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PROCUREMENT PLANNING.

Lecture

by

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PROCUREMENT PLANNING

It is generally conceded that when we entered the World War we were not in a position to at once state within any degree of accuracy our needs for the supply and equipment of our forces.

Plans on which such an estimate could be based were not available, nor had the magnitude of their preparation on such a vast scale ever been visualized by man, if any, of us. In the procurement of supplies, where formerly we were concerned with figures representing ounces and cents, we were suddenly called upon to grope with quantities representing tons upon tons and millions of dollars.

This morning I will endeavor to touch on certain features of Procurement Planning as you gentlemen know it from your studies and other features that will tend to bring out the complexities of modern war and the demands it makes upon the industrial structure of a large nation.

Let us consider the origin of Procurement Planning. Like many other things that now seem so familiar to us, it was conceived through dire necessity. The lessons of the last war show that not only the United States was unprepared industrially, but also that most other nations in the war were to a greater or less degree unprepared.

The needs of vast armies parallel the needs of industry - that is, the bases are the same as in the ordinary economic program - capital, facilities and equipment, power, labor, raw materials, transportation, storage and distribution, and marketing the finished product.

The very word "mobilization" means to render mobile or flexible. Above all things military plans must be flexible, for there enters an element not met in economic plans. Business cycles are well known, flow and increase in population can be estimated over a period of years with remarkable accuracy, but no way exists, nor will there ever exist, by which the changes of a military situation can be foreseen.

The fundamental difficulty with our procurement program during the World War was that there were no mobilization plans, lacking which the Supply Branches, even though had they been organized and trained to handle so vast a problem, could have made no beginning because there was nothing upon which to base requirements.

Back in 1893 in a book entitled "The Art of Subsisting Armies in War" by General Sharpe, the necessity was urged of creating a Department of the Government to mobilize the resources of the country in time of war. No attention had been paid to this important matter in the intervening years, though its necessity was frequently urged.

In the early part of 1917 it became apparent that we would shortly be drawn into the war. In anticipation of this it was decided that all possible preliminary steps should be taken to prepare for the prompt purchase of clothing and equipment and tables were prepared giving the requirements for 500,000 men including the Regular Army and National Guard. With the Selective Service Act these two components were excluded from the 500,000 men to be raised and estimates were prepared for the supply of 1,078,000 men. Immediately after the passage of this act it was learned that it contemplated calling an additional 500,000 men. In July 1917, the figure went to 2,000,000, and in August it was decided to ship monthly increments of troops overseas.

Thus it went all along, Requirements could not be built on a sound basis, available appropriations were exhausted, conflicting opinions, and what not, made the mission of the supply branches extremely difficult.

That the lessons of the World War might be put to profitable use, Mr. Weeks, the then Secretary of War, started in 1921, the framework of the structure now being erected by the Branch Chiefs, under the supervision of the Assistant Secretary.

This structure, as you know, was built around the first War Department General Mobilization Plan. In fact, even prior to the 1920 amendments to the National Defense Act, it was apparent that the quantity of the then existing military supplies which should be retained as provision against another emergency could not be estimated until some specific organization of the Army and its rate of growth in another emergency should be determined. The result was the so-called six army plan, which with but minor changes, has been carried down to the present as our "line of departure".

However, as the Purchase, Storage and Traffic Division of the General Staff had taken over the supply functions of all branches and had combined the old lists of supplies, it was first necessary to have the responsibilities of each branch defined.

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After the return to the several branches of those supplies formerly procured by them with certain exceptions agreed upon as being common to two or more branches, the first concrete step was taken. This was the preparation of a "shopping list", so that we could tell what we wanted to buy.

Having our list of articles and the mobilization plans, the mechanical computation of quantities required was relatively simple. It might have been assumed, and I am sorry to say, is assumed by many, that since the Army would comprise only about 1/30 of the entire population of the country, they would require and consume about 1/30 of the ordinary articles of food and clothing, so that the problem would be merely the diversion into Army channels of the same amounts of food and clothing as the soldier would have used in civil life. This assumption is wide of the truth, however. The Army purchased in 1918 more woolen socks than the country normally produced in an entire year for the whole population. It purchased more than twice the gross production of blankets and three times the production in military gloves, while the purchases of wool alone were far greater than the annual consumption of the entire nation.

It soon became evident that this vast number of items did not all bear the same importance to the military effort. The Office of The Quartermaster General then studied out, in collaboration with G-4, War Department General Staff, the relative importance of all articles on our list. The result is, the Assistant Secretary of War has approved a tabulation of some 200 items, such as woolen textiles, and articles manufactured therefrom, tents, shoes and lasts, vehicles, etcetera.

In procurement planning as in current planning, the first requisite is to determine definitely what items and the quantities thereof, are needed. Furthermore, it is equally necessary to know which of these items and how much of each is available. Then and then only can plans to procure the deficiencies be intelligently approached.

The computation of initial requirements is the simple process of applying the various Tables of Allowances to the Tables of Organization and the supply rate. On the other hand, requirements for maintenance must be determined from experience data.

The compilation of initial requirements of an item issued to specified individuals or units is a process not deeply complicated or extremely difficult, but is slow, requires great diligence and familiarity with the Tables governing the issue of the item. Tables of Organization are not always authoritatively

correct and frequently they conflict with the Tables of Allowances. These instances are quite numerous and consequently necessitate careful check of organization tables and frequent references to Tables of Allowances. Difficulty is also experienced in arriving at the number of men falling under the various classes enumerated in the Tables of Allowances. The determination of how certain men are armed or otherwise equipped is necessary. Such a simple item as cartridge belts, mounted, and cartridge belts, dismounted, required a thorough analysis of every table of organization and table of equipment. For example, a man armed with pistol only is allowed a pistol belt, armed with rifle only, a dismounted belt, mounted and armed with both pistol and rifle, a mounted belt. Exceptions in each instance are made, and pistol belts are also authorized for certain men not armed. Again, cartridge belts are not prescribed for privates of Quartermaster Service Companies of an Infantry Division nor to men of motor repair companies or battalions and other units of the Quartermaster Corps. In the Infantry, certain bicyclists are armed with a pistol, while other men of the same class and mounted on horses are armed with a rifle.

Tables of Organization contain notations as to mounted men and indicate the number of bicycles authorized and deductions can be made as to the arms authorized. Many of these tables show more than one arm per man, while Tables of Allowances specify that mounted belts are not authorized for Infantry and that where the pistol is not specified as the arm, the rifle is authorized.

For insignia for officers' saddle cloths, an un-essential item probably, the ramifications were almost unbelievable, as it was necessary to find out how many officers of all branches were mounted in the six armies and Zone of Interior and Communications Zone.

The foregoing is merely cited to show you the complexity of the problem of computing requirements.

The Supply Branches by constant study of their requirements are rapidly eliminating assumptions which in past we all were, due to lack of definite data and experience in procurement planning, perforce obliged to adopt. As the work progressed all of the Branches realized the necessity for a revision of their requirements, and I dare say these recomputations are constantly going on.

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Several factors have entered the problem of requirements since they were originally computed which have tendency to reduce the original figures on the most essential requirements. The principal of these factors are the approval by the War Department of a definite reserve of mobilization stocks and the reduction of allowances in certain items. The Quartermaster Corps requirements are now in the process of revision as a result of the changed conditions, with a view to overcoming what seemed to be an almost impossible production demand in the early months of the program. The reserve of mobilization stocks authorized by the War Department has reduced this initial demand, so that industry, if called upon, could get into production upon a gradually accelerating basis, reaching maximum when required, and then maintaining its speed as long as required. When the studies are complete on these essential items we will have surmounted the one obstacle generally pointed out by business men when approached for survey. These studies have developed to a degree where it is safe to say the total demand over the two years of the program will not be materially altered, but that an equalization of the demand will aid industry to bear its load.

It has frequently been said that the requirements in clothing, when analyzed on a per man basis, appear excessive. However it is not hard to realize that from the soldier at the front to the producing facility is a long distance and a long time factor controls it. The Zone of Interior plans contemplate the use of twenty-nine supply points under Corps Area Commanders. These in effect are small depots, and each must be stocked at the outset of mobilization. Add to these the concentration camps, and the creation of stocks for the Theatre of Operations, and on top of that the Supply Branch depots, plus rolling time, and the dispersion of stocks is necessarily great.

When the mass requirement was known we knew that studies and surveys as well as the actual procurement would have to be done by field installations. The Quartermaster Corps was fortunately situated in this respect as a result of the World War, as in July 1918 The Quartermaster General established 13 zones of procurement, known as general supply zones, and in practically all of these we still have active depots. This system of zones which was carried over for use by the Director of Purchase and Storage, served to decentralize the actual operations of procurement and distribution, while at the same time the lines of control were tightly held in the various divisions of the Office of The Quartermaster General in Washington.

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With the establishment of the War Department Districts by the Assistant Secretary of War, the task of studying out the details of our procurement planning was delegated to the agencies established therein. There is a continuing mission, and it is being performed in a very satisfactory manner. It is a never ending process, as more than any other supply branch, the Quartermaster Corps is concerned with the going commercial facilities of the Nation, and it follows that conditions affecting these facilities are reflected in our plans.

The habit has grown in the Quartermaster Corps of calling the surveys made in the field "industrial surveys". This term is misleading, as the War Department is not at present engaged in surveying the industries of America. What it is trying to do is to make up a "shopping list" and then find out where the supplies can be procured.

Complete surveys of all the facilities of the nation would be the ideal way to ascertain the country's productive capacity. However, for obvious reasons, such a step is not practicable at this time, although eventually this should be our goal. At present, in order to speed up our work, only an adequate number of reputable facilities in each district are being surveyed to insure our ability to meet the district's apportionment. Thus it will be observed, we are assured of a very positive and substantial factor of safety in the productive capacity of the facilities not yet approached.

It must also be borne in mind that in placing the accepted schedules of production with facilities actually surveyed, not over fifty percent of any facility's capacity is being drawn upon. This permits the facilities to devote the remaining approximately fifty percent to fill requirements for commercial use, which in extreme emergency could also be diverted to needs for the national defense.

With few exceptions, most of the items procured by the Quartermaster Corps are, or are similar to, commercial items, and we therefore believe that with these safety factors, no difficulties will be experienced by the Quartermaster Corps when the plans reach their final development.

While I am on the subject of surveys and facilities, I think it might be well to touch upon some of the difficulties with which the branch representatives in the districts are confronted, and which have a considerable bearing in the showing of material periodical gains in the facilities surveyed. It is true that while a limited sum of mileage is made available for the travel necessary to visit the facilities, many of the

district officers are reluctant to undertake such travel because of the fact that their expenses in connection with such visits are far in excess of the mileage allowances they receive upon completion of the trip. It is not reasonable to expect anyone to undertake travel in connection with surveys when such duty requires expenditure from personal funds. Every branch chief has recommended that the present mileage laws be changed so as to permit per diems to be paid officers while traveling on procurement planning. I understand that the Office of the Assistant Secretary of War has prepared an amendment to the present mileage laws with a view to bringing about necessary changes. Unless this is accomplished, I feel that even the present limited funds authorized for survey work will not be utilized to the best advantage.

Although the Supply Branches require not over fifteen percent of the manufacturing capacity of the country, do not lose sight of the economics of this entire problem. Among the first elements I mentioned was raw materials. Without an adequate supply of these the factories of the country would stagnate. So is it in war as in peace, and as a matter of fact, the causes of most wars include the desire or necessity of a nation to acquire sources of raw materials sufficient to maintain the social and industrial fabric of the nation.

Conservation of the natural resources of the country has come to be of the utmost national importance. This is true in peace, and in war must be a paramount consideration of the Government. And let me add here that it is equally essential for the Armed Forces to conserve the supplies issued for their use.

Conservation is an important factor in that it provides a means by which the entire resources of the country can be made available during a national emergency. It embraces the elimination of wasteful and non-essential uses of materials and labor and provides for their diversion and concentration on the fabrication of the essential items. In the preservation and elimination of waste industry itself has made such remarkable strides so that today little, if any, raw material remains un-utilized. The enormous quantities of by-products now marketed formerly went to waste.

While on the subject of by-products or derivatives, it is my belief that all officers engaged in procurement planning should give this subject considerable study. The time may come when in discussing prices of a commodity, we can hold up our end more intelligently and also be in a better position to safeguard the Government's interests if we have a general knowledge of the commercial by-products of the commodity under discussion.

Conservation in the Theatre of Operations is of utmost importance to the Commander. It was very good fortune to have had something to do with the supply of the troops of our Expeditionary Forces in the Combat Zone, and I was frequently confronted with difficulties in their supply which directly or indirectly could be traced to the unpreparedness of our Nation. Our difficulties were further aggravated by our long line of communications from our home ports of embarkation to the Theatre of Operations.

At that time the resources practically throughout the world were being drawn upon to the maximum. The long lines of communications by land and sea, with congestion at our home ports of embarkation and the maritime difficulties to be surmounted enroute made it essential that every ounce of foodstuff and every article of individual and organizational equipment be conserved, and in general it may be stated that with very few exceptions, every effort was made by all concerned to prevent wastage and mis-use of supplies.

Shortages in certain articles pertaining to nearly all branches in individual and organizational equipment were ever present until approximately September, 1918 -- seventeen months after we entered the war.

During the period from January to March, 1918, owing to a shortage of clothing, it was necessary to obtain from the British for issue to our troops, blouses and trousers of the type worn by men of the British Army. These issues were, however, confined to personnel of labor organizations.

The demand for shoes was very heavy, and at one time the available supply of shoes was inadequate to meet the demands and large quantities of French and British shoes were procured to overcome this discrepancy. Unfortunately, however, the type and last were of a kind to which our troops were not accustomed, and their use resulted in many foot troubles. Fortunately, shipments began to arrive and the issuance of the foreign types of shoes was discontinued.

Up until a few months before the Armistice, we were never in a position to equip the organizations with the full allowance of their motor transportation, and similarly for a tire, there was a shortage of motor parts and accessories.

For obvious reasons, it was not feasible to bring over the required number of animals from the United States, and it was necessary to procure by purchase in France and other European countries many animals to make up to a certain extent the large discrepancies then existing. The total number authorized for organizations and necessary for replacement was never available.

Other items short were - Wagons, escort, Rolling Kitchens, Carts, Ration, Carts, Medical, Carts, Water, Wagons, Combat, Wagons, R. & B., Ambulances, Pistols, Automatic, Cal. 45, Very pistols, Fire Control Equipment (machine gun and artillery), Blacksmith tools, Rifles, fitted with telescopic sights and pouches, 3 Inch Stokes Mortar Equipment, Cable, 10 pair, cut and covered, switchboard, Carts, wire, 2 horse, Charging Sets, Chests, Pack, Glasses, Field, Keys, Telegraph, Kits, Soldering, Panels, (some sets), Reels, Pryout, Sets, Radio, Sets, Testing, Telephones.

Studies are now under way by the Branches having in view the utilization, where practicable, of substitutes for such of the commodities which may present difficulties in procurement in adequate quantities. Similar studies for determining the possibility of increasing the output of our local resources in essential commodities are also being carried on.

As an example of the study given this subject, let me tell you what the Department of Agriculture and the wool industry are doing to increase the production of wool without increasing the number of sheep. In Oregon and Washington selected flocks were cross-bred with a view to producing a longer staple wool. The results to date are extremely gratifying, as the weight of the fleece has been increased two pounds per animal. This permits two clippings per year if desired, but the further advantage of one clip is that there is less dirt in the fleece, and therefore considerably less waste. This is due to the fact that the dirt is found near the outer ends of the fibre and is the same on short hairs as on long. Hence if clipped twice a year the loss is twice that of the single clip. This breed of sheep will be increased as rapidly as possible, and the result, if all sheep in the country were of the improved breed, would be an increase of approximately forty percent in the nation's production of wool.

The contact between industry and the War Department is constantly becoming closer and more valuable, under the stimulus of the Assistant Secretary of War. The Quartermaster Corps, fortunate as it is in procuring supplies, principally commercial in character, makes valued use of these contacts. More and more, we incline toward the belief that if we can present our requirement in a given article to the national trade association representative of the industry concerned, they can solve our problem better than we can ourselves. One example will suffice. When working on the procurement plan for hides and tanning materials the President of the Tanners' Council of America visited the Office of The Quartermaster General, studied the problem and appointed an Executive Committee in the Council to cooperate with the officer working up the study.

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As a result of frequent meetings and joint studies there was worked up a procurement plan, which when submitted to the above-mentioned Executive Committee elicited the following comment from the Chairman - "We think the plan has been admirably worked out and believe it to be basically the best that can be adopted to handle such an intricate business". Such hearty cooperation as this from the leaders of what is probably the fourth largest industry in the United States certainly augurs well for the future if we can continue to tell industry what we want and let them tell us where and how to get it.

It has always been a mooted question in my mind whether surveys of facilities are essential for all important items pertaining to the several branches. So far as the Quartermaster Corps is concerned, take some of the essential items of individual equipment, for instance, all of which are more or less of commercial type. It would appear that the time factor in getting the normal and maximum capacity of the facilities could be materially reduced by dealing directly with the various trades associations producing articles required.

Take for instance the Service Shoe. In order to meet our requirements as apportioned to the field, it was necessary to cover approximately one hundred facilities, and eventually a specific procurement plan for this item was submitted. It appears that we could have saved months in time had we assembled the leading representatives of the shoe industry and in conference with them indicated the districts and the items, quantities and periods in which required. We could have said to them "Gentlemen, here is our problem. You know your facilities, their capacities and locations. Let us have your recommendation as to the equitable distribution of the entire load by district, and furnish us the names of the facilities, their location and their normal and maximum output. In your proposed distribution, reserve for each facility, so far as it is practicable for you to do so, fifty percent of its output to meet the needs of commercial life. Let us have a statement of the normal power requirements of the facilities, and increased power requirements necessary to meet this military load thrust upon them".

I venture to say that in sixty and not over ninety days we can get the information desired, and further, I am also positive that these representatives will furnish us advices, periodically, say once a year, with such revision as may be necessary to keep abreast of the changes commonly occurring. Such a method I believe would be more expeditious and tend to insure the distribution of our load with least disturbance to the economic life of the nation. Lists then sent our district chiefs would announce to them the facilities and quantities each would be capable of producing for the Government when called upon to do so.

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Studies of the raw materials and commodities which are classed as critical and strategic are being given continuous study by the War Department Commodity Committees, made up, as you know, of the Supply Branch representatives. Based on these studies which bring out our aggregate requirements for the Army, Navy and civilian population, together with the resources and other data, plans and policies may be evolved which will insure the steady flow of these essential commodities to the designated facilities in the quantities and time periods necessary to insure the fabrication of those items which our land and sea forces must have to accomplish their mission. So far as possible, the existing methods of distribution of commodities through the ordinary trade channels should be maintained.

Priorities must of necessity be established not only in the distribution of the raw material, but also in the production and distribution of the essential finished items.

Production can not be speeded up to the maximum output immediately at the outbreak of an emergency, and therefore some stop-gap must be provided to tide us over until production can meet our requirements. The War Reserves, as determined by the General Staff, are intended to do this. These are composed primarily of certain essential items of individual and organizational equipment representing some of the supplies left over from the World War stockages and which at present, in most cases, are in excess of the normal requirements of the Army at its present strength. These reserves, which embrace the authorized quantities of serviceable items in storage and those in the hands of troops -- Regular Army and National Guard -- and current stocks, have been designated by the General Staff as Mobilization Stocks, and are estimated to adequately equip in those items two Field Armies or approximately 1,000,000 men.

There are, however, some shortages in the quantities of certain of these items which must be procured in order to make the mobilization stocks complete and available for the purpose intended. The money value involved to make up these shortages is, I understand, approximately one hundred million dollars (\$100,000,000), and obviously an amount too great for us to expect to be made available in one lump sum for the entire program. The only solution therefore appears to be to endeavor to get the funds required in yearly increments extending over a period of years. I understand that a study of the shortages in these essential items is now being made by the General Staff, in collaboration with the Office of the Assistant Secretary of War, to determine the order of priority in their procurement and the funds required therefor.

Next in importance, after these shortages have been provided for, is the maintenance of the authorized mobilization stocks, otherwise the mobilization stocks will never be stabilized and such unsettled conditions, aside from being very unsatisfactory, will tend to increase the difficulties of the branches in their procurement planning.

Another matter of great importance to the Quartermaster Corps is the reduction of purely military articles and the adoption of articles used in the every-day commerce of the country. All War Department agencies are studying this feature and its importance warrants considerable thought on the part of all officers. In the past year there have been discarded twenty purely military articles of Quartermaster supplies and we have adopted 150 commercial articles. The continuance of this practice is a great help to industry in war production.

One of the responsibilities of The Quartermaster General that does not seem to be given much prominence is the procurement of shelter. There can be no delay in housing new troops and constructing the hospitals, the water, sewer, lighting and other systems and utilities necessary for their well-being. While it is contemplated that existing buildings will be utilized to the fullest extent possible, it is manifestly out of the question to do this for large concentrations and new construction must be utilized.

In order to intelligently prepare our procurement plans for construction requirements, it is necessary to have available the data which the War Department General Mobilization Plan directs the Corps Area Commanders and Branch Chiefs to furnish. Of the nine Corps Areas, all but two have been received to date. Very few of the Branch requirements have been received so far.

There is, of course, considerable variance in the requirements of shelter, utilities, etc., in each of the Corps Area plans, and similarly there will be wide differences in the requirements of each of the Branch projects. It can readily be seen that the determination of the aggregate requirements of the various essential projects can therefore not be determined within any reasonable degree of accuracy until they are made available. Consequently, no steps can be taken to determine and allot the apportionments to the districts, and failing to have those on hand, progress in requisitions for facilities and the attendant surveys, with a view to placing accepted schedules of production, can not be had.

For our own information, we have made a tentative estimate in lumber requirements, based on experience data from the World War and such pertinent data extracted from the few plans received to date. This estimate shows the need of approximately two billion board feet of lumber.

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Under the War Department General Mobilization Plan the Quartermaster Corps will be called upon to procure horses and mules for all Government agencies -- the Army, Navy and Marine Corps and all other Government activities. The total requirements in horses and mules, all classes, for the first phase are 323,623, and for the second phase, 328,943, or a total for the first twelve months of 652,566. To this must be added ten percent for replacements, making a grand total of 717,822 animals. Plans for the procurement of the animals required embrace a war-time set-up of five Purchasing and Breeding Headquarters with specific territories assigned, termed Remount Purchasing Zones.

As a war-time expansion of the Purchasing and Breeding Headquarters, plans contemplate establishing forty (40) Purchasing Boards, each of which is capable of procuring 100 animals per day or approximately 100,000 animals per month.

All horse and mule dealers in the Five Purchasing Zones have submitted tentative agreements and monthly schedules under which they propose to furnish, when called upon, the number of animals apportioned to them. Under the plan briefly sketched we will have available approximately 4,000 experienced buyers.

The Quartermaster Corps maintains close and hearty cooperation with the horse dealers and fanciers of the country. This cooperation is obtained through the medium of the American Remount Association, which is composed of approximately 1,000 officers of the Army of the United States -- Regular, Reserve and National Guard -- and somewhat in excess of 2,000 prominent civilian horse breeders and fanciers.

Our procurement plans for motor vehicles provide for the procurement in the first twelve months of approximately 226,000 vehicles of all classes and types. Of this number, approximately 60,000 are required for the first phase. Our surveys are rapidly being developed and we will soon be in a position to definitely determine whether all our requirements can be met in the number, classes and types required, and what substitutions, if any, will have to be provided for such of the prescribed vehicles which can not be procured in the quantities and time periods required.

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We have already foreseen the necessity for the development of a suitable substitute for the Four Wheel Drive as at present specified, which, from the data available, apparently can not be procured in the quantities and time required. Our requirements in this type alone are in round numbers 11,000 for the first phase, and 48,000 for the first twelve months. Based upon continuous experiments and tests under service conditions, conducted by our Engineering Division at Camp Holabird, The Quartermaster General has purchased two chassis of another type of Four Wheel Drive, which, after being fitted with bodies at our shops, are to be sent to Camp Bragg for service tests. If these vehicles meet the tests which will be imposed upon them and are subsequently adopted for use, we believe that our procurement program for Four Wheel Drive vehicles can be met, as most of the parts in the make-up of the truck being tested are of standard commercial manufacture.

Our requirements in Rail Transportation can be developed accurately, only as each of our specific procurement plans are finished, or at least those pertaining to the essential items. This data as to the tonnage to be moved from facilities, when compiled from the requirements of all the Supply Branches, should be of great assistance to the American Railway Association in the mobilization of railroad cars. As you know, the plans of the Assistant Secretary of War, in the event of the War Department General Mobilization Plan being put into effect, contemplate leaving the operation of the railroads under their control. All we have to do is to indicate the time, point of origin, class and quantities of supplies, and the destination, and the railroads will do the rest, subject always, of course, to such priority movements as may be determined by the War Department. Only under such an arrangement can railway movements of supplies and troops be handled in a satisfactory manner, provided always that we cooperate with the railroads by prompt loading and equally prompt release of railroad cars hauling our supplies.

In computing requirements in marine vessels and marine supplies, we must depend almost entirely upon chartering, or if necessary, requisitioning of commercial vessels available where and when needed, and plan for converting them into troop, animal, cargo transports, etc. As you know, vessels vary to a great degree in carrying capacity, and it is necessary to take each vessel and determine how the same can be converted, either for troop, animal or cargo transport, when and as needed.

We have arrived at the number of vessels required by a method gained from the experiences of the World War, and based on the carrying capacity of vessels in operation, and have worked out an average troop ship of 7,000 net tons which will carry 150 officers, 3,000 men and 2,250 net tons of cargo.

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Similarly, such a vessel will carry 600 animals, 30 stock tenders, and 5,000 net tons of cargo, and a cargo vessel of the same size will carry 5,000 net tons.

Computing the equipment and supplies for these average vessels, we then have the number and size of vessels and amount of supplies needed for any given movement by water of troops, animals and supplies. Lists of vessels in operation are kept on file, with a reserve list from which selection may be made when needed.

The larger aspects of the entire problem, power, labor, transportation, etcetera, have been the subject of some of your problems while here, and I will not touch on them except to say that around this economic framework our plans must be built, and that each of us must constantly strive to bring these plans to the highest degree of perfection.

There is an element of risk involved in any effort to appraise a movement while that movement is still in its earlier and more enthusiastic stages, especially when the appraisal is made by one who is a participant in it. The attempt is justified only by the accuracy of the facts upon which the appraisal is based and the inferences to be drawn from it. Please don't get the impression that this planning job is nearly done. Far from it. Years of work remain ahead of us, but we are fortified in the belief that we have built upon a solid foundation capable of holding up the load, should it ever become necessary.

It is opportune to tell you that at this time all branches are shooting at the same target under well-defined policies from the Office of the Assistant Secretary of War. For a problem of its magnitude it was, of course, realized that we must walk before we could run, and naturally considerable groping was necessary. Now however, each branch chief has his problem. It is his responsibility and he must solve it. To the greatest degree possible he is to be allowed to continue without having new factors injected. Haste and over-zeal in procurement planning should be studiously avoided. This work is of such magnitude and has so many ramifications that unless given deep study and the utmost care is exercised in laying the foundation "requirements" and developing each step in orderly and coordinated progression, we are apt to find an enormous amount of effort and time wasted.

All the branches are working diligently to reach the goal when all will have perfected the plans pertaining to the essential items. This is as it should be, and The Quartermaster General anticipates that December 31st, 1927 will see the completion of the project of the essential items, and that by the end of 1931 the entire project should be nearing completion.

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Most of the difficulties encountered by the Branches in procurement in the early phases of the last war can be directly traced to lack of prior planning, and I can unhesitatingly state that from my observation of the interest displayed and the progress now being made by the several supply branches, that should the emergency arise again, their great procurement programs will be launched without chaos and in orderly progression.

From your study in this College and the many interesting and instructive talks by the nation's leading industrialists and prominent business men, who were instrumental in guiding the nation through the more or less chaotic phases of the early period of the war, you have been equipped with a mental picture of the difficulties encountered in meeting the needs of our armed forces, those of our Allies, and of equal importance, the needs of our civilian population.

The difficulties encountered and the measures taken to surmount them should leave with us primarily a vivid lesson of what not to do. Had we been prepared to present a reasonable estimate of our aggregate requirements, many of the errors made would never have materialized, and by the same token, the measures required to lead us back upon the right track would have been unnecessary.

Therefore, in my opinion, we and those who take up procurement planning after us, and in fact, the entire nation, will profit should the emergency arise again, if we are all prepared to avoid the mistakes, or if you please, the "don'ts" gleaned from the experiences of the great war.

This College, in my opinion, is a great institution and now that the course has been extended to approximately one year, will soon be placed on the same plane as our other important and recognized military centers of instruction.

Aside from the theoretical and practical benefits the representatives of the Branches receive at the Army Industrial College, it has a very broadening effect on the students. In contact daily with the officers of the other branches, working together on similar problems and as members of committees, etc., soon brings to each officer the realization that although his own particular branch is an important one, the others also, in their sphere of activities, are equally important. All of us in our zeal may sometimes think that our own particular branch is the most important one, but when we wake up we find that we are not the only pebbles on the beach.

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I have heard it stated that this procurement planning game will run its course eventually and that interest in this work is bound to lag. I know and you know that a matter of such vital importance can never cease to be interesting, and if preparations for defense mean anything at all, the work must never be permitted to lag. It is a project vitally affecting the security of the nation during emergency, and our national economic structure immediately following the emergency.

I trust that your Branch Chiefs, all of whom by the way are Directors of this College and are heartily in accord with its mission, will find it practicable to permit as many of you, as the exigencies of the service will permit to continue on the work and studies pertaining to procurement in war.