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PRIORITIES AND ALLOCATION OF MATERIALS

16 March 1949

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MR. BAUM: Gentlemen, our speaker this morning had extensive experience with industrial controls of inventory, production, and materials before he joined the War Production Board in 1942. While with that organization, he served as Director of the Controlled Materials Plans Division and also as Deputy Vice Chairman for Operations. Last year, on a part-time basis from industry, he worked with the National Security Resources Board on the development of plans for production and materials controls. His extensive experience with both industry and Government eminently qualifies him to speak on our subject this morning-- "Priorities and Allocation of Materials."

It is my pleasure to present Mr. Walter C. Skuce, Assistant to the Executive Vice President of the Owens-Corning Fiberglas Corporation. Mr. Skuce.

MR. SKUCE: Mr. Baum and gentlemen: The industrial mobilization of American industry for war requires central production and material control systems to insure the maximum balanced production and distribution of materials and products. Such central control systems must be easy to understand and simple to operate in order to result in the most equitable distribution of materials and resources to fulfill the needs of the military and to take care of essential civilian requirements.

In developing the system to be used in a mobilization plan, consideration has to be given to those control mechanisms that have been used successfully in previous periods of national emergency. Particularly, in developing a plan for 1949, we must review the experience that we had during World War II and with the clear vision of hindsight simplify such a plan to the degree possible. Simplicity makes for directness and effectiveness.

The production and material controls to be established and installed at a given time depend upon the amount of our resources that is required for war and essential civilian needs. In the initial stages, prior to the declaration of a national emergency, the military requirements represent only a small portion of our total productive capacity. In this period, the military needs and the needs of an essential civilian nature have been, and may best be, fulfilled, without mandatory order acceptance and the use of central production and material controls. When voluntary acceptance of orders is no longer adequate for national security, a limited third war powers act, or its equivalent, must be initiated to provide the authority necessary to establish a system of mandatory acceptance of security orders and for the issuance of production and material controls to assure the fulfillment of such requirements.

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Should voluntary acceptance not result in fulfillment of the needs for national security, priority regulations similar to those used in the last war would have to be reinstated. These regulations should be modified, in my opinion, to provide for a single preference rating for production or construction of national security programs. They should also provide an expediting rating of nonextendable nature for handling bottleneck items. This single preference rating on production and construction programs requires that orders with such identification be given preference over unrated orders. Orders so rated may be applied against any producer or supplier of required products or basic materials except as qualified in Priorities Regulations. Records of the demand for national defense would be maintained. Thus the impact of national security production on productive capacity and material supplies and resources of the country would be measurable.

In consideration of a single production and construction preference rating, plus a "bottleneck-breaking" higher rating, it is well to review the effect of multiple ratings in the late war. In the late war, preference ratings were used ranging from AA1 through AA5, with the idea that preference ratings of varied relative importance would signify the relative importance of programs and that such preference ratings would effect a better distribution of materials and supplies. Instead of accomplishing such a result, the effect of these preference ratings of varied relative importance was to bring about continual pressure for rerating upward, so that practically all material was delivered at the higher ratings. The effect was to continually change order boards. That detracted from high production efficiency, and it became necessary to nullify the effect of preference ratings of varied relative importance by what was called "freezing" order boards on critical components and other items in short supply. The constant "leapfrogging" that resulted from changing preference ratings and order boards reduced by an estimated 20 percent the production of critical components and other items in short supply.

It is therefore my recommendation that we have a single priority rating for authorized programs which must be given preference over requirements that are not so rated.

In addition to a priority system, it is essential that specific controls be prepared to direct the production and/or distribution and/or conservation of materials and products in short supply.

During World War II the system of "L" and "M" orders was used to direct the production of products and materials into types or forms necessary for security requirements. Since priority merely gives preference to rated requirements within supply, such production control orders are necessary to insure adequate supply of required materials or products where different products may be made with the same manufacturing facilities.

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Where the unlimited production of civilian products that use large quantities of scarce materials and components may cause considerable loss and disruption in balanced production, it becomes necessary to reduce the production levels permitted on certain civilian items. Typical large material consuming items of the type I refer to would be automobiles, refrigerators, and the like, where first measures would require restriction to some percentage of a base period production and curtailment of material demands closer to available supply demands for such production programs. Such production restrictions would eliminate disruption of production in many plants that would be needed later as war production units. It would also be necessary to establish distribution controls and conservation measures; to conserve scarce materials and supplies, and to insure full employment, in order to support production for national security purposes, including essential civilian needs. These orders must be designed to cover the critical materials and many component and end-product items, so that they may be ready as required. Examples are controls over steel, copper, aluminum, lead, tin, rubber, zinc, and so forth, in the basic material classifications; and such end products or programs as machine tools, electric motors, construction, etc.

The controls used in World War II should be revised to the extent necessary, consistent with foreseeable conditions, so that, should need for their issuance arise, they will be available and ready to be put into immediate use.

The National Security Resources Board is working on these basic controls and regulations. I presume many of you are already familiar with the completed order it has developed for machine tools, which is different from the one we had in the late war and is a much more comprehensive plan. It covers the preliminary actions that would be taken to insure an adequate supply of machine tools in the event of another national emergency.

I have talked about three stages in the development of production and material controls: (1) where the demand for the military is very limited, with respect to our national production capacity and, on a voluntary basis, all orders for the military can be filled; (2) as the demand grows a little higher, the need for giving preferential treatment, supported by the equivalent of a third war powers act, so that a manufacturer must supply the military order before he supplies a civilian order; and (3) as military requirements increase, the need for curtailing the production of certain items, so that we don't end up with "coats and vests and no pants" in production shops, and to assure that we get a balanced production of the things we permit to be made for the civilian economy and to insure maximum employment of our people.

Obviously, priorities don't produce anything; all they do is indicate preference. When the requirements of the military exceed the production capacity of many materials--components or end products--further actions and controls are required. You reach a point where it becomes necessary to add up what you want and see whether you can cut it out of the size cloth they you have.

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Priorities are insufficient in themselves if there is insufficient supply. They are only a hunting license if programs exceed supply. We found that out--the hard way--and lost production by not learning it more quickly in the last war. When we get to a point where priorities, in themselves, cease to be effective, we must adopt a system that will get us what we need when we need it, in order to assure that the last 20 percent of output can be achieved from our productive capacity.

Should requirements for national security reach a magnitude where military and essential civilian needs exceed productive capacity, priorities cease to be effective without over-all control of military and essential civilian programs. At this point it is necessary to be ready with national requirements for security purposes and to determine, with the aid of military and civilian claimant agencies, the maximum war production, construction, and essential civilian needs that are doable within the available raw material supply and resources of the Nation.

In order to accomplish a national programming job for full mobilization of our resources for national security, the Controlled Materials Plan was developed in World War II, and it used steel, copper, and aluminum as "common denominators." The purpose was to measure military and essential civilian programs against productive capacity, so that programs and capacity could be matched and balanced production programs authorized. With programs kept in line with the availability of these three materials, it was found that, generally, all other materials could be made available to support the established programs. With this basic method to guide authorization of balanced production programs, supported by priorities and production and distribution orders, effective results were achieved.

Steel, copper, and aluminum are used as common denominators because of their major importance as basic materials in military and essential civilian products. Steel is of general importance in practically all hard-goods products. Copper is particularly significant in ordnance, communications, Signal Corps, and electrical equipment of many kinds. Aluminum is of major importance to an aircraft program.

Obviously, dollars, or lumber, or cotton, or many other items that might be selected would not give you the kind of denominators that steel, copper, and aluminum do. At the same time, the use of three common denominators, makes it a more difficult job than if we could do it with one. The British used steel, and there was consideration in this country to try to program and authorize production based on steel requirements versus capacity. But it is my recommendation--and I think this goes for my associates who worked with this kind of control in the late war, not only in the War Production Board but in all branches of the Services and other claimant agencies--that we would likely want to use steel, copper, and aluminum as common denominators in another "all-out" war production effort.

Another important factor that has to be considered is the problem of educating industry and Government to operate under central controls. There are a great many people in this country who understand the operation of central production control based on the rules and methods used in the late war. They were educated over a considerable period of time, on a trial-and-error basis maybe, but, at any rate, they were educated and they know how to make such a plan work. I would hate the job of undertaking another educational program unless it was absolutely necessary and there was a compelling reason for a major change.

There are many products that closely resemble items that are made of steel, copper, or aluminum, for which the authorization of production should closely parallel that of products made of steel, copper, and aluminum. For example, a manufacturer buys certain components and assembles them on a cast-iron base with other purchased parts. He has just as important a production program as a manufacturer who happens to use steel, copper, or aluminum in making similar end items. In order to take care of such manufacturers, we established a regulation in World War II which was used to authorize the production of such items.

In order to facilitate advance measurement of the impact of military requirements on productive capacity, and for use as part of the Controlled Materials Plan when, as, and if it is put in operation, bills of materials should be completed promptly on important military end items. After the Controlled Materials Plan went into effect in the late war, it was several calendar quarters, even though the Joint Chiefs of Staff had developed a program, before we could get the program interpreted properly in terms of the common denominators to provide a true statement of requirements. There was considerable error in the stated requirements of programs. I believe that these misstatements of requirements arose, not from intent to misstate the figures, but from lack of adequate bills of materials on key items.

In 1941 and 1942 there was a considerable effort to get bills of materials on many items, but there was not a planned, concentrated approach toward getting bills on important military material-consuming items. We had a bill of materials on an aircraft instrument that took 15 ounces of steel, copper, or aluminum, so the total demand for that particular instrument would be insignificant in developing programs; we lacked, however, good bills of materials on items that consumed very large quantities. We had a misdirection of effort of people in industry, in drafting rooms and engineering departments, in calculating bills of materials on items of small importance. The paper required to prepare the bills of materials weighed more than the product in some cases.

There are only 28 major military classifications in which these material requirements were stated in the records of the late war. In those 28 classifications of military end items, I believe that 200 or 300 items will represent 80 percent of the requirements of steel, copper, and aluminum. A good "guesstimate" could be made on the other 20 percent, and even if it was 10 percent off, we would have a 98 percent statement of requirements, which would be wonderful.

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To produce 200 or 300 bills of materials on important items would not be a great burden on industry or on the military. It should be possible to take any program and multiply the items according to the Joint Chiefs of Staff's plan to develop the quantities of materials required for each item. Many feasibility tests could be made, based on alternative plans, by having bills for these 200 or 300 items. This would provide a basis for feasibility measurement. We should have these bills now. It would be one of the most useful steps the military could take to improve its relationships with producers. It would eliminate reams of paper work and, at the same time, give a better result.

In considering industrial mobilization planning, we have to think in terms of some kind of timetable. The timetable for taking the foregoing actions is speculative, but we ought to get these production and materials controls completed and ready for quick issuance if necessary. This is the time to do it. In the event of a national emergency, much time would be saved.

The time necessary for plants now engaged in making civilian products to convert over to the production of war products is presently being investigated by task committees under the National Security Resources Board. For a while, toward the latter part of 1948, under Mr. George Felton's able direction, I know that very effective work was being performed with task committees. I don't know how effectively this work is being carried on now, but I understand that the activity has been considerably curtailed.

The time necessary to convert plants is very important. There are people throughout industry who have the know-how to make these plans and establish such time cycles. We ought to have a record of what timing is and how the conversion can best be accomplished.

During the early stages of this conversion period we should have some idea of when we are to take certain actions; when to put in priorities; when to put in a Controlled Materials Plan. When do these various actions take place? What kind of guidepost do we have?

I don't know how long the conversion period would be, but if it is from six to nine months long, the first thing to do, of course, would be to issue priorities regulations, as soon as the requirement is great enough to warrant their issuance. Then "L" and "N" orders should be issued. We would not want to disrupt manufacturing operations unnecessarily as we must keep a nucleus organization to operate every needed facility. There must be an orderly job of converting from civilian production to military production in each converted facility. That can be accomplished in the initial stage, by giving preference to national security items over civilian items.

When the demand for military production increases to such magnitude that it exceeds productive capacity, we definitely must have a programming type of plan like CMP. Possibly by the end of the first or second quarter

of the conversion period, the transition quarter would start. Full three months are required to change over from a priorities system to a Controlled Materials Plan or a complete allocation programming system, by which all hard-goods production of this country would be authorized. The change-over is not a "quickie." It takes a long time, but it can be done in three months--a tough three months. The change-over will have to be done in three months if an emergency occurs.

Prior to the declaration of a national emergency, it is possible that the defense program may grow to such proportions that it will not be doable if the present rate of production of civilian end items is permitted at present levels. As I said before, during that period certain production limitation orders may have to be issued on materials and civilian end items in order to assure the production of items needed for the national emergency.

Prior to this time, to assure acceptance and production of national security items, it may be necessary to issue priority regulations modified as described.

Today, a system of voluntary steel allocation is in effect. That system is growing in its impact on steel supply. If an expansion of the voluntary allocation plan to include other materials and products besides steel is indicated, it might be preferable to consider a single-priority system to insure the fulfillment of national security needs.

Let me summarize what I have said by giving the proposed actions in sequence:

1. A simple priority system with one rating to cover production and construction for national security requirements. It is contemplated that contracts for such requirements would be automatically assigned a rating at issuance and that such rating would be extendable. Such a system will eliminate the tons of paper and loss of man-hours and time that were required in the early days of the priority system used in World War II, where you said, "You can have a priority if you have to have it," but you did not start with one. Everybody thought he had to have one, and all asked for one. It was time consuming and confusing.

2. Production, distribution, and conservation orders would be issued as required, similar in nature to those used in World War II but revised to meet the conditions prevailing in 1949.

3. The Controlled Materials Plan should be developed and ready for use, in much the same form as the plan evolved in World War II.

4. That the operations of a war production civilian agency during another national emergency be decentralized, similar to that ultimately evolved in World War II, with field offices conveniently located for better operation.

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5. I strongly emphasize this need again. Bills of materials should be completed promptly on major items of a military nature covering approximately 80 percent of the total metal needs for such items. By securing bills of materials on important items only, good bills may be secured and industry relieved of the burdensome and useless task of preparing bills of materials on items of small material content that would have small effect on over-all requirements for full production.

6. We should have in readiness complete plans and procedures for the production and material controls necessary for industrial mobilization. I know that the National Military Establishment and the National Security Resources Board are working in that direction. In developing these controls and their supporting internal systems for administration, I know that you are working with industry task groups. I think that work should be accelerated rather than lessened so that, if and when such controls are necessary, they will be available for prompt action. It must be done in cooperation with industry so that representatives of industry will respect the controls and procedures. They will feel that way if they are a party to them, and if their views have been taken into account. Consequently, they will want to make them work, and we will not be caught with a considerable preparatory and educational period, which we could go through now.

I realize that I have covered a great deal of territory, and I have tried to do it just as succinct and sequential a manner as possible.

It is important for us to have a plan. We don't have to have the perfect plan. I would rather have one that wasn't perfect but that everybody wanted to make work, than a "super-duper" that nobody could understand.

Industry made CMP work because the plan agreed with the basic principles of industry. We didn't do a very good job of educating industry last time. We had to do an educational job all over the country before we had the answers, and we looked pretty "hammy" in front of certain groups. We could not do very much better because we were in trouble in 1942, as our priorities system had failed. We had to try to get industry's understanding and cooperation. We did accomplish that, and, with help, evolved a good system.

We must not strive endlessly for perfection but rather to improve, to a necessary degree, that plan which we know to be workable, and to start taking the actions necessary to secure good bills of materials; to establish industry task committee work and studies of conversion time. We need the task committees to determine what industry can do from a production capacity standpoint; we need good production and material control regulations ready to use. We must have a workable procedures tied to good practical timetables. I don't think that is too much to try to do. I believe it is entirely possible of accomplishment.

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I welcomed the opportunity to meet with you today and to express these thoughts to you, because I know there is much that you can do about them.

QUESTION: I am not quite sure I understand what you mean by the single-priority system. Do you mean you would give AAA priority to certain items and no priority to all others? Would you mind amplifying that just a little?

MR. SKUCE: I said that I would recommend a single priority and also a nonextendable priority for breaking bottlenecks. We might translate that into priority terms we were familiar with in the late war by saying that we would give everything an A1 priority that was an authorized program, and we would issue AAA priority only on a nonextendable bottleneck-breaking basis. In other words, we would give a preference rating to any program that we wanted to have produced that could stand the test of requirements as essential. We would not give preference ratings to any nonessential civilian programs.

QUESTION: As I understand it, one of the complaints that industry had as to the operation of the Controlled Materials Plan during World War II was the overhead required on the part of industry in order to produce the material and gather the data and so forth necessary to the reports. Would you care to comment on that, and do you have any suggestions as to how the system might be simplified to reduce the man-hours required to administer the plan?

MR. SKUCE: I am very glad you asked that question, because in 1944, after the plan had been in operation for a little over a year, Colonel, we asked the same question of ourselves. We said, "Maybe we are asking for too much. Maybe there are some things we have not simplified to the extent that we might. Maybe we are complacent because we are too close to it."

Mr. Dave Novick, who at that time was the Controller of CMP and who kept all of the records of allotments with the agencies, and I, met with several people to discuss this matter. There was Mr. George Reynard of the National Association of Purchasing Agents, whom, I am sure, many of you know. We had representatives from the National Association of Cost Accountants, the Comptrollers Institute, and the Public Accountants. We met with these people and said, "We would like to have you canvass your membership and ask them to inform you what is wrong with CMP. In what respects is CMP too complicated? What thoughts do they have concerning its improvement? We welcome your constructive criticism and recommendations."

We received a very fine response. The Purchasing Agents, for example, returned 75 replies, plus an analysis and condensation of same. Of those 75 replies, 38 were from groups in different areas.

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These criticisms and observations were received after CMP was in operation for about one year and after we were past the criticism on bills of materials, and many other improvements in the CMP development.

They said: "We have taught our people to operate under the CMP. It works pretty good. Don't change it." That was the first recommendation.

They said, "No. 2. The bookkeeping with respect to maintenance repair and operating supplies is difficult, but we don't know any better way. We would prefer to have it the way it is than to have an application system."

They said, "No. 3. You make us control inventories more closely than we did on our own initiative. We have learned during the war that we can work with lower inventories and we are going to try to continue to keep inventories low." It is interesting to know that some of these companies are still using in their businesses today some of the same forms they prepared for CMP during the late war.

They all objected to multiple ratings. They said there was too much leapfrogging, too much order schedule changing. They recommended a single priority rating and a required delivery date. Those were the comments we received as well as I can remember them.

QUESTION: You speak of a single-band preference rating and a bottleneck-breaker or AAA nonextendable rating. In the early stages, when you are getting military production going and before it has become very great, I can see that and feel perfectly satisfied that this will cover the entire field. But later on, as the military orders dominate the field, it isn't clear to me how you are going to differentiate between the degrees of military urgency in there.

It seems to me, in the later stages of a war, when most of the production is military, if you hold to the single band and attempt to determine it only by dates, you will get into a multiple-scheduling operation. Such operation will sink you unless you decentralize the scheduling to a lot of people, each of whom will be impressed, as I was in World War II, with the importance of his own particular problem. For example, I worked on landing craft during the war. I was in charge of getting that program out, and I didn't have a very broad view. If I were scheduling there, I would schedule my material so that I got it in time and so that I didn't have a number of bilge ways backed up to ships that were waiting for a condenser or boiler or some small unit. And if you decentralize the scheduling to people who are charged with requirements for one particular program, you are going to have unreasonable lead times. You just can't get away from it.

It isn't clear to me what you propose when you say, "Control it by the date." Who is going to set the dates? Are we going to turn the

Pentagon over to 30,000 schedulers, or do you hope to raise the caliber and understanding of the decentralized people to the point where they will schedule properly?

MR. SKUCE: I will try to answer your question, Captain. It is a tough one, but I think I do appreciate just what you are saying and understand the reservations that you have in mind about a single rating, and scheduling with it.

First of all, priorities in themselves don't produce anything. Secondly, any established program is within the available supply of steel, copper, and aluminum, and every allocation given for steel, copper, and aluminum has no preference rating at all. It is good for the quarter for which delivery is approved.

By the same token, let's take the toughest items that you have in those programs--the critical components. What did we do with those? In order to get that extra 20 percent of production on those parts, we froze the order boards of suppliers to eliminate leapfrogging. If we don't have that leapfrogging, we won't go through that period, before we go to frozen schedules, where we are losing production because of the effect of leapfrogging of ratings.

Now, that does not mean it is going to work perfectly; nothing does. It doesn't in civilian production; it doesn't in war production. You are going to have certain items on which a spoilage loss or defects occur, or defects in schedules, transportation, or something else creeps in, and you are just going to have something very quickly and you are going to have to break the rules. Production expediting is schedule up-setting, and an expediting rating like AAA should be hard to get.

I would not decentralize the giving of the AAA ratings. I would run them the way you did your landing-craft program. When you had an item that required a AAA rating, there had to be a compelling reason for giving it before it was issued. I think we ought to be just that tough if another emergency arises. Obviously AAA's should not be extendable.

I think we can accomplish the objectives and can meet these obstacles that you talk about, along the lines that I have suggested.

QUESTION: How would you handle a project like the Atomic Energy Commission in your scheme? It had an overriding priority that lasted for months and years, and we might have something similar to that again.

MR. SKUCE: I don't think that particular program varies much from the landing-craft program. The requirements would be prepared by the Atomic Energy Commission in terms of steel, copper, and aluminum and other materials under allocation. Those requirements would be matched against the requirements of other programs and the level established for the authorizing

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of production programs for that end project. We would give allotments of steel, copper, and aluminum, and we would give the single preference rating. When we had a bottleneck, we would make the person show just cause before issuing a AAA priority. I am sure we will have a number of highly urgent programs if another war occurs, and each program authorized will be an important program and will carry the same rating.

If we do a promiscuous job of schedule upsetting (by issuing AAA's), we are not going to have any plan. We just cannot handle too many things on an exception basis. If we do, everything becomes an exception and we have an all-out program--"everything, everywhere, all at once."

QUESTION: What restrictions would your experience indicate are wise to put on initial procurement by the military? For example, we recruit a very much increased staff of procurement people. We bring in a lot of enthusiastic young Reserve officers. We say, "Come on, let's get this done. We'll work until midnight. Let's grab everything we can and get this thing going."

Some restriction is indicated there, and my mind is very fuzzy as to how much that should be. Certainly we don't want to kill the enthusiasm and the energy of our young procurement people, who are trying to get something done. Furthermore, the placing of those orders on industry indicates to it, in general, what it has to do. Of course, later on we may change those orders, but a manufacturer who has a procurement order placed on him, even though it may be a cockeyed and preliminary order, has a better indication of what is in the wind than he would have if he were sitting in Toledo and somebody else were sitting here in Washington with a lot of ideas on his desk. There is a happy medium that I think we must strike between an unrestricted grab by each procuring service and by each bureau of the Navy Department for all the critical material in sight and restricting the procurement to the point where things do not get done fast.

What would your experience indicate as wise for control in that field?

MR. SKUCE: Captain, from the standpoint of my War Production Board experience in the late war, I did not learn very much about procurement; I did have some experience with procurement in industry before I went to the War Production Board and during that early period of which you speak, when we were trying to get production increased. Many very peculiar things happened, and some of them came to our attention as we tried to put in the Controlled Materials Plan. From that experience, it would seem that it would be helpful if these programs were thought out in terms of the end item.

Let's say, for example, the end item is a 60-inch searchlight mounted on a truck. The program should take into account all of its components at the time the procurement is done, and there should be only one

program. If you have one program for the trucks on which the searchlights are mounted and one for searchlights; a schedule of 40 searchlights a week and a schedule of 80 trucks a week; the problem of warehousing the trucks and matching the searchlights with the trucks; and if you wave the flag at the person making the trucks to go from 80 to 100 per week and tell the fellow making searchlights he is doing all right just the way he is, you surely get imbalance.

There are 28 major programs according to the way the statistics are kept. With the 200 or 300 items on which we need bills of materials, as I mentioned, and within the moneys that you have to spend, a little more thoughtful planning of procurement and tying in the components with the end-product program would be very helpful.

We were amazed one day, shortly after the CMP went into its first transition quarter of operation, to have a very irate gentleman, who was in the business of producing aircraft wings, storm his way into our office and condemn us vehemently about what we were doing to him in his efforts to win the war. He said that he was producing in accordance with the military wishes, and what we were doing to him was going to result in his cutting his operations in half. Actually, the company had a 10-acre field filled with wings, and we were short of fuselages, and we didn't have under-carriages and engines. One of the reasons we didn't have the fuselages was that there was a shortage of aluminum which he was using for producing wings.

We had a lot of imbalance such as that. If anything can be done toward procurement planning on an end-program basis, relating the components to that, in much the manner in which the ship program is built, it would be a big help.

I certainly don't believe that a civilian agency could establish limits of procurement, because it has no basis of measurement. It could not do it with dollars. It has to do it with common denominators like steel, copper, and aluminum, and you would not be ready for it at the early stages of a national emergency.

QUESTION: What is being done by NSRB to get some measure of essential civilian requirements introduced into planning?

MR. SKUCE: I don't know, sir, because I have not been active in NSRB in the last several weeks. I know it has been working on some feasibility checks. I believe it was contemplating getting the civilian requirements data from available data in the Commerce Department.

Mr. Clewlow, would you care to add to that? Mr. Clewlow is in the Office of Mobilization Procedures and Organization, NSRB.

MR. CARL CLEWLOW: Mr. Tupper, in charge of requirements, made a talk here not so long ago. I would rather have him answer that some time in the future. They do have a requirements program in operation.

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QUESTION: What would your experience with CMP indicate as wise for assigning products as "A" products or "B" products? Would you be interested in a more extensive list of "B" products than there was last time?

MR. SKUCE: I will try to define a "B" product for you in simple terms. Actually, there are two different methods of manufacturing hard goods. One is to manufacture, to a given order, a specific item for a given program; the other is to anticipate orders and to make items in anticipation of orders. For example, if you want to take extremes, one extreme is a battleship, in which case you make it directly to the order. The other extreme is fastening devices, in which case, obviously, you would not want to put a person on a basis of never starting to make a screw until he had an order that emanated from a battleship. The determining factor as to whether a product is a class A or class B depends on the method of manufacture employed.

"Electric motors," for example, is a generic name. I think we ought to appreciate, when we consider small motors of between 1 and 200 horsepower, alternating current, induction, that there are 1,360,000 possible standard design combinations in the handbooks of manufacturers for those products that they offer for sale. Those combinations come from differences in speed, voltage, method of closure, type of installation, and what not, that make up such standard units. So the name "motors" applied to them is not specific. Actually, 1,360,000 possible standard motors are produced with about 80 sets of parts. You can mass produce bearing brackets, bearings, shafts, stator and rotor laminations, wire, and all the rest of the components. It used to cost about 25 cents to assemble a 50 horsepower motor, 30 cents to test it, and 25 cents to paint it.

Actually, that is producing a motor, if you mass produce parts and bring them forward to a point of "fluid" stock.

If you start putting such products on a made-to-order basis, and if the manufacturer could start production on receipt of order, the production cycle time would be three months. I know the Navy never would accept three months' delivery on a motor. The method of manufacture requires that they be a "B" product.

We could not predetermine requirements for most class "B" products. We had to work on an after-the-fact basis and make producers justify that their output was in keeping with the requirements of the military and of the essential civilian economy. I think we did pretty well.

GENERAL HOLMAN: Mr. Skuce, in working up an emergency requirements program, the planners are confronted with conflicts between the end-item requirements and the secondary requirements, which involve tooling, new construction, conversion, and materials. Would you please discuss the relationship between end-item and secondary requirements with respect to allocations and priorities, which would deal with that particular conflict, as viewed by the War Production Board.

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MR. SKUCE: If I understand your question correctly, General, you refer to the conflict between construction and facilities requirements as against those for end items. What comes first, the chicken or the egg?

GENERAL HOLMAN: That's right. It takes end items to win a war, but we must have tools and construction materials in order to get up to the volume of production we would like to see, say, a year or 18 months hence.

MR. SKUCE: Yes, sir. I may have gone over it a little quickly in delivering my presentation, but I considered programs not only for end items but for construction as well. The construction period for a new plant might be as long as the construction period for a ship. So lead time is always taken into account in the impact of requirements for construction programs in competition with those for other programs--and requirements stated in terms of steel, copper, and aluminum.

We finally developed, I think it was under CMP Regulation 6, a construction order in the Controlled Materials Plan that required applicants to indicate what they needed by quarters for construction purposes, so that we could measure the amount required for construction along with that required for production programs, and we could match the requirements for the construction of a rayon plant against an ammunition program or an ordnance program. Then we had to decide whether the start at this time of that facility was needed as badly as the other items.

It is a grueling process, and I think the Requirements Committee-- I am sure you are familiar with its operation--had some very difficult decisions to arbitrate during the late war, when there was an almost equal desire to have both construction and production programs.

I see no other way than to bring all such requirements together and let the production program rest on its own feet as against the construction project. Either one or the other will be authorized if both can't be produced within available supplies.

COLONEL HOFFER: Mr. Skuce, it seems that you have answered all the questions for the College and our guests. I thank you for a very informative talk on priorities and allocations.

MR. SKUCE: Thank you, sir.

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THE HISTORY OF THE CITY OF BOSTON

1780

The history of the city of Boston is a story of growth and resilience. From its founding as a small settlement of Puritan settlers, it has become one of the most important cities in the United States. The city's location on a narrow neck of land between the harbor and the mainland has shaped its development. The harbor provided a natural defense and a center for trade. The city's early years were marked by the struggles of the settlers as they built a community in a harsh and unfamiliar environment. The city's growth was slow but steady, and it became a center of learning and culture. The founding of Harvard University in 1636 was a landmark event in the city's history. The city's role in the American Revolution was pivotal. It was the site of the Boston Tea Party in 1773, a protest against British taxation that led to the American Revolution. The city's leaders, including John Adams and Samuel Adams, played key roles in the struggle for independence. The city's history is a testament to the power of a community united in purpose and the ability of a city to overcome adversity.