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ARMY INDUSTRIAL COLLEGE.
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POWER DEVELOPMENT IN THE SOUTH

Lecture

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INTRODUCTORY REMARKS - COLONEL IRVING J. CARR.

Gentlemen:

This morning we will listen to a talk on Power. Power is the element necessary for us to have in order to accomplish the purpose for which we are planning. Not only power itself must be studied but also the relation that power possibilities have to the growth of various industries.

Very shortly after our study of power we will take up the resources of our War Department Procurement Districts. Among those we are going to re-study the Birmingham District. The history of the growth of that District is remarkable; probably no other in the country has the possibilities and had the actual growth in the past few years as the Birmingham District.

During the last war we were short of power in several Districts, Niagara Falls in the Buffalo District being an outstanding example of a section congested with war loads due to the centralized location of so many industries. In the new studies we will undertake on the districts we will study how we can best distribute the war load without disrupting industry, not only during war but on return to peace. It is therefore highly essential that we give the subject of Power a great deal of attention.

Mr. Mitchell, Vice President and General Manager of the Georgia Power Company, who was formerly connected with the Alabama Power Company, knows a great deal of the Birmingham District, having spent a

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great part of his life there. He has recently been lecturing before the American Institute of Electrical Engineers in New York. I know of no one who's name appears in our records that is more qualified to talk to us on the power development of the Birmingham District than Mr. Mitchell.

I take great pleasure in introducing Mr. Mitchell.

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POWER DEVELOPMENT IN THE SOUTH.

Colonel Carr and Gentlemen;

This is a new role for me. I am not a lecturer and do not know much about getting a subject like this across to a group of men who are studying the important problems you are. However my contacts with Army officers have always been so pleasant that I could not refuse Colonel Carr when he requested I come, especially when he made the remark that he felt it might be helpful to you.

It has been my pleasure to know Colonel Keller, now retired, Colonel Beech, Major Burns, Major Clement, Colonel Joyes and Mr. Frederick Darlington, whom you drafted during the War from the Westinghouse Company to serve as a member of the Power Section, War Industries Board. It has also been my pleasure to know General Taylor and General Jadwin, so I feel I am not entirely amongst strangers and that you will forgive my error if I fail to give you just what you expect to get.

I feel I do know something about the Birmingham District, and rather than follow the set paper (rather technical in terms) that I read yesterday I would rather drift along regarding this particular territory and the area it covers.

First, let me say this as a civilian. I think that those of us who never smelled the powder of the battlefield but who were, through the stress and strain of ten years ago, trying to do our part equally with those who went overseas and went through the actual fighting, sincerely hope that our children will never be called upon to go through such a time again. Yet if we read history we know that since

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the dawn of time there has been warfare and it seems to be the nature of mankind to resort to warfare as a Court of Last Resort. Man's nature has not changed materially through all years and I do not see how we can expect it to change all of a sudden.

The best preventive measures are being drafted and studied. If, without burdening ourselves unduly with taxes, without attempting to maintain great standing armies, we continue to make plans for the mobilization of men, money and machinery, as well as (in my own personal opinion) additional plans for the mobilizing of our capital and labor, putting all of us from the President on down on the same kind of pay - thereby cutting out any talk of profiteering, it will eliminate any talk of the actual possibility of our children having to go to war in the days to come. In this large mobilization ~~power~~ will play no small part.

I want to talk to you as simply a power man, one who has grown up in the power industry. I have forgotten most of the engineering I ever knew. In managing an organization, strange to say, if among other things you can settle some man's family troubles and thereby save a mighty good man for your organization, you are keeping the wheels turning. You can see there are varied duties connected with this work.

I do not want you to feel that I am magnifying too greatly the power end of mobilization, nor do I want you to think that available electrical power and public utilities is the whole story. I do not

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think so, but I do think it plays a most important part, that whenever we come to the mobilization of industry for war work power is going to play a very large part therein.

I was reading just the other day an article by Sansburg in which he quoted Oliver Phillips as saying, "Every step has made hands worthless and brains worth more", but even at that time he did not know about the telephone, electrical lights, wireless, great power systems and interconnections as we do today, and if what he saw at that period was a step toward emancipation how much greater has been the progress of the last forty-five years - comparing the available mechanical power and advantages of today. Remember the words of Lincoln, "If we could just know where we were and whither we were drifting we could better judge what to do and how to do it". If you gentlemen could just get to that point in the start of your planning, the rest will travel along sound engineering lines.

Just the other day I read Major Kelton's article on Power and National Defense. I regard this as one of the best publications I have seen on the different phases of the problem involved, setting forth very clearly the extreme importance of Secretary Davis's plan for an executive assistant to the President, to be called an Emergency Power Director, and an executive committee to be selected from the industry. It seems to me to be a most excellent plan.

The War Department should be studying right now just such a plan as that - looking over the men in the industry today, consulting with the executives of the public utilities and having in its file of men available the names of at least a half dozen who might serve

as executive assistants to the President if they were called upon in case of an emergency, the names to be changed as time goes on by actual contact with such men. There should also be a list of two dozen or more executives who would be available for appointment to the contemplated executive committee. I believe very definitely that this is a job for the men in the business to handle, under the direction of the War Department, if said emergency ever comes. The policies should come from headquarters but the actual work should be done by men who have been doing it all their lives rather than by placing it in the hands of a group not so well acquainted with the problems involved.

The Southeastern States have a peculiar interest and a peculiar importance in the studies you will make of the resources thereof, particularly that of the Birmingham District with its resources of coal, iron, and limestone, as well as the large developments that have already been made in an industrial way and the great interconnecting systems that are growing up in these states (North and South Caroline included in this group); also due to the fact that a considerable portion of these resources are a reasonable distance from the Coast. That is one of the reasons that the site of Muscle Shoals was decided upon - it was sufficiently far from the Coast to be included in the territory inside of a certain danger area.

The proximity of the water resources and coal fields makes Alabama a logical location for increased power plant capacity. In times of war we cannot and should not tie up railroad cars and locomotives for transportation of any coal that can be avoided. It will

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be much better and far more economical to carry power to places of use rather than to put the plant just anywhere and ship coal thereto, thus tying up facilities badly needed for other emergency uses. That was one of the fallacies, one of the mistakes we often made during the World War.

In other words, I feel that power plants should be located where there is coal - provided you can find water there. The latter is always one of the difficulties to be met. In very few places will you find a sufficient supply of both water power and coal. The Georgia Power Plant is an example of a plant that cares for a two hundred thousand kilowatt output, sitting right on top of the coal being used. There is also twenty thousand acres of coal lands - making a reserve of coal in excess of two hundred million tons for protection of our service to the industries of that section as plants have to be extended. Transmission lines are used to carry this to the plants that are going to use the power.

During times of war I believe we will not build any hydro plants unless they can be built in very short order; certainly not one that will take five years to build because it will take too much time, too much capital, too many men away from more important jobs (such as raising of manpower), and we can get the equipment required for a steam plant in one-half or one-fourth of the time. Muscle Shoals is a good example of that sort of a situation; there you have a sixty thousand kilowatt steam plant and about sixty million dollars tied up. Out of the plant you can count on power of about two hundred thousand kilowatt. Take that same amount of money, under the same prices and

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conditions, and in eighteen months to two years (not five, seven or ten years) you can develop at least three hundred thousand kilowatt of prime power and at the high war cost would not come up to the sixty thousand dollar mark. You would have fifty percent more power available at the maximum in two-fifths of time at no greater cost, and it would have taken less manpower to have accomplished this.

What have we done in the Southeast? In a few minutes we will run through a few slides and you will be able to get a better idea of what that territory looks like.

I have worked for almost exactly sixteen years, at this date, with Alabama and Georgia - first the Alabama Power Company and then the Georgia Power Company - but I do not wish you to think those are the only companies doing the things I will tell you about. We have accomplished practically the same as other power companies, trying to get the maximum use out of power and to develop it most economically in order that the most benefit can be derived therefrom.

We have interconnections that permit the shifting of power from site to site as may be necessary to take care of the different using industries. These interconnections have decentralized to a very considerable degree the location of the industries. Now they are not crowded into one area. It is perfectly natural that the Birmingham District should be the center of the steel industry, coal and limestone, but the textile industry is located over the whole state. Just yesterday in Boston I read about a big plant that was being moved from Holyoke and would be replaced by a paper mill - the former being moved to Alabama. This moving covers a

very interesting story for Alabama. Located there will be ten different plants in ten different counties, employing from three to five hundred operators located in towns of three to four thousand people - giving those towns a market for their labor and also providing a market right at home to the farmer for his products. That is one of the most important things we do with our power lines.

The problem of operating a one hundred percent efficient system is not a simple job. We study that just as we study the load proposition. We can forecast what we think the 1940 load will be and where we think the power plants should be built, what lines will have to be put in in order that power may be carried from plant to plant, etc. We may be one hundred percent wrong on some particular point but we never average more than ten percent wrong on the whole.

(Illustrated talk covering the territory followed).