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CURRENT MOBILIZATION PLANNING FOR AIRCRAFT PRODUCTION

1 May 1950

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Brigadier General Horace A. Shepard was born at Purvis, Mississippi, 15 November 1912. He was graduated from Alabama Polytechnic Institute with a Bachelor of Science degree in Aeronautical Engineering in 1934. He is a graduate of the Air Corps Primary Flying School, Randolph Field, Texas, and the Advanced Flying School, Kelly Field, Texas. In October 1935, he was commissioned second lieutenant in the Air Reserve. On 1 October 1938, he was commissioned in the Regular Army as second lieutenant, Air Corps. His first assignment was at Barksdale Field, Louisiana, as operations officer of a pursuit squadron. In June 1937, he returned to Randolph Field, Texas, where he served as a flight instructor until 1940. In February 1940, he was transferred to the Hawaiian Air Depot at Hickam Field, Hawaii, as chief engineering officer. He returned to the United States in August 1943, and was appointed director of Procurement and Industrial Planning at Air Materiel Command Headquarters at Wright Field, Ohio. Rated a command pilot, General Shepard has been awarded the Legion of Merit. He was chief of the Procurement Division, Air Materiel Command, Dayton, Ohio from January 1948 to January 1950, at which time he was assigned deputy chief of staff, Materiel, after which, on 17 March 1950, he was appointed director of Procurement and Engineering.

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GENERAL HOLMAN: As everyone in this audience thoroughly appreciates, time is the one element in the procurement cycle which defies a price mark. Plans, however, are not so restricted. And so we find that many steps in planning which can be taken today will pay tremendous dividends in event of a great expansion program. Industrial mobilization for aircraft production therefore deserves the continuous support of all top military planners.

Our speaker today is Brigadier General Horace A. Shepard, Air Force. He will detail for us some of the interesting steps being taken by the Air Force to reduce lead time through industrial mobilization planning. I can assure you that he knows well all the headaches connected with Air Force procurement. He has been closely associated with Wright Field activities since 1943. He is now in Washington, assigned as the director of Procurement and Engineering in the Headquarters of the Air Force.

It is a great pleasure to welcome General Shepard to this joint lecture of the National War College and the Industrial College of the Armed Forces. General Shepard.

GENERAL SHEPARD: General Holman and gentlemen, it is always a pleasure to come out to Fort McNair. I have been coming out to the Industrial College, I guess, for three or four years now. I always enjoy talking to the folks here, who I believe are making an earnest effort to learn more about the things that we consider pretty important in the materiel business. I feel particularly honored this morning that those of you in the National War College are willing to have a young upstart come up here to talk to you. I hope you won't be too bored by the fact that we are going to get into some of these materiel matters.

I feel a little like a patent medicine salesman. I am interested in the subject, obviously, and I will probably act like a patent medicine salesman in trying to convince you that materiel is very important now, and is becoming more important all the time, in conducting our military operations. I may wax a little too enthusiastic. If I do, just assume that perhaps it is the result of having been too long in one end of the business.

Now, as I talk about mobilization planning for aircraft production I want you to try to remember that even though I will pick out specific examples from the Air Force business and Air Force problems,

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even though I will refer to specific items of Air Force equipment, the things that I say have equal application, I believe, to the other services. If I say something about a B-29 or a B-36, I might just as well be talking about an F9F or an SA16 or some other piece of equipment, or I might be talking about a tank. So to the extent that those of you who are in the other services agree with what I have to say, you can assume that I am talking about mobilization planning in all three services. To the extent that you disagree with me, just say, "That is the Air Force point of view and we will forget it."

It occurs to me that I should not talk about mobilization planning without relating it to the broader subject of air industrial preparedness. There really are four principal elements to air industrial preparedness. The first is having available producible and tested specifications for items that can be expanded in the event of a national emergency. The second thing that I believe is considered important in industrial preparedness is having a healthy industry. We have with us this morning Mr. Peale, of Republic Aviation, who I am sure could expand quite elaborately on that subject. But the fact is, a healthy industry is a prerequisite as a platform from which to take off in the matter of mobilization planning. The third item, which I think is generally accepted as important, is having available basic resources that can be used as an accelerating pump, to start us off and take us through the initial steps of a mobilization effort. Finally, of course, there is the item that is the subject of my talk this morning. We must have specific and current mobilization plans.

I think I can dispose of the first three items of air industrial preparedness very quickly by saying that, with respect to having available approved designs that can be expanded, we in the Air Force try our best to have some. Of course there are times when it appears that we have B-36's that won't fly, B-36's that we have guns that won't shoot, have gas tanks that won't hold gasoline, probably have generators that won't generate, and a few other things like that; but the fact remains that we are applying a considerable amount of conscientious effort in the Air Force to adopt a more conservative approach to the selection of production specifications, so that we can in fact have approved designs that are easy to parcel out to participating manufacturers in a large mobilization program.

On the subject of a healthy industry, the only thing I have to say is that the industry is unhealthy. Mr. Peale says that is right. I am not talking dollarwise. I can tell from Mr. Peale's face that dollars are not worrying him right at this minute. I am talking in terms of the targets that were set first by the Air Coordinating Committee and later on generally concurred in by the Finletter Commission and the Brewster Board in Congress. I think those folks said that the minimum of a healthy industry would have to be about 30 million pounds of military airframe production per year if the world were at peace, if we were in a completely

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peaceful atmosphere. I think they said further that if the situation were a little spicy, perhaps we ought to have a minimum of 60 million pounds a year of airframe production. I am not too sure about the exact figures, but I believe that the production now is in the neighborhood of 35 million pounds a year. That permits me to say that the industry is unhealthy in view of the present situation.

With respect to the third point, that is, the stockpiling of materials, having available a reservoir of needed items and raw materials that we can throw into our mobilization effort at the start, I don't have to remind you that stockpiling has been undertaken rather intensively and, I am sure, very effectively. We are not only stockpiling raw materials, as you well know, but we are holding back reserve plants, and we are retaining large quantities of general-purpose machine tools, on which the obsolescence factor is low. So we are doing something about this planning. We are beginning to talk more about manpower, about how we can conserve and reserve manpower for our mobilization effort.

Having disposed of those things in that way, we come down to the subject of this morning's talk, "Current Mobilization Planning for Aircraft Production." What is it and how do we do it?

I am not going to bore you by talking about the history of Mobilization planning, because those of you who are in the Industrial College have, I am sure, had to do a lot of research on it. You are probably going to have to do more before General Vanaman will give you your diploma. Those of you who are in the National War College have probably heard over a period of years the important elements of the subject. So I don't think there is any need for me to go into any detail with you on the history. I will for purposes of continuity remind you that a good many people were critical of the way that mobilization planning was carried on before World War II, and also that many people are prone to point out that the plans which were available were not used. I realize that this is a controversial subject, but those are the facts.

Right after the war, being very much aware of the importance of mobilization planning, someone had the foresight to ask one of our major universities to document the history of aircraft production in World War II, so that it would be available in the archives for future reference. Subsequent to that somebody with equal foresight decided that if we were going to do this mobilization planning in the future and were going to do it intelligently, we had better have it done by the folks who know how to do it. So in 1946, or perhaps 1947, the services got together, went to industry, and said, "How about telling us how we ought to do this mobilization planning? How about giving us your advice?"

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So later we did receive, as a result of a large number of study contracts with manufacturers, a lot of information, ideas, and suggestions on how to do mobilization planning. Those were all consolidated into a nice little book, which became our "bible." That bible was shipped in to the Munitions Board; its members were satisfied enough with it to bless it and say, "This will be the policy and the procedure for doing mobilization planning in the three services."

After we had the bible, we were able to go outside in 1948 and 1949 with a few specific mobilization planning contracts, for specific items, at specific rates, and with specific manufacturers.

That in a nutshell is the history of mobilization planning. As a result, I think we are much more concerned with what we are actually going to do in mobilization planning and when.

Well, again we can't tackle this problem of mobilization planning very well without talking just a little bit about one of the principal tools that we must have, namely, requirements. I am taking a long time to get around to the subject, but we do have to talk a minute about requirements in order to really understand mobilization planning as we do it today.

Requirements, obviously, must come from a war plan. Requirements, obviously, must be a dynamic proposition; that is, they must be constantly restudied and revised so they can serve as a basis for a target as realistic as possible against which to shoot our mobilization effort. So I am going to rush through requirements by simply saying that our requirements do emanate from the Joint Chiefs of Staff war plans.

Evidently, a few years ago those requirements were not so good as they should have been, because some of our plans lacked clarity to the extent that folks were inclined to talk about who was going to perform what mission when a war came along. Our requirements at that time were necessarily unilateral. Later on, after the Key West conferences, we had combined requirements. Our requirements were not so good as we would have liked to have them, because insufficient time had passed to permit adequate testing of those requirements as to their feasibility.

But even though we find that just a short while ago our industrial mobilization planners were doing the planning against requirements that perhaps needed to be improved a bit, as of now you can rest comfortably in the thought that our requirements, although perhaps still not so realistic as they ought to be, are at least much better than they have been in the past. They do form a sound basis for translating force commitments and troop bases into numerical requirements for specific items over a specific period of time. So we do have those requirements now. Obviously, as the

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war plans are revised and as history occurs, those requirements will be revised. We shortly, I am told, expect to have a new batch of requirements that will be much better than any we have ever had before.

So much for the preliminaries. Now we will get down to mobilization planning. How do we do it and why? It is very simple. If you have the requirements, all you have to do is go to Mundy Peales in industry and say, "This is what we want. How about agreeing to do it for us?" In essence that is the job planning.

Actually the procedure is a little more formal than that. We take the requirements and convert them into tentative production schedules for individual items. They might be end item airplanes, or they might be the engines, the propellers, all the components that go into an airplane. There probably also will be the ground supporting items that you must have to operate airplanes. Having those in hand--and, incidentally, they run into substantial numbers--we do in fact proceed to the industry.

Let us take as a hypothetical example--the item of landing gear for B-47 airplane. You all know that it is one of our current airplanes in the Air Force. You all know that if we have a mobilization, we are probably going to need quite a few of those and also quite a few landing gears. So what do we do?

I am just going to make up these numbers. Let us say we determine that we need 500 ship sets of landing gear a month. We think a little and say, "There was an outfit up at Milwaukee that in the last war built landing gears in a pretty fine handy fashion. Maybe we had better see what it can do." This outfit was the A. O. Smith Corporation, a fine steel fabricator, a pretty good-sized outfit, doing a business of about 150 million dollars a year. So we go up to Milwaukee with our requirements for 500 landing gears a month and knock on Mr. Heath's door and say, "Mr. Heath, this is our problem: We just need 500 ship sets of landing gear a month for the B-47. Can you promise to do that for us in our mobilization plan?"

Mr. Heath immediately starts asking embarrassing questions. He says, "Before I can talk to you too much about what I can do, I must know what I am going to continue to manufacture for the consumer market. What about my civilian products that I make?" He makes car frames, a terrific number of them. I think he can make 10,000 a day. He makes pipe, he makes pressure vessels, he makes water heaters, he makes all kinds of things like that for the civilian economy. So he says, "How much of that am I going to continue to manufacture?"

We say, "Well, Mr. Heath, you had better use your own judgment. We are not so sure. It has not been definitely established. As a matter

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of fact, that comes under the purview of the National Security Resources Board. Its representatives are a little remote from us. They are pretty well up the ladder. We are down here in the military business. So please, Mr. Heath, won't you use your judgment and see what you can come up with? Maybe you ought to plan on just duplicating your civilian effort from the last war."

He says, "All right." Then he says--question No. 2--"How many of these pressure vessels am I going to have to build for the Navy's torpedoes? How many bombs am I going to have to build for the Army? Does the Army want me to build rockets this time in addition to the bombs that I built so successfully in the last war?"

We say to Mr. Heath, "Well, those are good questions. There is no doubt that the other services will be along pretty soon and tell you. As a matter of fact, Mr. Heath, you might give them a ring and see. For your convenience, the three services have had a conference and designated one service to collect that type of information and funnel it out to you, so you don't get conflicting dope."

True, this mobilization planning program is a big one and it takes a lot of time to get down to all the items. Maybe the Air Force is talking about landing gears with the A. O. Smith Corporation before the Navy is ready to talk with it about pressure vessels and before the Army is ready to talk about its rockets. But Mr. Heath is at least given an indication of how to go about finding out the answers to his questions.

We say, "If there are no more questions, Mr. Heath, just fill out this form." (This being a government enterprise, it has to be done on a form.) You tell him to fill out the form and mail it to you and let you know whether he can or cannot build landing gears. Then you go away.

Mr. Heath calls in his people. In two or three weeks it comes the form and it is all nicely filled out. He says, "I can build 200 ship sets of those landing gears a month for you. In order to do that I am going to use so many thousand square feet of my floor space. I am going to use a certain proportion of my machine tools and capital equipment. Incidentally, you will have to furnish me the following additional machine tools." And he says, "I am going to use so many people--this is just for your information--because the rest of my employees are going to be used on other tasks."

And maybe he says, "This is going to create an alarming situation in the manpower field." Incidentally, Milwaukee is sort of tight on labor anyhow, and this is going to make it tighter. But that sort of information comes in on the form.

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In addition to that he says, "As a matter of fact, I am probably going to use the following subcontractors as my major contributing assistants. In case you want this information, I am going to use the following principal vendors."

So we very happily take our form from the A. O. Smith Corporation that says it will build 200 ship sets of landing gear a month for the B-47, and go to the Munitions Board. We say, "Will you please put your stamp of approval on this, so that we can go ahead with our planning?" The Munitions Board, checking to the extent that it is necessary with the other services, does put its stamp of approval on the form.

That is all there is to mobilization planning. It is just that simple. Now, that is the classical solution. I think we ought to touch just a little on the actual solution to the problem.

You will find that when you ask these questions of the manufacturer, and when he begins to ask you these embarrassing questions in return, a number of problems crop up. You may have problems of inadequate capacity. I started out by saying that we wanted to build 500 sets of landing gear a month. Mr. Heath can build only 200, so we have to find somebody else who can build the other 300. Maybe Mr. Heath suggests that we give him a nice plant down in Houston. He wants to move to a warmer climate, because he is tired of Milwaukee. Or maybe he says, "You have to go to somebody else for those." Maybe he suggests Milwaukee Production. If he suggests that, maybe he says, "By golly, don't get me into that program with so-and-so in Chicago, because I am not going to get along with him." So the problem of capacity rears its ugly head right off the bat.

A minute ago I alluded to the fact that maybe he won't have enough capital equipment and he won't want to take any of A. O. Smith's money and lay it into some special-purpose machine tools, because his board of directors would rather take that money and pay it out in dividends. So he generates a long list of machinery that he would like to have. Or maybe he says that you have the problem of promising him the manpower to support this plan.

Maybe he says, "Gee whiz, I can't even build the first landing gear, not to mention 200 or 500, because I can't read those silly drawings. I have to redraw the whole thing and redesign it for production and put my own company's trademark on the thing. "I am deliberately exaggerating such a hypothetical situation, but I think that Mr. Peale will attest that it has happened; that people from time to time have objected to trying to use somebody else's drawings. Prideful manufacturing outfits have always felt that their own interpolation of a design into production drawings was the best thing to do. So you have a problem there to face.

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Or maybe you discover that the manufacturing processes involved in this thing result in built-in bottlenecks that you can't get around. Let me give you just a quick example. When we were first talking about building a lot of jet engines at the close of the last war, we were going to install buckets in the turbine wheels by using a broaching process of fabrication. But somebody said, "There aren't enough broaches in the world to whittle all the buckets that you have to put in the turbine wheels that you are talking about. You can't just get them out of the air." Well, things like that continually come up, and they are problems that have to be ironed out.

Or maybe we will find that while Mr. Heath is looking into the matter of building our 500 landing gears a month, the Navy wants him to build more torpedoes than came out of there during the last war, and maybe the Army wants more bombs than came out of there during the last war. The first thing you know the three services want three times the capability of the A. O. Smith Corporation. You have a little problem there of sitting around a table and deciding who is going to have how much.

Those are practical things that occur. That is mobilization planning as it actually exists, as opposed to the classical method that I described earlier.

The volume alone of the items that have to be considered in the mobilization planning effort is a problem. It is a problem that has caused the services to agree jointly to establish a priority group of items. First there were about 700 different items that were established as priority items, on which the services agree they would undertake their initial mobilization planning effort. It wasn't just a blind shot at the items. I am told--and the details of this planning that is going on have been given to me secondhand--that those items represent about 60 percent of the total dollar value of all the items that have to be produced in the event of a mobilization. That is the kind of approach that is being taken to a terrifically large problem.

Again, when you get into the mobilization planning effort with inadequate personnel, with not enough secretaries, and all that sort of thing, you decide that you need some priorities. Already, I am told, the Munitions Board has gone back to the Joint Chiefs of Staff and said, "Which is more important--this item or that item or the other item?"

I understand the Munitions Board has been told by the Joint Chiefs of Staff, "They are all equally important. We are not going to establish any urgency on these items for perhaps six months after the beginning of the conflict. After all, you know that this mobilization plan we are working on is supposed to be a realistic, balanced plan."

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Therefore, are not all the things that we are talking about feasible of attainment, and therefore aren't they all equally important as we go into the planning?"

It's a very good point, and I am sure that the Joint Chiefs have taken the right attitude in that regard. There is no priority within priorities if we do our mobilization planning job correctly. But the point I am getting across now is that the volume of items alone makes the task a real problem.

We have talked about the classical procedure for mobilization planning. We have talked about the problems that are generated by the application of that procedure. Let us talk for just a second about what happens when the problems arise.

So far all we have done is this: We have gone out to industry and obtained a lot of information, encountered a few problems, and had some discussion with the participating services. It has all been done largely gratis. Nobody has charged us anything so far. At least 26,000 manufacturers, I have been told, have agreed to participate in this planning effort and provide us information. Obviously, this information will be valuable in varying degrees. Some of it probably won't be too well thought out. It will just be tossed in to us to dispose of the problem. Other manufacturers are spending considerable sums in filling out the form and doing this planning for us. But my point here is that so far we have talked about the procedure and the problems. We have talked about things that don't really cost us any money.

What I want to mention now is that the culmination of these procedures and the culmination of problems that arise is the real, direct mobilization planning effort. It involves the expenditure of cold, hard cash. The money that the services get for planning is used, after ascertaining the problems, to relieve these problems. In other words, by our planning procedure we discover the soft spots, and then we apply our dollars to relieve those soft spots.

You say, "What kind of soft spots? What are soft spots?" Well, maybe an article has to be redesigned for production. Engineers' hours have to go into that. It costs money. Somebody has to pay the engineers. So we put up the money for that purpose.

Maybe the manufacturing process was inadequate, as I mentioned a minute ago that it was in this business of broaching buckets into turbine wheels in terrific quantity. So we have to find a new manufacturing process. We have to put down money for manufacturing method study. We may have to experiment. We may have to build equipment or perhaps acquire equipment. It all costs money.

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You have to undertake licensee-licensor efforts. You have to go up to Pratt Whitney, for example, as we did through the Navy in our efforts to get commitments on the 4,360 engines, and say to Pratt Whitney, "All right, pick out some licensees now and we will pay them to cooperate with you and direct your preparedness planning. We will get right down to brass tacks and work out specific understandings. We will work out this drawing business and we will actually do their plant conversion planning. We will do all the things that have to be done to get them in business on 4,360's." It costs money. That particular bit of direct planning cost us about 2.5 million dollars. We think that is too much. We think maybe we should have obtained it for a million dollars. But I think it suffices to indicate that we are talking about concrete things that cost a lot of money.

So that is what we mean when we say that we open up the soft spots and we do things to relieve the soft spots. When we get all through with this mobilization planning effort, which academically is so simple, when the practical problems of the day have been discovered and the soft spots have been opened up, it has become not only complicated, but quite expensive.

It occurs to me that having finished my discussion of why we do it, how it fits into the over-all picture, how we do it, and the things that come up as a result of doing it, there are about two really provocative points left that I ought to mention this morning. One is this: I would like to generate your interest in considering the degree to which we should do planning. How much of this insurance should we buy? What is the relationship between this insurance program that we are undertaking and our current level of production?

I don't think there is anybody in this room who doesn't know the current level of Department of Defense spending. Our budget is around 15 billion dollars a year. I think most of you would be interested in considering a little bit the relationship between that total budget and our mobilization planning dollars. A few years ago we were spending less than 50 million dollars on the mobilization planning effort. I am told now that we are spending around 80 million a year, somewhere in that order of magnitude. It has been said to me in the last few days that the Munitions Board is willing to go even higher for next year and the year after next. But the question is, how high should we go? What is the proper relationship?

If this defense budget jumps up, if the cold war gets hotter and we go to 25 billion dollars a year in our current budgeting, what should we do about our mobilization planning money? Should it go up too, on the theory that times are getting tougher and we had better be a little bit better prepared? Or, as you build up your current level of production, should the insurance program go down, because you are already on a higher

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platform to start with and maybe you don't need anywhere near as much for preparedness? Should they move together or in opposite directions? I think I can promise you that the gate is wide open on that subject. Your idea is as good as anybody else's, and it is something that I think merits a little consideration.

There is one point I ought to make in connection with that subject: Unless you go into the actual tooling of items for production, building pilot lines of tooling, and running test quantities of materials down the pilot line, your mobilization planning effort, even though it can go from zero dollars to stupendous sums, operates a little bit more like fixed charges in a business. This business of up and down in staggering degrees comes in only when you begin to do actual tooling in connection with your mobilization planning program. So far we have not done that sort of thing. We haven't built tools for the 4,360 at Ford or at Nash or at some licensee's plant.

But the thought I want to leave with you is that somebody ought continuously at least to ponder that subject--the relationship between our current rate of spending and our insurance program. You do it as individuals at home. If you don't, your wife probably suggests that you do it. So it is not an unusual problem.

The other provocative point that I would like to raise is this: In thinking of mobilization planning don't think just in terms of academic procedures. Don't just think of how you go about this thing. Do you stockpile? Don't you stockpile? Do you let industry do it or do the services sort of master-mind the program? Do you do it by getting resource information? Or do you do it some other way? Don't concentrate on the procedure to the exclusion of something that I think is a lot more important, and that is always knowing exactly how you stand in your mobilization planning effort. You should know whether your plan is halfway through a cycle on some new requirements, whether it is just starting through another cycle on some new requirements, or whether you have just finished a cycle on requirements, so that you will have a plan that not only represents requirements for production, but commitments from industry that it will perform that production in the event of a mobilization effort.

It is just like running a business. You know that many businesses are started and stopped every year. In many instances the businesses that stop do so principally because the people who are trying to run them don't know how they stand all the time. It is like running a military campaign, where, unless you have a current estimate of the situation, you are apt to get into a lot of trouble. So the important thing about this mobilization planning, now that the procedure has been worked out and blessed by everybody, is to know continually how you stand.

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I can see that you probably would like to say, "Well, how do we stand? Don't just stand up there talking about it, but tell us, how do we stand?" I will give you my opinion. It is good as my opinion, nothing else.

As of today we have learned how to do mobilization planning. We have been over the hurdles. We have improved our requirements. We have been out on specific mobilization planning contracts. We have done a great deal in the way of specific studies. We have opened up many soft spots and we have fixed a lot of soft spots. But when you get right down to a chart on the wall that says, "How many items do you have to get production commitments for?" you have to have a big wall, because there are a tremendous number of items involved. How many do we have commitments for? I am told, only about 20 percent. So that on the rest of them, even though we know the things that we want and when we want them and the rates at which we want them, we have found nobody like Mr. Peale down here to agree that he is willing to do that for us and can do it without interjecting a lot of hypothetical assumptions. Some of those folks haven't even had an opportunity to commit at all.

So I say that mobilization planning reposes in that uniquely American predicament of being behind schedule, but fortified with a lot of people who say, "Well, yes, we are behind schedule; but, boy, you just watch us sprint for the tape. We will get there in time."

It is my opinion that maybe we ought to look carefully and critically at mobilization planning. Incidentally, I am not in the mobilization planning business right now. I am not here plugging for bigger appropriations for my own outfit. It is my opinion that planning is behind schedule; and, although we could make the old college try and probably get it on schedule just at the last minute, we have done that so many times and I am probably getting so old that I would like to do it a little differently this time. I would like perhaps to take the next year or two off and put more effort into planning, get it up to date, get our cycle through at least once on these new requirements.

That wouldn't cost much money. I think that the principal place where we would need financing would be in putting a few more people to work on planning. Of course, you all know what meager salaries the Government pays. It wouldn't cost many millions of dollars to get quite a few people involved in mobilization planning and maybe push it along a little bit faster, so that we will be a little bit farther along in having a plan actually to manufacture the items that we need, that is, a plan in which the industry has committed itself to manufacture certain things.

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That is about where we stand. I think we are behind schedule. I think we are a little late and we ought to do something about it.

Apropos of that position is something that actually occurred a few days ago over on the other side of the river. I was almost thirty minutes late in getting to the office. I jumped out of the car in the south parking and sprinted up the narrow walk. I overlooked two people who were representatives of all the cartoons you have ever seen about government employees. There on the right was a gentleman of adequate physique, and, I would estimate, in the middle fifties in age, who had the perfect air of relaxed confidence that comes from long years of service in the Government. On his left was a fancy young thing clodhopping along with no heels on her shoes and she was obviously overdressed to be going to an office. Her hair was all tied up in one of those shawls that look like the devil. They were meandering up the walk. I couldn't get around them very well, so it was necessary for me to slow down and follow right along behind. As I walked along there, I heard the young lady say to the gentleman, "I just can't understand it. As hard as I try, I can't seem to get organized in the morning in an effort to get to the office on time. I'm late repeatedly and I don't know what to do about it." The old gentleman, who had spent many years in the Government, said, "Well, honey, I wouldn't worry about it if I were you. That has been happening to me for years. It's nothing to worry about at all." They walked along for another minute or two, and this young lady blossomed forth again. She apparently had been pondering the subject some more and she said, "Well, anyhow, I am at least half right, because I always manage to quit on time."

I don't think that would be funny except for the fact that it was a true experience. By golly, there are people like that, who are half right. They are late, and they ought to be getting along with planning and get it finished up. I think our mobilization planning is in that condition. Even though I told you I was a patent medicine salesman, I am not in the mobilization planning business now. If what I say results in greater appropriations and more effort being given to planning than is being given at this time, I will cut my coupons as a taxpayer and not as a member of the Administration.

I wish to thank you for listening and I hope my presentation has been adequately palatable.

QUESTION: In your illustration that you gave, of the A. O. Smith Corporation, apparently you got to this company with your landing gear requirements before either the Navy or the Army went to it with their requirements. That being the case, I am a little at a loss to understand how the Munitions Board would know how it wanted to allocate the capacity of this plant between the three sets of requirements. Is

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there any attempt being made to get together the requirements of the three services on a particular plant before the plant is approached relative to those requirements? I would also like to know in that illustration where the armed services procurement planning officer enters the picture.

GENERAL SHEPARD: That is a good question. I had to sell a lot of patent medicine this morning in a short period of time, so I couldn't describe some of the more detailed points in our effort. That is one of them. It is a critical point, and probably I should have covered it.

The direct answer to the question is this: There have been divided between the three services 26,000 manufacturers. They have been divided into three groups, and those in each group will be contacted by only one service. I don't happen to know in which group the A. O. Smith Corporation has been placed, whether Navy, Army, or Air Force. But the Munitions Board, very intelligently, has through its processes assigned about a third of those 26,000 manufacturers to the Air Force's surveillance, shall we say. That doesn't mean that the Air Force owns them. It simply means that the Air Force appoints an armed forces procurement planning officer who will be the one man who should talk to Mr. Heath about what Mr. Heath should do for the three services.

I hurried over that detail in an effort to try to cover the broader aspects of the subject, but that is exactly what happens. We at the Air Force wouldn't go to Mr. Heath directly. We would go to the armed forces procurement planning officer, who would go to Mr. Heath and explain what the Air Force needed. He would probably explain that the Army planning or the Navy planning indicates that their requirements are thus and so, or approximately thus or so; or he would say, "Their planning is at such a point that you just have to use your judgment and apply what you think is an appropriate level of torpedo manufacture or bomb manufacture. This thing will be refined later on." Obviously, the Air Forces would then still go to the Munitions Board and get the cooperation of the other two services, and get an approval on that production capability for B-47 landing gears.

This doesn't mean that the commitments would never change. On the contrary, as this plan is worked through to completion, it will be often necessary to change, not once but several times, the production commitments on any one manufacturer's plant. Just take, for example, the fact that not only the war plans change, but designs of individual items change. That in some cases very markedly affects a manufacturer's ability to produce.

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So mobilization planning that I described rather hurriedly is a much more detailed procedure and a much better coordinated procedure than it would seem at first sight. It is a completely organized effort. All those questions would be answered before the stamp of approval was placed on that allocation of capacity.

QUESTION: To what extent does the actual procurement get tied in with mobilization planning? Take your example of A. O. Smith. If you wanted 500 sets of those landing gears actually delivered, would his offer to build 200 be tied in the procurement contract with a requirement that he would also have to tell you how he could expand and to what extent he could meet your need for 500?

GENERAL SHEPARD: The answer to your question is that the current procurement effort is closely related to the mobilization effort. Depending on the item, depending on the manufacturer, depending on the month in the fiscal year, and depending on who is broke and who isn't, the planning contract on landing gear might come out of current production contract funds or it might be financed out of mobilization planning funds. In either event the contractual technicalities would be handled by the same individual--and I am speaking from the Air Force manner of doing things now--who worries about the current problem of landing gear production. So that the two programs are completely and thoroughly integrated and there is a considerable amount of flexibility and interchange between them, the Comptroller General being willing, of course.

QUESTION: What happens in the case of plants other than these 26,000 which are, let us say, controlled by the Munitions Board so far as allocations are concerned? If the Air Force or any other service wants to get something from a manufacturer who is not under the supervision of the Munitions Board, can that service go to him and contract for planning purposes?

GENERAL SHEPARD: It certainly can. I believe that there exists an information service, if you want to call it that, which, when something like that happens, insures that the other services are notified of what is going on. Obviously, dealing with so many items and so many manufacturers, there may be oversights. Somebody may just be neglected. Let us say we forgot Ford. We didn't, but suppose we did. If one of the services wanted to go and sign Ford up to do something, it would be quite appropriate for the Munitions Board and the other two services to know about it, so that if something has been overlooked, it can be rectified. There does exist an actual procedure for doing that.

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QUESTION: In regard to over-all mobilization plan, does any exist as to how much or what percentage of his consumer goods production a certain manufacturer may cut back from time to time? Could you, for instance, decide that for the automotive industry, or for refrigerators or other items, if war comes, there would be only 10 percent production? Is there any such plan as that in existence?

GENERAL SHEPARD: So far as I know, there is not. I may be in error in making that statement; but I believe that if there were such a plan, I would have discovered it before now. I think, on the contrary, that people are making assumptions about the manufacturing of civilian consumer items; and I think that is one of the areas in which the National Security Resources Board has quite a lot yet to do.

QUESTION: In the case of A. O. Smith that you cited, if certain critical materials were needed for performing this contract, what provision is made for making those available to him when needed?

GENERAL SHEPARD: Tentative allocations of the critical materials are arranged through the Munitions Board. Again, because of the shortage of time, I passed over too quickly the rather comprehensive stockpiling effort in critical materials that has been undertaken by the Munitions Board. There exists a procedure by which allocations can be made in advance.

Now, all these things that I am talking about must be measured against an understanding that we are really just beginning to get this planning going in high gear. I don't think the detailed allocation of all the materials that are in the stockpile has been done. The detailed allocation of all the plants, the assignment of productive capacity, I have already told you, has not been done. So I will answer you in the affirmative by saying that a procedure exists, but you might be able to prove that this is not so; that some of the critical materials haven't been allocated or that nothing has been done about them.

QUESTION: You brought out the point that this mobilization planning cycle has never been completed and recommended that steps be taken to complete it. Is it possible that this cycle could ever be completed, considering the fact that you have such rapid changes in design developments in all the various fields of the aircraft industry? In spite of the fact that you may not come out with a new war plan, wouldn't just the changes that come from design and development prevent your completing a cycle?

GENERAL SHEPARD: In order to say whether or not it can be completed, I would have to call on Uncle Joe and ask, how long are you going to keep still? But in my opinion--and this is a personal

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opinion purely and simply—it is possible in a reasonable period of time to run completely through enough of the items that will be required in the event of a mobilization expansion to be able to say, "We have a plan. We have commitments from industry. Our plan has been tested." I certainly think it can be done in a reasonable time.

QUESTION: It seems to me that one of the most significant things you said is that our aircraft industry as of this moment is not healthy. I just wonder if you could tell us in what ways the mobilization planning effort is proceeding to try to correct that situation.

GENERAL SHEPARD: The mobilization planning procedure is not going to correct that situation. Let us turn back the pages now. I said that mobilization planning is only one of the elements of air industrial preparedness, and that a healthy industry is one of the other elements. The health of the industry in mobilization planning terms will be achieved only, always looking back now to the Brewster and Finletter reports and the Air Coordinating Committee's report, when we are producing each year at a higher rate of production, in other words, may be 100 million pounds a year in airframe weight. Then and only then in mobilization terms will the industry be healthy. So far as paying dividends is concerned, so far as the stock on paper is concerned, the industry is doing pretty well right now. In fact, I read almost every week that aviation shares are leading again. But mobilization planning expenditures are not going to make the industry healthy in those terms at all. That is just another part of air industrial preparedness.

QUESTION: Are we doing anything about the situation aside from industrial planning?

GENERAL SHEPARD: You mean, are we lobbying for more current appropriations? Of course not.

QUESTION: How important is it that particular items be kept current? In other words, in your example you had a particular type of landing gear. Since we always have most of them as soon as they are made anyway, it seems to me we should spend our money in trying to keep the individual items current rather than in going on to complete the cycle.

GENERAL SHEPARD: That is very important. Let us talk about this for a minute. You are talking about specifications now. How important is it to have a frozen design? You imply, as history indicates, that we are always changing these things. Sure we are.

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We do it too much. I am a production man now and in my own particular activity I never want to change them. I wish we could keep on building the same thing forever. I would like to keep on building it until somebody comes in with a yardstick and tells me, "You have to change this or you are going to have the second-best piece of equipment."

Unfortunately, Mr. Stalin doesn't have an "Aviation Week" or any similar periodical that gives us a yardstick. So what do we do? We keep on forcing design changes. I say that as long as you do that, you are going to have individual items which you can't mass-produce, because if you tried to mass-produce them, you would have to stop your line ever so often and try to fix some of these things.

You are plagued here with a large volume of metal flowing out, but the stuff doesn't work. There is nothing that is easier to understand than a man from the using service running up and down the line saying, "Don't ship me any more of that stuff. I can't use what I have now."

So I say it is very important to take design steps which permit the freezing of your production configuration long enough to do some planning on it and do something about it. You can't run a production line that is constantly changing. I say that advisedly, because you are always making minor changes, like material substitutions, material reviews, different allowances for tolerances, and things of that kind, on individual parts.

I think it is very important. I think that our design changes have to be accommodated in the future probably in the same way we did it before—with some sort of a modification application, with perhaps modification centers or something like that. You just can't keep on improving a thing too frequently. You have to stop and build it.

QUESTION: So far as the allocation of manufacturers is concerned, aren't we losing time in trying to perfect the designs too much before we turn them over to manufacturers for production?

GENERAL SHEPARD: On the contrary, our current situation is in the opposite direction. I don't think people are spending as much time as perhaps they ought to in studying the designs. I think they are going ahead in their planning with assumptions that they can build an item as it is now designed and that it will work after they build it. Mind you, right now we have designs of airplanes with after-burners located out in the tail. We are going ahead and building these airplanes, and our mobilization plan calls for licensees and for lots of the planes to be produced, but they don't work. So I think that probably we are erring in the other direction.

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QUESTION: You said that, given a reasonable length of time, you could complete a mobilization cycle. Can you tell us how long it takes from the time you get the requirements until you get a cycle completed?

GENERAL SHEPARD: I don't know that I am particularly qualified to talk about that, because that is no longer my business. I don't have to do anything about it now. But it occurs to me that a cycle could be worked out, not having done it once, in probably between a year and a year and a half. After you have done it once, and based on a presumption that the plans won't change so much but what you can use some of the original data, I would say you could do it in less than a year. I would have to give you that answer, because I think it is possible to do good mobilization planning and do it on an annual basis. I think we have to do it that way, because we are funded in the services pretty much on an annual basis.

QUESTION: In early 1943 we had whole fields adjacent to airplane factories pretty well covered up with airplanes and were running out of parking space for the ones being produced. We couldn't take delivery on some of them. Top management was very much aware of the requirements for airframes and it knew all about the need of the airframes having engines, propellers, and superchargers. Instructions were issued about having these things ready to put in the airframes. But then the interest of top management began to fade out a little bit and suddenly we discovered that nobody had apprized himself of the fact that the little items of equipment were the things that were holding up the delivery of these airplanes. They found that they couldn't make air speed indicators, as an example, by the old methods which they were still using, and supply enough of those relatively small and insignificant items to keep up with the production of airframes. In other words, there was an Achilles' heel in the production cycle which didn't make itself known until that time.

I am hoping that in our listing of the items that we will need for the next war we are trying to avoid that bottleneck. I hope that if we have only 50 percent money enough to do an all-out job of planning, we are not itemwise putting it all on the airframes and engines and neglecting some of the small bits and pieces. Can you tell me about that?

GENERAL SHEPARD: I can reassure you on that point. We have recorded the experience in the last war. We do remember the airplanes that were stacked up on the fields, and we remember the why, and we have documented the why. So the planning that is being undertaken today starts out by the preparation of this critical item list that I

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described; and you will find on those lists predominantly the small items of equipment, as opposed to the big things like engines and propellers. I think we are giving it all the attention that we can consistently with the fact that maybe we need a few more people like you in the planning and don't have them at the present time.

COLONEL HENRY: General Shepard, many of the subcontractors and sub-subs that we had in the last war have gone back to their normal lines of production or may have gone out of business entirely. In our mobilization planning are we going any further than the prime contractors? Are we leaving the matter of getting subcontractors up to them entirely, or are we asking them to do some planning of their own on that and submit names of subs and sub-subs that they expect to use?

GENERAL SHEPARD: We are relying almost entirely on the prime contractors at this time. Quite obviously, the ability to go beyond them is going to be directly proportional to how far behind the eight ball we are. If the street car is in the next block and we are still running with our tongue hanging out, we probably won't do much about subcontractors and the sub-subs; but if we catch up a little bit with our mobilization plan and get a little smarter about it and get a little more continuity into the business and a little more experience, then I think the services will sponsor more direct observation of subcontractor and sub-sub commitments and insist that the manufacturers do more about it.

I would say that right now the effort in that field is quite limited. I don't want to depreciate the importance of it, and I know it is very important; but not enough has been done about it up to the present time.

COLONEL HENRY: General Shepard, on behalf of the National War College and the Industrial College of the Armed Forces, I thank you for a most informative lecture and discussion period.

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