

Colonel Jordan's remarks introducing
Professor Georges F. Doriot
Harvard Graduate School of Business Administration
October 26, 1934

It is a real pleasure to introduce the speaker this morning. Professor Doriot is a friend of the Army of long standing and his lecture each year is always looked forward to with great interest.

His degree of M.E. comes from the University of Paris, 1915. He was Assistant Dean of the Harvard Graduate School of Business Administration from 1925 to 1930. He has been Associate Professor of Industrial Management and for the past several years, Professor of Industrial Management.

The French Government requisitioned his services in establishing a French School of Business Administration patterned after the Harvard school. Professor Doriot is different in his viewpoint from many professors - he is really human and consequently popular with his students. The graduates of the Harvard School of Business Administration always mention him as the advisor of the Army and Navy officers attending that College, and their appreciation of his interest in and advice concerning their personal problems.

Professor Doriot's subject this morning is the "American Industrial Set-up to Supply Munitions in War, Its Strength and Weakness".

Professor Doriot.

Army Industrial College
Washington, D.C.
October 26, 1934

THE AMERICAN INDUSTRIAL SET-UP TO
SUPPLY MUNITIONS IN WAR; ITS STRENGTH AND WEAKNESS

- GEORGES F. DORIoT

Usually when I have to make a speech, which is not very often because any audience that has heard me once very seldom wants to hear me again, I try to pick a subject I know something about or about which I know at least a little bit more than my audience. Unfortunately, however, today, obeying orders, I am going to take up a subject about which every one of you knows more than I do. So you see I feel quite humble right from the start. I am ready to have a good argument with you afterwards about anything I might say.

I would like to say this; bearing in mind the subject I probably will make statements that may sound to you like criticisms. I wish you would not take them as such because after all, if I seem to criticise you, I shall be criticising myself also, since many of the things you are doing I have worked on and have agreed with in the past. A lady's privilege is to change her mind, and I should like to take over that privilege and perhaps change my mind on things I said a few years back.

The problem is one of taking a large manufacturing establishment, the nation, and changing production in a very short period of time. We not only have to change the product, but we have to change the movement of raw materials from a certain place to manufacturing establishments and also the movement of finished products from those establishments to certain centers. Naturally, in peace time we have such problems to meet.

A company which wants to survive may perhaps once a year change its production, change its product, its equipment, etc. However, in peace time, we know well in advance that we shall change the production set-up. We pick on a certain season. The automobile business picks on a fairly dull season, the winter months, to bring out a new product. For months ahead we can plan, we can do a great deal of thinking, order machinery ahead and have it delivered at a certain time. We can plan ahead, think quietly, take time, discuss, change and recharge our minds, etc. If we fail, the penalty is not high, makeshifts are possible, changes can always be made. Not all companies are changing their product, altering their designs, changing their production set-up at the same time. Changes are more or less staggered. These changes take place under normal conditions. Men who decide on them and those who carry them out are free to perform their work as well as they can.

Plans for industrial mobilization, however, call for changes so numerous and important that one can well assume that on mobilization or declaration day, whichever might come first, few factories would not be suddenly confronted with overwhelming production problems.

To make those problems less overwhelming and bring them closer to peace time problems is one of the purposes of industrial mobilization plans. Our aim today is to make an attempt at guessing as to how successful the existing plans would be should war be declared shortly.

In the past we were told, and there is no reason to challenge that statement, that the relative strength of nations could be measured by the number of men under arms, the number of munitions in stores, the number of guns, shells, available, etc. Since the war, the theory has

been that the number of men under arms and the number of guns, etc., ready for use will not measure a nation's strength, but we have to bear in mind the industrial strength, the so-called "potentiel de guerre". We realized the very amazing work done by the Germans during the last war, the extent to which they used engineering and science, so we came to the conclusion that the question of paramount importance was industrial strength and power. It is true that a nation with natural resources and greater industrial output can fight a war for a longer period than one without, but at the present time, we are giving ourselves a false sense of security when we rely on that second statement and belief as much as we do. I think it is very much a matter of technical evolution, as we now have methods of fighting we did not have in the past. I am quite certain that at the present time, of these two things, strength of the nation at any one time and eventual strength, industrial power, etc., - as time passes, the first is becoming of more and more importance. I would, therefore, state that to my mind we are relying too much on our potential strength and not enough on our actual strength and power. Still remembering what happened in the last war, we are hoping that the next one will be waged under similar circumstances. We are correcting the mistake of the past war and not preparing ourselves for the next one. We are taxing our memories, satisfying ourselves with slogans and quotations instead of using our imaginations. In case of a major war, the chances are that the present plans of industrial mobilization would take from nine to twelve months to be carried out, and the possibilities are that those plans might well be a complete failure. This failure would be due to many causes, some of which are as follows: a major war would be a short and

very destructive one; of course, many had predicted that the last war could not possibly last, they were wrong because it did last four years; the fact that they were wrong does not weaken the statement made to the effect that the next war would have to be short unless it brings forth a more or less complete destruction of western civilization. Since 1918, many changes have taken place; some of the important ones in this connection are:

- Developments in transportation, air, land.
- Developments in communications, wire, wireless.
- Developments in chemistry.

In the 1914-1918 war, a new weapon was used that of propaganda on a large basis. Since then, that weapon has been developed to a much greater extent and scientific discoveries are making it impossible for any one nation to have any monopoly on the problem of "manufacturing" feelings, emotions, anger, etc., for any one particular cause.

The development of radio has materially altered the point of view of millions of people. While they can still be made to see things as they should, it will be impossible in the next war to master a nation's emotions for any period of time. It will still be possible to convince a nation, particularly those who suffer most from a war, that they are on the righteous side, but it will not be possible to maintain them in that belief for any period of time, unless the war is a result, as it might well be, of a long period of economic sufferings.

To fight a war in the trenches or in a factory one needs to have one's emotions raised to a very high pitch. One must feel that even though one has to work twenty-four hours cleaning up dirty shells one is doing something for peace, freedom, and liberty. If one is in the trenches,

one must feel compelled to help make the world a better place to live in - otherwise one would not fight, would not stick it out in factories and trenches, people would be unwilling to give up what they enjoy in peace time.

The large difference between what existed in the past and now, is the fact that in the past our own respective nations were in complete charge of our feelings, emotions, etc. At the present time, it would be extremely hard to decide, for instance, that certain radio waves coming from a foreign country would not enter this country. It would be very hard for millions of laborers to be told that it is a war for democracy or a flag, or one thing or another. This would be all very well for a period of weeks and then would disappear. We have seen an example in the past two years where on any kind of more or less peculiar set of facts you cannot get the nation excited for more than a very short period of time. We must realize that not only in the fighting units, but inside, internally, where we have allowed young men to work and display their initiative, we will not be able to master the situation in the future as we were able in the last war.

You have seen a very good example of what can be done with the power of radio. You have seen the "Austrian accidents" mostly due to propoganda from Germany. The United States is isolated, but radio stations from Mexico, Newfoundland, etc., will in case of war send news we cannot prevent which will go a long way in dampening the interest of the average citizen as we did in the last war. I do not believe for a minute that we can do that again.

You must realize that radio is a problem of which very few

people realize the importance. Take this, for example: twenty years ago, should a Chinese have looked at the Esthonian flag with crossed eyes, and perhaps without meaning anything unpleasant, nevertheless the newspapers want a good story; Mr. X, publisher, wants an increase in circulation. Twenty years ago, San Francisco would have heard of it a month after it happened, Chicago maybe two months later, Boston and Philadelphia maybe never. At the present time, that piece of news comes over the radio, perhaps distorted, because it must be news and therefore must be a little more dramatic or a little worse than it actually was, but in a few minutes X million people hear that information and react as one man.

We have there an element which to my mind is going to preclude doing with our industrial set-up that which we thought we could and which we would like to do with it. It is possible that to intelligent men, managers, etc., you might appeal strongly enough so that for a period of time they will become strong believers in doing their best. But in the future we will not be able to take fifteen million laborers and lead them for two or more years into doing what they did in the last war.

In other words, the problem of mobilizing fighters may still be what we expect it to be because they will soon be removed from civilian influence. The problem of mobilizing labor is an entirely new one and there is nothing in history that can give us any help. Experts at forming public opinion may believe that they could master such problems. Personally I think they could but for a very short period only. We must remember that in the next war certain places in the "rear" where we shall need large concentration of workers may well be more dangerous than the "front". Such danger will make them very receptive to news not emanating from the "purifying agencies"!!

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In peace time we often hear of a "change of product" or "change in design" taking place without solution of continuity in production. One must realize, however, that often, these changes are nothing but style changes for advertising purposes and do not represent any radical modification such as we would expect when changing from peace to war requirements. To perform these changes we do not only need labor but we need management.

The point I would like to make is this. In peace time, the head of a corporation may be anything but a manufacturer. The president may be somebody no one else wants, but bankers or others have made him president and want to keep him there. The chairman of the board may be someone who cannot be fired, but must be given an honorary title. It is seldom you will find that the man who is head of a concern in peace time is the man one should want there in war time. You have there a very serious problem. In peace time, the problem of a manufacturing company may be mostly one of selling, or of changes in demand, or of style, of advertising, and the problem of production may be a very unimportant one. In war time, the man wanted at the head of that company as boss is not the peace time boss. On that subject, we have done nothing. We have gone on the theory that in the peace time chief executive we had a good man; we have convinced him that in case of war he should cooperate. He would be at a loss to know how to act so as to carry out war plans.

You must realize this. This depression has done one very interesting and perhaps constructive thing. It has shown us that we had manufacturers right during the period of the depression who could keep on making money, and some who could not. Most manufacturers during the

depression went on this theory, "I have done no business and there is none I can do. I can go to a commercial bank and ask for a loan, but they will say 'the Government may decide on a twenty hour week and you could make nothing so we will give you nothing.'" The investment banker says, "No, we are afraid." I would like to state that in almost every industry we have at least one manufacturing company which has made money during this period of depression. In some cases we know of companies where ever since 1928 their profits have been larger than in preceding years. If you study the reason, you find one answer, that is a very able man at the head. A man with courage, ability, imagination. The conclusion is this. If you pick one hundred manufacturers, there will be ten who are outstanding and on whom you might rely in war. They are able leaders. Then there may be thirty who are men of very average ability and who have succeeded because the country was growing fast, and other reasons which have nothing to do with the men themselves. The rest are unadaptable and should be removed as soon as better ones can be found. They are the men with whom you should have nothing to do in war, and they are men who will wreck the present plans of industrial mobilization. You must be able in peace time to decide who in an organization would take the responsibility for carrying out your plans and make certain that such men as you should select will be the dictators.

Of course, like most people in the past ten years, we get a great deal of pleasure out of gathering statistical information and facts. But in so doing, the only thing we did was to give ourselves a false sense of security. When we study a company, whether it is for peace or war, the main problem is one of gauging the future.

We have two sets of things we can go after. On one side are what I call the tangibles - the exact measurement of building, the exact value at the time the equipment was purchased, the exact replacement value within one-tenth of a cent, the exact this and the exact that. On that basis a banker loans money for twenty years - to the tangibles. They loan money to the bricks and the mortar. On the other side are the intangibles - a group of men. Are they leaders, do they understand the relative importance of production, transportation, technical evolution, the evolution of the raw materials they are using? Do they understand the evolution in manufacturing equipment and assimilate themselves to it? And are they bringing up under them the kind of people who next year will carry on these things I am trying to explain? No, we do not think of that; those things are unimportant because we cannot measure them. We like that because we can get figures within one hundredth of a cent. That gives us a false sense of security. The value of a plant or factory should not so much be in the equipment and other tangibles, as it is in the intangibles, and I believe we are making a mistake in relying too much on facts and figures and not making enough of an objective study of the man or men we have to rely on to swing the job in case of war. We have figures, but they mean nothing. A skilled man with ordinary tools can produce a masterpiece; an ordinary man with the best tools will do very poorly. A survey is like a balance sheet; a second after it has been made, it is nothing but a poor type of indication. Useful, yes, a starting point; but an end in itself, no. We have a problem we have quite overlooked. A possible method of solving it I shall try to suggest later.

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Without going into details, I should like to state that to do a better job the army must get better cooperation from the legislative and executive ends of the government. Solutions adopted must not be based on compromises. Either the nation wishes to be prepared for war or it does not. If it does not, then all is well, but if it does, the army should make it plain for its own protection that it cannot perform as well as it might because it has not received the backing to do so.

It is my belief that in any future major war victory will have to be gained through rapid, powerful and repeated offensives. I look forward, therefore, to the uselessness of any plan that would mean bringing a nation to its real strength nine to twelve months after a war has started. It seems necessary that to be prepared there should be ready at all times the force that will be necessary to strike enough hard blows immediately to at least assure the possibility of gaining time and therefore protect the "rear".

There should be large supplies of ammunition of all types, arsenals ready to manufacture immediately and factories whose personnel and equipment can function at once in materials as close to peace time specifications and manufacture as possible. When a major change would be necessary, arsenals should be responsible for production. Otherwise the army should attempt to use peace time equipment lessening the need for changes.

Equipment such as airplanes, trucks, tractors, should be designed and manufactured bearing in mind war requirements. They should not be peace time makeshifts. In the case of airplanes, the war time problem and its requirements are quite ignored. The war problem is not to carry many passengers safely, but to carry bombs, explosives, or gas

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at the highest possible speed. A bombing plane is not a device to be built according to the best safety standards of transportation, it is simply a long range gun and should be conceived as such. Such planes to be built lightly and cheaply need not be used for training purposes. They should be part of equipment to be used by men acting under war psychology. If private business cannot design motor trucks lighter and with greater carrying capacity than are now available, the war department should avail itself of recent scientific discoveries and do so. The next war will mean more speed, more mobility. Whether the real requirements are pleasing or not to civilian manufacturers who enjoy selling standard equipment to the army in peace time is beside the point.

There are many such problems that somehow or other must be handled differently from what has been done up to the present time. Army officers, particularly staff officers, will have to give up some of their prejudice and face new facts brought about daily in science and industry. Officers dealing with war preparedness, either from a tactical or industrial viewpoint, will have to forgo their particular liking for one branch of the Army or another. The general conception of aviation for instance, is quite worth changing. When false conceptions can be changed, the problem of procurement will be simpler.

The general problem of industrial mobilization should not be placed under the general staff, but should be under the leadership of a new cabinet member independant of the War Department. Officers working in such new department should be of the highest ability. Once attached to that department they should never have to go back to their branches unless they are not fit for industrial mobilization. This would allow

them greater freedom of action in working out their problems. They should not be removed from a district at the time when they begin to know something about it, but should stay there so that in case of emergency there is someone who knows what to expect from management labor and equipment in that district.

Commissions should not be given to civilians in peace time. Plans to give commissions might be worked out, but not announced. District chiefs should be picked if at all, not because of their social standing or past ability, but because of their present and probable future ability.

Every effort should be made to keep on training line officers in the appreciation of the problems of industrial mobilization.

Worth while efforts have been made along the lines of industrial mobilization and those who have been responsible for them deserve congratulations. We must remember, however, that many drawers full of statistical information are like so many post mortems. As a start towards something else, they are useful indications, but as an end or solution they are quite worthless.

QUESTIONS

Q - You made a statement in regard to propaganda from outside of the United States. If the people on the outside can engage in propaganda, why can't we do the same thing to drown that out?

A - During the War if you were a citizen of England, you could only hear things on the side of England. There was no chance to hear anything else.

Q - Not even if you took a short wave length and tried to bootleg news into the U.S.? You could have a continuous program.

A - That would not help. My morale would not be lifted as much as it could be. You can't take all available wave lengths and prevent foreign stations from coming in.

Q - You can restrict radio sets.

A - That is a step you should take right now. The day war starts you could take the sets in and exchange them for good 100% American sets, - a set guaranteed to bring in only good news!

Q - I am very much interested in the radio possibilities there, but I am not quite so sure about controlling them. Major Powell has been working on frequencies, or maybe some other Signal Corps man could offer some suggestion.

Q - I am wondering about this propaganda, whether we could so control the mass psychology that people would not pay attention to anything that came over the radio. That brings up another kind of mass psychology - the will to war, etc.

A - I believe you will have a pretty hard time if anything comes in on the radio to get recruits. I have this idea, I wonder if something

like that could be done on the civilian population. During the war, the thing that was bothersome was not that a shell had fallen. I always wondered why the enemy did not do this: this morning scatter shells over the trenches and in back of them - shells that would not explode for three or four hours - to make you feel that anywhere you went there was the possibility of an explosion. Or, scatter shells or bombs from airplanes that would not explode for a while. That, personally, would have done more damage to my mental attitude than anything else. An exploded shell is a worthless shell, but the unexploded shell is much more damaging. Perhaps something of that kind could be done. I do believe it would be very hard in case of war now to get the laboring forces to show the attitude we would like them to show.

Q - I am wondering if the problem of selecting personnel rather than depending so much on equipment, etc., is not so difficult that it is impossible during peace.

A - You have the same problem in business. Why are people picked to be heads of corporations? There is one very large company in this country - one you will rely on in war - whose head was picked because he was a very good fellow and nothing else. The only thing he can do well is to make speeches. The company has gone from bad to worse. Or, men are picked because they have rendered a service. We have been quite casual in picking men as heads of our large corporations, and I am quite positive that in judging humans you will be wrong 80 times out of 100. It is difficult, I grant you, but I think we can do very much better than we have in the past.

Q - The man may change.

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A - Perhaps, but are these men bringing up under them the men who have ability? Some companies are. I am just talking about things that exist. We have done it the other way, because we can show results, tangible results, measurements in dollars, or feet, or tons. You can put it on paper. So I say let's take some of the most able Army officers and put them in full charge of the districts, not two years or four years, but N years, and we will know what we can rely on.

Q - Would a solution of that labor problem be to have the Selective Service apply to labor?

A - I have no idea what the results would be. I think that is anybody's guess. It may be a matter of when to do it - maybe a year ago, when the President's smiling ability was at its maximum. At that time, the question was how quickly can we spend money? I believe at that time, the Army perhaps missed a bet because to my mind with the proper handling you could have very wisely spent money on things that would be useful, and you would have gotten it. I don't see any reason why you should not get very much beyond what you have. Nobody knows what the Army has done for civilian industry, nobody knows about the work of the Engineers, the Signal Corps. You had an opportune day and it may come again when you can ask for what you want. I look forward to the day when the Army could be one of the leaders in engineering development and scientific research, and I see no reason why it cannot be done. You cannot do it with spurs, but with the proper handling of people. The fortunate day may come again. One looks at a Cavalry officer and sees no reason for him. I think you could get a great deal further than you have. Is

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it because procurement planning is, after all, still attached to the General Staff, which to my mind it should not be? I do not know, but there is undoubtedly something which does not exist in the people's mind. You can show how much the Army can contribute to civilian development and it may be of use.

Q - Why do you say that in your mind the General Staff should not be connected with procurement planning?

A - Because of this: to me there is a very major basic difference between those who have to fight a war and those who would have to run the industrial set-up of a nation. It is an entirely different group of men, but you should do what you are doing here to give the General Staff man some insight into your problems and some training by which he is able to realize your troubles, and realize the element of failure. It is entirely different; it is like the man who can start a company and the man who should handle it. It grieves me to see a man who has devoted four or five years to procurement duty go to duty with troops or to Hawaii or to the Philippines. I understand why it is, but somehow or other if we want these plans to be as good as they might be we should make some fairly strong decisions and do the best we can do. We must realize that if there is a war again and we must rely on the factories, it is a matter of six months before we can get what we expect, mostly because of the failure of the human mind.

General Schull - I have enjoyed this lecture and it has brought out some points which I think are particularly interesting, especially the one that has to do with the study being made of the industrial personnel on which we shall have to rely to produce the materials required in war, and the fact that if war should come, we would have to take our industries more or less as we find them. I do not see what we could do in advance

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to change in any way the personnel we would have to have at a plant. We would have to depend upon their loyalty, assume they are what they should be, and also depend upon the labor of the country. We have had no reason to doubt the loyalty of labor and I think we would have to continue along those same lines.

A - I agree. However, I do not believe that the experience of the last war can be fully applied. Labor during the past eighteen months has learned to do lots of things they never did before. They did not have that kind of experience before the last war. I agree that we cannot change the management. My warning is this: if we know upon whom we cannot rely and upon whom we can quite rely we are a little better off. We might figure out the coefficient of safety on this or that man. A man who knows what he can expect is much better off than one who does not. I am very much afraid that during the last eighteen months labor has learned a great deal, and it won't be quite the same. During that time some powerful elements have learned their strength and they did not know that in 1914.

General Tschappat - I recognize the importance of management in the operation of these plants. We assume that those who made the surveys of the plants have taken that into consideration to some extent. They consider the type of management in their determination of what use to make of a plant. However, as the speaker pointed out, it is not a permanent thing; any survey made now would not be any good as far as that element is concerned. I assume that one of the things done in making a survey is to make a record of the plant over its entire history, or back for a certain number of years and that would be a very good thing on which to base any calculation as to what that plant is capable of doing in the future.

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A - I should like to mention this: of course, the management changes and that is why I would like to see less of the formal surveys and more of someone who always knows what it is all about. We rely too much on the survey that is made and placed in the file. I would be in favor of having a man in the district - a man who is always there and on whom we can rely instead of relying so much on a cold and formal survey.

Admiral Leahy - This is a little out of my line. I have had no experience in procurement planning, but I would like to express my appreciation to you, Professor Doriot, and my thanks for telling me of many things that are of acute interest to me in my job of being responsible for Naval personnel. There is nothing I can say that would be useful to the class, but I would like to say to the lecturer that during his talk I had a wonderful thought, and it was this: with his background and experience it would be a marvelous thing if he could go down to Congress with me and tell them of the necessity of utilizing Naval personnel for the business of war, for I am generally unable to get anything from them.

General Conley - I have enjoyed the lecture very much and am especially interested in the point of having the right man on the job. I am doubtful whether we could put it across, however - I do not believe we could get away with it.

General Preston - I have enjoyed listening to Professor Doriot very much, and I believe he has brought out thoughts very worthy of careful and thorough consideration, especially by members of the class of the Army Industrial College.

Colonel Jordan - I want to express the appreciation of the class and faculty, as well as my own appreciation, Professor Doriot, of your very excellent talk.