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LECTURE

by

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FUNCTIONS OF G-4, WAR DEPARTMENT GENERAL STAFF, IN RELATION TO WAR PLANS AND THE OFFICE OF THE ASSISTANT SECRETARY OF WAR

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Gentlemen.

One feels very keenly the honor of being asked to address this College. In my previous visits here it has been my lot to receive rather than to give and I have never gone away empty-handed. It is to be hoped that you will be equally fortunate today.

We have watched the development of this College with much interest and it was gratifying to see the recent extension and broadening of the course. Having the additional time, this body of real experts should add much to our plans for National Defense.

In discussing the work of G-4 it is my chief desire to show the close relationship and even the over-lapping interest of our respective problems. The peace-time organization of G-4 will be discussed only very briefly. You have here at the College an organization chart of the division and it seems unnecessary to discuss it in this talk.

As you all know the fourth division of the War Department General Staff is headed by Brigadier General B. H. Wells. The executive, as second in command, must be prepared to take over the division in the absence of the Chief. He therefore keeps in close touch with the work of the entire division and relieves the chief as much as possible from current matters until they have reached the point where a decision is in order The division is divided into the main branches of Finance, Construction, Equipment, Transportation, Supply and Planning.

In most general terms, Finance Branch handles all matters that reach the General Staff relating to money. This includes the basic estimates when the budget is being prepared and priorities, apportionments and allotments after the funds become available. The chief of this branch is a member of the Budget Officer's Advisory Committee.

The Construction Branch, as the name indicates, is charged with such matters as require the consideration of the General Staff. This includes maintenance and disposal, both current and future requirements in shelter, and the routine decisions in reference to leases and licenses. This Branch includes the Air Section recently authorized under the Air Corps Law, a coordinating agency for matters pertaining to that Corps that come before G-4

The Equipment branch has to do with the determination of the type of our materiel and the quantity allowed the troops. Specifications and standardization between various governmental agencies are handled by this branch.

The Transportation Branch deals with the current movement of men, animals and materiel by land and water insofar as these matters are of General Staff interest. This Branch is constatntly studying the problems of type-trains, ports, evacuation and communications in general.

The Supply Branch under existing plans and policies is concerned with the current supply of the Army including storage, issue, distribution and accountability. This includes the distribution and movement of supply, technical and labor troops. There is detailed to G-4 an officer from the National Guard who represents that component of our Army on questions which are directly or indirectly of interest to our State troops.

The last Branch to be considered is the youngest one in the Division. This is the Planning Branch which has only recently been established Heretofore this Branch was a sub-section in the Supply Branch. In briefest terms it is responsible for all war plans both general and special from the G-4 point of view, and the problem of war reserves for continental United States. It is the coordinating agency under mobilization plans for the information and data pertaining to the other branches of the General Staff.

The work of the division as a whole requires close cooperation with the other divisions of the General Staff, particularly G-3 and War Plans Division. No General Staff division can work in a "water tight" compartment. For instance, the distribution of supply, as well as its type and quantity, must be such as to fulfill the training requirements of G-3. In all of this the greatest single factor limiting a given action is the matter of cost. As is well known, this has been so for some time and bids fair to continue to be the hub around which the wheel revolves.

G-4, like all other agencies, has tucked away in its safe a plan under which it will shift from a peace to a war basis. Except in minor matters this change is one of increasing the personnel and space occupied and therefore a simple expansion without being characterized by any change in organization This gives a brief summary of the duties of G-4 and we will now proceed to a discussion of some of the major problems from the purely planning standpoint, which are interests of both G-4 and the Assistant Secretary of War.

As has been so aptly said, a commander in future wars must give at least as much thought to questions of supply as he does to all other things combined. The General Staff and the Assistant Secretary of War as instruments of command are the command agencies that assume this great responsibility. It is apparent that in this there is an over-lapping interest between the two. The General Staff and particularly G-4 develops the basis for our military requirements and the Assistant Secretary of war places this demand upon the industrial framework of the country. While the General Staff is responsible for the requirements, as it is for type and ultimate distribution of the finished article, yet the Assistant Secreta y of War has a large interest in the make-up of its basis. And again, the Assistant Secretary of War having received the requirements, his is the responsibility for their procurement, but procurement or lack thereof is bound up with the accomplishment of the military mission and the commander must always retain his interest in this vital element. These two elements of our military organization, the Chief of Staff and the Assistant Secretary of War, may at any time there is a difference of opinion bring their views into accord through the decision of the Secretary of War in War Council. While a divergence of views is not likely, it is not impossible and it is fitting that an agency exists before which they may be composed.

Since the planning mission of the Assistant Secretary of War is so largely derived from the requirements basis it seems appropriate to discuss this problem in more detail. Prior to the World War the Army gave little thought to this question. This was particularly true of our schools There is little wonder therefore that we entered the war so little prepared in this respect. It brought down upon us the just criticism that the Army did not know its requirements. During the war this resulted in a shifting of power and control over such matters from the existing agencies to new ones set up after the emergency had arisen And for this we ourselves were to blame. It is, however, an ill wind that blows none any good. Out of this situation has come our present set-up for procurement, in the duties of which this College is now training our officers, and, in the General Staff training system, we see supply stressed at every turn of the road

In this the element of requirements is probably the most difficult and important of all phases of supply. From a planning point of view this matter starts when the decision is reached that we make a plan which, even though in the abstract, begins to emphasize the requirements basis. Thought must immediately be given to the large questions of demand, such as strategic areas and sea lanes Since these problems ultimately affect the procurement possibilities they must be considered at the very outset if we plan to embark upon a major effort

Having requirements still in mind, we come eventually to the troops proposed and the time at which they are to be called. These are definitely limiting in nature even though as yet no theaters of operations are determined upon and no particular enemy is assumed. This, in general terms, is the nature of the War Department General Mobilization Plan as a basis for requirements. This plan while over-ambitious in its present conception is a very fine major basis for requirements. Calling as it now does for more troops than can probably be supplied immediately, it places what may be described as the maximum burden upon our procurement capacity. Reduced to its simplest elements on the basis of this general plan, we require the materiel to equip and maintain the troops listed for an undetermined time in an undetermined theater of operations against an unknown enemy. The fallacy of stopping here in our problem is apparent since all major factors of supply, except organizational equipment actually to be with the troops, must be arbitrary. As we wall develop, however, this has been a necessary step in our progress toward a solution of this vital question of how much is needed and how much can be obtained. The former is the General Staff problem and the latter the problem of the Assistant Secretary of War.

The years between the time of the passage of the present National Defense Act and 1926 have been employed in the development of this General Mobilization Plan - with very little time spent on what we now term Special Plans. As those years have been characterized by work on the general plan, the year 1926 has seen great progress on three special plans and those for the defense of our outlying possessions. While all of these have been either very minor emergencies in their premises or have not progressed far enough to be dignified by the term "Plan", they have been most interesting and constructive in preparing the way for more concrete bases for the future. In these plans we have been able to break down our problem of requirements into its several essential elements and have come to a full appreciation of the significance of each element.

The first of these is the equipment necessary to accompany troops as a part of the organization In every special plan this will be rather remarkable for the exceptions to the normal basic allowances. If, for instance, we are to reinforce our troops in China, the road net there will necessitate radical changes in our wheeled and motor transport, and major caliber guns will be proportionately fewer. In fact, every major item is studied in connection with the special problem in hand. In a major plan such changes are certain to have a material influence upon procurement. But in any event the first requirement is for organizational equipment.

The second element is the maintenance factor with all of its variables for the several branches. Maintenance immediately brings in the element of time. This is to say we must determine the moment troops are to be called and the period during which they will be employed under a training maintenance basis in the Zone of the Interior and at what moment they come up against the enemy resistance in the Theater of Operations and consumption starts at a much higher rate for most items of equipment and supply. This consumption is the loss rate on their organizational equipment plus the consumption of exceptional items like bridge construction and road material. Thus we see by periods of time our requirements now include the initial equipment plus its maintenance plus any demands for exceptional items demanded by the particular situation.

And the end is not yet. Safety demands the echelonment of supply behind the troops with a reserve in the Theater of Operation that generally equals the distance from base or home territory in terms of days of supply. The reserve is the largest requirement as a rule in all overhead factors. Under the simple principle announced, if we are operating in a distant overseas field - that is, say ninety days from base - we would build up a three months' reserve as soon as possible. While not an infallible rule, it is a safe point of departure. Echelonment usually increases in amount as we leave the front. So we have added two not inconsiderable factors to our requirements.

There remains but one really deserving consideration, it is the overhead. This element covers lag in time between production and delivery and the extra stockages necessary for a sized item such as shoes. There is an additional requirement depending upon how well the distribution problem is handled. Unless distribution is made as nearly automatic as possible there will be an actual drain on our procurement and an additional requirement will have been introduced. This is to say, automatic supply from Zone of Interior to Theater of Operations properly handled will be the most economical form of distribution.

If we have made it clear that an estimate of requirements is a complicated problem, then we have shown the need for a specific basis for each of its elements. By this time you have become convinced that the speaker considers requirements one of the basic factors to any plan. Nothing could be more essential. To show the difficulties of attempting such an estimate as a basis for procurement, we may revert for a moment to the General Mobilization Plan. We have a single requirement - organizational equipment under Tables of Basic Allowances, no exceptions being considered. Weapon-day rates of fire, for instance to determine ammunition maintenance, must be purely arbitrary unless we accept World War rates which are ruinous from the

viewpoint of ever being able to meet them. In the matter of reserves for the Theater of Operations we cannot say whether it should be fifteen or fifty days. Echelonment is equally in the air. Overhead varies relatively between plans. But we have done all these things as best we could. We have come to conclusions and, right or wrong, they are definite. It only remains to improve upon these and make all premises concrete instead of abstract as the special plans are brought into being.

As sketched above, then we have covered the strictly military requirements. In the interests of simplicity we have brought in only the combined supply requirements in finished articles and have omitted such items as transportation and other facilities. This then constitutes the basis under which the Assistant Secretary of War is developing the country's ability to produce necessary materiel for war.

We shift now to the situation that confronts when these two major elements get together - the elements of how much we need and how much we can get, or we may better say when we find these two elements separated widely in point of time. If there is an hiatus between supply and demand, we must seek an expedient to bridge the gap. This expedient is our war reserves. There are two distinct groups of war reserves and several sub-groups. With one of these groups we will deal but briefly and will merely touch upon the sub-groups. The main groups are the reserves for Continental United States and those for our outlying possessions. The reserves for Continental United States, largely from the viewpoint of theory, are divided into the groups of finished articles and the strategic raw materials. The reserves in the outlying possessions differ from the United States reserve in that they include all items needed for the units included in the products for a definite period of time. The distinctive difference will be brought out as we go along and analyze in more detail our war reserve for Continental United States.

Emerging from the World War with huge though unbalanced stocks it became necessary to establish a basis under which we could retain what was needed and dispose of the balance. It was not until the Appropriation Act of 1924 that Congress gave its sanction to this basis. The General Staff had urged that we keep the materiel required for three field armies or one million five hundred thousand men. In the final action Congress permitted the retention of the requirements of two field armies or one million men. That is our present basis. But much remained to be decided. Obviously we could not expect to retain any item unless it was essential to the troops and was obtainable in sufficient quantities in commerce to meet the demand. This developed the idea of the so-called

essential items. Out of our several hundred thousand items there are less than two thousand essential ones as considered in war reserves. Our next problem was to determine the list of troops making up a balanced force of two field armies or one million men, and to determine the maintenance rate for the items adopted. Having these it became necessary for the branches to establish under the Assistant Secretary of War the production rate. The difference must be made up from stock on hand and stored in peace in anticipation of the early demand in war before production can meet this demand.

As we have presented this element of your defense system we have the theory only. Unfortunately when Congress gave us this basis just described it was done by simply vetoing free issue of existing stocks below the level for a million men. But you will recall that we came out of the war with badly balanced stocks, Congress has not yet been able to allow us the money to balance and establish this reserve. We find ourselves today with an accumulated deficit in the reserves amounting to more than 30%. This in itself would not be so serious were it not for the fact that a very large part, fully 40%, of this deficit is in the most important group of all - ammunition. As you all know, our ammunition is of wartime production and therefore none too good to begin with to stand the ravages of time. We have now an accumulated deterioration of some seven or eight years in this most essential of all the essential items and issued from our already depleted stock must continue if we are to carry on the training of our several components.

Ammunition is merely a good example of what is happening to the reserve in general. It is deteriorating, it is being issued, and it is not being replenished. Congress took the first real step toward ameliorating this condition in the 1927 Appropriation Act when there was voted about four million dollars for ammunition and clothing. This is about 2% of our existing deficit. Unless there is a vast increase in the money available for this purpose, we must seek some other means. We may be forced to reduce the number of men for whom reserves are kept, in fact, Mr. Anthony has already served notice upon the War Department that this matter will come up this winter. As you can see, however, this is a very serious step since it automatically reduces the number of men we can keep on the front during the first year of a war.

When the seriousness of this situation is presented you may properly wonder whether or not our reserves as now figured are not too large. In a brief manner we will sketch a few tests of this question. In the first place, because of the known fact that tremendous costs would be involved in establishing and maintaining this reserve, the General

Staff was forced to reduce to the minimum both the items and quantities recommended by the operating branches. In fact the amounts finally approved are well below those proposed. General Fox Conner, now Deputy Chief of Staff, while he was Assistant Chief of Staff, G-4, by using certain assumptions and facts developed the following analysis which is presented as the best possible answer to the question.

War Reserves as established do not donform to the necessities of the General Mobilization Plan. Any men raised in the first three or four months in excess of one million men must go without clothing and similar necessities, and any men in excess of one million raised within the first 8 to 11 months must go without ammunition. In effect, this last statement accounts for the fact that any reduction in the basis actually reduces the number of men that can be maintained on the fighting line for a period of 12 months. It may therefore be said, in general terms, that the war reserve as authorized and expected production cannot adequately support more than one million men during the first eleven months of an emergency.

The adequacy of the established reserve for supporting one million men may be tested in the simplest way by considering the two items of 30 caliber and 75 m/m ammunition. It should first be recalled that our troops require target practice after mobilization if they are to be put into battle fairly trained.

The requirements of 30 caliber ammunition for 2 field armies of a total of 1 million men are as follows

For organizational equipment	240,097,840
For training	278,156,000
For 180 days' combat	531,109,180
(Based on A.E F. experience)	
Total	1,049,363,020

To meet this demand there is the established, on paper, war reserve of 500,000,000 rounds within the United States plus the production to be expected. It is evident that a most important variable is the moment at which expenditures in combat begin. If it be assumed that this moment is two months after mobilization and that it takes one month to deliver ammunition from the factory to the firing line we have a total of reserve and production of 784,500,000 rounds against a need for 1,049,363,020 during the first eight months. If it be assumed that combat does not begin for three months after mobilization we would have 872,500,000 rounds against a need for 1,049,363,020 rounds during the first nine months. If it be assumed that combat does not begin for four months after mobilization we would have one billion rounds against a need for 1,049,363,020 rounds during the 1st ten months. Under this last assumption

it appears that no troops over and above one million can be supplied with ammunition for training until the eleventh month.

Returning to the needs for organizational equipment and training and neglecting combat we find that we require 518,253,840 rounds for the first million men, of which 18,253,840 must be supplied by production, the anticipated production during the first month is only 13,000,000, hence it is apparent that, allowing one month from factory to troops, the 18,253,840 rounds can not be delivered until some time during the third month. In testing the adequacy of the present established reserve of 30 caliber ammunition many other assumptions may be made, only one seems to be of great importance. This is as follows, Assuming that two million men are required and that there is no combat until after this additional million have been trained, during what month will sufficient 30 caliber ammunition for the organizational equipment and target practice of the two million men be available, assuming always one month from factory to troops? The answer is, shortly after the beginning of the eleventh month. This answer may be contrasted with the General Mobilization Plan which foresees the necessity of 3,175,751 men in service at the end of the tenth month. Whatever ammunition within the Continental limits of the United States is reduced to the minimum. No further reduction can be made unless it be assumed that our total mobilization in the 1st year of an emergency can be limited to less than one million men. However, the vitally important fact at the present moment is that while our authorized reserve of 30 caliber in the United States is 500,000,000 rounds we actually have only 174,000,000 rounds which are free from deterioration. Even this 174,000,000 rounds has about reached its accuracy life and it is quite possible that not one round of it will be fit for battle use after 1929.

The number of 75 mm. guns in 2 field armies (1,000,000 men) is 1,200. The authorized reserve of ammunition for these guns within the United States is 3,713,000 rounds, or about 3,094 rounds per gun. The first need for 75 mm. ammunition upon mobilization is in training. In addition to such training as was received in America there was allowed each gun in the A.E.F., 645 rounds for training. If the same amount be allowed in future the 3,094 rounds is reduced to 2,449 rounds per gun. This amount is further reduced by 499 rounds per gun required under organizational equipment, leaving but 1,950 rounds per gun available for combat.

the first 11 months, if all schools be neglected. Assuming that there is no fighting during the first five months we would have fifteen rounds per gun per day for the remaining six months. Based upon the A.E.F. experience the desired allowance is forty rounds per gun per day.

As in the case of the 30 caliber ammunition, the adequacy of the war reserve of 75 mm. ammunition may be tested by comparison with necessities as expressed in the General Mobilization Plan. At the end of eight months the General Mobilization Plan contemplates 2,543,148 men in service or the equivalent of five field armies. Neglecting schools, assuming the proper proportion of guns and A.E.F. allowance of ammunition for training, the additional 1,800 guns would require 1,161,000 rounds for target practice. Assuming further that only the first 2 armies are engaged in combat during the first eleven months and that there is no fighting during the first five months, we find the 15 rounds per gun per day reduced to less than ten, as against an experience calling for forty. If it be assumed that the first million men engage in combat after the first five months, the next 500,000, after the first eight months, and that the remaining million mobilized during the 5th, 6th, 7th and 8th months do not fight at all during the first 11 months the rounds per gun available for combat is still further reduced to less than five. It is hardly necessary to add that in battle the 75 may have to fire 300 rounds per gun in a single day.

The following fact may also serve to test the adequacy of our artillery ammunition -Considering all mobile types, our present ammunition reserve is approximately the same as that expended in the Meuse-Argonne Battle and not one round of the expenditures for the more important calibers in that Battle, concluded 19 months and 5 days after the declaration of war, was of American manufacture.

Further discussion of specific items is not considered necessary to justify the general conclusions -The war reserve as now established is the lowest possible, both as to items and quantities, consistent with the National Defense. As a rough measure of possibilities it may be repeated that the War Reserve as authorized and all expected production can not adequately support more than one million men during the first year of an emergency.

Since we have no real hope of greatly increased appropriations and in view of the above very significant analysis, we are forced to seek added assistance from this splendid procurement organization. It appears now that the greatest opportunity lies in speeding up the early production even though this means an ultimate delay

in mass production. In this hope it is recognized that our present production curves appear optimistic when viewed in the light of our World War experience. But the significant fact remains that in the next war we will likely have to fight at the beginning and the issue may be decided by what we can do early and not many months after our entry into war. There is little encouragement in the idea of substitutes for we seek many and find few. Nevertheless, we must continue the search, for in the final analysis we may be forced to use anything we can get even though a poor substitute.