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PROCUREMENT PLANNING

by

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1. INTRODUCTION.

War is no longer simply a battle between armed forces in the field - it is a struggle that reaches the innermost recesses of the national entity. The experiences of all the nations engaged in the World War conclusively proved that the military power of a nation depends not only upon man power but to an even greater extent upon material resources and industrial capacity. The prompt and orderly marshalling of industry in the utilization of national resources for timely production of an adequate flow of supplies for the military forces and for the essential needs of the civil population is a prime factor in a nation's military power.

Recognizing these facts, Congress has placed upon The Assistant Secretary of War, through the provisions of Section 5a of the National Defense Act, the responsibility for "the supervision of the procurement of all military supplies and other business of the War Department pertaining thereto and the assurance of adequate provision for the mobilization of material and industrial organizations essential for war-time needs". The Act also states that "Under the direction of the Secretary of War chiefs of branches of the Army charged with procurement of supplies shall report direct to The Assistant Secretary of War regarding all matters of procurement - -".

The Assistant Secretary of War is thus charged with supervision of Army procurement both in peace and war and with planning for industrial mobilization for war. Actual procurement of Army supplies, however, is a direct function of the supply arms and services under the following mandates

Section 9 of the National Defense Act, June 3, 1916, as amended, states

" - - The Quartermaster General, under authority of the Secretary of War, shall be charged with the purchase and procurement for the Army of all supplies of standard manufacture and of all supplies common to two or more branches, but not with the purchase or procurement of special or technical articles to be used or issued by other supply departments, - - Provided that special and technical articles used or issued exclusively by other branches of the service may be purchased or procured with the approval of The Assistant Secretary of War by the branches using or issuing such articles, - -".

The procurement responsibilities of the Chief of Ordnance are stated in R.S. 1164, U.S.C. 10 192 as follows

" - - It shall be the duty of the Chief of Ordnance - - - under the direction of the Secretary of War to make contracts and purchases, for procuring the necessary supplies of ordnance and ordnance stores for the use of the armies of the United States, - - -". Likewise section 12a of the National Defense Act as amended states

" - - The Chief of Chemical Warfare under authority of the Secretary of War shall be charged with - - the procurement and supply to the Army of all smoke and incendiary materials, all toxic gases, and all gas defense appliances, - - -".

R.S. 5714 as amended by Act of February 27, 1977, U.S.C. 10-1191 states

" - - All purchases and contracts for supplies or services for the military and naval service shall be made by or under the direction of the chief officers of the Department of War and Navy, respectively. - - -".

The Secretary of War has delegated this authority to certain chiefs of supply arms and services as shown by the Army Regulations quoted below

A. R. 40-5 states

" - - The Surgeon General is charged with - - - procurement - - of special and technical articles of equipment required for the care of the sick and wounded personnel and animals of the Military Establishment. - - -".

A. R. 90-5 states:

" - - The Chief of Coast Artillery is charged with the responsibility for the procurement of special supplies of submarine mining material as designated in procurement lists approved by the Assistant Secretary of War, - - -".

A. R. 95-5 states:

" - - The Air Corps is charged - - with - - production (and) procurement - - of all aeronautical equipment and supplies used by the Air Corps and not specifically required to be furnished by the other supply arms and services, - - -".

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A.R. 100-5 states

" Within any theater of military operations the duties of the Corps of Engineers comprise. The procurement of all materials for construction work, for the organization of defense systems, and for all operations assigned to the engineer service, including all plant, tools, and appliances for such work (and) the procurement of certain classes of supplies and equipment prescribed elsewhere.

A.R. 105-5 states

" the Chief Signal Officer will have charge of the procurement of signal and meteorological equipment and supplies, of all electrical apparatus associated with direction finding (and) of photographic supplies.

In addition, annual appropriation acts specifically allot funds to the supply arms and services for the procurement of certain Army supplies for which they are responsible.

Thus it is seen that the chiefs of supply arms and services have the direct responsibility for actual procurement. The Quartermaster General, the Chief of Ordnance and the Chief, Chemical Warfare Service, have statutory procurement responsibilities placed upon them under the mandates given to the Secretary and Assistant Secretary of War and in the annual appropriation acts.

The Office of The Assistant Secretary of War is organized to assist The Assistant Secretary in carrying out the responsibilities placed upon him by Congress as well as those delegated to him by the Secretary of War.

B. MANAGEMENT OF PROCUREMENT PLANNING

The Planning Branch is concerned with the responsibilities of The Assistant Secretary of War with regard to the "assurance of adequate provision for the mobilization of materiel and industrial organizations essential to war-time needs." The organization and duties of the Planning Branch are shown on Chart 657. In war time the Planning Branch becomes the Procurement Branch with organization and duties as shown on Chart 658.

The Procurement Plans Division of the Planning Branch exercises general supervision of procurement plans. It has prescribed, in Planning Branch Circular No. 2, the form and contents of the plans to be submitted, making sure that these instructions meet with the full approval of all of the supply arms and services, and that when the plans are prepared in this form they will be suitable for their use. In exercising this supervision, the Division analyzes all plans and coordinates them with the plans of the other services. It prescribes the methods of computing procurement requirements based upon the supply requirements prescribed by the General Staff. Another important peace-time objective of this Division is that of planning for the supervision of war procurement, which becomes the principal task of this Division in war. General plans are formulated as to how this supervision of procurement can be most effectively accomplished.

The preparation of procurement plans is the responsibility of the chiefs of the supply arms and services, who maintain organizations for this purpose. These organizations consist of the personnel in the offices of the chiefs of the supply arms and services, plus district organizations, planning organizations at arsenals, proving grounds and similar field agencies. Today there is a total of approximately 85 regular army officers and 152 civilians engaged in securing production data, computing requirements, and other activities connected with procurement plans.

Since the supervision of procurement plans is the principal objective of this Division, the principles upon which these plans are based and the methods used will be described in some detail. It may be stated that procurement plans form the goal or objective of procurement planning and each plan is, in the final analysis, a summary of what has been done in peace toward preparing for the war procurement of the item for which the plan is written. Before a sound war procurement plan can be prepared, data must be available which will furnish satisfactory answers to the following basic questions:

- (1) What is wanted? (Specifications and Drawings)
- (2) How many of each item are needed, i.e., how many must be manufactured or purchased each monthly period?
- (3) Where can the item be procured?
- (4) When can deliveries begin, and at what monthly rate can the item be produced?

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The problems involved in finding the answers to these basic questions will be discussed.

a. What is wanted?

The War Department in the World War had some 700,000 items on its shopping list. A large number of these items were, of course, strictly commercial, but there was also a very large number of technical military items entirely unknown to the commercial world. An article must be clearly identified by drawings or specifications, or both, before procurement can be initiated. In the case of noncommercial technical supplies complete detailed and toleranced drawings must be prepared before a manufacturer can undertake production. The management of specifications is a function of the Standards Division of the Planning Branch and will form the subject of a separate lecture. The General Staff from time to time calls upon the supply arms and services for lists of essential and mobilization items. What are essential and mobilization items? A.R. 700-10 defines them as follows

"Essential items are those items of the war reserves which are unobtainable from civil stocks or production in the time and quantity required."

"Mobilization items are those items of the war reserves which cause less serious problems in procurement than essential items."

Based upon these definitions, each supply arm and service analyzes its shopping list and segregates those items which fall into each category. Essential items are also given a priority classification by designating them as three-star, two star, one-star or no-star items in descending order of priority. Naturally, the components will carry the same priority as the basic item.

For the purpose of this discussion, all items may, perhaps, be placed in two general groups:

- (1) Those for which procurement plans are unnecessary.
- (2) Those for which plans are prepared.

Planning Branch Circular No. 2 places the responsibility of choosing items for which plans are written upon each chief of

a supply arm and service by stating:

"Each chief of a supply arm or service will prepare plans for the procurement of those items, components, materials, equipment and operations which he considers necessary to fulfill his war procurement mission."

It is not always possible to base procurement plans upon the items which are supplied to troops as items of issue or spare parts, for the reason that the supply arms and services are compelled, in many cases, to subdivide an item of equipment into components when placing orders with manufacturers. Thus, the Ordnance Department does not procure a complete round of 75 mm H.E. shell which is an essential item. It must procure primers, cartridge cases, propellant powder, shell forgings, machining shell forgings, high explosives, metal components for fuses, loading of fuses, loading of shell and assembly of complete rounds of ammunition. It is also necessary to procure many items which are never issued to troops but which are essential to the manufacture of munitions, such as, for example gages. Therefore, in setting up a system for procurement planning, it is necessary to depart from the items with which the General Staff is concerned from the supply standpoint. Planning Branch Circular No. 2 states further in connection with the subject of preparing plans for components

"In case an item is normally broken into components for procurement purposes (example, Guns, Gas Masks) procurement plans will be written for those components deemed necessary."

"If a component is common to more than one item (example, Propellant Powder, Persistent Gas, Batteries) a plan will be prepared for the components based upon the total requirements and will be cross referenced to the items to which it pertains."

"Plans for the procurement of strategic and critical materials will be prepared in accordance with the current instructions issued by The Assistant Secretary of War."

"If an item is broken into components for procurement purposes, the plan for the assembled item should indicate production by cross reference to the plans for the several components. The production rate

for the assembled item will be shown by stating which component or operation would determine the rate of delivery."

Thus, after plans for the several components have been prepared, a plan is also prepared for each item of issue to which they pertain. The point is that procurement lists of some of the supply arms and services will always include a large number of items which will not appear on any supply lists which may be prepared under the direction of the General Staff. Some idea as to the numbers of important items for which plans will be prepared by the various supply arms and services may be obtained from an inspection of Table I. It should be remembered that this list is not static, but is being added to from time to time as planning proceeds. Naturally, planning efforts are first concentrated upon the items which are considered most important, but as these plans are written, the scope of planning activities of the supply arms and services will gradually increase. These planning activities are, at the present time, limited by the restrictions on the number of persons employed on procurement planning, and the funds allotted for the purpose.

b. How many of each item are needed?

When this country declared war in 1917, no mobilization plan existed upon which the requirements of supplies could be based. At that time no definite system existed for computing requirements. Today the Army and the Navy have plans upon which to base the mobilization of industry. In the Army all procurement planning is based upon the General Mobilization Plan, 1933, which envisages a maximum military effort or the mobilization of approximately four million men in eleven months. This plan, which is in great detail, shows the mobilization of man power month by month in each Corps Area. It can, therefore, be used not only to determine the quantities of supplies needed, but also where the supplies should be sent. The method of determining requirements is outlined below.

(1) Monthly troop requirements. The method of computing monthly troop requirements has been prescribed by the General Staff in letter of June 29, 1935, A. G. 381.4 (6-12-35) (Misc) MD, secret.

(a) Initial issues. The initial issues of military supplies to the organizations prescribed by the General Mobilization Plan are found from Tables of Organization

and Tables of Basic Allowances, and include the total in use in the Z.I. and the T.O.

(b) Maintenance factors. The maintenance factor for each item is recommended by the chief of the supply arm or service, and, when approved by the Chief of Staff, is applied to the monthly troop requirements to determine the monthly quantities required for wastage or maintenance. These wastage or maintenance factors, as would be expected, vary widely with the item, and are based upon experience gained in the last war and peace-time experience in the supply of the Regular Army and National Guard, corrected for probable war effects. It is of the greatest importance that these factors be reasonable and as nearly accurate as possible, for, if unnecessarily large, they will generate excessive total requirements, thus adding to the procurement burden. Different maintenance factors are generally applied for the same item against initial issues in the Z.I. and the T.O.

(c) Distribution factors. Distribution factors are usually expressed as a percentage and applied to the initial issues plus maintenance for the purpose of providing an additional stock to allow for tariff of sizes, stocks in transit and the echelonment of stocks in depots. Distribution factors are also determined by the chiefs of the supply arms and services, and approved by the Chief of Staff. The factors range from 10% to 50%, and are applied to the initial issues of the first month.

(d) Defense projects. The requirements for known defense projects are also added to the issues of the first month.

(e) Requirements of Navy and Marine Corps. In many cases the Army procures items for the Navy and Marine Corps and such requirements must also be included.

(f) The sum of all the above amounts gives the total monthly troop requirements.

(2) Monthly supply requirements. These monthly troop requirements are now shifted forward one month so that the supplies and equipment which are to be issued during any particular month will be available at the beginning of that month. This shifting of the monthly troop requirements to form the monthly supply requirements has been prescribed by the General Staff.

(3) Procurement requirements. In procurement planning, the Office of The Assistant Secretary of War is concerned with procurement requirements. These are determined by moving the monthly supply requirements forward an additional 30 days, or one month, and then deducting the stock of war reserves on hand from these monthly supply requirements. Thus, if there is a relatively large war reserve, the procurement requirements of the first several months may be reduced to zero. The reason for moving the monthly supply requirements forward one month is to allow for the fact that the total production in any month will not be available for shipment to supply points until the end of the month. The reason for deducting stock on hand is obvious. When the monthly procurement requirements of an item have been thus computed, we have an answer to the question, "How many of each item must be procured each monthly period?" (See Table II).

c. Where can the item be procured and when can deliveries begin, and at what monthly rates can the item be produced?

Armed with the data as to what is wanted and how many of each item are required, industry can be approached to obtain answers to the above questions. This contact with industry is obtained through the procurement district organization of the supply arms and services. The procurement requirements are apportioned to the various districts, which in turn survey the facilities in their districts, obtain allocations or capacity credits against certain facilities, and finally obtain accepted schedules of production or estimates of production for each suitable facility. Allocations will be the subject of a separate lecture and will not be further discussed herein.

d. Form and contents of procurement plans.

These reports of monthly production are received by the chiefs of the supply arms and services and consolidated. This brings us to Form 1 and the supporting forms described in Planning Branch Circular No 2. As we check the form against the basic data which have been discussed briefly above, it will be seen that the form provides for the assembly of these data. The form also provides for matching requirements against production to see how we stand in the procurement of any item. The cumulative surpluses or shortages are also called for. If shortages occur in the procurement of an item, then Circular 2 requires that the best known solution to the problem for overcoming these shortages be stated. Under "Remarks" pertinent facts regarding the procurement of an item are entered.

It should be appreciated that a procurement plan prepared on Form 1 represents a summary of the planning work which has been accomplished for the item for which the plan is written. At the same time this abstract is a succinct account of the actual procurement contemplated. It may represent the result of several years' work in developing and testing the item, preparation of specifications, and in some cases, thousands of drawings, computation of requirements, the allocation of facilities and the obtaining of schedules of production from industry, and the like.

e. Supplemental plans.

In addition to the plans prepared on the basic Form No. 1, Circular 2 directs that the supply arm or service prepare supplemental plans for such items, materials, equipment or operations as are considered necessary. When a chief of a supply arm or service believes that more detailed information than that shown on Form 1 and supporting forms is desirable or necessary, such information is compiled into a supplemental plan. Usually such plans are written for the use of officers and civilians who will be directly concerned with that activity.

C. VALUE OF PROCUREMENT PLANS.

Assuming that the procurement plan for an item has been written, the question arises as to its value and usefulness in peace and war.

e. Value to the supply arms and services.

(1) As previously stated, the ultimate objective of procurement planning is to provide plans both in form and contents that will best serve these chiefs in carrying out their procurement missions. One of the objectives in prescribing the simplified form for procurement plans is to insure that the basic data required in a procurement plan would be clearly stated in the fewest possible words and that all unessential data would be omitted. Today, each procurement plan is signed by the chief of the supply arm or service or a designated representative. Each plan will show responsible officers just how their arm or service stands at the time in regard to the war procurement of that item. Judging from the remarks of the Ordnance District Executives at a recent conference held in Washington, the attempt to meet apportionments made to the districts by production schedules is bringing demands from these representatives for changes in design to permit increased production. In other words, procurement planning in time of peace will indicate

the choke points which may occur in a major emergency. When a procurement plan is prepared and the deficits indicated are considered too great, these facts will be brought to the attention of the responsible officers and steps may be taken in peace to improve the situation. In most cases, if Form No. 1 can be satisfactorily completed for an item, it is prima-facie evidence that the item can be procured in war, since the basic data required for the procurement of that item have been obtained. If, on the other hand, the plan shows, for example, that drawings are needed and that these drawings have not been completed, this is a warning to all concerned that the chief of a supply arm or service is not yet ready to procure that item in war. Each plan gives other important pertinent data, such as cost data, which will be valuable in preparing estimates for war appropriations, shipping data, status of stocks, and the like.

(2) Determination of war reserves. The war reserve of any item which should be kept on hand can be ascertained in an inspection of line 22 of Form 1 by selecting the greatest monthly cumulative shortage. This figure will represent the amount the present stock should be increased if there is to be no shortage of that item in a maximum effort. By adding the stock on hand to this amount, the required war reserve is found. Unfortunately, the General Mobilization Plan, 1953, mobilizes men so rapidly that the resulting war reserve demands are so vast as to be impracticable from the standpoint of cost and maintenance. For that reason, existing war reserves are not based upon shortages indicated by procurement plans as they should be. It is hoped that in the not too distant future this relationship between procurement plans, man power mobilization plans and war reserves will be better understood than it is today.

b. Value of procurement plans to the Office of The Assistant Secretary of War.

When the procurement plan is written for an item, it does not necessarily mean that all procurement planning in connection with that item has been completed. Each procurement plan is a summary of the progress of the planning activities for that item up to that time. Procurement plans are never fully completed, but must remain fluid, flexible and subject to change as the factors involved in the plan change. An inspection of a plan prepared on Form 1 will, however, give the Office of The Assistant Secretary of War an accurate picture of the status of planning activities in regard to that item

and will show whether the chief of the supply arm or service concerned is prepared to procure that item, or whether important work remains to be accomplished. The progress of procurement planning can thus be accurately evaluated. When a plan indicates that cumulative shortages of an item will occur, it may be necessary to request that the status of that item be reviewed by the responsible chief of a supply arm or service with a view to possible improvement. This detailed analysis in peace of procurement plans forms, perhaps, the most important duty of this Division. Choke points which will occur in war can thus be discovered, and action can be taken in peace toward a solution of the problem.

When practically the whole procurement program falls short of the requirements generated by the specified mobilization rate of man power, as is the case under the General Mobilization Plan, 1933, this fact can be ascertained from procurement plans. Reports of these facts can then be made to higher authority with recommendations as to the steps which should be taken to remedy the conditions found. Such reports are made to higher authority as secret studies submitted by the Planning Branch.

There are some items which are procured by one supply arm or service that are related to the items procured by another branch. For example, radios, procured by the Signal Corps, are mounted in tanks which are procured by the Ordnance Department, searchlights, procured by the Corps of Engineers, are related to sound locators manufactured by the Ordnance Department and both are used in connection with anti-aircraft artillery procured by the latter. Shells manufactured by the Ordnance Department are filled by the Chemical Warfare Service with gas procured by the latter. Such items must be coordinated in procurement to insure that the program of the War Department as a whole is at all times kept in balance. This Division has lists of these related items and when a procurement plan pertaining to such an item is received, it is analyzed to ascertain whether the supply arms and services have coordinated their requirements. The expected production is also studied and the item which forms the choke point discovered. The chief of the supply arm or service responsible for the choke item is notified in order that efforts may be made to bring that item into balance with the related items. Not much has been done to date by this Division towards this coordination, due to the lack of completed procurement plans, but in the very near future this will become one of the most important peace-time activities of this organization.

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D. PROCUREMENT PROGRESS DIVISION (WAR).

a. Objectives and Policies.

In an emergency, the Procurement Plans Division will become the Procurement Progress Division with new objectives. It will take over such of the activities of the peace-time Current Procurement Division as are applicable. The principal objective of the war organization is the supervision of war procurement. As in peace, the activities of the Division are limited to supervision with no thought of interfering with war procurement, which is the responsibility of the chiefs of the supply arms and services. Close supervision of procurement activities is, however, maintained to insure that satisfactory progress is made, that requirements and procurement are coordinated and that war procurement is carried out in accordance with basic laws and instructions.

b. Organization and Procedure.

It is now planned that the Procurement Progress Division will be subdivided into three sections in a war emergency

- 1. The Procurement Review Section.
- 2. The Contract and Purchase Information Section.
- 3. The Procurement Analysis Section.

(1) The Procurement Review Section.

This Section will take over the peace-time activities of the Current Procurement Section of the Office of The Assistant Secretary of War, but under policies suitable to war-time conditions. While in peace-time it is important that the laws pertaining to procurement be carefully followed by each contracting officer and the Current Procurement Section insures that this is done, in war the main objective is to obtain supplies, and to this end the peace restrictions used to regulate procurement agents must be relaxed to the greatest possible extent consistent with orderly and legal procurement. A study of these peace-time procurement regulations is now being made with the object of determining just what restrictions should be removed in war and what laws and regulations restricting procurement should be changed on M-Dry. In the last war the laws and instructions relating to advertising and competitive bidding were promptly changed, as they will undoubtedly have to be again. However, competitive bidding in the case of

strictly commercial articles would be advisable in an emergency in many cases.

The Procurement Review Section will determine whether instructions promulgated by The Assistant Secretary of War are being followed. It will be concerned with matters relating to inter-branch procurement and purchases in foreign countries. It will investigate conflicts between procurement instructions of the various supply arms and services and difficulties and obstacles to procurement which are not the direct concern of another division of the procurement branch.

(2) The Contract and Purchase Information Section.

This section will be established in order to provide a central source of information regarding War Department procurement procedure, to maintain liaison with the supply arms and services and also with other procurement agencies of the Government. Upon the outbreak of war, thousands of representatives of manufacturers will descend upon Washington looking for war contracts. It is now widely known that The Assistant Secretary of War directs Army procurement. It may, therefore, be expected that these representatives will make their way to his office. The Contract and Purchase Information Section must be prepared to direct these individuals back to the proper procurement district from which they come and to handle special cases and situations which will arise. The section must be equipped to give necessary information concerning Army procurement procedure, policies, regulations and organization. If any restrictions are placed by the War Department upon procurement, this section will review such contracts to insure that such restrictions are being followed. Legal phases of contracts, however, will be referred to the Legal Division with which this section will maintain close liaison.

(3) The Procurement Analysis Section.

In peace, the principal objective of the Procurement Plans Division is the supervision of procurement plans, as has been stated. In war, likewise, the principal objective of the Procurement Progress Division is the supervision of war procurement, including analysis and progress. One of the avowed reasons for the adoption of the new form for procurement plans was to set up a system which could be used as a basis for the supervision of war procurement, the follow-up of progress, analysis to uncover choke points and the coordination of the

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procurement of related items. The Procurement Analysis Section should maintain such statistical records that the progress of the entire procurement program of the Army can be known definitely at all times and The Assistant Secretary of War report advised us to this progress. This would seem like an impossible task unless analyzed from the viewpoint of procurement plans. It is attempted below to explain briefly how it is now planned to conduct this war procurement supervision and the follow-up of progress.

Assuming that M-Dry has arrived and that procurement plans of the various supply arms and services are fairly complete. In this connection it is now expected that about 90% of all procurement plans will have been completed by the end of the present fiscal year (1927). To make the situation more definite, let us assume that we are discussing the procurement of ordnance. Remembering that the procurement plans are written for all items, components, material, equipment and services which the chief of a supply arm or service believes will cause sufficient difficulty in procurement to warrant a plan, these are the items which will require supervision. As soon as the troop basis for the war in question is known, requirements for that situation may have to be recomputed. This the Ordnance office will promptly do, using approximate methods. These revised requirements would be then entered on the existing procurement plans, say in red ink, and the plans re-balanced. If the changes in requirements are very large this may require changes in apportionments to districts, and probably the Chief of Ordnance will call in his district executives and consult them in connection with any plans where such redistribution of orders would be required. The revised plans made out on Form 1 could then be brought to the Office of The Assistant Secretary of War and approved. These approved plans would become directives upon the Chief of Ordnance for the procurement of these items, who would, in turn, send them to his procurement districts for execution. The importance of procurement plans as viewed from this angle of war procurement becomes evident. Now that the war procurement program has thus been put into operation, how can progress be followed? Again using these plans, a very simple method is possible. Each plan shows the manufacturers and their expected rate of production. It is visualized that qualified persons in this Division would be assigned in charge of each book of procurement plans. These men would take the books of Ordnance plans to the Ordnance office periodically and fill in monthly production from the reports of production received from the plants by the Chief of Ordnance. The production figures might

be added in red in the monthly production columns for comparison with expected production. When the total actual production started to seriously fall short of the expected production, the plan for the item in question would be removed from the book and placed upon the desk of the Chief of the Procurement Progress Division. This officer would then investigate the situation in regard to this item, and if serious enough, might report to the chief of the procurement branch, who in turn might take the matter up with the chief of the supply arm or service concerned, or The Assistant Secretary of War, depending upon the nature and seriousness of the situation discovered. At the same time, close watch would be kept of related items to insure that balanced production was maintained. Charts and diagrams would be plotted of such related items and other important items considered critical.

The above system would have the advantage of being simple, direct and flexible, not requiring the submission of any progress reports from the chiefs of the supply arms and services to this office and would place no additional burden upon these chiefs. Nothing would be heard officially from the Office of The Assistant Secretary of War until the procurement of some important item started to lag seriously. When production did lag, a varying degree of pressure, depending upon the situation, would be brought to bear upon the chief of the supply arm or service, who would immediately take action to overcome the deficiency. Similarly, whenever the study of procurement progress indicated over production of any item, appropriate action would be taken. The Office of The Assistant Secretary of War would thus have its hand on the pulse of the entire War Department procurement program and would exercise proper supervision without interference with the chiefs of the supply arms and services in the accomplishment of their procurement missions.

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TABLE I

	<u>No. Essential Items</u>	<u>No. Mobiliza- tion Items</u>	<u>Total No. Items Now on Planning List</u>
Air Corps	31	159	118
Ord. Dept.	325	19	725
C. W. S.	21	24	300
C of E.	12	75	58
Sig. C.	34	261	33
G. M. C.	94	320	333
Med. Dept.	<u>63</u>	<u>650</u>	<u>3,000</u>
Total	530	1,508	4,567

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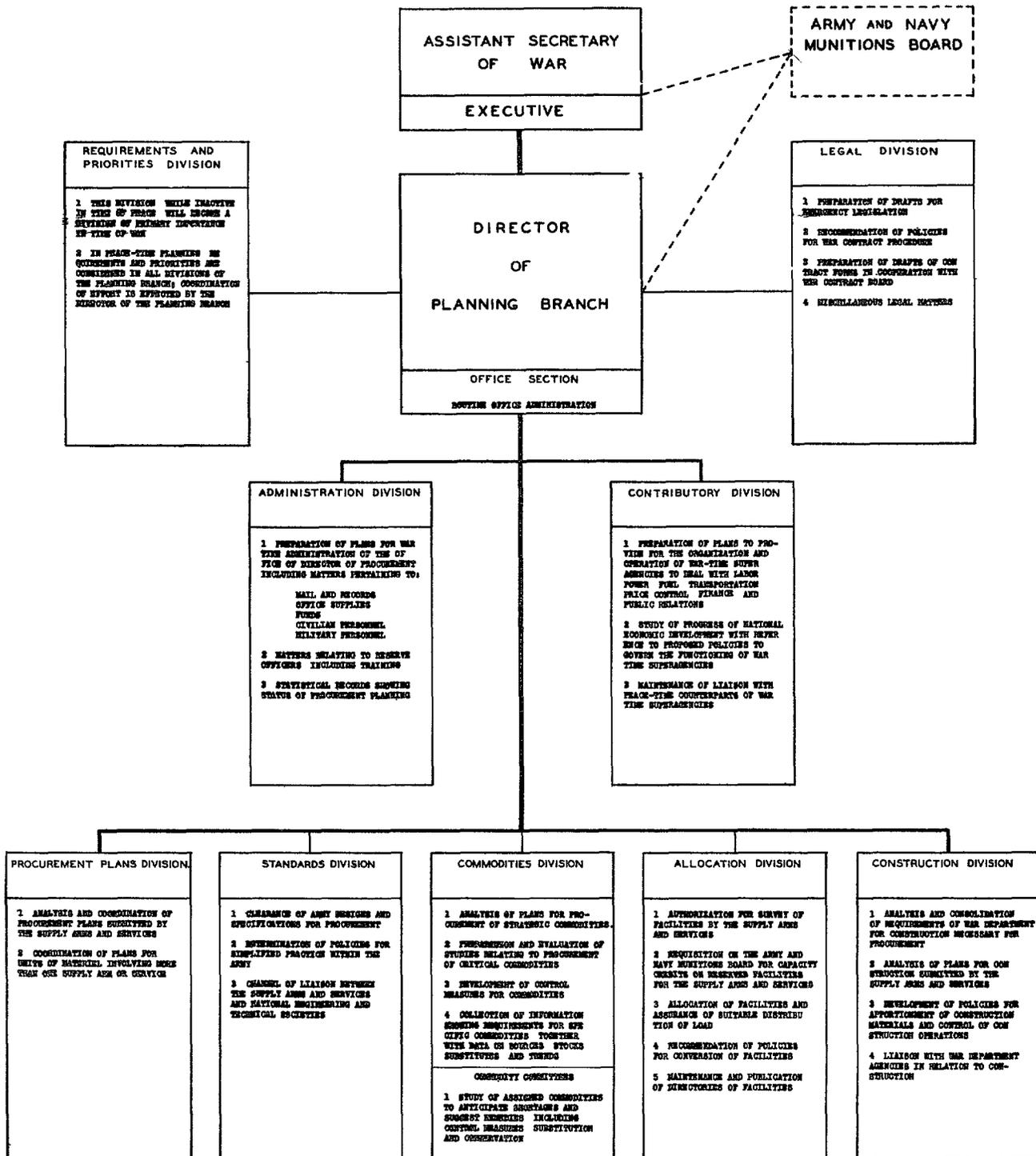
TABLE II

Method of Computing Procurement Requirements.

Item X	MONTHS							
	M-Day	M + 1	M + 2	M + 3	M + 4	M + 5	M + 6	M + 7
Troop Requirements		6215	3000	1000	2250	1250	1250	1250
Supply Requirements	6215	3000	1000	2250	1250	1250	1250	etc
Advanced 30 days	9215	1000	2250	1250	1250	1250	etc.	etc.
Deduct Stock	2500							
Procurement Requirements	6715	1000	2250	1250	1250	1250	etc.	etc.

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PEACE ORGANIZATION
PLANNING BRANCH, O A S W

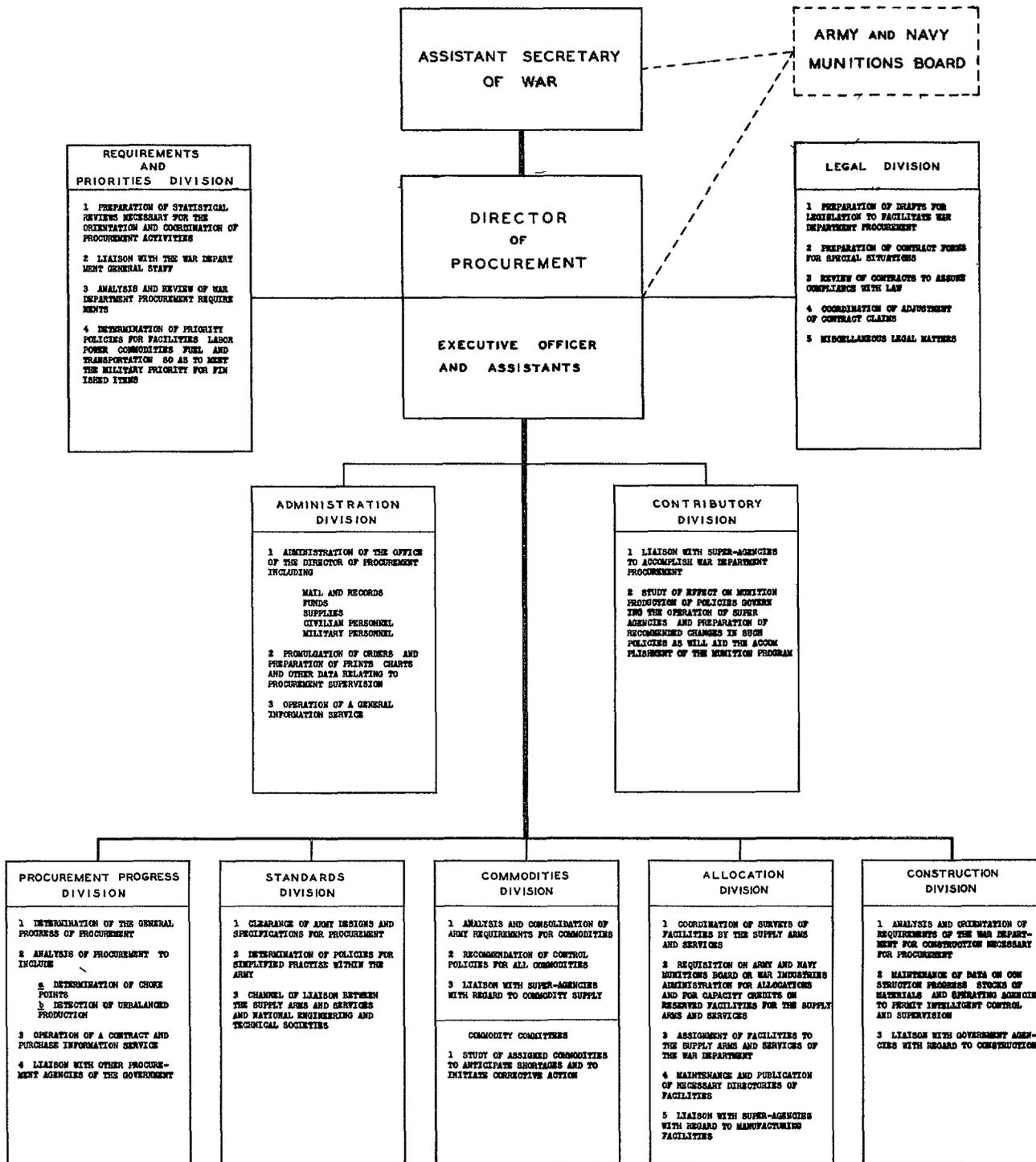


C. T. Harris
SUBMITTED C T HARRIS JR COL O.D.
DIRECTOR
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H. H. Woodring
APPROVED HARRY H WOODRING
THE ASSISTANT SECRETARY
OF WAR

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WAR ORGANIZATION PROCUREMENT BRANCH, OASW



C. T. Harris
SUBMITTED C. T. HARRIS JR., COL. O.D.
DIRECTOR
PLANNING BRANCH

Mary H. Woodring
APPROVED HARRY H. WOODRING
THE ASSISTANT SECRETARY
OF WAR

DATE OCT 30 1935
DRAWING No. 658

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DISCUSSION FOLLOWING LECTURE
"PROCUREMENT PLANS AND CONTROL"

by
Lt. Col. Gladeon M. Barnes, O. D.
Planning Branch, O.A.S.W.

Q. Does the production curve that you have shown take into consideration any reduced production during the stress of war due to inefficient labor and other conditions?

A. Those production figures that are shown on our plans are all based on accepted schedules of production. In other words, our Field Agents go to the manufacturer and show him the drawings; after studying the drawings and taking into consideration the facilities which he has on hand he finally decides what production is possible for that item and puts it down on the accepted schedule of production of so much per month. Now he assumes, in making that estimate, that he can obtain the necessary labor and raw materials. I think you should all remember in studying our procurement plans that undoubtedly they are optimistic. I noticed in studying over the plan I showed you on the three inch anti-aircraft carriage that both of the commercial manufacturers expected to beat in early production our manufacturing arsenal. Now, I know from experience that that is impossible. I know they cannot do that. They may think they can, but they cannot, and you must take into consideration all of our procurement plans being optimistic - maybe twenty-five or thirty per cent. In other words, they represent

the optimum of what you can expect to get in war.

Q. In addition to this optimum, do I understand that curve to represent maximum production facilities going into effect at M-Minus 60?

A. No. All of our plans are based on going into production on M-Day.

Q. I guess I missed your point. I thought that you first got your requirements; then the Staff in order to make the distribution moved them up thirty days and in addition to that to be sure on the procurement curve you moved them up an additional thirty days, so the initial production for the initial requirement would have to start at M-Minus 60. Is that correct?

A. It is nearly correct. The procurement requirements are advanced sixty days by all supply arms and services except the Air Corps. I neglected to mention that the Air Corps uses a slightly different method because they represent the only supply arm and service that can fly the product from the factory to the field of operation and they use what is the equivalent of about a forty-five day set forward time factor. However, for the other supply arms and services there is a set forward between troop requirements and procurement requirements of sixty days. I think the more you gentlemen think about that sixty days the more reasonable it will become to you because you know that on the average from the factory to the troops, where the materiel is to be used, there is at least sixty days delay. The delay may occur in getting the materiel from the factory or in

transportation to the depots, etc. Personally I do not think that sixty days is unreasonable.

Q. I had no question about the sixty days between production in a factory and reaching the man either in the Zone of Interior or field of operation, but what is worrying me is that for this initial equipment that would be required you must start production sixty days before the war is declared. I am wondering where in the world we are going to get the money and how we are going to go about it?

A. Well, of course, that is impossible. The sooner you can start your manufacture the better. If you could start it six months before M-Day this supply business would be easy, but you cannot. The only thing that advancing your requirements sixty days would indicate would be the amount of supplies which you should have on hand available for issue on M-Day, because if it is going to take sixty days there is no use kidding ourselves - if we have built up our supply large enough we will be able to meet the supply requirements, otherwise we will not be able to meet them.

Major York: It is reflected in the M-Day deficit.

Colonel Harris: I have rather revolutionary ideas about this whole business of requirements. It is much simpler to me than it is to most people. I think we confuse it by writing in so many details as to how these requirements will be set back. As I visualize war, we will be equipped for practically the first four months out of the storehouses. I would consider that four months a preliminary period and I would take six months requirements and divide them by four.

In other words, I would level it off - I would not talk about it in sixty days before M-Day because that is perfectly absurd. However, theoretically the way it is set up that is exactly what it amounts to. You have sixty days requirements before you start and then you drop down to a rather modest average. I maintain that in all, even the commercial, items you will fight the first four months of a war out of the storehouse, therefore, you might consider that four months a preliminary period in which you are going to do the very best you can in production, launch your program, and face the problems. Of course, we have to have a sixty day surplus. My solution would be to take six months requirements, the accumulative total, divide it by four, and call that the monthly requirements for the first four months.

Colonel Barnes: I would like to state that I think this question of requirements is very basic. Perhaps some of you have read some of General Hagood's articles on requirements. There is a lot of food for thought in his articles. Sometimes in this College we discuss factors such as competition between the Army and Navy and other factors which bring about delays - a whole book could be written about the little incident maintenance factors. For instance, today our plans call for, I think, ten million hats for four million men. I am satisfied in my own mind that a great deal of this warload that is generated in an emergency (and this is true especially of the last war) is due to unreasonable maintenance factors.

Q. I was interested in your chart which showed the average

curve, that is the chart which estimated the ability of the supply arms and services to meet the mobilization plan and I would like to ask why that average curve was placed on the chart? Perhaps I can explain my question by stating that I do not see what good the average line will do in estimating total requirements with the Ordnance curve and the Air Corps curve below. It would seem to me that it would be the one which meets the requirements last that would be the measure of the ability of the procurement program as a whole to meet the mobilization plan.

A. That is a very good question. The answer, I think, is about as follows: We have computed that the amount by which we fail to meet the Mobilization Plan, 1933, today is measured by the figure two billion dollars. In other words, if you are prepared to spend roughly two billion dollars then those curves can be brought up so they will all coincide with the mobilization rate, 1933, and you can meet it. That average curve which I drew is a curve which you can meet today by very small increases in the war reserve that we have on hand, and the higher you raise that average curve and the farther you depart from the average curve as set up by that study that is of approximately one hundred fifty thousand men per month the more you will have to pay in dollars. We cannot even meet that heavy line curve that I showed without some increase in the war reserve because that curve lies close to the Ordnance Department - seventy per cent of the cost of increasing the war reserve is Ordnance and twenty per cent Air Corps.

Q. I would like to ask another question. Doesn't that chart point the finger at (I hesitate to state this - I do not know enough about it to ask the question) what might be wrong with the present mobilization plan? I am talking about the approach. I have heard a lot about starting with what we have and building up, rather than going up, to that four million figure. Doesn't that average curve give you a reasonable basis upon which to construct your mobilization plan?

A. That is exactly what we think.

Q. In other words, the cart before the horse - reversed?

A. We want a mobilization plan in which supply is coordinated with manpower and we found, to our great surprise and chagrin in the World War, that it takes roughly two and one-half times as long to equip men as it does to train them. You have got to come down somewhere near our supply line.

Q. You spoke about those production curves being about twenty-five per cent optimistic?

A. A guess.

Q. Would it be safer to deduct that twenty-five per cent in making those curves? I do not understand quite why you take that fact into consideration.

A. Those are the figures that have been turned in by the men in the field and represents their best estimate. It is only a more or less personal feeling that they are high. I feel that they are optimistic but I do not think that we should play with them. I

would leave them alone and just remember that they are optimistic.

Q. You are sort of kidding yourself on those things then, aren't you, when you turn in those figures?

A. If you do not kid yourself more than twenty-five per cent I think you will be all right.

Q. With regard to that question, I think the arsenals probably take into consideration how long it will take for them to get their steel - the raw materials. I know that the manufacturers in their schedules specify "after materials have been received".

A. That is right.

Q. I note that in the determination of your procurement requirements you deduct from stocks on hand the war reserves for coast and harbor defenses. Is that deduction always the same? To put the question another way, here is what I am getting at. Under a major effort where we mobilize all forces I could see where the coast defenses might be called upon equally to expend supplies or to utilize materiel, but it goes back to the rate of this color plan business for supplies again. Would you always deduct the maximum amount that they would use for each and every effort or is that merely for planning purposes for the one major effort?

A. We would deduct whatever we were directed to deduct by the General Staff.

Q. That is just the point. I knew the General Staff directed it but I was wondering if you had any information as to their modifying it under any circumstance?

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A. We always plan under the maximum effort. I am of the opinion that the more you think about it the more you will be convinced that that is correct because if you plan for the maximum effort your plans are all inclusive. If you have your plans for the maximum effort you can always very quickly write your color plans. These defense projects that we have deducted are those specified in the General Mobilization Plan, 1933.

Q. What was running through my mind is this: I can visualize an experience we might undergo wherein the West Coast would be in jeopardy and there would be little or no likelihood of an effort against the East Coast. It would seem foolish to hold on the East Coast certain large mobile guns in which we have a shortage just because we were directed to take out all war reserves or needs for harbor defenses and then run on with a shortage in those large mobile guns under that arbitrary rule when we could very well take them from where they were not needed and put them where they were. In that light it seems to me that this statement that planning for maximum effort will cover all minor emergencies is not quite true.

A. I think I understand your question. That brings up the question of flexibility of plans and we think our plans are very flexible. Say that M-Day arrives - we do not for a moment think that the requirements that have been set up under the General War Department Mobilization Plan, 1933, or any other plan, color or otherwise, will be the basis for actual requirements, that is your actual troop basis. What would happen undoubtedly is that on M-Day, or before M-Day, you

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would get a new troop basis for the particular war that we are talking about from the General Staff and then each supply arm and service using short cut methods would quickly compute their new requirements and enter them on the appropriate line on our form. Then they will open their books to the plan for that item and pick out of our general plan enough production to balance those requirements, if possible. For instance, let us take the Ordnance Department. The Ordnance Department computes those requirements for a special situation as quickly as possible. They would get out the old plan, which is your maximum effort plan that gives you all your facilities that have been lined up for the production of that item, and copy those into the new plan, balance it up, have it approved by the Chief of Ordnance, and send it down to us in the Office of The Assistant Secretary of War where it would be approved, and that becomes the directive for the procurement of that item in time of war. The Chief of Ordnance then has copies of that revised plan made and sends them out to his district chiefs who will execute the procurement in accordance with that plan, and that form becomes the whole basis for the control of production in war. In other words, that is the operating directive. If you have your plans laid out for your maximum effort, any situation that occurs in time of war is bound to be within that because by definition that is your maximum effort plan - in any other special situation is equal to or less than your maximum effort plan.

Q. Do you have figures on what amount of money we will have to spend to build our war reserve up so as to make the supply

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curve parallel the mobilization curve for the regular Army and National Guard only?

A. No. We have it for the 1933 Mobilization Plan, which is the regular Army, National Guard, plus the organized reserves.

Q. Just as a matter of discussion, Commander Foster's question raised the point which would seem to indicate that we should slow down our rate of mobilization to coincide with the worst feature of the supply curve?

A. That is right.

Q. I thoroughly agree with the general premise that the mobilization curve is much too fast from a supply standpoint but there is another factor in the field and I feel impelled to raise the question of training. You did state that you could train men a lot faster than you could equip them. I take that as probably correct. However, the War Department Mobilization Plan allows a six months period for the training of the division, if I remember right. In my judgment it would be a terrible mistake for us to slow down the rate of our mobilization of men to fit that lower curve. I agree that it should not be so disproportionately out of joint but the idea of slowing down the rate of mobilization of our men to coincide with that curve, as a line officer I thoroughly disagree with you. We have to train these men. We are not going to be shooting 155 mm the first six months unless we have trained and organized our men. I would say, as I said to the Class the other day, that from a line officer's standpoint the thought should be directed along the lines of what we need for our

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covering forces of the regular Army and the National Guard and then what is the minimum training period for a division, and make some sort of an equalization on that basis rather than merely to state that you are going to force down your mobilization curve to fit a supply curve. I think either one of them is wrong. That is, to say that your supply curve ought to be raised immediately to meet the mobilization rate. In other words, supplying equipment that we cannot shoot, telephone wire that we cannot lay, which is not required by any tactical situation - that is just as wrong as to state that the mobilization rate must come down to the supply rate. It would seem to me that as a matter of discussion, and I am not trying to solve the whole War Department problem in one breath, the line of thought should be directed to what would be the war reserve needed for our immediate covering forces, people we can send into the field at once, and then make an adjustment between the mobilization rate and the supply rate thereafter.

A. I find that you and I are in complete agreement. I have absolutely no quarrel with that whatsoever.

Colonel Harris: We should not misunderstand what the purpose of these studies are. They are not prepared to solve the problem, they are prepared to furnish basic data so the General Staff can say what they think is the best thing to do. These curves are drawn up to show the General Staff under present rates of fire, wastage factors, and other organizational data, what the supply will sustain. It is up to the General Staff to integrate that problem and decide

what the mobilization rate will be.

Colonel Barnes: One thing I would like to call your attention to is the fact that these curves are drawn up under the rules of the game as played by the General Staff. Under the 1933 Mobilization Plan over one-half of the technical equipment is in the Zone of the Interior. We down here in the supply end of the question think that is unreasonable - that you can train a regiment of Field Artillery possibly with one battery of guns. In other words, our curves simply show, using the present density of supply, about the rate at which you can mobilize manpower. If you change the density of supply, which is entirely within the authority of the General Staff, you can naturally support a very much larger rate of mobilization. There are many ways that you can increase that rate of mobilization. For instance, if you reduce the amount of technical equipment you have in the Zone of Interior, if you trim down your wastage and maintenance factors, if you cut down the rate of fire for guns in the Zone of Interior - all of these ways are practical. Using the factors as laid down in the General Mobilization Plan which definitely establishes a density of supply, that is the answer that you get.

Q. I think I have a simpler question to ask. From the layman's viewpoint the contention that the rate of production is slow with non-commercial expensive, heavy articles could be accepted, but here is an item of paramount importance for morale, health, and other viewpoints. the matter of overcoats. The chart showed that the Army would be without overcoats until about M-Plus 300 Days, the bulk of

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the men. First of all, the demand for mobilization may be unreasonable but suppose it is absolutely necessary considering the enemy, or even unreasonable, if the proper authority makes a demand is the answer "We cannot give a man an overcoat for three hundred days" accepted as a solution to the problem?

A. Of course not. He can wear his civilian overcoat.

Q. I mean for even a uniform overcoat?

A. As far as food, shelter, and clothing are concerned, you can mobilize a relatively large number of men but you cannot equip them with technical supplies. If you want to accept that and write your plan on that basis it is perfectly all right.

Major York. I think what is bothering Colonel Hauser is this: Is it possible to improve production of overcoats to the point where the requirement could be met?

Colonel Hauser. That is what I mean. There is a producing agency and there is a responsible agency for procurement.

A. Unfortunately the overcoat is not going to be the determining factor. That is, you can get along without the overcoat but can you get along without small arms ammunition and things like that? Therefore, would it not be better to drop your rate down to a place where you can have a balanced army? You can get your men together very quickly and feed them, shelter them, train them, and issue them wooden rifles and all that sort of thing if you know what you are doing, but you might as well become accustomed to the idea that you are not going to get your technical equipment as fast as you would like.

Q. I accept the fact that you are not going to get special, heavy, technical equipment, but here is an item of commercial type. The textile industry is not in competition with the heavy ordnance industry and I still say: is the statement "We cannot put an overcoat on men under three hundred days" accepted by The Assistant Secretary of War as a satisfactory answer to that problem?

A. I think it is for the type of overcoat you are talking about. We admit right off the bat that you can use substitutes.

Q. If there are substitute plans, that changes the picture.

Colonel Harris: I think there is a little confusion here. The answer is perfectly obvious. They know what the trouble is - the answer is get the supply or accept the shortage, one of the two.

Colonel Barnes: As a matter of fact, we find in the Quartermaster plans that there are pretty grave shortages in woolen cloth.

Q. Do those curves that you had on the board include the Navy requirements? To illustrate, they buy big guns when they buy a battleship and that does not come in because it takes so long to build a battleship. In the case of aircraft where they would require forty-five per cent more than they have now, has that been taken into consideration and is that aircraft production based on facilities that are now allotted to the Air Corps?

A. In that slide I showed you on requirements the Navy and Marine Corps requirements were included. In the other slide I showed you on the caliber-50 machine gun, to which I think you are referring,

the Navy requirements were not included. We find in the study of the caliber-50 machine gun that if we include the Navy requirements it wipes out nearly all our production. This is a very serious situation and one that we intend to bring to the attention of higher authorities. In the case of the caliber-50 machine gun, the Navy requirements are very serious. They wipe out practically all our production for nearly the first year.

Q. Does your aircraft curve include the Navy aircraft?

A. That curve I showed you did not.

Major York: That is only aircraft from factories that are allocated to us from the Air Corps.

Colonel Barnes: I beg your pardon, but you see we procure caliber machine guns.

Major York: The airplane production shown is Air Corps production from facilities allocated to it. The Navy has its own facilities?

Colonel Barnes. That is right.

Q. Colonel, you have mentioned several times the maintenance factor and you stated, too, that it could be changed. I was under the impression that the maintenance factor had been arrived at by experienced tables based on what the minimum factors actually were during the past. If that is so, how could they be changed? How could you reduce them?

A. I do not say they could all be changed; I say I think it would be very fine if we had a very careful study made to make

sure that they are all reasonable. I think many of the supply arms and services have very reasonable wastage and maintenance factors but I feel that some of the others are still a little too large.

Q. I went over to the Quartermaster General's office yesterday and asked that very question - how they arrived at those maintenance factors. They assured me they had had a troop of officers working for some years on it, and it occurred to me that if it does take that many shoes and hats, etc. to actually maintain a man then there would be no possibility of reducing it.

A. Do you think we ought to buy ten million hats for four million men?

Q. Is that the plan - to buy ten million hats?

A. Yes. Do you think that is reasonable?

Q. If it is predicated on experience I would say it is the thing to do.

Major York: There is also the item of eight million mess kits for four million men.

Q. Can you give a rough estimate of the approximate period of time it would take to revise this general plan and bring it into line with actual conditions with which the Army will be faced either sixty days or a month before war, whenever they find out they have to revise this plan and meet facts and conditions which actually exist in industry?

A. Under pressure of war where men are required to work day and night I think that the plan could be revised in two weeks.

That is my guess.

Q. This maintenance factor I am afraid is inaccurate because in the last war the word "salvage" became synonymous with throwing away. Also, concerning the matter of training I am convinced that we have illusions because the first month after mobilization will largely be consumed in the processing and very little actual military training can be accomplished during that period, but the more mechanized we become, and we are proceeding along that line, the more necessary technical equipment becomes to train. I would like to invite your attention to the superiority of the German machine gunner in the last war. He was superior because he was intimately familiar with that gun and it did not fail him in critical moments for that reason. Our low efficiency in the use of a good many of our weapons, for instance the French 75, was because our troops had never seen that gun until probably two or three weeks before they went to the front.

Q. I should like to ask if there has been consideration given to an inspection factor as an element of delay in computing the production schedule such as illustrated for the Ordnance item on the slide? We have spent considerable time studying; building up an inspection force. We also know that the bottleneck for non-commercial items that are produced by commercial manufacturers will be in the acceptance of the first article. The non-commercial items shown for the Corps of Engineers, the Air Corps, and Ordnance I believe are all covered by Government specifications. Are we going to waive the specifications in the present procurement schedules and assume that

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production will start out without delay after the first article is delivered? It is our experience in the Air Corps that that one factor alone amounts to from sixty days minimum to as much as nine months before they can go ahead after the first article is delivered. Therefore, I wonder if, as a matter of policy in considering these factors of delay and in this twenty-five per cent which you mentioned, you do instruct the supply arms and services to take that into consideration?

A. All those factors: inspection, delay in obtaining raw materials, tooling up, etc., are supposed to be reflected in the production figures given in the accepted schedule of production.

Q. In the production curve for the Chemical Warfare Service, have the requirements for the Navy mustard and gas masks been included?

A. That is right.

Q. What tests, if any, of production schedules are ordered by The Office of The Assistant Secretary of War to determine the choke points in production schedules? For instance, shoe laths, dies, or certain machines that are necessary to have to go into production?

A. The only way we could get a practical test of our production schedule would be by educational orders and they have never been authorized by Congress.

Q I should like to comment further. It would seem that in many instances if they would go to the manufacturer and say. "We wish you to go into production today" - today is M-Day - right on the jump off as soon as the manufacturer began to think about it

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he would think about those things that he would have to have and there would be delays. It would seem we could accomplish a whole lot whether or not our schedules of production would work if we would work along those lines, sir.

A. Your men in the district are supposed to be doing just that. It is their job. They do not accept blindly these production figures that are given by the different facilities. In some cases they cut them down.

Q. Colonel Barnes, in connection with our production figures being optimistic or not, isn't it true that we are only going to use, or counting on using fifty per cent of the capacity of a plant?

A. No. We are figuring on reserving one-half of one shift, that is fifty points out of two hundred fifty for commercial work. The question of load will be discussed by Major Ritchie when he tells you about the allocation division. I would rather not go into it because it is a subject all in itself and I will just get you mixed up. He is going to talk to you in about a week and will have diagrams to thoroughly straighten you out on the question of load.

Colonel Aurand: This report of Colonel Barnes was studied by the War College Committee in the G-4 course. Of course, that does not make it an official War College answer to the problem but I would like to tell you what happened. We had on that committee officers who had just come from troop duty in the foreign possessions, officers who had been in the planning offices of the supply services, and recent graduates of this College and all points of view were presented.

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The discussions became quite heated but two things came out of that committee which I think are fundamental. The first was, they determined that the covering force of approximately four hundred thousand men could be maintained off the shelf provided the commander of that force was given new rates of expenditure for ammunition. Of course, that is not playing the game according to the rules that have been laid down in the '33 Mobilization Plan. They also decided that the augmentation of the force in the field of operations would depend entirely on production of ammunition. They further decided that men could be mobilized as fast as they could be sheltered. That in general is what the General Staff would do with this particular study which Colonel Barnes presented in determining the covering force and the rate of mobilization.

Colonel Jordan: I would like to ask Colonel Barnes to come down to a proposition of something that is occurring right in the United States today - the flood. Suppose we pictured it as the waters of Pittsburgh rising five or six feet higher, as they have done, throwing Pittsburgh out of commission, also Cincinnati and Louisville, what effect is that going to have on procurement plans? How much of a delay should we expect from this act of nature?

A. I could not offhand evaluate that in months but I think it would be very serious.

Colonel Jordan. It does seem to me that that is worthy of pretty close study and I propose that we shall have something done here at the College to picture just factually what has occurred in the Ohio Valley recently.

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I want to express to you, Colonel Barnes, the appreciation of the College for a fine presentation of a very difficult subject.

I want to thank you very much for it.