

# RESTRICTED

## INTRODUCTION TO THE DETERMINATION OF MATERIAL REQUIREMENTS

19 November 1951

725

### CONTENTS

	<u>Page</u>
SPEAKER--Colonel N. A. Matthias, USA, Chief of the Requirements Branch, ICAF . . . . .	1
GENERAL DISCUSSION . . . . .	14

Publication No. L52-54

INDUSTRIAL COLLEGE OF THE ARMED FORCES

Washington, D. C.

# RESTRICTED

---

# RESTRICTED

## INTRODUCTION TO THE DETERMINATION OF MATERIAL REQUIREMENTS

19 November 1951

COLONEL MATTHIAS: General Holman and gentlemen:

This morning we start the study of requirements, Unit V of the curriculum. As stated in the college catalog, this course is a "Study of the problem of determining material requirements and the adjustment of these requirements to productive capacity .... The objective is to impart a working knowledge of the procedures in use by, and the coordination being effected between, the various staff levels of the organization for national security concerned with material requirements determination."

My objective this morning is to outline the problem area to be studied in this unit and to discuss briefly our method of attack. To do this I will start with a brief discussion of the relation of this unit of the course to other units. Then I will try to work out a working definition of material requirements and the limits of our consideration of that wide subject during this course. Then I will try to give you a method of attack on the problem, which I think will help you in the study that follows. I will follow that with a brief discussion of each committee problem.

### Relation to Other Units

This subject of requirements has popped up many times since school opened last fall. In fact, the first two questions that were asked the first lecturer of the school year related to requirements. It shows that we have been thinking about it considerably, even if we haven't been considering it as a subject.

The subject of requirements has come up during your study of economic resources, tech progress, and manpower. As to resources, there is no problem in resources until the requirements are such that we are running short. On the other hand our requirements can be no greater than the resources. Obviously, we can't come up with a requirement for something that we can't make. So you can't study resources without getting into requirements.

Tech progress hits requirements two different ways. First, it is a means of improving resources by developing substitutes that are needed. That way it is a help to the men who are trying to plan for the total quantity needed. On the other hand tech progress covers the broad development of many new items. This is the primary problem,

# RESTRICTED

# RESTRICTED

720  
since the problem of getting the facts about these new ideas in time to properly consider them throws a tremendous load on the requirements organization.

Manpower.--I guess you all know by this time that manpower is one of the limiting factors, and therefore it must be considered in requirements. The balance between higher production, thereby taking manpower away from the armed forces, and lower production, thereby giving the armed forces less equipment, is an important one that must be considered in balancing total requirements against the total manpower.

As to future courses, procurement agencies can't buy anything until they know what they want. Similarly, mobilization planning with industry is ineffective, if not impossible, until the military can tell industry what to produce.

The same remarks apply to the Economic Potential Course, which will come later. Then you will look at the potential of various countries; the requirements of materials for total war are a base for those studies.

For the final course of the year, the relation of requirements to the problems of economic mobilization is quite evident. A few annotations will show you the widespread interest in requirements. I selected one from government, one from the military, and one from industry, to show how requirements affect their problems.

Mr. Krug, in a report of the Chairman, WPB, on "War Production Achievements," comments as follows:

"One of the most difficult problems, and one that was never fully solved, was to determine exactly what production goals to aim at. As the procurement agencies and the War Production Board gained experience requirements estimates came closer and closer to the mark, but it was never possible to make an exact science of such calculations, even as applied to military needs. And the extent to which the civilian economy could be squeezed at the particular points without adversely affecting the war effort could not be precisely calculated; it had to be determined by trial and error."

Now for a military control agency's point of view--General LeRoy Lutes, who was Chief of the Army Service Forces, made a report at the termination of the agency, in which he stated as follows:

---

# RESTRICTED

# RESTRICTED

729

"From the over-all standpoint the major logistics problem of the war was the utilization of national resources in meeting the needs of the strategic plans formulated by the Combined Chiefs of Staff .... These plans had to be translated into requirements for hundreds of thousands of items of equipment and supplies, in terms of specifications, time and quantities. In turn, the latter had to be translated into terms of materials, manpower and facilities and checked against available and prospective resources ...."

Industry has still another view about requirements:

"I think all industry recognizes that the needs of war fluctuate more violently than customer demand, but we have a deep conviction that true needs don't jump around quite as much as government orders. There is an entirely justified belief that some changes resulted from mechanical calculation of demand passed on to production in order changes without understanding their effect upon production."

These quotations will show not only the importance of requirements to various agencies, but they give the different points of view. They all indicate that in this study we have a current and only partially solved problem to consider. These are quotations from the past. I am sure that when we get around to writing a history of our present way of determining requirements in this mobilization period, we will give an equally important place to requirements. We must find new ways to lick the problem for both military and civilian agencies.

## Limits of Consideration

In our study of requirements we will divide the problem into three major categories--military, civilian, and foreign aid. In planning economic mobilization we must consider all of them.

The military requirements, obviously, are our greatest concern; we will discuss them in some detail later.

The civilian requirements are divided into war-supporting and essential civilian. By war-supporting we mean the items which must go to the civilian economy to keep the military machine going and to produce items for the military--such things as railroads, communication lines, munitions factories. They are just as much a part of the military demands as anything else, and they must be kept under civilian control and with civilian money, so that we won't lose any time.

# RESTRICTED

# RESTRICTED

The best way to distinguish, I think, between war-supporting and civilian requirements and direct military requirements is that your military requirements will be met by military funds, whereas your war-supporting will be met by civilian funds or government funds other than military.

Essential civilian--that is the one Mr. Krug said they never could figure accurately. They still cannot do so. How much can the civilian economy get along without? How far can it be squeezed? Currently we are afraid to squeeze anything out of the civilian economy, because we think today they should have both guns and butter.

Foreign aid, the third big item, is coming into the fore the last few years and is probably one of the largest current programs, so we are going to get into that in some detail during this course.

All three must be considered and all must be balanced. We cannot have proportionately more of one than the other. I will mention more about that later.

I have been talking about requirements without defining the term. At first hand it seems that it does not need defining, however, since it means different things to different people, we must agree on a definition to use during this study.

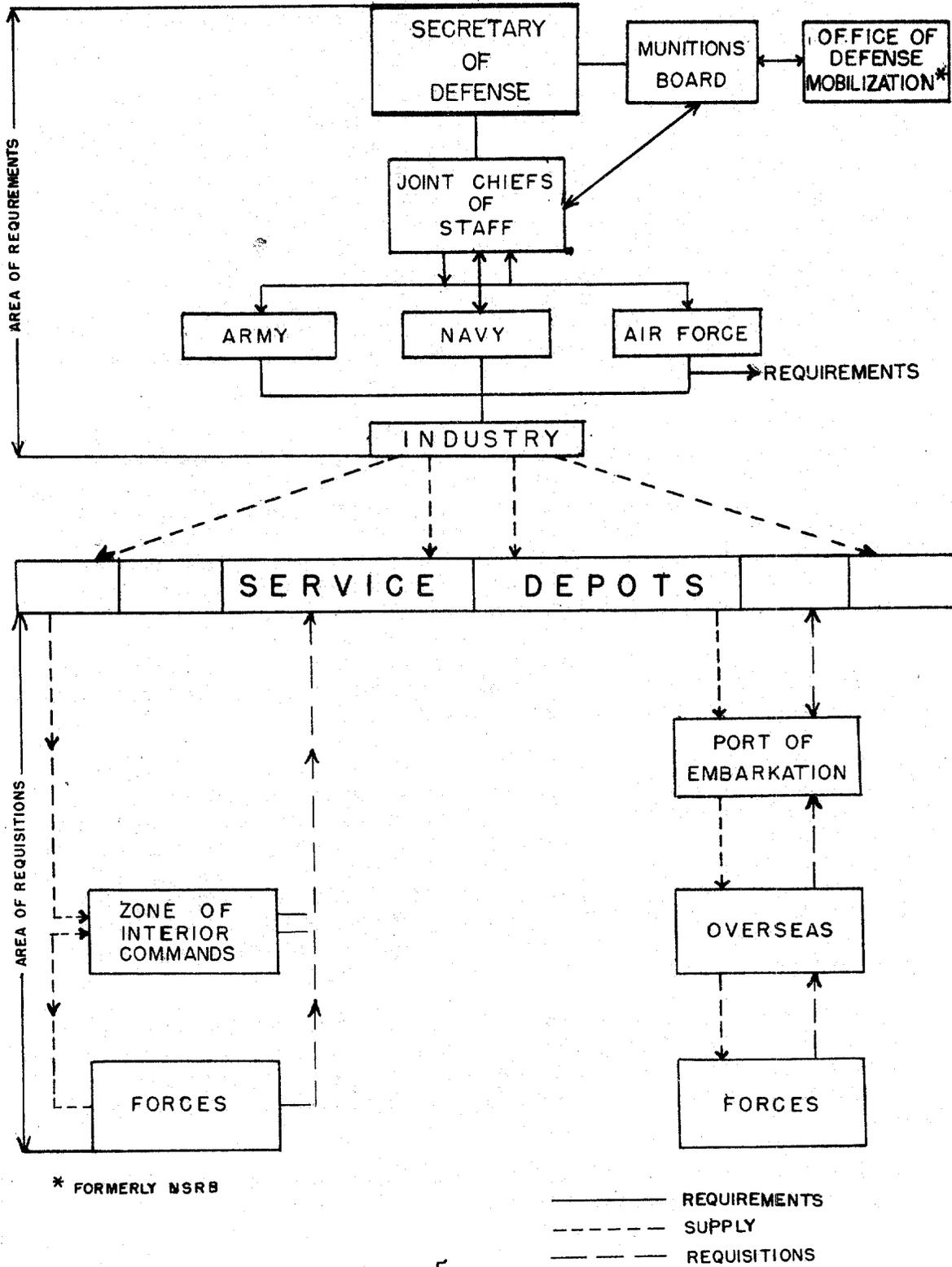
The dictionary doesn't help much. It says in effect, "How much, what kind, and when." That covers all the major elements. The Joint Chiefs of Staff define requirements--and I quote their definition--as: "the need or demand for personnel, equipment and supplies, resources, facilities or services by specific quantities, for specific periods of time or at a specified time." That gets everything in, but it is too broad for our use. It is too broad because it has a different meaning for every individual. Some of you may have read the article in "Colliers"--I think it was last week's issue--about the Chinese fighting in Korea. You get a little different picture of the requirements problem if you study that article, because you will see that requirements mean so many different things to different people. It has a different meaning to a supply man in a front-line unit from that of a staff officer in a planning job.

I think the chart on the following page will bring out that difference. It is not an organization chart. It is not a flow chart. It is a combination of everything. But I think by discussing it we can arrive at an area of our consideration of this problem and a working definition of requirements that will fit in.

# RESTRICTED

# RESTRICTED

## RELATIONSHIP OF REQUIREMENTS TO REQUISITIONS AND RESPECTIVE AREAS OF LIMITATIONS <sup>731</sup>



# RESTRICTED

732

In planning mobilization, of course, we have to plan for forces in the field as indicated on the bottom of the chart.

Now, consider the broad definition of requirements: What is needed? At what time? For what period of time? That fits the man down here, the individual in the front line, the supply sergeant or officer, in that front-line unit. He makes his needs known to the next higher echelon, in the form of a requisition, normally, or by some less formal document. But, at any rate, he goes to the next higher supply point with a requisition or statement of his needs. He expects to find the supplies there and have them go right back to him. Eventually the top theater echelon sends a requisition to the ZI through the port of embarkation. The port sends it to various service depots and the supplies are shipped. At least that is the theory of it.

Now, how does it happen that there are supplies in these ZI depots when the requisition hits, that even remotely resemble what the theater wants? It is because of this upper planning requirements cycle, including the Munitions Board, JCS, the three armed services, etc. They must have predicted theater needs far enough in advance to give the orders to industry and give industry time to produce the goods and ship them to the depots, so that they are there ready for shipment when the requisition arrives.

We are going to concern ourselves with the upper cycle in our course. We will distinguish between what we call requirements (upper cycle) and the requisition needs (lower cycle).

Following that line, then, requirements (upper cycle) means a prediction of requisition needs, a process of predicting what the lower cycle is going to call for. I think you can readily see that it is quite a different problem for the supply sergeant to determine what he needs the next day or the next week from what it is to forecast what that requisition, and hundreds of similar requests, are going to add up to when they reach a ZI depot, when you know that there are a couple of years lead time required in producing many large important items.

There are a couple of other differences between the lower half and the upper; one is limiting factors. In the lower cycle the limiting factor is usually transportation. This man here goes back to the supply dump and usually he is limited by what he can carry or haul back with him.

The theaters must consider their allocation of ocean shipping when ordering supplies from the ZI.

RESTRICTED

In the upper cycle there is a different kind of limitation. The bugaboo there is always productive capacity. How much can be produced to meet all three of those requirements that you noted on the other chart?

Another difference is time. In the lower cycle it is a short-term proposition. It becomes longer for each succeeding higher echelon, depending upon shipping time. From some theaters it may take six months or more to receive requested items. In the upper cycle it is a long-term proposition, where estimates must be made for years ahead.

I mentioned material requirements. The JCS definition doesn't have that term in it. We are going to consider the requirements for material things. This eliminates consideration of personnel and facilities, and the like, which are included in the Joint Chiefs of Staff definition. The processes are not too different, but we like to limit our consideration so we can get down to something that we can reasonably adequately cover in the time available.

To summarize briefly, we consider the short-term estimates in the lower cycle as requisition needs, and use as a working definition of requirements in the upper cycle as a process of predicting those needs. We are going to deal only with material requirements. That cuts the JCS definition down considerably and makes it possible for us to handle the problem.

Now, how do we predict requisition needs in the upper cycle which includes the Munitions Board, Joint Chiefs of Staff, NSRB, ODM, Headquarters Army, Navy, Air Force, the technical services, the bureaus, and the AMC? They are all in the cycle. What makes up this requirements process?

## The Requirements Process

I have broken it down into three steps, (1) guidance, (2) computation, and (3) review and adjustment. By considering it in these steps, I think we can see and more readily appreciate just what the whole process means. What I am trying to do is eliminate the thinking that the process of putting on paper the number of each item you need is the entire requirements picture, and trying to show that in the upper cycle there is a whole lot more to it.

The first item is guidance. Before anybody can figure requirements, he must have guidance. That guidance comes in the form of plans, programs--both logistic and strategic plans--administrative directives, sometimes a lot of past history in the form of records--a lot of different things.

# RESTRICTED

734

The guidance must be passed down to the group that makes the computations. It is in this second step that the actual numbers writing takes place. In other words, it is the step where we translate guidance into terms of specific numbers of items for specific times.

The computation problem is simple from the point of view of theory and mathematics. It is a difficult phase only because of the sheer magnitude of the numbers of items that have to be dealt with, particularly in a war period.

The following page shows the relationship between guidance and computation.

In figuring requirements the usual practice is to divide the total requirement for an item for initial issue, replenishment, distribution, special projects, and reserves.

By considering these separately, one can compute the subtotal for each. Only simple mathematics is involved. Let us take the item of shoes, which deals with the individual. If you know how many troops are going to be inducted during the period in question and you know how many pairs of shoes it takes for each man inducted, it is a simple mathematical multiplication to get the number needed during that period for initial issue.

The quantity needed for replenishment depends upon the number in use during the period and the replacement rate. The "replacement rate" or "replacement factor" is determined from past experience. Again it is a simple mathematical process.

The quantity needed for distribution is more difficult to determine as there are many factors to consider, such as length of the supply line, availability of shipping, stock levels at various points in the line--to name a few. But there is no mathematical difficulty. Guidance for special projects is usually even more indefinite.

The reserves are normally stated in some directive from higher authority.

Now, all I am trying to say is that for each of these parts the mathematics and the computation concerned is simple for any given item and it is not difficult to determine total requirements for a particular period of time if guidance is complete and accurate.

Now let us consider guidance. From where does the computer get guidance for this operation? Well, the strategic plan will normally show the troop list and the activation schedule. There is one thing

# RESTRICTED

# RESTRICTED

## REQUIREMENTS RELATIONSHIPS

735

Requirements classified as to use	Computations and/or factors to be considered	Requirements for a period of time	Source of guidance
Initial issue <u>1/</u>	: Number of troops to be inducted x initial issue per man	: T1	: Strategic plan : troop list : T/O&E--G3
Replenishment <u>2/</u>	: Number of item in use x replacement factor	: T2	: Historical records or engineering estimates of technical services
Distribution <u>3/</u>	: Shipping time, length of supply lines, days of supply in depots	: T3	: Logistics plan-- : G4 directive (level)
Special projects <u>4/</u>	: Type of action expected. Conditions within theaters of operation. Foreign aid commitments.	: T4	: Strategic and logistic plans. Intelligence Estimates. Joint Chiefs of Staff policy.
Reserves <u>5/</u>	: As directed	: T5	: Joint Chiefs of Staff or department directives

Total requirements for the period                      T1. to .T2...T5

- 1/ Initial issue is the requirement for the item to be furnished to a unit or individual for the first time.
- 2/ Replenishment is a generic term used by the Industrial College of the Armed Forces to denote those supplies issued to replace items previously furnished.
- 3/ Distribution refers to supplies for stock levels at various supply points, ports, and depots and in-transit stock.
- 4/ Special projects relate to demands for equipment and materials not included in the tables of equipment or allowances. Construction items are included in this category.
- 5/ Reserves are supplies accumulated in excess of immediate needs for the purpose of insuring continuity of an adequate supply or for a particular purpose.

# RESTRICTED

736

that the computer must have. He must also have the Tables of Organization and Equipment. They show him what is to be issued to each of the men being inducted during the specific period. With those two things he can compute the first item--initial equipment.

However, the strategic plan is made up by the strategic planning branches and the individuals working on it give little thought to the logistic planners who must compute requirements. Therefore this vital guidance is usually delayed unnecessarily.

For guidance on replenishment it is a matter of maintaining proper records on old items or getting estimates in the case of new items. Adequate records of past experience reduce the necessity of individual judgment in arriving at proper replacement factors or usage rates.

For distribution, the guidance comes from both the strategic and logistics plan. The latter gives lines of communication and the former shows theaters of operations, etc. These are only a few of the many sources of guidance which the computers must receive.

Special projects are even more difficult. All the plans must be considered. In addition, intelligence estimates covering conditions in the theater are indispensable. The Joint Chiefs of Staff policy might have a definite bearing. These and many other items must be made known to the computer if he is going to do any kind of job in computing this part of the total requirement.

Reserves, if any, are usually stated in the logistics plan.

Of course, requirements for all items cannot be listed under all five subdivisions; however, most requirements are determined by the process. If you don't have enough information--enough guidance--you must start guessing to get the subtotal for each subdivision.

That gets us down to review and adjustment--the final phase. That is probably one of the most difficult of all and takes up most of the time in the services. They must review their requirements to see that within the service they balance. The Navy must review its requirements and the Air Force and the Army to see that they are balanced. There is no point in having balanced forces and unbalanced requirements.

In this review and adjustment phase, the command function comes in. The main guidance comes through command channels. Most of the

# RESTRICTED

# RESTRICTED

737

computation is done in the technical channel. The requirements go back in the channel of command for review and adjustment, because those final adjustments must be command decisions.

Now, why do we say that adjustment is important? Well, if we don't have balanced forces, then we cannot exert maximum pressure on the enemy. If we have unbalanced supplies at one point that are not needed at the time, we are cutting others out of something they do need, because if you take the manpower and the materials to make unneeded items, they are not available to go into needed items.

There are several things that must be considered in these adjustments. One is that in mobilization planning; you have to assume that it will be an all-out war, probably a war for survival and that our maximum effort must be made. That means we must make the maximum use of all our resources.

The other thing in adjustments is that everybody reviewing the requirements thinks they are too large. So there is usually a process of cutting requirements down, and cutting down where it hurts the least. The result is that when you get through with the military part of it, you must balance the forces over again.

Now, with the military requirements taken care of, we still have those two other items to consider--the civilian and foreign aid. So somebody must balance all three. You will find that this is the function of ODM or NPA or some other civilian agency. We must have the three big items balanced.

In balancing the military with the other things, many times the military requirements may not be as overriding as the military planners think they should be. Many times a military issue or a military necessity has to give way to political expediency, diplomatic commitments, or other things.

In making these adjustments obviously we must know the total production capacity of the Nation. That leads to another study which will be considered in the Production Course, as I mentioned earlier.

I again emphasize the fact that you can't plan facilities expansion or the adjustment of facilities for making one item or another, stockpiling, and many other things without knowing accurately what you need. Those needs must be merged into a national need, with the military, civilian, and foreign aid needs all balanced.

---

# RESTRICTED

# RESTRICTED

738

One other thing that I think is important to point out here is that inevitable question, "Who figures the requirements?" Where is the requirements man? You can walk through an organization looking for the sign "Requirements Section," but often you can't find any. You will often find that the man who is computing requirements is in some section with some other kind of title. Many times it doesn't even have the word "requirements" in it. What I am saying is that the people in headquarters are interested in requirements. They are furnishing guidance, making computations, reviewing, or adjusting. There are very few sections in any of the big headquarters that are not concerned one way or another with this requirements process.

## Conduct of the Course

Now, as to our conduct of the course--last week you got the Unit V curriculum book. We also issued at the same time a book, RL32, titled "Economic Mobilization Studies--Requirements." The curriculum book contains the problem directives, schedules, et cetera, which I will not consider at this time. We will discuss that in detail in the conference this afternoon. You also received your committee assignments.

RL32 was written in the Requirements Branch to try to set forth the basic problems to be encountered so as to give you all an equal start. It was not intended to be a source of answers to your individual or committee problems, as you will soon find out in its introduction, because it is not exhaustive in its treatment of any one phase. It is more of a summary. We would appreciate any comments you may make on that book, so that we can improve future editions.

The committee problems will not cover all the aspects of requirements that we would like to cover. But they do cover some currently hot and important things. I think you will find that there is much going on in the Pentagon and around Washington that will be of current interest in working out these problems. The following problems have been assigned:

Committee 8, this committee problem has to do with the military plans and programs used in mobilization planning. It is an attempt to study in detail the guidance phase which I mentioned--where the guidance comes from, where it goes, and why it doesn't get there too fast.

Committee 9, "Methods of Requirements Determination and Review in a Period of Partial Mobilization." Also we want to take a look at what has happened in the last year. A little over a year ago,

# RESTRICTED

# RESTRICTED

739

when the Korean invasion started, everybody was up in the air about requirements. People were saying that we couldn't get enough clothing to the troops, and so on. There have been numerous boards of inquiry on requirements trying to improve the process. We are going to look at what happened.

Committee 10, "The Functions of the Joint Chiefs of Staff, the Munitions Board and the Office of Defense Mobilization in the Field of Material Requirements." There again we want to see how the ODM fits into the picture with all the developments since about a year ago.

Committee 11, "The Impact of Research and Development on the Determination of Material Requirements." You may think at first glance that you are again studying tech progress; but, as I mentioned before, our concern is how research and development can help the requirements process by furnishing guidance, how it can help by providing substitutes, and all that sort of thing.

Committee 12, "Requirements for Foreign Aid Programs." There we really have a hot one. The national concept of both military and civilian aid is changing as evidenced by the Mutual Security Act of 1951. Foreign aid as an institution is here to stay, therefore we should study its effect on national planning.

One other thing that you will note if you have had a chance to read the curriculum book is that we have four committee conferences scheduled early in the course. The first one, as I mentioned, will go into administrative detail of the problems. The last three will be discussing the mobilization planning cycle in some detail.

We tried in the past to cover the planning cycle in a lecture. However, it is believed that most students will gain more knowledge from a series of conferences, where we can get down to cases and try to figure out the many variations in the theoretical cycle. Then the visiting lecturers may talk about what happens in their particular part of the cycle without orienting the class on the entire cycle.

One other thing--in the final lecture of the course we are trying to recognize a new element which is cropping up. We like to call it combined logistical planning or international logistic planning. Our charter calls it joint logistic planning; however, with a headquarters in being in Europe, involved with combined logistic planning, I believe it is time that we recognized that there is a level above our own that must be considered.

# RESTRICTED

# RESTRICTED

740

## Summary

Now to summarize briefly--we have tried to cover the relation of our course to others and show you how it fits in with the year's work. The details of the course I covered only briefly, because you are going to get those this afternoon.

I want to stress again the limits that we place on the definition of requirements. We are limiting the JCS definition to a smaller area for our consideration in this course. We must approve the problems from the high-level agency point of view and not try to solve the problems at all levels in one course.

I also discussed several problem areas which will be encountered in studying the determination of requirements for mobilization planning. Of these the most important is the problem of adjusting the requirements between the three major categories: military, civilian, and foreign aid. These three in the last analysis, for complete mobilization planning, must be carefully balanced to get the maximum use of our resources and to consider the productive capacity.

In the field of requirements there are many unsolved problems. We hope that by studying your part of the course in your committee and individual problems and special assignments you may write something that will be of value in solving these problems. We are sure your study of requirements will help you, after you leave school, regardless of what your next assignment may be.

Now, gentlemen, there is one brief definition of requirements, which was passed out by the Joint Chiefs the other day, that I think has a little significance. It is one that the boys in the back room worked up. It reads something like this: "Requirements is the stuff which, if you don't have enough of, the war won't run as well as if."

I say that is significant because later you will find that the JCS in their review and adjustment of requirements aren't interested in end-item requirements until it has been determined that "there isn't enough of the stuff that the war won't run as well as if."

QUESTION: I am wondering why you call this a cycle. It seems to me that the whole picture has to be considered as a unit and not as a cycle.

COLONEL MATTHIAS: You have a reasonable point there, but I think it is a cycle because it leaves the JCS in the form of guidance. It gets back to the JCS for final review and adjustment, but in between times it moves round and round among several other agencies.

# RESTRICTED

# RESTRICTED

741

QUESTION: After you get through with all these political decisions and other things on requirements, it winds up as an end product. It seems to me that the whole thing is involved and not the cycles within it.

COLONEL MATTHIAS: This isn't a particularly good chart to bring that out, but I referred to the NSC up here as part of it, getting some guidance to the JCS. But it goes around here and back and forth, between the services and the Munitions Board and back again from the Munitions Board to the services, first to get the guidance straight and then to make the adjustments. If it weren't for that balance that is always necessary, I would say that you have a correct point.

QUESTION: You have covered the unit requirements, but what about spare parts?

COLONEL MATTHIAS: Spare parts are just one part of the process. I have often threatened to try to work out something where we could get into requirements for spare parts, with all the peculiar problems involved.

In theory they are about the same as the others. It, of course, like every other item, has its own peculiarities; and the determination of its requirements has peculiarities. I don't see that spare parts are too much different from the others. They have a number of problems peculiar to them, and it might be advantageous to look into some of them. However, it looks to me as if spare parts are largely a matter of more money and more computations rather than anything different in theory.

QUESTION: Why do we avoid getting into a discussion of facilities in requirements? When you look at the end products, where they are going to come from is one element, in looking to the demands upon industry.

COLONEL MATTHIAS: Well, the planning with industry for industrial expansion is the sort of thing that comes in the production course more than it does in the requirements course. I will admit that this is an arbitrary breakdown. Of course, industrial capacity has to be considered in requirements, just like manpower, as one of the limiting factors.

COMMENT: When you are speaking about material, you are still in that same discussion area.

COLONEL MATTHIAS: You have to consider the requirements for materials to build facilities. But what I am talking about is the necessary key problems: Shall we build a new facility? Shall we

# RESTRICTED

# RESTRICTED

742

convert an old facility? Those are the types of problems--knowing the total load that is going to be put on a particular industry--that are studied by the Munitions Board. These are considered in ICAF in the Production Course rather than the Requirements Course. They are all related and essential.

QUESTION: Wouldn't another answer to that question be that the construction of facilities, for example, would be handled pretty differently and by separate groups within this ODM and the Munitions Board framework?

COLONEL MATTHIAS: It could be. The steel, lumber, and what not to build the facilities have to come into the requirements picture. As steel, lumber, and what not we are interested in them as requirements. They come in as war-supporting civilian requirements.

QUESTION: How about your square footage of storage space to put the material in? That may come to be a very limiting element.

COLONEL MATTHIAS: It is. We get into that somewhat in our Distribution Logistics Course. We get into the problems of distribution and storage and what not. The other thing that you are talking about is down in this layer right here.

There are many phases of this planning that we don't try to cover in requirements. In other words this is a Requirements, not a Logistics, Planning Course complete. We get into a lot of phases of logistics planning, but not all of them. We can't possibly do it.

QUESTION: I just can't see how, if you are working with square feet of space in the depot area, transportation and other problems can be divorced from requirements. Anybody knows that if you have ideal transportation and storage, you can cut your requirements in half.

COLONEL MATTHIAS: That is right. I agree 100 percent. There are a lot of things you can't divorce from requirements, but we still haven't time to consider them all.

As I said before, we get into the picture of the materials needed to support the transportation system, but we aren't going to study the transportation system itself. The most ideal transportation system must be expanded in time of war, whether ours is great enough or needs expansion, or what-have-you, or the relation between rail and trucks and what not. They come in under your Public Service Course later on.

# RESTRICTED

# RESTRICTED

743

It is the same thing as applying the things having to do with manufacturing facilities that come under production. In this course we are talking requirements. What it takes to store and handle this stuff comes in our Distribution Logistics Course. There are many other things that we could add to your consideration of requirements, but we have to chop it off someplace.

COLONEL CAVE: I think that the two previous questions can be tied together as aspects of the requirements problem if you can give us a little bit more on the "when" in the requirements equation. We're deeply interested in the Production Branch in the rate we've got to produce, because that determines all the facilities and equipment that must be set up. In short, it is almost always a limiting factor on feasibility.

COLONEL MATTHIAS: You will recall the JCS definition of requirements that I gave. I want to emphasize that when we are determining requirements we list needed items by specific quantities for specific periods of time. This gives the rate and other time factors needed for industry planning time. I didn't attempt to cover that this morning, because we are going to discuss it later in a conference. But you can't divorce requirements and times, naturally.

What Colonel Cave is getting at, I believe, is this: Suppose we are planning for a two-year war. You might figure that for a two-year war you need 50,000 of an item. Accordingly, industry is told to produce 50,000 the next month thus taking all available production. If those same 50,000 were scheduled over a two-year period, if the schedule were fitted into industry so that it came out of industry at the proper rate, the problem would be different. You wouldn't then have to provide storage for 50,000. You would need just enough for a working stock going through the system. That is one part of the time phasing that you must consider.

The other thing is to get guidance into this cycle early enough so that the order can go to industry so that it can be produced in time to be of use. That is another time element that must be considered.

But the important thing that Colonel Cave is getting at is, I think, that requirements must be in total and they must be time-phased by months, or by quarters certainly.

QUESTION: Most of the requirements of the JCS that are concerned with the civilian economy have to do with end products in which there are a number of basic materials which, I gathered,

# RESTRICTED

# RESTRICTED

744

must be considered in the course. There is the question of facilities, the question of manufacturing the end products. Is the emphasis in this course on the requirements for those end products, or on the requirements of basic materials that are going to go into the end products?

COLONEL MATTHIAS: Both.

QUESTION: Do you divorce the other possible limiting factors, such as facilities and manpower, that go to determine the end products?

COLONEL MATTHIAS: You have asked me to give half of my lecture over again, the half that I didn't have time to give.

We have to get the requirements primarily in terms of end items, so that the logistic planners and the strategic planners may know that their plans will work, that they will have the actual tools of war that fit a plan. Having gotten them in end items, those end items must be translated into basic materials, so that somebody in the Munitions Board may know that the actual steel for the fourth quarter of 1953 would be on hand in the quota to make the items. That, of course, would have to be carried back to the ore itself probably by somebody to see that there is enough ore available or facilities to get it.

But in between those two extremes there are many other things that will come in. We use the term "end item" to apply to an airplane. Well, it is not too hard to figure out the numbers of complete airplanes that you want. But some of those components of the airplanes, like radar gear, weapons, the control systems, and so forth, are in themselves end items for other uses. So we must consider the important components as separate items if there is any indication that they will be hard to produce.

I think electronics is a particularly good example right now, because those products go into so many industries that make equipment that goes into tanks, airplanes, ships, and hundreds of other things. Because parts are critical, the requirements for items common to several end items must be determined separately, in order to solve the problem.

Somebody mentioned spare parts. They might become important. In the last war gears were a limiting factor. There was a limited capacity of industry to produce gears, therefore gears had to be dealt with separately.

You must have your requirements in different terms for different purposes. We are concerned with end items, with those end

# RESTRICTED

# RESTRICTED

745

items translated into components, with semifinished goods, with raw materials, or in whatever terms are needed at different steps of the planning process.

The one thing we are not interested in is the personnel requirements. We are not interested in requirements for money. We are not interested in requirements for services.

QUESTION: I gather from what you say that the quantities required should be realistic requirements because of the lead time, 18-24 months, that is involved. Does not your picture of requirements then become a controlling factor in the strategic concept of mobilization? In other words, in any war that we have to fight, a full-scale war, we couldn't reach full mobilization in anything under 2 years, because of the lead time of 24 months which is required for some of the items. Doesn't that then become the guide rather than manpower or anything else?

COLONEL MATTHIAS: I think what you are hinting at is whether logistics or strategy is the controlling factor. Theoretically they make a strategic plan, which is translated into a logistic plan. It finally gets down to the requirements. If that strategic plan or the timing of it is far enough in advance to permit this whole cycle to be completed and adjustments made all the way across the board, then you could adjust to any reasonable strategic plan. But as timing gets closer, if you have something that is going to operate next year or this year, you have to operate with what you have. In other words, the strategic plan can only consider as assets what you have now.

I have forgotten when it was, but sometime during World War II a strategic plan was delayed so long that the strategic planners lost the initiative. The logistic planners took over to the extent that the logistics became a limiting factor on the strategic plan. It will always be that way if the time is short.

Let us take as an example an assumption that 10 years from now we will fight the entire war with tanks and won't need any battleships or airplanes. You could point industry in that direction and get all the tanks we needed. You couldn't do it tomorrow. That is an absurd example, it is true; but I think it is the type of thing that you are thinking of--that, given time, we can adjust industry to meet any reasonable load or any kind of balance. But without that timing the strategists have to consider the things that are there.

GENERAL HOLMAN: I would like to offer just one suggestion that will take all this mystery out of this business and give you a little something to hang your hat on. It is not a difficult

# RESTRICTED

# RESTRICTED

746

thing to remember, but a lot of people seem to forget it. It is simply this: The word "requirements" means different things to different people. It depends on where you are as to what your requirements will be.

Let us take the Chief of Ordnance. What are his requirements? I think the answer to the Captain's question here may throw some light on this. The requirements for the Chief of Ordnance are for arsenals, storage depots, and for industries to be set up to support his plan--loading plants, handling plants, and so forth, and to develop tanks--manufacturing plants.

My suggestion is that whenever you look at a requirements problem, first isolate the level which that problem is on. Try not to get into too much detail about what the other fellow is going to do in supporting that requirement. Look at it in bulk, if you please.

Also look at two other things. First, whom do you get your guidance from? Who has the basic information on which you can build your over-all plan?

Let us take a plan such as the requirements that the Chief of Ordnance would need to set up a tank program. He gets his basic information from G-4, who in turn provides him with a list of the basic things that he needs for manufacturing and the timing of this thing. G-4 ties in with the Munitions Board and the Joint Chiefs of Staff to get their guidance.

If you can figure out very quickly who can give you the basic information, the basic guidance, for the determination of your own requirements, it is a very important thing that you go to them. Very often they will say, "Well, we have not carried it along that far." You say, "Well, I must have definite information before I can set the plan up." Then what do you have to do? You have to make some assumptions and that is always where you have a lot of trouble.

But in making those assumptions they should not be unilateral ones, in my opinion. The assumptions should be the very best assumptions that your own agency and the agency to whom you look for guidance can work up together--assumptions on timing, on quantity, on source of money and men, if you please.

Then the last thing I would say to look at would be to get a pretty good idea of the other claimant agencies that are going to be interested in those same things. If you know that there will

# RESTRICTED

# RESTRICTED

be impingement from some other agency on that particular source, you try to get that idea worked out. Above all, don't try to get into details in the next lower echelon, unless you absolutely have to.

Those are fundamental ideas. The key to the whole business, in my humble opinion, is to look at it at the level on which you or your commander will be working. But don't look too far above or too far below. They are the people who are going to be coming in as claimants for this same sort of material.

I think that takes most of the mystery out of it.

COLONEL MATTHIAS: Our time has run out, gentlemen.

(1 Feb 1952--150)S/VJM

# RESTRICTED