

PRIORITIES AND ALLOCATIONS

2 May 1950

CONTENTS

	<u>Page</u>
INTRODUCTION--Commander R. E. Ball, USN, Member of the Faculty, ICAF.....	1
SPEAKER--Mr. Walter C. Skuce, Manager of the Transportation Division, Owens-Corning Fiberglas Corporation.....	1
GENERAL DISCUSSION.....	6

Publication No. I50-137

INDUSTRIAL COLLEGE OF THE ARMED FORCES

Washington, D. C.

2200
RESTRICTED

Mr. Walter C. Skuce was born in Ottawa, Canada. He received his education at the Ottawa Collegiate Institute from which he was graduated in 1923, and in that year entered the employ of the General Electric Company. In 1924, he enrolled in the General Electric Business Training Course and was graduated in 1931. During the nineteen years that Mr. Skuce was with the General Electric Company, he worked on manufacturing methods in many divisions of the company. He was on the staff of the vice president for Manufacturing from 1937 to 1942 as supervisor of Inventory Control. In November 1942, he joined the War Production Board and served for three years in various positions, including that of director of the Controlled Materials Plans Division and deputy vice chairman for Operations. During 1948 he served on a part-time basis with the National Security Resources Board in the development of production and materials controls as part of tentative plans for emergency mobilization. He is the author of several articles on control of industrial inventory, production, and materials. Since 1945, Mr. Skuce has been associated with Owens-Corning Fiberglas Corporation, and is now manager of the Transportation Division.

RESTRICTED

PRIORITIES AND ALLOCATIONS

2 May 1950

COMMANDER BALL: General Vanaman and gentlemen: The problem of priorities and allocations in the control of wartime production has already been mentioned by several speakers from this platform. Mr. Clark in particular, who is with us again today, has already given us a good bit of information on this subject. I know that each of our industrial committees has already encountered various of the aspects of this problem.

Today we have invited an old friend of the college to return and tie up some of these loose ends and put the various parts of this problem into proper perspective. You are already acquainted with him through his pamphlet "Control of Industrial Inventories." Committee No. 40 is acquainted with him through his lecture of last year on this same subject. During the war he served as director of the Controlled Materials Plan Division of the War Production Board and later as deputy vice chairman for Operations. It is a pleasure to welcome back to our platform Mr. Walter C. Skuce, who will speak on "Priorities and Allocations."

MR. SKUCE: Commander Ball and gentlemen: It is a privilege and a pleasure for me to appear before you today to talk about "Priorities and Allocations." Whether the subject is called "Priorities and Allocations" or "The System of Wartime Production Controls," it is generally the same subject.

The industrial mobilization of American industry for war requires central production and material control systems to assure 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 take care of essential civilian needs.

In developing the system to be used in a mobilization plan in 1950, consideration must be given to those control mechanisms used successfully during World War II. The production and material control systems that are proposed in my presentation today closely resemble those that were evolved in World War II. However, an attempt has been made to eliminate the features of those controls that detracted from their most efficient operation during the last war or those features that experienced judgment indicates should be omitted from any controls developed for use in another national emergency.

The production and material controls to be installed at a given time depend upon the amount of our resources that are required for war and essential civilian production. In the initial stages, prior to the

RESTRICTED

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 should 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.

Should voluntary acceptance not result in fulfillment of the needs for national security, it is proposed that priorities regulations such as Nos. 1, 2, and 3 used in World War II be reinstated. These regulations should be modified to provide for a single preference rating for production or construction of national security programs. An expediting rating of nonextendable nature should also be provided for breaking 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 will be maintained to measure the impact of these rated requirements on our total supply.

It was proved during the last war that preference ratings of varied importance, for example, AA-1 to AA-5, did not prove effective and caused many difficulties which could have been avoided if a single preference rating had been used. Because there were ratings of varied importance, purchasing was often improperly affected by the relative importance of the preference rating the purchaser held. Improper delivery of high-rated orders ahead of schedule also resulted. Furthermore, there was continual demand for upgrading of preference rating authority because preference ratings of varied importance affected procurement.

The effect of a multiple rating system was to continually change order boards, thereby detracting from high production efficiency. It became necessary to nullify the effect of the multiple ratings by "freezing" order boards on certain components and other items in short supply. The constant "leapfrogging" of orders with varied preferences, with resulting disruptive changes in production schedules, substantially reduced production and aggravated shortages. The freezing of order boards, nullifying multiple ratings, became necessary in order to attain higher production levels on many of the most urgent items.

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.

RESTRICTED

During World War II a 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 essential materials or products where different products may be made with the same manufacturing facilities.

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, such as automobiles and refrigerators, and to establish distribution controls and conservation measures, to conserve scarce materials and supplies and insure full employment, in order to support production for national security purposes, including essential civilian needs. These orders are designed to cover most of the critical materials and many component and end product items, so that they may be ready as required. Examples are such materials as steel, copper, aluminum, lead, tin, rubber, and zinc, and such end products or programs as machine tools, electric motors, construction, and so on.

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.

If requirements for national security reach a magnitude where military and essential civilian needs exceed production capacity, priorities will cease to be effective without over-all control of military and essential civilian programs. At this point it is necessary to be ready with the 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 materials and resources of the Nation.

In order to accomplish this national programming job for full mobilization of our resources for national security, the Controlled Materials Plan was developed in World War II, using 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.

RESTRICTED

Steel, copper, and aluminum were used as common denominators because of their major importance as basic materials in military and essential civilian needs. Steel is of general importance to practically all "hard goods" products. Copper is of particular significance in ordnance, communications, Signal Corps, and in electrical equipment of many kinds. Aluminum is of major importance in determining a doable aircraft program.

In addition to the Controlled Materials Plan, during World War II there was developed a control to authorize the production of certain products not requiring steel, copper, or aluminum, but items which closely resembled the type of products that were made of steel, copper, or aluminum. PR 11-A provided a method of production authorization for the manufacture of items under this regulation similar to that employed in CMP for class B product producers.

To give you an example of this type of item, suppose you had a producer who provided an assembled motor compressor unit on a cast iron base. Manifestly he manufactured the cast iron base and did the mounting of these other units; but he didn't actually have to buy any steel, copper, or aluminum per se for his particular job. He bought his components and assembled them on a common base unit. We brought him under the plan through that regulation because his operation so closely resembled the other kinds of producers that operated under CMP.

In order to facilitate advance measurement of the impact of military requirements on productive capacity, and for use as a part of the Controlled Materials Plan when and if it is put in operation, bills of materials should be completed promptly on important military end items. It is estimated that bills secured on two or three hundred important military end items, based upon materials and component needs experienced in World War II and modified to present design of comparable items, plus new known items which the military would require to wage war, would give the data required. From the bills of materials on these items there can readily be developed statements of requirements in terms of steel, copper, and aluminum and other critical materials and components, based on alternate plans of action contemplated by the military, simply by multiplying these items by the quantities of each required for the considered military programs designed by the Joint Chiefs of Staff.

It is estimated that such a list would approximate 80 percent of the total demand of the military for steel, copper, and aluminum and would permit measurement of the feasibility of any considered program. Two to three hundred bills of materials, representing 80 percent of the military requirements, could be used as key items, to which would be applied multipliers developed by logistics from Joint Chiefs of Staff alternate plans, which would permit measurement of the impact of those military requirements on our entire supply of basic materials by which production is measured in America.

RESTRICTED

Bills of materials instructions used in World War II in conjunction with the Controlled Materials Plan could be used without revision, and the required bills could be developed.

Obviously, timing is a very important factor. The timetable and the need for taking the above actions are quite speculative; but the plan and the orders need to be complete and ready for quick and orderly issuance if, as, and when required. In the event of a national emergency, the limitation orders on civilian production would need to be issued without delay. The time necessary to convert plants now engaged in making civilian products over to production of war products should be carefully investigated.

It might be reasonable to expect that it would take 18 months to get the first tank produced from a tank arsenal. We don't know what the cycle time is for converting civilian units in general over to war producing units. I would estimate that an average time for such conversion would be somewhere in the neighborhood of six months.

Now, each industry has people who can give very effective information with respect to the experience that they had along that line and tell us about how long it would take them to switch over from the manufacture of sewing machines, let us say, to the production of radar components. They have all been through that before.

There is also a need for keeping the people that they have in such productive units employed on those facilities, because the labor force is as important a part of a facility as the machine tools and the plant. So to make an orderly conversion we must know the time that it is going to take to make the transition, because the transition time also directs what kind of control system to use while going through a transition period.

During the early stages of this conversion period, priorities and some L and M orders would be the only practical method of control. The transition from priorities to CMP should be anticipated to become effective by the time the plant conversion is substantially nearing completion. Three months must be allowed for an orderly transition from a priority system to a CMP system.

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 production of civilian end items is conducted at present levels. Therefore, 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 national security.

Prior to this time, to assure acceptance and production of national security items, it may be necessary to issue priority regulations, modified as described above, in order to give preference to national security items over civilian items.

RESTRICTED

I believe that the plan of production and material controls I have described can best be summarized and arranged as follows:

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. A bottleneck breaking, nonextendable rating would also be provided.

2. Production, distribution, and conservation orders may be issued as required, similar in nature to those used in World War II, but revised to meet the conditions prevailing in 1950.

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

4. The operations of the War Production Board during another national emergency would be decentralized in a manner similar to that ultimately evolved in World War II, with field offices conveniently located for better operation.

5. Bills of material should be completed promptly on major items of a military nature covering approximately 80 percent of these total needs. By securing such bills of material on important items only, good bills may be secured and industry would be relieved of the burdensome and needless task of preparing bills of materials on items of small material content that would have little or no effect on the over-all requirements for full production.

6. The National Security Resources Board should have in readiness complete plans and procedures for the production and material controls necessary for industrial mobilization. In developing these controls and their supporting internal systems for administration, the National Security Resources Board should work with other government agencies concerned and with industry task forces so that if and when such controls are necessary, they will be available for use without costly delay.

QUESTION: Is it your plan to estimate at an early stage how much of the controlled materials will be required for war production and then to allow the rest to continue in civilian production? If the answer to that is in the affirmative, why wouldn't it be better to approach it the other way around and allow only the estimated minimum to go into civilian production, allow those controlled materials even to accumulate, if it should happen that way, for a time? Wouldn't that be better, because of the fact that estimated requirements for war purposes are

only estimates and the actual needs may turn out to be greater and because it would seem that during a war we should save all the potentially scarce materials until we are sure that we have enough to win the war?

MR. SKUCE: There are three M's in manufacturing--men, materials, and machines. There is a certain period of time required to change from civilian to war production. First, there is the job of getting plants converted from civilian production to production of military items. Let us assume for the purpose of this discussion that conversion time is six months. For those six months they would continue some civilian production, so as to keep their working force intact. Of course civilian production would be discontinued as production for national defense required diversion of men, materials, and machines.

It is my recommendation that we measure the impact of military items through the use of bills of materials. For that purpose we should get good bills of materials on all military items as quickly as we can, expressed in terms of steel, copper, and aluminum as common denominators. Such bills of material can be measurable against capacity in terms of those three basic metals. It will also enable us to measure the impact of the military program on the productive capacity. Then by the use of L and M orders we can restrict civilian production more and more as required in order to make way for the increasing military production.

There won't be need for an over-all control system until such time as plants are ready to consume large quantities of steel, copper, and aluminum. In order for them to be able to do that, plants will have to be converted from civilian production to war production. There is a nicety of balance required to convert to full wartime production. First of all, the objective is to list all the military items produced that are going to use steel, copper, or aluminum; and they will be given preference. At the same time, there is need to keep the three M's of production stabilized to as great a degree as we can. As inroads are made by military production, we want to keep a nucleus of producing units intact.

We have to recognize the danger of shutting off more civilian production than required, thus rendering people unemployed, in order to build up a bank of military materials. Steel companies, for example, never make a practice of stocking steel. Some steel is stocked in the dealers' warehouses, but the steel companies themselves do not stock steel. They haven't the storage space for it. So there has to be a continuous flow of steel, and economics enters into the problem.

The easiest way of keeping the three M's intact is to do a complete job of conversion based on program requirements. Therefore, the sooner we get program requirements measured, the sooner we know what their impact is on facilities. Such knowledge offers the opportunity of doing an intelligent job during the transition period.

RESTRICTED

QUESTION: In many cases of doubt that would come up, which way would you resolve the doubt--toward more curtailment of civilian production or less curtailment of civilian production?

MR. SKUCE: First of all, we should issue mandatory orders that require the military orders to be accepted; so preference is going to be given to the military items all the way through. That is done by mandate; so there is no choice in it, as long as military items have to be produced first and civilian programs are relegated to secondary position.

That is why I suggest that early in the program we earmark military items with preference ratings, which will automatically assure their prior attention. We will not be on a complete priority system during the transition period, nor will production of civilian items be completely denied. We will have a period of transition during which civilians will be up against the problem of hunting around to get materials while being forced to give preference to national defense requirements. The national defense requirements are given first place in production schedules, and civilian items fall into place as there is room for them.

QUESTION: You have indicated that when the bell rings, the military representatives are going to get out their stamps and cut preference ratings on their orders. Granted that there will be some lag of time where civilians will have to do a bit of hunting around, how do you propose in that period of transition to take care of the producers of essential civilian materials, like the machine tool producer, the manufacturer of new fire trucks, and all that kind of business that is classified as pretty essential? As those priorities start flowing down into the various niches, I understand that they are extendable so that they can get down to the subcontractors. But what happens when you begin to accumulate the priorities and put undue stress on these subcontracting units? Do you use only the block buster special priority, or do you foresee the time when you may have to jump from a single-band system to a multiple-band system?

MR. SKUCE: I believe you are asking about three questions in one. To take the first part of the question, I suggest giving preference ratings to the military for its requirements during the early preparedness period when such ratings are demonstrated to be required. Prior to a national emergency, I doubt that the money provided by Congress would produce enough total demand to cause much disruption in the productive facilities of the country. It wasn't until well on in the so-called defense period in the last war that you couldn't procure all the essential civilian items and materials that were required for the sustenance of life and to keep America in a state of repair.

RESTRICTED

As a matter of fact, there were no provisions made for general repair and maintenance until about the time of the Production Requirements Plan, which was either late 1940 or 1941. There was recognition of the fact that such provisions would have to be made; but all we were asked to do then in the central production agency of this country was to legalize larceny. Nobody knows what it would take to keep a plant in a state of repair, or to take care of your wife's washing machine, or to take care of the family car.

The problem of when to do something about essential civilian requirements really didn't appear in sharp focus until late 1942 in the last war, and by late 1942 we were approaching the peak of national security requirements. That indicates that in the early transitional period we don't have the impact on essential civilian requirements that we have when national security production approaches capacity.

Second, from the standpoint of establishing preference ratings with a rubber stamp at the time orders are issued, the last time we took a punitive attitude about using a preference rating and said, "Don't use it unless it is absolutely necessary." At that time I was supervisor of Inventory Control at the General Electric Company. Inventory Control also included order placement, and in those days it also included the handling of priorities and allocations. We often wished that somebody would tell us whether the item ordered was more important than refrigerators, vacuum cleaners, and other things. There was no way of knowing whether it should be given preference; whether it was a national security requirement.

In order to establish a preferred status for certain orders, we were required to find somebody to process a document called a PD-3 certificate. We found that the officers in the field had not been briefed on handling such matters. They were very loath to sign one of these certificates, for fear it might cause them some difficulty, because they had not been given orders to process these certificates. Finally the orders came through.

But the stack of papers that had to be handled to try to get national security orders given recognition was a real burden. We no sooner got such orders recognized and a priority rating established than the Government changed the rating system. Then what was done? They issued a P order system, under which everything which was A-1-a was shifted to AA-1 and we started revising order boards.

We ought to identify national defense requirements. We ought to know what they are in terms of the control elements I described to you, as shown by the bills of material. We ought to identify the requirements that are going to be given preference over the civilian requirements. And then we should have control mechanisms that will enable us to shut off civilian production as the military impact grows greater, so that

there will be enough facilities and enough material to produce the things we need to defend our country.

When we get to the point where we go to a completely measured central production control system, where we "add up all the cloth we have on the one hand" and "add up all the suits that we have to make on the other," so that we will have suits and cloth in balance and get uniform production instead of coats and vests and no pants. At that point this very tough decision has to be made, what are we going to set aside to keep America in a state of repair?

We had to make that decision in the last war and it wasn't in a book. We set aside 7 percent. With that we took care of all the saloons, all the hotels, all the civilian plants, the old car, the busses, trolleys, and railroads--we kept America in a state of repair.

The complaints that came to us about scarce materials being used to put a new rail in a bar down on the corner, and such things as that, were numerous. There must have been one-tenth of one percent of our total supply of materials that you could properly measure that went into things we shouldn't have allowed materials to go into. But, gentlemen, I maintain that a production control system that will be effective over the whole of the country, one that will keep us in a state of repair, one that will permit us to wage war, is not going to be so precise that we will get 100 percent exact distribution and control. There has to be a little latitude. There has to be a little give and take.

After all, one thousand plants in this country consumed 80 percent of the steel, copper, and aluminum. We worked on those thousand plants. We combed them and recombed them. They were so big that when they sent out instructions to their people, their instructions were even more rigorous and pointed than the instructions we issued from Washington. Consequently we needed only a small "police" force. We had about 240 people that went around and looked at the books, audited what was going on, picked a few fellows up "by the scruff of the neck" and made examples of them.

You just can't use manpower to the extent necessary to do a complete auditing job on everything. You have to concentrate on the big ones. The same thing is true in getting bills of materials. In approaching requirements you concentrate on the big demands. You use your punches where they are going to be most telling in developing the plan that you devise.

QUESTION: On a number of occasions, I have heard the multiple priority system criticized and a recommendation made for a single priority system. Up to the present time I haven't had a good, clear definition of what a single priority system is and how it does away with the evils of the other system. Do you mind giving me an idea of the single priority system and how it would eliminate these other bad features?

MR. SKUCE: I will try to. We either need something for war or we don't. We either need something for essential civilian production or we don't. My thinking is that we should tag the ones we need and not tag the ones we don't need. I don't care whether you stamp it "War," "Priority," or "Priority No. 1," just so you identify it. But it is the identification that says that under the law of the land this particular order has to be accepted and produced before a civilian order is produced.

All the priorities are intended to do, or can be expected to do, is to give preference to something over something else. Now, what enters into the use of a priority? How is it used? The production schedules for given manufacturing operations are lined up, and you make out your priority orders.

But there is another factor that must be taken into account there, and that is when the item is needed. If I may divert for just a minute, we had one gentleman come into our office in 1943, about April or May. The man looked as if he was going to have a nervous breakdown on the premises, and he was just one of those cases. He said, "You fellows are ruining me. I am a producer of aircraft wings. I have an 'E' flying over my plant. I have beaten every schedule that they have given me, and I have been commended for doing it. I am proud of the job I have done. I have a ten-acre lot full of wings. Now you give me a production schedule that cuts me to one-half the rate that I have been going. Furthermore, you set back your due date when those items shall be completed. So I am going to have to lay off, not one-half of my employees, but, based on the stock that I have stacked up, I am going to have to lay off two-thirds of my people."

At that time, if you remember, we didn't have enough fuselages or tail assemblies to put on all the airplanes that were being produced, because there wasn't enough aluminum. We had lots of wings, but we had nothing to put them on. There were no tails for them. It wasn't doing us a bit of good to have a ten-acre lot full of aircraft wings. What we needed was aluminum converted into airplanes. So we had to adjust that fellow back to a schedule that would fit the production of airplanes. Sure, he had an A-1-a, but he was using that A-1-a as a means of procurement without any reference to the need or the timing.

So first we identify the items that we need. We next look at our production schedules and we rate them according to the scheduled date when those things must be produced and delivered. Those are the two controlling factors--when we need the item and recognition of importance--priority.

Let us assume that the requirement is so great that you can't put everything in your production schedule. Let us assume that, recognizing

RESTRICTED

the military requirement, the NSRB or the War Production Board, or whatever the civilian agency is, has issued an order shutting off the production of civilian items; but the requirement is in excess of the supply. What good does it do to put a different degree of rating on all things, all with valid preferences, unless you want all of them? Why rate them unless you want them? One day you may go ahead and schedule an item and rate it A-1-a. The next day the item that was A-1-b is rated up to A-1-a and it comes in ahead because it was received first on the schedule and the other item is shoved back. When you do that with, let us say, a hundred suppliers, you can see the confusion that is created and such confusion reduces productivity.

Priorities of different importance were also applied to components. People who made components said, "If you will stop juggling production schedules, stop switching orders around, stop changing signals, we will get 20 percent more output and components won't be critical." So we "froze" order boards to eliminate the effect of different values of priorities and production was increased.

Steel, copper, and aluminum were first on the priority system in the last war. When we adopted CMP we took priorities off steel, copper, and aluminum, the three basic materials that were required by all "hard goods" programs. We put a CMP symbol on orders for these materials and that was all that was needed to assure their delivery in the specified period. There was no difference established between the relative importance of such orders.

I believe that we need a program developed that takes into consideration the requirements of all competing agencies and competing urgencies; then determine the total number of programs that can be made with the total supply of men, materials, and machines; and then say, "This is the program. These are important things. These are the things we must do in this period of time." By identifying these programs by a rating or symbol we will eliminate all the leapfrogging that was brought about by different value priority ratings and was responsible for cutting off about 20 percent of our productive efficiency.

We ought to definitely earmark our national security requirements so that we know of their importance; so that we know that they are in our schedules. In the early stage of conversion to War production, all we have to do is identify those orders that are to be given preference over regular civilian production. When we get to a point where requirements exceed supply, we will cut programs back within supply. I think, gentlemen, that this will be a more intelligent approach than the one we attempted the last time. I am sure it will increase our production efficiency.

RESTRICTED

QUESTION: If your plan is accomplished, it would mean that a full-scale control of production under the Controlled Materials Plan would be in effect while you are converting industry to war production. Wouldn't it follow as a natural consequence that you would get the CMP full-scale control into effect under your interim single priority system before your demand could possibly exceed the capacity of industry? That is, wouldn't you catch the thing before you reached this point where you would have more priority orders than you had capacity to produce?

MR. SKUCE: I think without question that if we have another national emergency in our time, there is every probability that one year of floundering may be eliminated by the plan I suggest. I think that we have learned the hard way that some things need not be done the way we did them the last time.

But, no matter how carefully prepared we are with necessary control mechanisms, we are not going to overcome the time that it will take to convert our plant facilities over to a full war program. That is going to take a minimum of six months, and in some industries longer. During that period of time, the impact of military programs is going to grow gradually, because the wheels of production facilities won't be turning fast enough to require the amount of materials that ultimately will be required. It will always be a gradual transition.

But I do believe that with proper preparations made now, many bills of materials can be developed which will enable us to measure any possible Joint Chief of Staff program just by working from logistics of it, and coming up with the number of each one of these individual war implements needed, multiplying them out on tabulating equipment, and developing the full war facilities impact. I believe that at any place during this program we will be able to measure the impact of your requirements on the national economy, based on the objective and based on the money that has been appropriated.

I do think that just the sheer mechanics of the switch-over from civilian production to war production is going to take a considerable period of time. I know that Mr. Frank Shields, from the NSRB, (who is in this meeting) is very conversant with the need, with industry's help, for measuring that transition time for every basic industry in this country. I hope, under the new and invigorating leadership that has now been provided for NSRB, and with Mr. Shields' able direction of his own Office of Production, there will be a lot more objective work done along those lines to find what that cycle of time is; to earmark the people who know such things and can help develop what that preparation cycle will be, industry by industry; and to have on tap those people who are going to be helpful in the early days of a War Production program in eliminating the floundering and uncertainties which took place the last time, because they will be accustomed to "playing with the team" and can "get out their suits" and be "ready to play" on short notice.

RESTRICTED

QUESTION: On the subject of bills of material, I know you said the 80 percent figure that you gave is not exact. You said that two or three hundred items could consume 80 percent of our resources. How much faith do you have in that estimate? Do you really think it is about 78 to 82, or do you think it might be 55 to 95; and why do you think so?

MR. SKUCE: I don't know whether you have ever seen it, but the Controller of the War Production Board, Mr. David Novick, issued in 1944, when we were at the peak of our production, a breakdown showing the amount of material that was going into every program. He showed 28 military categories. Those categories were then segregated into major product classifications. I think you will find that between two and three hundred items covered by his report detail accounted for 80 percent of the total recorded amount of material that was allocated to the military establishment. To that has to be added a percentage of the materials that went into "so-called" class B products, which in turn were incorporated in the military end items. That is why I say it is "about 80 percent," because it is hard to interpret screws, nuts, bolts, rivets, and what not into terms of end items. But it is possible to get a basic measure. If we are 90 percent right on 80 percent of the total, we are a lot better off than being a smaller percentage right on all of them, like we experienced in the last war.

QUESTION: Are we in our thinking about the next war replacing aluminum with other materials for aircraft production and so forth?

MR. SKUCE: Yes; and I think that makes it all the more important that we get these bills developed now, so we can get counterparts of these individual items in each class. For example, we have an ammunition class, with a whole series of types of ammunition. I am sure that the amount of materials that was consumed by each type of ammunition is known today. So, instead of figuring our requirements on the particular types and designs of ammunition that were used in the last war, we would take the types that we know Ordnance would specify today. We could do the same thing with field pieces. I am sure that we do have many new designs in field pieces. We ought to get the requirements on such items instead of the ones that we used in the last war. We ought to take the comparable units that go to make up a given group in the Air Force, for example, and determine what are the types of equipment required, and then from those types develop bills of materials. When we are talking about future operations and decide that X number of units are going to be employed in a particular area, we can multiply the number of individual items of equipment that we needed for a given complement as developed by logistics.

So there we have a good basis in fact, a good basis in judgment, for approaching the problem that we are talking about. I think the time to get busy on the job is now. I think it can be done by the people that we are procuring equipment from, the people who are making

RESTRICTED

prototype items for the military. We can procure from them as part of the terms of purchase, an agreement, a requirement, that they submit bills of materials on the prototype model. Then from the bills of materials on that prototype model, we can develop IBM cards, or whatever system is best to use, and from them can tabulate, based on any multiplier later given, the impact of such military items on our national supply of materials.

COMMANDER BALL: Mr. Skuce, on behalf of the Commandant and the entire Industrial College, I thank you for a most informative talk this morning.

(5 July 1950--650)S

