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REQUIREMENTS
from the
VIEWPOINT OF THE OFFICE OF THE ASSISTANT SECRETARY OF WAR
by
Major D. C. Cordiner, Q.M.C.

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REQUIREMENTS

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Major D. C. Cordiner, Q. M. C.

You are required to make an analytical study of requirements and statistics involving the problem of how much to procure and at what rate.

The determination of requirements is the basis of the entire procurement program. It is a problem which has been stressed and restressed from the very beginning of procurement planning. But great as its importance is, I am sure that your studies will convince you that there is still room for much refinement in the solution of the problem of requirements. Some day you no doubt will find yourselves involved in solving this problem for the War or Navy Department. I know of no field where clear thinking and good judgment can be more productive of results.

The problem resolves itself into a determination of:-

1. What to procure.
2. The rate of mobilization.
3. How much and what will constitute the War Reserve.
4. How much will be required after deducting the War Reserve.
5. When and where the requirements will be needed by the troops.

Based on the various solutions to these questions which must be answered by the General Staff, it is the problem of The Assistant Secretary to say how these requirements will be procured and to assure that they will be procured in the proper quantities and when needed.

Obviously The Assistant Secretary of War and his Staff have a very great, but indirect, interest in how the problems pertaining to the General Staff shall be solved.

In the Planning Branch, the rule is that that office has an indirect interest in primary requirements, but is directly responsible for the requirements in the contributory materials and materiel entering into the production of the prime requirements.

I shall show today why we have such a great interest in the primary computations and how we hope to solve the question of contributory requirements.

Let us consider first the problem of what to procure.

When procurement planning was initiated, each branch made up its own shopping list, generally without regard to the essentiality of an item and, in some cases, without any attempt at priority. Apportionments for procurement were made to the various districts. Of course those branches which followed this method got nowhere during the first few years of procurement planning. When the General Staff finally designated the essential items to make up the authorized War Reserve, the supply arms and

services used this essential item list as the basis for procurement, and subsequently, added to that list those items which they knew must be procured, but which presented special difficulties in procurement. This list today is known in the Office of the Assistant Secretary as the Priority List. The items on the Priority List are those which are designated in the Annual Progress Report as the essential items and as such have caused confusion in the minds of the supply arms and services. Even in the last report, this confusion persisted, and in at least one instance, this report is incorrect. For example, there are 92 items on the Quartermaster Essential Item List and 307 on its Priority List. Thus we have one of the many reasons why we hope to change the form of the present Progress Report.

Under AR 850-25 as revised in July 1932, essential items are divided into four priority groups and if the definitions of essential items and priority items can be brought into accord, there should be a much clearer understanding of what to procure.

Let us consider next the amount and rate of mobilization.

Under the 1924 General Mobilization Plan the General Staff proposed to mobilize the following:

| | | |
|---|--------------|-----------|
| 3 | Field Armies | 1st Month |
| 1 | " " | 5th " |
| 1 | " " | 6th " |
| 1 | " " | 8th " |

and the rate of mobilization was based largely on the ability of the supply arms and services to supply the armies taking the field.

In 1928 the General Mobilization Plan was revised and the rate was based on the ability to procure and assemble the necessary man power without reference to the ability to supply and equip them. Under this plan it was proposed to mobilize

| | | |
|---|--------------|------------------------------|
| 3 | Field Armies | 1st Sixty Days |
| 1 | " " | Each thirty days thereafter. |

The 1932 Plan calls for the mobilization of

| | | |
|---|--------------|-----------------------------|
| 2 | Field Armies | 1st Sixty Days |
| 1 | " " | Each thirty days thereafter |

The Office of the Assistant Secretary of War took exception to this rate of mobilization on the ground that it set up impossible procurement objectives. Further, not having completed the procurement plans under the 1924 General Mobilization Plan, it seemed possible that rapid changes in the rates of mobilization would have the supply arms and services engaged in a never ending task of recomputing requirements with each change in the Office of The Chief of Staff. Therefore, with the exception of the Quartermaster Corps and the Medical Department, all supply arms and services are still using the 1924 rate as a basis for procurement planning. When the revised plan for 1932 becomes effective, it is proposed that all supply arms and services shall plan for procurement with the rate established by it as a basis.

The next problem to consider is what and how much will constitute the War Reserve in order to satisfy sound military judgment as well as to satisfy the requirements of the law for a maintenance of a war reserve sufficient to initially equip 1,000,000 men or two field armies. It was in the establishment of the War Reserve that an essential item list was first prepared by the General Staff. Obviously, the better the status of the War Reserve, the better will be the status of procurement planning. Unfortunately and for various reasons, it has not been possible to maintain the War Reserve in all items. It is also unfortunate from the procurement point of view, that the War Reserve does not include any strategic raw materials, such as manganese.

You should understand that the War Reserve includes all items set aside as a reserve, in the hands of troops and as minimum depot stocks.

Now for the consideration of how much shall be required after making proper deduction for the War Reserve. In presenting the deficiencies in the solution of this problem, please do not misunderstand me. I have no criticism to make of the General Staff or of any of the supply arms and services. I am merely stating facts which are available to any of you who may care to search. These facts or opinions are clearly born out by repeated studies at this college and at the Army War College. There are no secrets in regard to these deficiencies. We are interested in them here because they are too often an unnecessary block to the procurement objective. The statements which follow should be accepted as representing my personal views rather than those of the Planning Branch. They are the result of a study made by direction of the director of that branch but have not as yet been submitted to him for approval.

Following years of experience in reviewing the procurement plans during which the requirements in essential items have received close scrutiny, it is the opinion of this office that the requirement factors as established lead to cumulative pyramided totals that are out of proportion to actual requirements. These pyramided totals not only complicate procurement, but they lead to grave dangers in connection with contributory requirements, and also in connection with the economic structure of the Country which correct procurement planning should safeguard.

It is clear that false requirements in primary items will pyramid requirements in contributory items in which, in many cases, the real difficulties of mass procurement begin. This is particularly true in the case of items the production of which necessitates the conversion or expansion of facilities. It is reasonable to suppose that computed monthly requirements will form the basis of monthly deliveries under contracts made in time of an emergency. The pyramiding of requirements during the early months of an emergency will key up an industry to a greater production than is needed during the later months. Equipment built perhaps at a sacrifice will no longer be required. To illustrate:- The monthly production requirements for Field Glasses (Type EE) are:- (1924 General Mobilization Plan)

| | |
|-------------------|--------------|
| First four months | 15758 |
| Fifth month | 18555 |
| Sixth month | 24363 |
| Seventh month | 21032 |
| Eighth month | 16047 |
| Ninth month | 13782 |
| Tenth month | 13995 |
| Eleventh month | 14287 |
| Twelfth month | <u>14517</u> |
| TOTAL | 152336 |

Under present plans it is reasonable to assume that contracts would be made with the optical industry for 152,296 pairs of Field Glasses, with deliveries as listed above. In order to meet these deliveries, the industry must strive for a maximum monthly production of 24,363 which, after being once attained, is no longer required. Another bad feature, in this particular case, is that in order to meet production requirements there must be an expansion of facilities.

Certainly some effort should be made to adjust requirements in such cases so that planned maximum capacity, once achieved, can be reasonably maintained. Would combat efficiency be impaired by reducing the number of pairs of glasses in the tables of basic allowances.

Considering the contributory requirements in the case of field glasses, it is found that each pair contains four porro prisms and ten lenses, all made from optical glass, which must be ground and polished to close tolerances. The supply of

lenses alone, from the viewpoint of grinding and polishing, is equivalent to a supply of 725,000 pairs of highly accurate spectacles.

The lack of uniformity in principle or policy is further illustrated by a comparison of the essential or priority items established by the Medical Department and the Signal Corps. All items entering into the make-up of a field hospital are classified as essential, yet the Signal Corps is not permitted to class Vacuum Tubes as essential items. The total number of priority items is 3,833 of which the Medical Corps items total 3,032. A War College study (Committee #2, G-4, Course, November 16, 1932) states that existing essential item lists should be thoroughly revised and limited to those items which are recognized as indispensable.

Individually there may be some justification for each of the factors of maintenance and distribution and for advance requirements, but when taken collectively, considering first, the tremendous load placed on industry during the first month of mobilization and second, the effect of the cumulative totals at the end of twelve months, it is clear that they are often out of proportion to the actual needs.

The cumulative totals for a few so called essentials or priority items for the first twelve months, taken more or less at random are:

| | | |
|-----------------------|----------|------------|
| Chairs, Arm | M. D. | 456,000 |
| Chairs, Rocking | " | 24,000 |
| Tables, office | " | 19,000 |
| Goggles | A. C. | 89,000 |
| Belt, Safety | " | 75,000 |
| Parachutes | " | 67,000 |
| Suits, Flying | " | 111,000 |
| Helmets | Ordnance | 6,000,000 |
| Helmets | A. C. | 209,000 |
| Hats, Service | Q. M. C. | 12,661,512 |
| Hats, Working | " | 9,784,983 |
| Caps, Overseas | " | None |
| Caps, Winter | " | 5,612,000 |
| Breeches, Woolen | " | 21,100,000 |
| Breeches, Cotton | " | 24,945,000 |
| Coats, Mackinaw | " | 1,356,000 |
| Overcoats | " | 6,984,428 |
| Gloves, Heavy Leather | " | 5,541,000 |
| Gloves, Riding, H.H. | " | 1,172,000 |
| Gloves, Woolen | " | 10,261,000 |

Obviously it is impracticable to prepare plans for all items on the various shopping lists, so that the division of items into essentials and non-essentials has worked materially to the advantage of procurement planning. This advantage will be increased by the further division of essentials into priority classes under AR 850-25. It is obvious that not only have the

factors used produced unnecessary cumulation, but that there is still a great variation of opinion in the Service as to what is essential and what is non-essential.

The question of allowances is rather abstract and is apparently one that once established is accepted and rarely tampered with except to increase the allowance in various items. The factors entering into the requirement load are still more abstract, and once established, the tendency to accept them is stronger. The point to be made here is that they once formed the object of an intensive study under pressure and have since had insufficient itemized study such as their importance warrants. There should be balance as between energy spent in decreasing allowances and that spent in increasing them.

Initial Allowances:-

At least one difficulty in the pyramiding of requirements is attributable to the fact that the supply arms and services are required and expected to completely equip each unit as it is mobilized with each article called for on the tables of organization. As an example, during the first year of mobilization and considering all requirement factors, it is expected to procure tentage sufficient to cover more than 17,000,000 men. Such a program will call for, in addition to means now readily available, the conversion of the entire carpet industry. Considering this in connection with any scheme of housing, certainly some pooling of equipment should be possible. It is also possible that many other items of equipment can be pooled.

The procurement load could be eased if the using arms would establish or augment the items pooled for training purposes in the Zone of the Interior. This is a practice that was developed successfully during the last War and was a material factor in enabling the supply arms and services to meet their procurement program and would undoubtedly apply in the next emergency. Why not plan for it now? There are many outstanding examples of procurement plans calling for tremendous quantities which, if the initial allowances were placed on a rational basis, could and should be materially reduced. The requirements for tentage; for Service Hats, in consideration with other types of Headgear; for Field Glasses; for pistols for Coast Artillery Units; for Chests for Engineers; for drawing instruments as used by the Coast and Field Artillery Units, etc. may be considerably revised. Undoubtedly many officers of the combat arms, particularly in the less mobile units, could mention some items of equipment which though classed as essential, have little or no practical use on the battlefield. They are like many obsolete orders or prohibitions which once issued, too often

remain in the regulations. Certainly there are many items of initial issue which are not immediately necessary, and the issue of which could be materially set back.

The Maintenance Factor:-

Aside from the failure to consider salvage as a source of supply, it is clear that some of the services have used this factor as one of fear as well as safety. It is apparent that the tendency to play safe has too often governed. This becomes more apparent when one compares the maintenance factors established by the Ordnance Department in connection with some of those established by some of the other services. Here we have items in which battlefield wastage reaches the maximum, yet the factors, by comparison, are very conservative. A War College study indicates that even these factors are in many cases excessive. The lack of uniformity in regard to the maintenance factor is further exemplified by the fact that one branch includes in this factor the amount necessary for a Theatre of Operations reserve.

The Distribution Factor:-

The arbitrary decision to increase all requirements by ten per cent for minimum stocks up to thirty-five per cent for stocks and for size variations is based on the theory that there must be a reservoir of stocks at each wholesale and retail establishment. This is sound reasoning, but considering the fact that requirements have been advanced to fill the supply lines, that theoretically it is only necessary in such cases to turn on the spigot for replenishment, and also the fact that there exists many ways for expediting emergency shipments by rail, by motor and by air, the necessity for such a large factor is rather doubtful. Furthermore, at least one of the services has pyramided some requirements after the first month by the improper use of the distribution factor.

Advance Requirements:-

A study of the production curves clearly indicates the utter impossibility of meeting requirements in many essential items during the first few months of the emergency, largely because of the advance of requirements by thirty or sixty days. It is proper to have a large target, but it is contrary to common sense to expect industry to reach maximum production during the first or even second month, and then having attained the maximum, to slump off into decreased production. The necessity for advancing requirements is recognized, but with the means of transportation now available, is it necessary to advance requirements thirty days for the Zone of the Interior and sixty days for the Theatre of Operations? The attached Chart, Exhibit A, showing the advanced requirements for motor vehicles, furnishes an example of the need for further study of this factor. The set back of issues of certain items would assist in surmounting the difficulties raised by this factor.

One important recommendation made by the War College Committee states:- "Reduce present theoretical reserves by reducing the time necessary for distribution." While this implied a reduction in the time period for advancing requirements, it should also be possible to further reduce this factor by planned distribution. So far as known, only one service has drafted a plan of distribution and this plan covers but one item. Early computation of requirements by Corps Area Commanders would enable the services to work out a plan of distribution for all items. If one will stop and attempt to envision the difficulties of distribution under the present procurement set up, the importance of this step will be clearly recognized.

Ammunition Expenditures:-

The War College study previously referred to gives a basis for reducing rates of expenditures, especially rates of fire and maintenance, which are maintained to be clearly excessive.

Factors under the Various Color Plans:-

During the past few years the Army Industrial College has been conducting studies in connection with substitutions or planned adjustments which might be used to speed supply. Such studies afford valuable ideas which should be sifted and made the basis of substitutions in the procurement program. Similar studies but not so extensive have been made at the War College.

Using these and other studies as a basis, it should be possible to indicate the requirement factors for each item under each color plan and to indicate the improvisation necessary in critical items to insure at least some form of supply. "Factors used in computing requirements should be modified by the operations envisioned." And again, "a reasonably well balanced war reserve stock capable of satisfying demands can be established and maintained but only through rigid supervision of the essential item list with establishment of mobilization rates, overhead, maintenance and wastage factors, rates of fire in consonance with the character of operations."

Initial Allowances and the various other factors on which requirements are established should form the basis for never ending study so that they will be known for each and every situation. The problem of determining the allowances and factors, as distinct from determining total requirements under the General Mobilization Plan to meet each specific color plan, should be met now and should not be left to the few weeks or days immediately preceding the specific emergency. The problem of reducing the requirements, once the change in factors has been determined, should be a relatively simple one and one that can be met in a comparatively short period of time.

Now as to the final problem of the General Staff insofar as requirements are concerned: that is, when and where will the supplies be required. The answer to when depends on the mobilization rate, which in turn, depends on the particular mobilization plan under consideration. In this discussion we have concerned ourselves with the General Plan. The answer to where has been answered in part only. We know how much and when the various items (only in a general way however) will be required in the Zone of the Interior and in the Theatre of Operations. We know that the supplies destined for the Zone of the Interior must be sent to nine (9) Corps Area Supply Points, one of which is located in each Corps Area. We do not yet know how much will be required at each of the various supply points.

To this point the following conclusions might be deduced:

1. A period should be set aside pending operations under the now general mobilization plan with a view to the proper coordination and the adoption of more uniform standards or policies in regard to the requirement factors; in other words, a "stock taking period" for the review of all of these factors and of the essential item list.

2. There should be a determination of the factor necessary to take care of the Theatre of Operation reserve. It appears possible that this is sufficiently cared for under the various factors which can, without impairing provision for this reserve, be materially reduced.

3. That plans for distribution of production be provided.

4. That a conversion table (Exhibit B) is necessary to insure prompt computation and substitution under each color plan.

5. That once adopted, The 1932 General Mobilization Plan be frozen for a period of years to insure coordinated completion of the procurement program.

In the solution of his problem of how to procure The Assistant Secretary of War must solve the question of contributory requirements: that is, the critical components, raw materials and the machine tools necessary to complete the finished primary requirements. So far as it is within his power to do so, the problem of strategic and critical raw materials has been solved. A plan, but one that cannot be considered complete, has been drawn up to insure the proper distribution of machine tools. A plan for the supply of critical components and one that will absorb the machine tool plan is in the making. This plan has been under consideration for the past six months, but there has been difficulty in obtaining the concurrence of the various supply arms and services. Such a plan must be under the control and supervision of the Assistant Secretary to insure complete coordination, if it is to be a successful plan. Its success also depends on the ability of each supply arm and service to work under it. We have obtained the

concurrence of all services but two in the plan proposed and unless these services can suggest a better plan than the one proposed, it is likely to be adopted within the next few weeks. I shall, therefore, confine my remarks to the essentials of the proposed plan.

That such a plan is essential can be appreciated by the fact that we have but nine supply arms and services which might be competitors for the primary items while we have 15,000 facilities which may compete against each other for contributory materials.

In brief, this proposed plan for the control of contributory materials consists of: first, The direct computation of contributory requirements (strategic and critical raw materials excepted) is not contemplated. second, There must be a definition of allocation in contradistinction to assignment.

An allocation is the designation of any facility to a supply arm or service and subject to its control.

An assignment is the designation of a contributory facility to a supply arm or service subject to the control of The Assistant Secretary of War.

Third:- There must be the designation of what critical items constitute contributory materials. This list will be initiated by The Assistant Secretary of War and elaborated by the supply arms and services after consultation with industry.

Fourth:- Prime contractors will be asked to designate the preferred and alternate sources of supply of the critical contributory items.

Fifth:- Such sources of supply will be assigned to the various supply arms and services subject to the control of the Assistant Secretary of War and will be surveyed by his office.

Sixth:- Where such sources of supply are only required by the prime contractors pertaining to one supply arm or service the assignment may be changed to an allocation.

In general the proposed plan fits in very closely with the work already accomplished, and if carried out as the revision of present specific procurement plans are made, should entail no hardship on the supply arms and services.