that demand at a price. It is not like some things we do not have - we have a resource at a price. The tonnage of mercury going into fulminate is relatively small. The major consumption in such things as that is in paint, insecticide, etc. I do not think we have any problem there.

Q. Colonel, the deficiency of the present Japanese Empire with respect to hydrocarbons suitable for fuel oils has been pretty well recognized. However, the thought occurred to me that

possibly by their seizing the coal fields, or areas on the mainland of Asia, they might perhaps be able to develop fuel oil by process of distillation or conversion, any one of the several methods that are now well known. What would be the possibility of that?

A. At an enormous financial outlay, yes, they could do it. Concerning the hydrogenation of coal, look at Germany; its howl about being self sufficient, rapidly becoming self sufficient, etc. Considering, let us say, gasoline at 20¢, Germany's gasoline is costing $1.00. That is about the proportion - five times current price. You could increase that very materially because the actual cost of producing gasoline to the producer is around 5½¢. That is, broadly, the picture. I think you always have to consider, and I am sure you fellows have, that when you disturb in time of war peace-time practice you absolutely upset the flow of material and there is a cessation, or production is retired. You can not change the practice without upsetting the apple cart, as I see it. The California Standard and the Socony-Vacuum, as you know, hold large holdings in the Far East. I was just trying to think of the name of the Director. I dined with him the other night and I was intensely amused. In Dutch Borneo there has been developed in the last four or five years a major oil field, and strange as it may seem every time a well goes down and is a wet one the Dutch weep because they are so afraid of Japan. I believe that Borneo would be worth more to Japan from the standpoint of raw material, that

is from the oil standpoint which is one of the most valuable, than all of Manchuria from a food standpoint. If Japan's policy is allowed to continue there is no question about the ultimate end, as I see it. Places like New Guinea, the Netherlands, the East Indies, the Philippines, about which we all know (incidentally, I had a note from Dr. Bane, I do not know whether you know Dr. Bain or not - he used to be with the Bureau of Mines some years ago; he is now out in the Philippines organizing a Bureau of Mines for the Philippine Government; also he is advising the Government on mineral raw materials) and those important deposits of mineral which are enormous in extent, low-grade ore deposits, are being examined by Japan. Consider the deposits in the Indies - those are large; they are near commercial; they can be made commercial without a great deal of difficulty, and they will be if Japan is not stopped. The way I look at that, so as to clarify it, I do not care a continental what Japan does as long as it does not hurt us, but as I look at that whole movement it means, unless it is stopped, the lowering of the standard of living in the United States, whether you like it or not. Japan is not going in there to increase the market in China; she is going in there to increase the product of Japanese goods to be shipped in international trade. I think you have got to think back and consider - we import the blacks from Africa in order to grow cotton in the south. Here you have a great mass of cheap labor, and that is the market that Japan is looking for; that is the raw material Japan is to use. That is how I feel

about it, I do not care a continental whether it is right or wrong. I feel that the time has come to where we should just tell those fellows where the deuce they get off.

I am going to divert a minute and just tell you this: During the World War I got very much excited over the British stopping our vessels on the high sea and searching them. In my mining career I met a delightful vagabond by the name of Arthur . He started out as a remittance man; incidentally he made a lot of money down in Argentina. I met him in British Columbia; I met him in Canada; I met him in California; and then I had the pleasure of visiting him just before the war in London. When this thing was at its height, searching our vessels, (incidentally Arthur had become a member of the Admiralty Board in Great Britain) I wrote to him and said: "Arthur, if I had anything to do with it I would sink any of your damn boats that monkeyed with the American vessels." He wrote back to me and said: "Would you, with photographs of cotton shipped from New Orleans with nickel in the inside?" Now what the devil are you going to do? That is exactly what I mean when I say you would have to police your own people. It is not a question of policing Japan. As old as I am, if cotton went to a dollar a pound and I lived in the south and had any money I would start a blockade runner - I mean that that is the temptation and that is the thing that you have got to think about.

Q. Colonel, Are the oil deposits in Changsha Province, in Inter-Mongolia commercially important?

A. No, and I doubt very much if they will be. They may produce a little at a great depth.

Q. The Richmond Petroleum made an investigation down through for oil. Did they ever find any?

A. Indications only. We will have to wait and see. I think that country has been pretty well gone over now geologically. I do not know about the drilling. We hope to get a lot of information when Dr. Bane gets home with reference to that. I think the major discovery of oil has been the one that I mentioned in Borneo, and it clearly illustrates the power that the two nations have.

I was talking with a delightful young Englishman here in town. His name is . He is a Civil Service man, a member of the Department of Mines of Great Britain. I am going to divert because it is unusual. He was sent over here by the British Government to study the Guffey Coal Act. Not to go into that, but the British are four, five, six, a hundred years ahead of us - I hope that is as long. What they are doing is nationally purchasing the ; that is, a coal commission, so coal mined in Great Britain will be government product. When he told me what his objectives were, I said: "Good heavens! why do they send you over here? You always do things far ahead of us in this country. Why do you want to study the Guffey Coal Act?"

"Oh," he said, "I know we are rather excited over the situation. We have corrected an error that was made in 1500."

When we talked over this thing; I think it is a thing that has

possibilities if you have the willingness to do it, he said: "Good heavens, Mr. Furness, do you think for one minute that would be practical? Do you realize that the Dutch Shell Oil Company, that is the British Government, is making more money now out of the Chinese-Japanese war than they have ever made before in their history?"

"You are right."

I mean that is the situation.

Q. Would you care to discuss briefly, sir, the South American field as a possible tempting field of mineral enterprise?

A. They have two resources in South America. That will be, as I see it, used to great extent in the future. They have the largest iron ore reserves in the world in Brazil. South America illustrates what I tried to read to you this morning. The Rockefeller Foundation employed a man by the name of . I do not know whether you remember him or not. He was arrested and put in jail years ago in New York for parking (I think it was the textile workers or tailors, some fool strike in New York) about 8,000 people in the churches there. He wrote a book based on the prison code which is used today. He also made a study of the South American countries from the standpoint of industrialization, and his report is that it is impossible on account of, first, the lack of fuel; secondly, the disposition of the people; and thirdly, the rapid diminution of the resources there. Take, for example, the tin of Bolivia under the quota in the last few years.

It is not altogether on account of exchange; it is not altogether on account of the Bolivian Government confiscating practically the returns of the companies in order to meet the war in China. It is not that. It is due to the fact that the great mines have reached a point where their cost of production is too great to meet present day competition. There are the copper resources, and I would like to mention those. Probably the greatest resources of copper in the world are in Chile. It might be interesting to know that in one mine along the there is more C.U., that is metallic copper, than in all of the discoveries of South Africa. But the devil of that is this, and the fly in the ointment is this: Chile has met its expense from a governmental standpoint through its tariff on nitrates, synthetic nitrate; has wiped that out, or is rapidly wiping it out. They turn to copper, increasing the duty: maybe they will nationalize it before they get through; maybe this source may be withheld for a time. I am speaking of the future.

I am going to divert for a minute but I know this will amuse you. Some years ago I was dining here in Washington and I was astonished to find that a Chilean and his wife were the guests of honor. It was a Navy dinner, the ranking Admiral of the Navy happened to be present. After dinner I was asked by my host to talk to this Chilean about Chile, and much to my surprise, because ordinarily you do not find them that way, he was thoroughly cognizant of the resources. He kept pestering me with questions and finally I said to him: "That is alright. Chile was the greatest producer

of copper in the world for many years; it will be again, it is the great world source, provided the Chileans do not do some damn fool thing, and they probably will." Well, we went down stairs, and a few minutes after that the Chilean and his wife departed. The hostess turned to Mrs. Long, Admiral Long's wife, and said: "How did you like talking to the Ambassadress?" and Mrs. Long said: "Why, I have not met her." Our host said: "She just left the house." With that Andy Long got up and said: "Furness, that is the damndest thing I have ever heard. I have been in many situations but I never heard a Government Official tell an Ambassador that his country would do some damn fool thing and upset the apple cart."

Colonel Jordan: We have a rppresentation of the Navy here today. Would you care to ask anything, Commander Taylor?

Commander Taylor: No sir.

Colonel Furness: Commander Taylor gave us a most illuminating picture at the Brookings Institute the other day. I think we agreed in part at least, did we not?

Colonel Jordan: After that challenge, Commander Taylor, won't you get up and say something?

Commander Taylor: One of the most embarrassing moments in my life was when I was invited to go to the Brookings Institute to talk about the resources of China and when I came into the room there was Dr. Furness. I promptly told the group there that if I made any mistakes I had the world's authority at my right hand.
Colonel Furness: Very embarrassing.

Colonel Rutherford: I would like to ask Colonel Furness if he believes, concerning this proposal made to remove some of the causes of war, namely making it possible to redistribute war material more equitably, there is any possibility that the millennium is getting that close?

A. No, I do not think so for one minute. You had men, brilliant fellows like Dr. Leeth, who I have the greatest admiration for. He has been working, working on this thing and he has been trying one scheme after another. Fifteen years ago he preached "equal opportunity for all in mineral resources". As you probably recall, he was the Chairman of the Mineral Raw Material Committee at the Versailles Treaty. He attended the meeting last summer in Paris with reference to raw materials. I was just talking to him a short time ago. He thinks I am very belligerent. I am not - that is not the point. I want to be let alone, I mean generally speaking. I want to use the other fellow's material right to the nth degree and save my own. That is the selfish side of it, of course, but I think that is the only side I can take. Much to my surprise Leeth said to me: "There is only one way to handle this thing and it is to let the weaker nations know just what we intend to do if they do not do what we tell them to do." That is a pretty strong statement. No, I do not think the millennium has come in the slightest degree. This may amuse you in respect to that. During the embargo in Italy, a cargo of ferrochrome was shipped from one of the oldest

manufacturers of ferroalloys in England (& Company - mentioning names, 150 year old firm) to a merchant in . The cargo, without being unloaded, was shipped to Yokohama. That cargo was actually shipped to a friend of mine in New York and reconsigned to Italy. That cost the Italians just three times the then current market price - it was in order to avoid definitely the embargo on ferroalloys, to keep the skirts of the English clean. That is exactly the type of thing that you would have to contend with if you attempted to shut Japan off from its imports of materials. I think it is a pretty nasty indictment of the human race when they do things of that kind.

Colonel Miles: Colonel Furness, we hear a lot about the position which the military class in Japan occupies with reference to their present operations. Do you believe that is a smoke screen set up by the dominating class in Japan and that their real animus is economic and not in any sense military?

A. I think so, and I will tell you why. Japan moved along very nicely until it started to industrialize. I can remember when they took ; they figured they would be self sufficient in rice (this was a good many years ago) but they found they were not - it is the economic pressure of population. That is all, as I see it. It is the same thing in Germany. I do not see how it is possible for you to keep a thrifty nation, industrial nation, and deprive it of its very staff of life. There is not a shadow of a doubt in my mind as to time - being a Philadelphian it takes a longer time for

things to happen so we will not go into time elements at all. I wish we had time to go into the game that is going on in the iron and steel industry, the financing by Germany of little furnaces all down through the corridor that I have mentioned in order to get away from the control of iron ore by France. They thought they did it in and behold the British stepped in and took the better deposits; forcing Germany to take the inferior deposits. By the way, there is an article in "Foreign Affairs" on the scramble for the Norwegian iron ores. I think that we do not pay enough attention to that. I am not saying that that is what you want to do, but if you wish to industrialize a nation, if you wish a place in the sun, you have to expect the consequences, you have to meet conditions that are economical definitely unless you have every damn thing you want on the face of the earth. If you have, that is a very different thing but the good God did not distribute goods that way, so there you are. That is the thing as I see it.

Colonel Jordan: What do you think is the chance of our getting stockpiles of necessary war reserve in this country now with the present temper of Congress? You contact these gentlemen constantly and you know more about them than we do.

A. I am going to talk to you very frankly about that situation, if I may. The chances are very good for the obtaining of money to stockpile certain strategic raw materials. You run into exactly the same thing I have been talking about this morning. You will run into human cupidity; you will run into, to me, as nasty a lot of problems

as I have ever had anything to do with. You will get the money but you will have a drive; you will have political lot-rolling, and you will practically force, unless you fellows stay Simon-pure, the United States Army or Navy to purchase material that is absolutely inadequate, is absolutely unusable, will have to be supplemented by imports during war. That is how I feel about this situation. Do not think I am talking through my hat when I say that because I have had within the last three weeks a very unpleasant fuss over this whole thing; coming right down to it, over the purchase of manganese ore from domestic origin. God knows I would give anything if we had a source that is usable. We have one area from which we can produce material. In the stockpiling of any raw material, the thought that you must keep in mind is this: the best is none too good. You can not afford to take liberties with standard analysis of material, because if you do you are dealing with human life and you are dealing with the possibility of the loss of a war. That is how I look at it. I am jumping a lot of chasms when I say that but that is how I look at it. I think it is a very very critical thing, and I am quite sure - well, put it in an innuendo - some of the wild coyotes of the West will successfully force the Government to purchase stuff that is not worth a tinker's damn.

Colonel Jordan: Doctor, I want to express the appreciation of the College, sir, for this talk and for your coming down here and being with us. We certainly are under a debt of gratitude to you, sir.