THE STEEL INDUSTRY, ITS PROBLEMS IN WAR PRODUCTION

14 February 1951

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Publication No. L51-104

INDUSTRIAL COLLEGE OF THE ARMED FORCES

Washington, D. C.

Mr. Clarence B. Randall, President of Inland Steel Company, was born in Newark Valley, New York, on 5 March 1891. After graduation from Harvard, A.B. 1912 and Harvard Law, LL.B., 1915, he was admitted to the Michigan Bar, 1915 and practiced law from 1915 to 1925. He also holds the following honorary degrees: D. Eng., Michigan Mining and Technology, 1947 and LL.D. Northwestern, 1948. In 1925 Mr. Randall gave up his law practice and joined the Inland Steel Company as assistant vice-president, 1930-1948. He has been president of the company since 27 April 1949 and member of the board since 1935. Prominent in educational, civic, and industrial affairs, he is a trustee of the University of Chicago, has frequently testified before congressional committees on the steel industry, and was a member of the Steel Construction Committee, ECA, in Paris, summer 1948. Mr. Randall is coauthor with Roger N. Baldwin of "Civil Liberties and Industrial Conflict," 1938, and is the author of many magazine articles. One of the most recent, "Chicago is Not as Far From the Ruhr as People Think," appeared in the "Atlantic Magazine."

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GENERAL VANAMAN: Gentlemen, you have all read the biographical sketch of Mr. Randall. Therefore I am not going to talk about his past performances.

Last November I was in Chicago at a meeting of the National Industrial Conference Board. There I had the pleasure of hearing Mr. Randall discuss the steel industry. I was very much impressed by his steel talk, but I was much more impressed by his ideas on the contributions of the free-enterprise system to our present-day struggle for survival. I resolved at that time that this man should talk to the students of the Industrial College.

Then in December I was in New York at the meeting of the National Association of Manufacturers and heard Mr. Randall do a magnificent job on the American way of life. It was really an impressive talk. I outlined some of the objectives of the Industrial College, our mission, and so forth; and then Mr. Randall accepted our invitation to discuss the readiness of the steel industry with our students.

I feel that we have a rare opportunity this morning of seeing how idealism, as well as realism, enters into the thinking of a top-flight industrial executive. Gentlemen, Mr. Clarence B. Randall, President of the Inland Steel Company.

MR. RANDALL: General Vanaman and gentlemen: That was a very gracious introduction from one for whom I have great respect. If he only had learned how to delegate, so that he would not have been occupied on those two occasions with matters that now he has turned over to others, I would be slogging around in the snow in Chicago today. As a matter of fact, the Army meant a great deal in my life; so much so that even if I hadn't come to have great admiration for the General, I would have come anyhow.

I renewed an old acquaintance this morning with one of your faculty and my mind went back to a day in April 1917. I was then up in the iron ore district, living at Ishpeming, Michigan. Then, as always, we were afraid of the iron ore docks. The Michigan National Guard had sent a company to Escanaba, Michigan, to guard the docks. I think they were literally the first soldiers I had ever seen in uniform. My then employer sent me down to Escanaba to see if we couldn't get—I didn't know enough to say "platoon—some of the military help to guard the docks of Marquette, Michigan, on

Lake Superior. That morning, after I had performed my mission, I was walking up the street in Escanaba and I met a man whom I knew very well; he buttonholed me and said, "Just the man I need; he said, "Rotary meeting this noon. We are going to have a patriotic address and the fellow has disappointed us" and he said, "You must come and make a patriotic address."

So I went to the Rotary. I was quite concerned about the world at that time; I got quite lathered up and I gave the boys "what for" at the Rotary.

That afternoon I went down to the railway station to go home and got on a day coach heading up north for Escanaba to Ishpeming, Michigan. All of a sudden something dropped in the seat beside me. I looked around and there was Lieutenant Camp, first lieutenant of the United States Army. He said, "Aren't you Mr. Randall?" He said, "I was at the Rotary Club today and heard you. I happen to be the recruiting officer for this area. I'd like to ask you to be the first man in the upper peninsula of Michigan to volunteer for officers' training camp."

That is how I went to World War I. By the time I got off the train I was in the Army.

I wound up spending a year of my life as an aide to a brigadier. The old timers may remember old Patsy Dugan, a cavalryman. He was assigned the job of delousing the National Guard early in that war. He had a great reputation of being a martinet, but underneath it his heart was big as all outdoors. And from that year of my life of service with that old cavalryman I learned things about personal discipline, the assumption of responsibility and the fulfillment of obligations that I never would have learned anywhere else in my life. There hasn't been a year since that I haven't thanked God for my year with Patsy Dugan. So, if you will pardon me, I am here to pay off a debt to the United States Army this morning.

The title that I have been asked to speak on this morning is "The Steel Industry, Its problems in War Production." It suggests one thought by way of possible error that perhaps I should correct at the outset. I am going to try to paint the picture, if I may, with broad strokes of the brush this morning. I am going to assume that you have a bowing acquaintance with our industry. I am going to try to enlarge your understanding of it, if I may, without going down into wearisome detail.

You hear so much about retooling for war. The important thing is to understand that the steel industry doesn't have to retool. We have no conversion problem for war. We go from peace to war in a single shift. In fact, we hardly know we have gone. We make the same products in war that we make in peace. It is our customers who do different things with tools.

I suppose it might be helpful also at the beginning to have a quick review of what the steelmaking process is. I have had to learn it the hard way; I still keep my face straight when I talk about it. Later on during the question period, you will do me the great kindness of not asking questions that might embarrass me.

To start with, iron ore, when found in the ground up in the Lake Superior district, is just half iron. A good grade of ore from the Mesabi Range is 50 percent iron and the other 50 percent impurities--silica, magnesia, moisture, and other things that have to be removed.

To separate the iron from the gangue or impurity, the ore must be reduced to the molten state; that is done in a blast furnace. Blast furnaces in principle haven't changed much over the centuries. There are certain fundamental inventions of mankind such as the snowshoe, the violin, the canoe, and so on, that all the wit and wisdom of succeeding generations can't improve on. The blast furnace is one of them. We just make furnaces bigger. We put things in at the top of the blast furnace and iron comes out of the bottom.

I happen to be on the board of the University of Chicago and once while addressing the faculty I spoke from my metaphor. I said "a university is quite like a blast furnace. Raw material is put in at one end and it comes out the other, and you are never quite sure what the process was. Only, "I said, "our rejects we melt again, but yours we have to live with."

This mass is reduced to the molten state by burning coke. Coke, iron ore, and limestone are put in the blast furnace. Coke is to coal what charcoal is to wood. Coal is burned under controlled conditions of combustion in order to remove the valuable by-products and the resultant coke is the fuel in the blast furnace.

The product, when it comes out, pig iron, couldn't be used by the processes of steelmaking. Steel is formed by external pressure on the metal. External pressure on pig iron will just cause it to break. It is brittle, because in the blast furnace it has picked up carbon. In order to acquire a metal that has ductility, that can be rolled and shaped and formed by external pressure, you must remove all but a residuum of the carbon and of the silicon that have been picked up in the blast furnace.

That is done in various ways today. The great surge ahead in technology came in the late nineteenth century, when Sir Henry Bessemer discovered that by blowing oxygen through that molten mass, the oxygen would combine with the carbon and create internal heat and thus remove the impurities. That is what the Bessemer process then did and the Bessemer process today does.

It very soon transpired, however, that the Bessemer process, for reasons best known to itself, wouldn't work if there was much phosphorous in the iron. So there came into being the open-hearth furnace, or, as the French call it, the Fours-Martin, where we cause oxygen to combine with the carbon in the pig iron, and the chemistry of the open hearth causes those impurities to disappear as gas, and we have a metal with high ductility.

The metal in its first form is an ingot. When it leaves the open hearth or the Bessemer or the electric or any other form of furnace by which you remove the carbon, it is poured into something that is called an ingot. It may weigh from 5 to 20 tons.

You couldn't at that point roll the ingot, because it cools more rapidly on the outside than on the inside and sets up stresses which would be reflected as weaknesses in the metal. You then put the ingot in a soaking pit, which means that you subject it to concentrated heat for a number of hours in order that the temperature on the outside may become the same as the temperature on the inside--a uniform temperature. You then start the steel on its way through the rolling mills and it becomes eventually whatever product you select. That in a word is the steelmaking process.

You perhaps would now like a little glimpse of the size of steel. What is the capacity of steel? I will talk of this first, briefly on a world-wide basis.

As the General knows, I was plummeted into the European steel situation most unexpectedly in 1948. I have always known the wrong people and one of them was Paul Hoffman. He called me on a Friday and asked me to go to Paris for Mr. Harriman as the first steel consultant; he said, "Take all the time you want as long as I hear from you on Monday." So I closed my desk Tuesday and said I would be happy to go if I didn't have to fly? I am a nonflier. He said I wouldn't have to fly; so I flew. Since then I have formed many friendships in the continental steel industry and have a bowing acquaintance with it.

Let me state one thing further. I am about to correct an error that may exist in some of your minds and you will go right on making the error, because those of us who have spent most of our active lives in the steel industry still make the error. It crops out in government. It is endemic and pandemic in government circles. That is the confusion between steel figures given in ingots and steel figures given in shipments.

In terms of logistics you want to know how many tons of the finished product--bars, shapes, plates, sheets, what-have-you--are produced. But since the further you go in steelmaking process and refinement, the higher

percentage of waste metal there is that goes back as scrap. If you are trying to find a common denominator between steel plants that make semi-finished steel and steel plants that make fully finished steel, you come back to the steelmaking process and you ask, "How many ingots did you make?"

The common method of speaking of steel capacity is in terms of ingot production. And, having said all that, probably many of you again will get confused between figures given in terms of final shipments and figures given in terms of ingots. I will use ingots for the moment.

World wide there are about 200 million tons per year of steel production expressed in ingots. I also must point out one thing that you who are students of world-wide problems must bear in mind. You will get confused comparing American plants with European plants, because we express ingot tons in net tons and net tons as metric tons. The metric ton is equivalent to our long ton. But let us not get it down to that fine whisker. Let us take a broad look.

Here are 200 million tons of steel per year at the present time. Let us say for rough calculation--and this changes every week, but for your purposes--that just half of that is in the United States, that is, 100 million tons roughly at the moment or half of the world production.

Now let us look at the other half that isn't ours. Fifty million tons of that are with our allies west of the Iron Curtain in Europe. When you take the steel industry of Germany, Belgium, Luxembourg, France, a little in Sweden, a little in Holland, and some in Austria, Great Britain, and Italy, it adds up to 50 million tons. I used to say, when I tried to reduce the Marshall Plan to its simplest components, the whole question in the Marshall Plan was, Will that 50 million tons stay on our side or move to the other side?

No one knows the potential of Russia; but we think that the production within Russia and the production in the satellites--Poland, Czechoslovakia, eastern sector of Germany--is about 35 million tons. That leaves 15 million scattered. The countries where that is found are India, Japan, Canada, and a new one coming in South Africa.

So there is the world picture and the over-all picture on our production.

Let us now direct our thought to the question that I know is uppermost in your minds--What is the effectiveness of the steel industry today vis-a-vis rearmament? I shall try to be modest about this. I am apt to get a little expansive. There have been some voices raised within government and in some segments of industry. It has been suggested that the steel industry had dust in its eyes and wasn't keeping pace with America. Those are fighting words, but I will try to be restrained in my comments.

When we entered World War II, the United States had 80 million tons of ingots. As of this morning actually it has 105 million. As of the end of this year it will have 110 million. As of the end of next year it will have 117.5 million tons. The tonnage changes so fast that even those in the industry can't keep up with it. But let us talk for a moment about 110, an increase of 30 million tons of ingots since the beginning of the last war.

The amount of 30 million tons of ingots as new capacity is far and away greater than Germany possessed when it challenged the entire world. That is our new capacity. It is more than if since that day we had created a new Bethlehem Company, a new Jones and Laughlin, and a new Inland Steel in this country.

I hate statistics, but I did ask our fellows to give me a couple of figures, and this is their best judgment. I said, "How much steel throughout the entire last war went into end products that really were armament--ordnance, guns, projectiles, tanks, ships, aircraft?" This figure does not include the construction of plants. I do that deliberately, because today we are in pretty good shape on plants in this country. The entire last war in terms of steel that you fellows used, that entered into logistics for you, they tell me, was 63 million tons of ingots. That is nine months of our present production.

Then I said, "What was the peak year for steel?" They tell me it was 1943. This time I am including plant construction, because 1943 was a big year. Steel in the amount of 23 million tons is all you fellows were able to chew up when you really got hitting in the middle of all-out war.

All right, now back up a minute. In those, of course, I am talking shipments. You see, I am trying to confuse you. Take 110 million tons of ingots--74 percent of that is shipments really. We will give or take a point there, but let us say that 74 percent represents the steel that is shipped as distinguished from the waste in the process. That will give you for your basis 110 million tons of ingots. Let us say there are 80 million tons of steel to be shipped this year.

Now, as good as our friends already are down here in reorganizing military supply, I don't think they are good enough yet to equal 1943 this year. Let us assume they are. Let us assume they put it to us to give them 23 million tons of steel this year. Take 23 away from 80 and you have 57 million tons left. The total of 57 million tons for the rest of our economy is more than the steel industry shipped in the year 1949, which is only two years ago. Where is the dust in our eyes in that picture? How do you figure it? What are we supposed to do?

Let us look at it another way. At the present time one-third of the steel we are producing under allocation, just about one-third, is more than 23 million tons. One-third of that 80-million-ton figure is more than 23 million tons. So for the first and second quarters the instructions to us are right up there. But we would still have left as much steel as we had in 1949. You may gather from this that I do feel that steel is ready. I think we are going to give it to you faster than you can take it away. I am not speaking to you individually. But in the services I think they are hollering for it faster than they can take it. At the present time I am perfectly certain that they are ordering it too fast.

Did you ever know a supply officer who didn't overorder if he could get by with it? Did you ever know anybody in the armed services that would plan a program that didn't put in a cushion for comfort? A supply officer has to get so many tanks. Don't worry; he provides more tanks than he thinks he needs. Then, when he plans the steel for tanks, he plans more steel than he thinks those tanks will need. When it gets back to the factory that builds the tanks, that manufacturer isn't going to get caught short either. He buys it from three sources. All along the line at the present time everybody is determined not to get short; and I say to you, there is a demand on paper at the present time in excess of the actual readiness to receive. I shall greatly miss my guess if we don't push the armed services down the hill and say, "Send the trains and take the stuff away. You asked for it."

Now a word about raw material. I will anticipate here some of the questions that I know you will ask. The four basic raw materials of the steel industry are limestone, coal, iron ore, and scrap. There is no problem in limestone. It is found everywhere. It is a problem to have it in the right place at the right time. We are very fortunate on the Great Lakes. There are two large quarries—one, of U. S. Steel, on Lake Huron, and ours on Lake Michigan. They both provide large tonnages of very high-grade limestone.

Providence was just a bit careless as to where coal was put in the United States. He provided excellent coal but put it in the wrong places. Illinois is a great coal-producing state but the coal will not coke. I say to you quite candidly that I cannot tell you precisely what is the coking quality. Some coals coke and some don't, having identical chemical analysis, period. The coals that we use come from Kentucky and West Virginia.

You must often have in coke two different kinds of coal--low-volatile, which is called Pocahontas, and high-volatile. The ratio is about 25 percent of low-volatile and 75 percent of high-volatile coal. The supply in the United States is astronomical still. There is no problem of supply, except that the low-volatile coals are getting scarcer.

As to iron ore you hear a tremendous lot of chatter these days. It has been to the interest of some people to advocate the hypothesis that the iron ore is running out. I happen to be the leader of His Majesty's loyal opposition. I am known in the industry as "that crazy fellow who thinks there is plenty of iron ore." I may say to you that in our company, which does occupy a strategic position in the Middle West, each night when I do down to visit my grandchildren and I look down at little Johnny in the crib, I say, "Johnny, your grandpa will not let you down. There will be smoke coming out of the stacks at Inland when you are ready to go to work." That steel will be made from Lake Superior ore.

We did not feel in our company that it was necessary to join the Labrador project. For our own purposes, we do not feel that the seaway is necessary. I don't want to get involved in that 64-dollar question this morning. I have no concept of the military aspects of it, but I merely state it as a fact that we sense for our own company no shortage of iron ore from the Lake Superior districts in the predictable future. That led us to the conclusion that neither the seaway nor Labrador were required. That problem might be entirely different for other companies; I wouldn't want to embark upon that.

Outside the United States there have been tremendous developments in iron ore in recent years. The Labrador deposit is very great and very high-grade stuff. If I had any superlatives left, I would turn them on Venezula which is just out of this world in terms of abundance of iron ore and high grade in quality.

Now, whether either of those deposits is going to move to the Great Lakes or not, they are going to move to the United States; and in terms of our economy as a whole that is the same thing. The Labradorean and Venezuelan ores can and probably will move to the Atlantic seaboard. They can then move inland from there to whatever points the economy dictates or the military necessity requires. Those great deposits, when they come in, will serve to relieve the strain on the Lake Superior district; because, after all, the steel production of the country is an entity, and steel that is made from Venezuelan ore or Labradorean ore will not have to be made from Lake Superior ore.

So, just as I like to agree with business friends who say, "Let us let the military worry about our problem," I will ask you to let us worry about iron ore, because nobody in the steel industry has any doubts whatever that in the years that lie ahead they will be able to meet their full obligations to the public and to you in terms of iron ore.

Scrap is very different. I think last year, as I remember the figure, we were able to scrape up only some 30 million tons of scrap, and we need 35 million, I believe, this year.

There is one other common error about scrap that I might correct if it exists in this highly intelligent group. I think a great many people believe that scrap is put in an open hearth because if is cheap. Scrap has turned out not to be cheap, but it is put in anyhow. In the first place the collection of scrap, a highly specialized business in the United States, is a fine thing for the economy. It prevents waste. It is a great national asset that is kept working.

Scrap comes from many sources. You think of scrap as something you see in back yards or in the junkman's truck. But, in the first place, we produce half of our own scrap; we call it internal scrap. A very substantial part of the scrap that we purchase is produced by our customers in their processes. Only a relatively small part comes from general collections of scrap, although that is very important.

No, you put scrap in an open hearth for metallurgical reasons. The open hearth will not work on 100 percent pig iron. Chemically the process will not eliminate all the carbon and silicon and other impurities that would be in that mass if the whole molten mass in the open hearth were pig iron. So you put in scrap, which is already steel; the impurities have been removed from that. You can put in pig iron up to perhaps 55 percent, and then the rest must be scrap.

There is the raw material picture. How about manpower? Manpower will be a very serious problem to us. So far this moderate approach to manpower for the armed forces has only just begun to be felt through the draft and through the return of reserve officers.

The first thing that hits us is the men who quit to go to work in reactivated war plants. Any of you who are familiar with the great industrial area at the southern end of Lake Michigan will know that here is our plant and across the canal is Youngstown Sheet and Tube. To the north lie the northern works of U. S. Steel and to the south is Gary of U. S. Steel. Hard by are my friends at Interlake. Just in our back yard is the world's greatest refining center, with Standard of Indiana and Sinclair and Cities Service and the others. So there isn't much residential area left in that industrial district. Many of our men drive 50 or 60 miles to come to work.

As the city grows, the war plants that we built last time and those that are being reactivated are principally on the outskirts of the city. They had to be in order to get adequate land. The man who is driving 50 miles will switch his job to a 5-mile drive if he can do it. And the war babies will pull like the devil; they pull harder right now than the actual losses to the armed services.

Then there is another thing about the draft act that is very galling to us; however, I wouldn't know what to do about it. To the extent that there is residential housing in that great industrial district south of Chicago there isn't a house but what houses somebody who works in an essential industry and should be deferred. Compare that with the farming district and you will see that when a draft board puts a demand for men on our geographical area and the same number of men on a farming area, the impact on industry is raised to the Nth power, because they can't get their quota out of our district.

I think that, just as we are ready on the plant, we are ready on the management side. We went through the war by extending the term of older men at every echelon. In 1946 the retirements took place of men some of whom were over retirement age--may be five years. And then also--and this is the sad part of being an industrialist, just as it is the sad part of life being a general officer--we have replaced those men who time showed had to be replaced. During the war, no matter how dumb a guy was, you couldn't do anything about it. The old theory of the warm body--you had to have somebody who wore shoes and pants. Now we have strong, tough, well-knit organizations all through the steel industry, and on the management side I think we are ready too.

There is another commodity that is important to us; it happens to be money. I hope you are studying--I am sure you are--the sources of capital for private enterprise. We are getting near the bottom of the barrel in the steel industry. By that I mean that well-managed companies have borrowed on bonds or mortgages about all that prudent management should let them borrow. If you understand the market situation, you know that this is no time to put out common stocks. We are exposed to inflation, and market values are high; but in ratio to earnings it is only, say, 7 times for steel stocks, whereas back in the 1920's it got up to 14 or 16 times earnings.

The difficulty is this: If you should propose to your company an issue of common stock at these levels, the well-advised present stockholder would vote against it, because at the return you get on capital you would so dilute the capital structure of your company that the present owners would get less dividends even after the new money has been employed; if they are smart they won't vote for that. So we are living these days on the money that comes back to us through depreciation and inflation and the amount of earnings which we are permitted to retain in the business. I say "permitted"--I mean, by the stockholders and by the Government.

Obviously, as taxes are increased, our capacity to expand facilities is reduced. The public can't have it both ways. They can't both have the capital in the public treasury through increased taxes and have the capital in our treasuries for plant expansion. There are men of some high distinction in Washington who have both criticized us for not expanding more rapidly and at the same time urged that we be taxed more heavily. I submit that in clear thinking those two things don't add up.

There is another thing you ought to know about the capital structure. I don't know how many times this has happened to me. I spend probably two-thirds of every day saying "No." After the particular company representatives have gone the rounds of the sales department and received their "No" as pleasantly as can be, nothing will do but they must see the president. They start by saying, "Do you know we have increased our production 50 percent since 1940?" and I say, "Well, we were your main source of supply then, weren't we?" "Yes, I guess you were." "Did you by any chance come in to ask whether we would be able in the five years to increase our capacity by 50 percent?" "Well, maybe we didn't do that." "Well, is it prudent management to spend all that money and not know where you are going to get your product?"

The trick in it is this: A production-line type of operation, that involves just a good building and a fair line-up of machines, will cost about 3,500 dollars per man employed for each new job added. This is just by way of an index. In the steel industry it would cost 22,000 dollars. So a fellow who complains about our not keeping pace with him is saying, "You must put up six dollars because I put up one." That is kind of a hard thing to live up to.

I went recently to visit a very large customer of ours--a very fine company. Every man in this room knows it. On many indices it is about the same size as our company. It is heavily dependent upon us. One of its men gave me this 50 percent routine with great pride, and I said, "Well, I regret, my friend, that in this period of five years we have been able to increase our production only 10 percent, and that obviously doesn't add up." I said, "Here we are, about the same sized company. How many dollars did you spend?" He looked and found that we had spent twice the dollars to get up 10 percent that he had spent to get up 50 percent. That has gone on all over our economy, but that obviously can't go on.

They are planning in Washington many projects for public funds for the erection of steel plants. I don't want to get off the deep end on that controversy but here are a few of them: New England, a couple of hundred million dollars. New England has a certificate of necessity, which means it may have accelerated depreciation. But a certificate of necessity is in fact nothing but a hunting license for money. Presently

New England and others fresh out of money and they expect the Government to provide it. James River, Virginia, 150 million dollars, Clinton, Iowa, 150 million dollars; one at Sacramento, California; and one at Trenton, Michigan. There are so many I really can't recall them all. They are all backed by important people, who are personally willing to gamble private capital right up to a million dollars if the Government will give them 150 million.

I had this same problem when I was with ECA in Europe. Every country in Europe with a nationalist urge wanted its own steel industry, just as every political area in the United States for its own self-satisfaction wants to have its own steel plant. I remember urging Mr. Harriman to adopt a standard that I think would be safe for the United States. If private capital has not located a steel plant in a particular area, there is probably something wrong with the area and it wouldn't be prudent as a nation to spend money in a location where as private individuals we wouldn't risk it.

MR. BAUM: Mr. Randall is now ready for your questions.

QUESTION: Mr. Randall, would you discuss the advantage maybe of some dispersal of the steel industry and touch on the vulnerability to attack of the steel industry.

MR. RANDALL: Well, that, of course, is a very penetrating question. You start with the fact that, compared with Europe, for example, the steel industry is widely dispersed already in the United States. You can drive the whole length of the industrial district of Europe in a day. It is confined to the Ruhr, the north of France, Belgium, and Luxembourg. But when you reflect, you see that here we have a steel industry in the South, and in the Birmingham area. We have the Pittsburgh district. We have the Ohio district, and there it isn't all located in one city, but in several. I mean Middletown of Armco, Youngstown of Youngstown Sheet and Tube, Republic, and U. S. Steel. Then there is Buffalo. Our district in Chicago is pretty snugly set together. Since Chicago is the world's center of steelmaking, I am a little sorry about that. I always figure an enemy will aim for Gary and we will be the near miss. There is the steel industry in the Rocky Mountains—the Colorado Fuel and Iron, and the great new Geneva plant which was built during the war. On the west coast there are the Kaiser plant at Fontana and the beginnings of a very substantial industry down in the southern part of California. There are the beginnings of a steel industry now in Texas—the Dangerfield project. So the Nation's steel industry is pretty well dispersed.

I have visited the Ruhr and I have talked with Germans who operated plants during the war. I have talked with Englishmen who operated steel plants during the war. We sent an engineer with one of the groups that went over to survey bomb damage caused by fighting at Cologne in German steel plants. He was shot at while he was surveying. This embarrasses me, because I have such great respect for the Air Force but all

your best efforts practically failed to put the steel business out of business. You made pulp out of the Essen manufacturing plant, but you never did cripple the Ruhr. The Germans never did cripple the British steel industry. An elderly German told me how they had a direct hit on the coke ovens and all it did was to put out five ovens. The Germans sealed them off and went right on. They had a battery of maybe 200 coke ovens. They built concrete barricades around the machinery to prevent side injury and the men worked until about the third alert; then they dashed into a shelter and on the all clear they were back.

They really had to hit squarely on top of a facility to put it out; and if they did, it was only one facility. In fact, I have been inquiring about that ever since the war. If anyone hit a blast furnace squarely on top, I think that would be the end of it, but I can't find in any European country where the Air Force ever hit a blast furnace squarely on top. Now, with new types of atomic missiles, I don't know what the results would be.

But it's the old dilemma. You can't break a steel plant up into small parts. You can't make the coke 100 miles away from where it is to be used. You can't make the ingots 100 miles in the other direction from where they are to be rolled. You have to take some dispersal risk in order to get the economy required in large-scale production.

That isn't a very good answer, but it's the best I can do. It is a good question.

QUESTION: I am interested in a by-product of your coke ovens--benzine--which, I understand, is extremely critical. Great quantities of it are needed in the synthetic rubber and plastic industries. There isn't enough. Is any research being done to attempt to increase the quantities in the steel plants? Can anything be done to increase it 10 or 15 percent? Such increase would help.

MR. RANDALL: That comes from benzol. It is a very interesting thing. I don't know whether you have had time to study the economics of the relation of a by-product to a principal product. The curse of merchandising is that the by-product and the principal product are seldom in demand at the same time. At the moment we are in a millenium in the steel industry of either benzol or steel. Of course, we could sell all we have.

When the steel industry goes off to 75 percent, as it will--my friends, you may write that in the books--the benzol may be tight or it may be easy. Those markets don't move in parallel. There might be a strong demand for benzol with a decreasing supply due to reduction in steel operations.

Directly answering your question, we think we are getting all the benzol there is; there isn't any more. We mine the coal in that quantity which is required for the coke to feed our existing blast furnaces. We couldn't run the ovens just for the benzol. We think that the squeal and all is out. But am I not right that the petroleum industry is rather far advanced in its research to supply your market?

COMMENT: That is right.

QUESTION: Mr. Randall, would you explain how the Lake Superior ores are held, that is, their availability? Are they as available to other companies as they are to your own company?

MR. RANDALL: That is a very interesting question. I could talk on it for two hours if you had plenty of time.

During the last war, after the hue and cry on the iron ore running out, we increased our holdings of good iron ore in the Lake Superior district every year; and we came out of the war with more than we went in with. Today we have more than we had when the war ended.

A great deal of it is in the hands of U. S. Steel, and I would like to say something for U. S. Steel that I have never heard commented on in public. It sold iron ore to every comer during the war with absolute impartiality. It sold to the wise virgins and the foolish virgins. Those that hadn't filled their lamps were in trouble, and the steel corporation, with the greatest patriotism and statesmanship in the world in my judgment, threw unlimited quantities of its iron ore reserves into the public good. I see that Mr. Fairless recently made a statement that, when his company gets Venezuela going, if anybody wants to buy iron ore from it at market, the ore will be sold. That has always been its policy. That is in a way a complete answer to your problem.

Now, to be fair about it, the iron ore is unequally held among the so-called independent steel companies. Some have it and some don't. I think to some that reflects the fact that they didn't go after the ore, didn't think it was wise to go after it. But there still is iron ore privately owned and privately held in the Lake Superior district that can be had. There are great companies, one example is the Cleveland Iron Company, that are not in the steel business, that mine for the open market. There are tremendous reserves of iron ore.

QUESTION: A great deal has been made of the relative disadvantage of the Russians in war potential because of their very low steel capacity as compared with ours. Yet the figure you gave for military consumption in 1943 seems to be well within the Russian capacity. We use it with a very prodigal hand and the Russians don't, and their civilian demands are a great deal less. Would you comment on whether under those circumstances Russia really is at such a great disadvantage, with a steel capacity well beyond the 23 million tons you mentioned?

MR. RANDALL: That is a very good question. As a matter of fact, to be completely honest with you, I have never thought of it in just that way before. It helps my own thinking.

The thing we don't know is how that breaks as between military and civilian. They do give unquestionably a much higher percentage, but you can't take it all that way. We would regard the railways as civilian under that category, and Russia is very short of rail transport and construction for other industries would make a terribly heavy load on it, trying to expand in aluminum and atomic energy. Atomic energy will take a tremendous amount of steel, whether that is military or not, plus chemicals and aluminum and all the things it is trying to do. There would be a limit below which Russia couldn't go and then it has to supply those things now to the nations within its orbit. If railroads are to be built in China, they would have to be built with Russian rail, locomotives, and cars. I would be certain, however, that Russia has enough steel to make plenty of trouble if it is delivered in the right place in the right way.

QUESTION: We read constantly of the steel industry having a rated capacity of, say, 100 million tons, and yet it is producing above the rated capacity, say, 105 million tons. Will you describe that little difference to us and tell us to what extent the rated capacity may be exceeded and for what period of time?

MR. RANDALL: That is a very interesting question, one that causes considerable confusion. Well, my company has 36 open hearths. An open hearth is made up of brick and from time to time has to be torn down and completely rebuilt. There is a fixed cycle of good practice on that; that is 10 percent. So when we are given a rating on iron production by the Iron and Steel Institute, it means that we are at 100 percent when we have 33 open hearths operating.

We might, and did during the war, in times of stress abandon this good practice and what is prudent and let the accumulated maintenance pile up. That is done at considerable hazard. When you read that we are running at 103 percent, that means we are not repairing the open hearths as we should.

Plus another factor—capacity is not increased overnight; it is increased when a new facility is built. The capacity from our 36 open hearths has increased substantially in the past year, but it hasn't caught up to a new rating as yet.

Now, how do you do that? Well, you put in a heavier crane, a bigger crane, and a bigger ladle, so that you can pour the pig iron into the open hearth more rapidly per hour. The use of oxygen has greatly increased the productivity of existing facilities without

adding new facilities. So month by month you creep ahead; as a matter of fact--day by day. There isn't anything in the world that we watch so much as that daily ingot production--the first figure I look at every morning. Everybody in the shop and everybody out there knows that when we get along about the twenty-seventh of the month, I am calling on the plant every morning and saying, "Are we going to break the record this month? Any chance?" They say, "It looks awful good if nothing happens but we won't promise." So you are creeping ahead all the time, but you are rated only once a year. Those are the two reasons for that. It is confusing.

QUESTION: I noticed that you didn't say anything about manganese. We had some difficulty getting enough manganese for 100 million tons of steel. What will be the picture when we reach 117 million tons?

MR. RANDALL: Thanks to you and many of your associates, we are in far better shape than we were. Manganese came in very substantial quantity from Russia. I used to be slightly amused at the furor about: "We won't unload Russian furs and we won't have their products in this country." At the same time we were trying to get manganese which they were continuing to ship. I couldn't square those two things--why we would refuse furs but be glad to get manganese.

The Russian situation became so dangerous that every effort was made to find other sources of manganese. I suppose you know that there is no good deposit of manganese within the continental United States. We have manganiferous ores, running a low percentage of manganese; but by "manganese" we mean something out of which can be made ferromanganese, a metal we put in the open hearth, which must be 44 percent manganese.

The great change that has come about is, first, the production from South Africa where there are rich deposits and where we made available steel for railway cars and railway equipment to increase their production; and also the Gold Coast--on the west of Africa, South America, Cuba, and India. It is still critical, but we are in better shape on manganese than we have feared. I think we will lick the problem.

QUESTION: When the military was chewing up these 23 million tons of shipments in 1943, is it a proper assumption to say that the industry was going at full speed, approximating, let us say, 100 percent, and the balance was all going into essential civilian requirements and war-supporting?

MR. RANDALL: Yes.

QUESTION: As to the potential shortage, I am trying to bring the question around this way: that at such time, going full speed, and even though the military was only using 23 percent, isn't it also a fact

that the demand was very lopsided and there was a very great shortage of, we will say, sheets, while there might have been an overcapacity of bars or something? So to say that we used only 23 million tons and the difference all went into war-supporting--there was still no leeway. We were still short, weren't we?

MR. RANDALL: He challenges me as being shallow in my statement. You will remember that 1943 was a great shipbuilding year and you put your finger on a very sensitive point. It had been assumed that plates for ships could only be made on plate mills, but we demonstrated that high-speed, continuous-rolling sheet mills could be transformed into plate mills.

The acute shortage of sheets at that time was a function of the very lopsided demand in plates, quite apart from total tonnage which, I take it, does not exist today. I mean there is a demand for plates that we are feeling pretty keenly, plates particularly for the lake vessels. I forgot to mention that the existing bottleneck at the moment in iron ore is a shortage of ships on the Great Lakes.

As you know, there is a program for lake freighters, rail cars, Canadian freighters, and Canadian rail cars, all of which takes plates. But so far the Government doesn't seem to be committing itself to a program of shipbuilding of anything like the magnitude of the one it was in during those days. We find that persons say things and then can't back them up. I don't think we are rolling any plates on our sheet mill as yet. I think we are supplying from our plate mill all the demand for plates.

QUESTION: I want to take up a couple of points that you made. One, you mentioned seven or eight locations, regions where steel is made. Three of those, I believe--Texas, Utah, and southern California--were put up with government money. I don't quite follow your suggestion that if the private enterprise hasn't already put up a steel plant in a given area, the Government shouldn't. I also raise the question with you about who blew the dust out of industry's eyes.

MR. RANDALL: He is trying now to get me to say something I'll be sorry for. The dust question is easy. There never was any dust. I don't think we have had quite the skill in blowing our own horn about the country that some other industries have. I will let that one lie right there.

Take the question of whether public funds should go into these plants. I do not think that is proven by the incidents you cite. All of them came back to private industry, by private industry putting up the capital. I don't think Dangerfield has paid off yet. Is that right?

COMMENT: No, it has not.

MR. RANDALL: Am I right in thinking that Dangerfield at the moment has borrowed all RFC will loan and that isn't enough and that funds from other sources are going to be put in on top of that?

COMMENT: No.

MR. RANDALL: That when RFC quits loaning--it's a prudent loaner--they are still going to dig elsewhere? But let that pass.

COMMENT: I point out that the price on Geneva was low.

MR. RANDALL: What does that prove?

COMMENT: That the Government was a sucker.

MR. RANDALL: You mean the Government should have kept it?

COMMENT: Yes.

MR. RANDALL: Well, you and U. S. Steel agree 100 percent on that. U. S. Steel refused to buy it for four years and bought it only under extreme political pressure from western senators and everybody else. Won't you please take us off the hook? They did that in a way as a public service. I can see that you and I won't get together on this subject.

I, of course, speak with some bias. You will understand that. Here we are. Today is the fourteenth of February and it hasn't the significance that you think. Tomorrow is the fifteenth of February and tomorrow the great steel industry of Great Britain passes forever out of private management. Tomorrow is vesting day, and men like myself, who have given their lives in the development of industries and ventured their capital, take government securities for their stock and go to work for the Government.

The British steel industry, in my judgment, is one of the brightest spots in steel production in the world. It has done a magnificent job technologically and in terms of good management, and it's all over tomorrow. I think it is a tragic thing for the world. I think surely, as we watch it in the future, we will see the effectiveness of the British steel industry, not rapidly but slowly, disintegrate.

I am greatly interested in the problem of management. The men of my age--I will be 60 in two weeks--will stick. They are British; they are proud of their country and of what they have done. No matter what salary they are paid, regardless of emoluments, regardless of whether

there is any incentive in their lives, they will go through; they have the incentive to want to see a good job done. But the young men who will take their places will not enter that industry, so steadily and slowly the industry will fall into the hands of men who will not run it well. I just can't bridge that gap in my mind. Let us forget it and not argue about it.

You will understand that what I really was trying to do was not to debate Geneva or Dangerfield. Much is to be said for your point of view. I am not trying to debate that. I am just trying to pose the question of whether the present proposals to place large new sums of public money into the steel industry are in fact applications to take us a long step down the road to socialism. You couldn't expect me to be for that.

GENERAL VANAMAN: Would you go on there with some comments on the Frenchman Monnet's remarks?

MR. RANDALL: In October I was in Europe with Mr. Hoffman and he saw that I met Jean Monnet. I think he is one of the great men in the world, one of the finest minds in Europe. He is the planner of France.

Monnet has a life of complete dedication, in my way of thinking. He came to the United States and was a successful investment banker. He felt the call of his country and went back to serve. He was in this country when Bordeaux fell. He was here as head of the French purchasing mission; and, what is hard to believe, after that he was made head of the British purchasing mission in this country. Then he went back.

He is the architect of the Schuman Plan. There really isn't time to discuss the Schuman Plan in all its aspects. But I had the great privilege of spending two hours alone with him discussing the Schuman Plan and pressing my personal viewpoint, that the important thing to Europe is to establish it on a competitive, anticartel basis. I think that is what the General had in mind--I felt embarrassed to have raised the point, because Monnet believed in it as strongly as I do. He finally said to me, "Like yourself, I am a firm believer in the private-enterprise system. But, "he said, "it is the instinct of men to be selfish. It is the nature of the private-enterprise system to be selfish. That system, to prevail, must serve the general good. The policeman that keeps them serving the general good is honest, vital competition; and when two or more men through private agreement limit the effectiveness of that policeman, the public will not endure that limitation and will remove it. The public will reassert itself. And, "he said, "my friend, in your industry, no matter what the country, the public will reassert itself by nationalization."

I never heard a better speech on free enterprise than that. I subscribe to every word of it. Is that what you meant?

GENERAL VANAMAN: Yes.

QUESTION: Mr. Randall, you probably won't have the information offhand but I just wondered if you could give us the final proof of the pudding in any private enterprise, which in a society like our own is the cost of production. If they are writing in all their costs--interest on the loans and everything--how do the production costs compare in different sections of the country?

MR. RANDALL: I do happen to know that the Kaiser Company has an excellent cost. I wouldn't be at all surprised if this cost was better than ours. It has ready accessibility to iron ore. It has a large deposit in California, adequate for many years, with a good haul. Its coal probably costs quite a bit; but, nevertheless, our coal has to come 600 miles too.

I should expect that there is a pretty good balance on cost around the country. You see, there again really it is a function of competition. People don't go on expanding a high-cost plant. They either convince themselves that they bring the cost down or that plant withers and dies. It was that way with the old Thomas Furnace Company up at Milwaukee. That is just a site now. Once it was the beginning of a great industry.

We might wonder why there should be a steel industry in Chicago and not at Milwaukee. I have never known whether it was management or raw material or what not, but that is the way it happens. You don't stay in business unless you are in this general balance. I should suspect that throughout the country it balances.

You must also realize that it isn't just a function of cost; it is a function of market too. If you happen to be located in a vacuum type of market, you can afford a high cost. There have been many times, for example, when the Kaiser Company charged prices higher than prevailed here.

QUESTION: You have given us a questioning thought, Mr. Randall, in telling us that the steel industry was not the monster that desired to bar its source of iron ore and the rest.

What do our export shipments amount to? What I am getting at is this: In the Morgenthau-Dexter-White prescription for bringing Germany into an agricultural economy they also destroyed all the fertilizer plants with which to sustain that agricultural economy. This resulted in a wild scramble whereby we shipped fertilizer, but it got there too late. It resulted also in a great shortage of fertilizer in this country. Would you care to comment on any relationship so far as steel and all this expansion is concerned? What is going to happen when the double

economy we are trying to maintain is no longer necessary, when the military and the foreign markets have been decreased? You mentioned the 75 percent low a while ago.

MR. RANDALL: At the present time the export steel market for steel has completely folded except as to those products which are made only in the United States, and there are many of them. The market went back probably as it should to Belgium, Luxembourg, France, and England. I have rather rubbed my hands with glee at the imports of European steel into the United States. Some of the brethren didn't like that very well. I thought it was wonderful.

I was not long ago in a plant in the Middle West that had on its floor Belgian steel, Luxembourg steel, French steel, British steel, and Japanese steel; I said, "That helps to close the dollar gap." Let the boys pay any fancy market price they wanted to for it. I didn't care. The more they paid, the more they were closing the dollar gap and taking it off taxpayer's back.

I don't think America will have a great future export market. I think as long ahead as you can look we will be priced out of those markets by our high-wage scales. The European countries will keep below us and take the markets of the world except for specialty steels that we make. And gradually they will make them as good as ours.

Fertilizer interests me tremendously. I spoke of the Bessemer and I spoke of the fact that there was a phosphorus limitation. Along came Mr. Thomas and he discovered that if there was enough very high phosphorus, you could change the lining of the receptacle from acid to basic and the process would work. That gave the ores of Lorraine in northern France, of Belgium, and of Luxembourg their opportunity. They produce as a by-product a high phosphorus, limy slag, which is used for fertilizer.

But on the question of what is going to happen as you so aptly put it, when once the military demand stops and the time comes when we don't have two economies--you can imagine that we are all greatly disturbed by such question. The moment I say that, then somebody who doesn't like my philosophy of life says, "Ha, ha. Pulling back. He is pulling his punches." That is not so. We are being pressed by our own people, our own stockholders. Everybody in the industry has the whiplash on them constantly--the people who believe that forever it is going to be this way. We are behaving as though forever it was going to be this way, and I'll be darned if we haven't been right for a good many years.

MR. BAUM: Mr. Randall, on behalf of the college I thank you for a very excellent lecture and a most informative discussion period.

MR. RANDALL: May I thank you for the privilege of being here, and again pay my tribute to you men whose abilities will mean so much to our country in the years that lie ahead.

(17 Apr 1951--650)S.