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 should be preserved, there is much which should be rooted out and destroyed and replaced. A scheme of things must be built up which will be knitted together at the top, with definite, wisely delegated authority, with strong, able administrators of demonstrated capacity; with boards, cabinets, and commissions, if necessary, for advisory and consulting purposes. We cannot too soon combine and coordinate our organization to form it into a single machine working with a single purpose.

Mr. MORRIS L. COOKE: I wish I could in the time at my disposal put my views before you as cogently and as splendidly as Mr. Kendall has put his. To be perfectly frank with you I am appalled by the size of the job. I recall in the days in 1905, in the fall of that year, when Mr. Taylor and Mr. Barth were getting ready that monumental report of the experiments in which they had been jointly engaged, that the question of the title came up. You will recall that Mr. Taylor himself had been at work on this group of problems for some twenty-five years, and during that time had had associated with him many master minds. When it came to the title some one suggested "the art of cutting metals," and Mr. Taylor immediately came back with the suggestion, "on the art of cutting metals." I think you will agree with me that the point was a good one. He saw the whole problem was so tremendous in comparison with any contribution he could make to it that he insisted on limiting the title.

In some such spirit as that I am going to give you a few thoughts that have come to me after six or seven months in Washington, most of the time feeling very much in a maze.

I really think that the only place where I differ from Mr. Kendall and those who stand for the views he advocates is the question of the time elements. I know Mr. Kendall well enough to know that our ideals are the same. I am sure in this matter our goal is the same—the utmost of coordination and correlation of Government activities for the purpose of winning the war. If that could be brought about by the *ipse dixit* of the President or of any group of Americans to-morrow I would say "Let us go to it." It is simply a question of difference of opinion as to how rapidly that maximum of coordination can be brought about.

Mr. Kendall said in stating one of his minor premises, that he took it that the President and his advisors were dissatisfied with things as they are. I

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have had the pleasure of being associated with Mr. Kendall for a good many years in industrial enterprises, and I thank God that he is always dissatisfied with things as they are, and always will be. That is what makes life worth living. More than that, it is essential to progress. So if we had arrived at the state of coordination which we all now desire—and I think it does not take much imagination to realize that we might reach that—still the problem would have so developed in the meantime that we would still be dissatisfied.

When we first came to Washington, the problems were easy. I can recall that the principal questions which were asked us were for help that was wanted, say for office managers, or heads of planning departments. I think we supplied about twenty office managers. We exhausted the market for heads of planning departments quite early, and then came a demand for individual storekeepers of one grade or another, which has kept up ever since. We got an order yesterday for twenty-five to be delivered to-day.

You will notice that all that was for captains of divisions. We were all organizing our little units. General Gorgas was worried by the way his office was being handled and he got an officer in the army to straighten it out for him. General Crozier needed some one at Watertown and Mr. Shipley went in and helped. There was at that time a slight realization of the interdependence of each of these units of organization on the others. I remember going along the street with a man who occupies a tactical position in the Government, and his pointing out a man whom he referred to with a good deal of derision as "the coordinator of coordinators." He said that anybody who wanted to get himself disliked around Washington simply announced himself as being for coordination, of any kind or type, and immediately he was taboo.

But the pressure of the load has settled down since then and now the man who thinks he knows how to coordinate is beginning to have some standing in the community. I may say that that change has just set in. When Mr. Kendall first came to Washington there were five supply divisions in the Ordnance Department alone, and the first step in getting ready for the war was to start a sixth. Then over a period of three months they took one by one each of these five and poured them into this sixth, so that each one went out of business and the sixth became the whole supply organization of the Ordnance Department.

You are reminded that there are four other supply organizations connected with the Quartermaster's Corps, the Medical Corps, the Signal Corps, and the Engineers, and within each of these there has gone

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 on something comparable to what has gone on in the Ordnance Department. And that is just the War Department. You have got to correlate the supply work and all the other work, because we are discussing this afternoon not only the supply department work, but all the activities of Government. You must correlate the work of the two branches of the military service, and then after you have gotten the military pretty well correlated and organized and controlled we cannot forget the civil population, because they will not allow us to do so. Some railroad lines in England allow the civil population to use the railroad facilities only one day a week. Now it would be a pretty serious thing if in this country, with our long hauls, such a situation were allowed to come about. We have constantly to bear in mind that serious as are our military situations they must always be considered in view of the necessities of the civil population.

After you have your own activities correlated, you must remember that we are just as dependent upon the activities of our allies as they are, carried on in this country; so that you have to bring American, Belgian, Russian, English, Italian, and French activities together, and then throw the whole mass against the enemy. So there is some job in correlation and concentration.

Some years ago my attention was called by Major Going to the difficulty of making charts even in small industrial establishments. The relations in an establishment of even five hundred employees had gotten off a plane and into three dimensions, and perhaps into four dimensions. I am quite sure that if you could have heard the discussion yesterday between two officers of the Army over a chart having to do, after all, with a relatively small part of the organization, you would have felt quite sure that the charting of personnel has passed out of the realm of three dimensions, and that you cannot put it on paper.

I simply note this in passing to accentuate, if possible, the difficulties in thinking logically and thinking so that we do not constantly revert to chaos, so that whatever progress we make is progress that is staked down, standardized, and affords the basis, the platform from which further progress can be made.

Now, fundamental to this question of coordination and correlation is this question of the degree of centralization. In the preliminary memorandum I prepared, which has been printed, I have given two examples taken at haphazard and without any thought of criticizing—the one from the army and the other from the navy—as examples of either end of the scale. In the manual for the Quartermaster Corps it is stated that the policy of that department

is to decentralize. It seems that in the Spanish war they had such complete control in Washington of the operations, both in the theatre of actual operations and at home, that the machine broke down here and there, and in order to overcome the obvious defects of that system, in the period when Mr. Taft was Secretary of War, they went to exactly the opposite extreme and gave to the Depot Quartermasters almost unlimited authority in the purchase and distribution of material and in the conduct of the depots. That condition continued right up to the beginning of the war, and is still the written law of the Quartermaster's Corps, although events have proved that it is not without its disadvantages, and it is in course of being somewhat altered.

Now, the extreme at the other end, the extreme of central control that I have cited, is the requisition for the erection of a telephone at a cost of something more than \$10 at one of the navy yards. In a case I know of a requisition was made out and forwarded through the office of the Commandant to Washington and returned in six weeks. It bore the signature of Secretary Daniels, salary \$12,000, the signature of two Rear Admirals, salaries \$7,000 each, of five engineer officers and other officials drawing salaries from three to five thousand dollars, and bore evidence of administrative action having been taken on it by four or five other minor officials. An interesting aspect of that case is that that particular requisition was declined. After all that administrative effort the situation was as it had been at the start.

I have no doubt just as much could be said for that procedure as can be said for the decentralization effected in the Quartermaster's Corps. I am simply citing them as examples of the limits in the hope that they may be useful in trying to see where the line is to be drawn. My own feeling is that we should have the maximum of decentralization that is consistent with a strong, able and far-sighted central control, with the emphasis on the far-sighted, for the simple reason that it is absolutely impossible for people in the field or at any one point, whether in the field or at home, to have knowledge of the facts sufficient to control things intelligently. They must be so located as to be able to peer as far into the future as the facts will permit.

In planning any organization, industrial, political or any other, it seems that we should always try to come back to the rule of democracy. It seems to me that here in America at any rate we try to settle as many things in the home as we can settle there; we try to settle as many things in the town as can be intelligently settled there; and, again, in the state, we try to give as much authority to the state as can possibly be given consistent with peace, prosperity and progress of the