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WAR RESERVE

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One of the incidents of the Revolutionary War related by Washington Irving was the capture, without bloodshed, of a considerable enemy force protected by a strong enclosure. Scouting with his cavalry in the Carolinas, Lt. Colonel Washington, a relative of the Commander-in-Chief, came suddenly upon this situation and realizing that cavalry was entirely ineffective, determined on a ruse which proved successful. Dismounting and disguising his men as infantry he advanced them with a dummy field piece fashioned out of a pine tree, painted and mounted on wagon wheels, and threatened to blow the little fort out of existence if it did not immediately surrender. This ludicrous affair, which quite mortified Cornwallis, may perhaps best illustrate the value of superior equipment, for such it appeared to be, and I shall be entirely satisfied if you so regard it. But reflecting that today we disguise not trees as guns but guns as trees, what seems most striking in these picturesque examples of the intimate and personal contacts of bygone wars is their contrast with the stern industrial aspect of our modern war machine. In our first great war hastily gathered militia, each man seizing the arms from his own fireside, might, by personal courage and initiative, inflict a defeat on a disciplined enemy, as at Kings Mountain in this same Caroline campaign, our last war found armies impotent without the support of a vast industrial cooperation such as the world had never dreamed. By successive stages, gaining the most

rapid headway within our own lifetime, we have reached a situation where our leaders in the military art have, like Frankenstein, raised up a monster for their torment - a supply monster whose insatiable appetite may decide the fate of nations.

Success in land warfare today depends on three factors, man-power, supply-power, and the utilization of both - each so important and so interwoven that it is foolish to speculate on their relative value. Those nations only are wise who neglect no one of the three for in direct proportion to that neglect will safety be imperilled. We are here concerned with supply power. Wholly sympathetic with the problems of those responsible for man power and utilization, we desire to make sure that the flow of supplies, in default of which victory may be denied, shall not fail.

The effect of supply power on history! If some one among you has literary genius here is a fascinating subject awaiting an author. History, to date, has dealt but meagerly with it, wars are recounted almost wholly in terms of men, strategy, tactics and politics. Only some spectacular condition, like that at Valley Forge or the blockade of the Confederacy, causes the historian to pause a moment and contemplate the effect of scarcity of goods, otherwise, armies assemble, move and fight with supplies falling apparently like manna from heaven, and the genius of a Napoleon, for example, lies wholly in his strategy and tactics and the employment of his artillery. It seems almost as if a formula for the recording of wars had been laid down in the bow and arrow period too sacred for the ever-growing complexity and importance of the supply problem to disturb, so that we can even find histories of

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the World War entirely innocent of any reference to such a problem

But let us consider for a moment this Napoleon whose genius over-shadowed the world. How he recruited his armies we know. But how, after disaster overtook his armies, could he so quickly re-arm? We find the answer in his letters and orders and here we have a very different Napoleon from the dashing commander of the historian - a man of infinite detail whose mastery of figures and statistics extended to every particular of his supply program. Homely, dry letters these--information where goods can be made or found and where they should be stored. To a certain General Clarke he writes criticizing an estimate for repairs, citing the original cost of the articles. From Moscow he sends to France a complete procurement plan for artillery and ammunition. Nothing escapes his attention. One American author has caught a glimpse of this side of Napoleon and represents him in a fictitious interview with Aaron Burr as ascribing much of his military success to his statistics of French industry. What irony of fate that he should lose an army from lack of food!

So in our studies of military genius, success and failure, let us think of Napoleon not only as the great commander which he was but as the father of procurement planning, that first element of supply preparedness on which more and more success has come to depend.

Yet in Napoleon's day the supply problem was still relatively simple, a condition which had not greatly changed up to our own Civil War within the memory of still living men, making comparison doubly interesting. Thus, in your boyhood studies of these events you must have been impressed with the great siege train with which Grant in-

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vested Petersburg and it is interesting to note that the total cost of these field pieces was not more than that of the few batteries of 75 mm guns which you can see on our Washington streets on any day of ceremonial display - not much over \$125,000, if my memory serves. The whole artillery of Rosecrans' army was not much more. Commanders sent orders for cannon balls to foundries on a single sheet of paper - the back of an envelope would have served. Contrast this with the present day specifications for a 75 mm shell and contrast the time element. But invention and science were already asserting their domination. A single, victorious iron-clad commanded the seas, a symbol of the changes to come.

And so as the machine age began and Germany, France, Russia, England and our own country waged successive wars, armament grew yearly more complex and powerful until within our own experience in the great tragedy of the World War we have seen supply power in its full maturity, an insistent power to achieve which taxes uttermost resources and without which failure as Russia first and Germany finally found is well nigh inevitable

It is this growing complexity and specialization of the munitions of war together with the vast increase in armies, their consumer, which has given us our modern problem of war reserves, not a new problem or without its effect in past conflicts, but new in its greatly increased importance. To the extent that armed forces need essential supplies in advance of their availability in the market they must depend on reserve stocks or cease or limit their activities. These stocks may be partly in the hands of the troops themselves, - initial equipment, accompanying ammunition, etc., and partly in storehouses, but to the amount that demands exceed supply they must be on hand.

We call such stocks war reserve. There is nothing theoretical about this subject, it is a coldly practical matter. It delayed the effectiveness of our own participation in the World War and forced our dependence on French and British supplies. It nearly decided the issue in Flanders. Clear-thinking France made it a corner-stone in the Versailles Treaty and statesmen will always find it one of the most vital factors in their projects of disarmament. As in the world's military center of 1800, we find Napoleon adding to his strength by careful procurement planning, so in Germany, strenuously preparing for Der Tag a century later, do we find a full appreciation of the increased importance of reserves.

Writing to the War Ministry on January 11, 1912, Von Moltke develops the need for ammunition reserves on the basis of expenditure in battle and probable manufacturing output. At this time he estimated light shell production in eight weeks. Six months later he had revised his estimates and wrote as follows "The figure of 1200 rounds per gun seems to me absolutely necessary in view of the small amount of ammunition which, as I now hear, can be manufactured after the proclamation of mobilization. I must ask that this be reached as soon as possible. At the same time I must draw your attention to the necessity of developing the capacity of industry to produce ammunition in the case of mobilization in order that it may be able to cope with any emergency." What a fascinating subject for research into the causes of the World War if these calculations could be made available to the student! The German import figures tell the same story as to storage of raw materials - there was no failure of realization in the German Staff of the value of supply power and the fatal miscalculation, particularly as to raw materials, was in

the resisting power of the enemy.

I have named this reserve problem a very practical thing. We may go farther and state that in itself it is pure mathematics. The data which lead up to it may and generally must be estimated but their solution into the reserve result is straight mathematics and we can no more truly speak of authorizing such a result than we can authorize that 2 plus 2 equals 4. If such authorization is but a bureaucratic function no harm is done, but too often an authorized reserve means a failure to face the results of basic data combined with hesitancy in changing such data, possibly not wholly believed in. Such compromise, not lacking in our own policy, obscures the facts and hinders progress.

In considering the mathematical solution we may conveniently make a basic distinction as between finished articles of issue and the raw materials of manufacture. We must omit consideration of components and such secondary requirements as gauges, machine tools, etc., as involving questions too complex for the limits of this discussion. As between these two divisions the principal difference is the time element. With finished articles we are, from the war reserve standpoint, only concerned with that period of time necessary for the transportation of our industries from peace to war. With raw materials we are concerned with the entire duration of the war in order that these industries, once gaining full activity, need not slacken. In this case the factors are at once seen to be much more indefinite, involving the development, intensity and duration of the struggle and the avenues of import which may remain open. One guess may be as good as another,

and so for the present, the office in charge of these raw material studies is adhering to two years requirements developed from the 1924 mobilization plan with all sea lanes considered closed. There are several factors of safety - disregard of essentiality, probable excessive estimate of first year operations, possible reduction of allowances, and possible retention of some avenues of import - all of which serve to offset the risk of an under-estimate of duration. Very considerable progress has been made in ascertaining necessary raw material reserves but conclusions will for some time be withheld pending further research into the development of substitutes for shortages now known to exist. As discovery of a safe, available substitute for a strategic raw material extinguishes or reduces the reserve stock which, at considerable cost, a country must otherwise acquire and maintain for its own safety, there can be no better utilization of funds than for well-directed research in this direction. The problem is recognized in our yearly budget directive, but appreciation of its importance has not yet gained as wide acceptance as is necessary and desirable.

Passing now to finished items of supply, discussion must be confined to the field forces, as time will not permit consideration of such special situations as coast defenses or insular possessions and it is the mobile army which is indeed our final reliance. For our mathematical solution we need three factors - Production, Time Elements of Distribution, and Requirements - with our studies confined to those essential items necessary to the combat efficiency of troops. Now let us make one point very clear. With the potential industrial strength of this nation, with plans for the augmentation, transposition and

speeding up of industry carried to completion and the anticipated peaks of production reached, and with adequate provision for raw materials, we need have no fear but that our industrial structure will support the demands of a maximum emergency. In other words, after the first phase of industrial preparation is over our supply power will be adequate. Therefore, so far as war reserve of finished items is concerned, we need only consider this first phase of the struggle, a period varying from say four to fourteen months according to the nature and complexity of the supplies - on the average, a twelve-months study.

The National Defense Act gave us the basis for our production studies and these have progressed to the point where the figures are in readiness within a reasonable degree of accuracy. Production figures are never final, actual and potential producers enter and leave the field, the introduction of substitute standards broadens the market, and educational orders, if authorized, will shorten the period of preparation in certain items, but, with these necessary reservations fully admitted, it may still safely be said that the figures now available are sufficiently within the general error limits of the problem to permit war reserve calculations to proceed. The distribution time factors have been thoroughly discussed and there is no particular disagreement, the time ranging from one to three months according to procurement methods and character of material. But requirements are not available and as our attention will now be concentrated on this phase of the problem,

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it will be well to take a brief, general survey of the developments of the past ten years. The sudden termination of the war found the Supply Branches with vast unbalanced and scattered stocks of munitions on hand - a golden opportunity for the collection and segregation of desirable reserves, coupled with the imperative necessity of disposing of unnecessary surplus. In no branch was the storage situation more serious than in the Ordnance Department and the Chief of that branch requested the creation of a general army board to find the necessary solution. This being denied, he created a board within the Ordnance Department which, working continuously for eighteen months, issued a series of twenty-four comprehensive reports on the various important groups of Ordnance materiel with specific recommendations as to reserves to be retained. The work of the Ordnance Munitions Board deserves more than passing mention in any study of our war reserve problem. It standardized the method of computing reserves, bringing manufacturing estimates and distribution time factors into the problem for the first time. It visualized the mathematics by easily comprehended charts. Its constant requests for information showed up the lapses in our basic data and pointed the way for our future mobilization studies and its final report contained recommendations which, had they been followed, would have resulted in far greater progress than we have since obtained. Meanwhile the other branches were endeavoring to solve the pressing salvage question and finally the General Staff, in March 1921, issued the first tentative 6-army plan. Fortified by its own studies, the Ordnance Department was able to quickly furnish an estimate of reserve requirements under this plan which proved to be so excessive that the plan

was withdrawn. The Staff was now actively interested in the problem, although unfortunately emphasizing more the question of salvage than any definite determination of reserves, and successive studies followed in rapid succession down to the study you know so well as the Mobilization Plan of 1924. There was as yet no clear distinction between mobilization and operating plans, but by the enunciation of various interpretations the 1924 Plan was converted into a crude operating plan and the war reserve necessary for this plan is known. Regarded today as excessive, the plan has been withdrawn except for the purposes of procurement planning. With the abandonment of the 1924 Plan, a new study known as the 1927 Supply Estimate was undertaken and for a time there were high hopes that this might point the way towards a definite solution of the reserve problem but these hopes were not realized, this study, though not definitely, is practically withdrawn and no new work is now going forward except that on the 1928 Mobilization Plan which by agreement is not a requirements study. Of all these plans other than 1924, the only one now in any way effective is the Mobilization Plan of 1923. This was a 3-6 army plan with the supply of the last three armies left to production, therefore, from the standpoint of reserve it is a 3-army plan, 1,500,000 men. It also was made an operating plan and requirements were computed under its provisions, those for ammunition however being given special treatment. At about this time Congress enacted legislation protecting existing reserves against further depletion by issue if not in excess of the requirements of an army of 1,000,000 men. Congress left it to the War Department to determine

the organization and employment of such an army and, in default of an existing basis, it was decided first, to fix the protected amounts at $2/3$ the reserves computed as necessary for the 3-army plan, and later, to partially refigure the 1923 basis omitting the third army. The result is what is now known as the 1924 Reserve, not to be confused with the 1924 Mobilization Plan. In 1927, however, the War Department ordered a special 2-army study to more correctly interpret the legislation and what is known as the 1927 Reserve resulted, the basis which is adhered to in governing free issue and in estimates for replacement and maintenance as far as the exigencies of the Budget will permit. Of these two reserves the 1924 is much the lower, especially in ammunition, the full rates of fire being used in the 1927 computations. Thus, for requirements we have available at present the following: those of the 1924 Mobilization Plan, abandoned except for Procurement Planning, those of the Supply Estimate never promulgated, those of the 2-army study 1923 basis (1924 Reserve) and those of the 2-army study 1927 basis (1927 Reserve). Remembering that 1924 is but a weak budgetary sister of 1927, that this legislation only protects and does not augment deficits and that no one has suggested a 2-army plan as sufficient for defence, the justification for our statement that requirements are lacking is clearly seen. But our picture will not be complete without mention of augmentation. Issue and deterioration have levied heavy toll on our stocks during the past 10 years. Certain stocks were never large and many new developments are entirely unprovided for. Important deficits thus exist from any point of view and a few augmentation programs have been set up

as the result of Staff studies. The clear thinker realizes that whenever financial considerations begin to obscure the determination of Supply Power necessities the danger flag is flying, and finance has dominated these projects both in their initial conception and in the later exclusion of most of them from the Budget. In ammunition special rates of fire were introduced to produce low requirements - the special treatment already referred to - in other items various special lines of reasoning have been followed, with the result that should these projects finally work out, stocks will still remain far below the amounts calculated for the 2-army plan under the normal data in which no official change has been made to correspond with the conceptions advanced in these various papers. Augmentation therefore remains unrelated to any other plan or conception of the national defense, a policy the wisdom of which may be seriously questioned.

This is in very general terms a picture, not as accurate as it could be sketched with more time available, of our efforts and results during the past ten years. It, of course, takes no account of many special and particular studies or which a large amount of work has been done, and it takes no account of education in essentials in which it is to be hoped there has been much progress. In general, it is a record not without encouragement but containing many elements of disappointment which lead to the belief that we should now take a new point of departure.

There has been much discussion in connection with our general subject as to which office should control the computation of

requirements in the Supply Branches, and as these computations are mainly for the determination of the procurement program and the reserve stocks necessary for its support, there is much justification for the view that this control should be shifted to the Office of the Assistant Secretary of War, but, for the purpose of the present discussion, it is only necessary to observe that however controlled these computations should be confined to a definite expectation of progress. In announcing his objection to any computation of requirements under the 1928 Mobilization Plan, to which otherwise he gave strong support, the Assistant Secretary of War has taken the position that as far as procurement planning is concerned, the immense amount of work involved in shifting to a new basis cannot be justified unless an operating plan evolved from the new basis gives promise of stability, and that as far as Reserves are concerned, there is needed, not a mobilization plan, but a definite plan of operations for the first year of war, and it is to the consideration of this last point of view which the Assistant Secretary of War has stressed in his recent annual reports, and with reference to which I trust what has preceded has been sufficiently preparatory, that I wish to devote the remaining paragraphs of this address.

Our lack of adequate progress during the last ten years towards the solution of the war reserve problem has not, in my opinion, been due to any lack of education, to any fixed opposition, or to any misplacement of control. Strongly as I believe that the creation and maintenance of war reserve stocks should be a function of the Assistant Secretary of War, no more earnest students of a difficult problem can

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be found than many who have worked on it in the General Staff. The difficulty, as I see it, is due to over emphasis on mobilization.

The National Defense Act directs the preparation of mobilization plans and no explanation of their necessity is required. It is in their application that mistakes are now apparent. A general mobilization plan permits under certain restrictions a conversion to a maximum operating plan, demanding in turn a maximum supply effort. It is not, however, mandatory in this respect and equally permits under restrictions the development of lesser operations with consequent smaller supply requirements. With the earlier studies the question of salvage was uppermost and obviously the safest basis for the abandonment of excess stocks was the maximum requirement. This idea of converting each new mobilization plan into a maximum supply effort has now outlived all possible usefulness and if persisted in will continue to obscure and delay the development of an adequate war reserve program. In the final report of the Ordnance Munitions Board occurs this statement

"No policy can be effective which is not clothed with the power to expend sufficient money to carry it into effect. It is obvious, therefore, that an authoritative munitions policy must have the definite approval of Congress, as well as of the War Department."

These words are just as true today as when they were written eight years ago and the futility of the course we have followed is shown by the fact that in all this time not one of our maximum effort supply programs has found a sponsor willing to present or defend it

before the Committees of Congress. The imperative present necessity, if we are to secure an authorized munitions policy before our already depleted stocks are wholly wiped out, is the realization, translated into definite action, that the next step after the creation of a mobilization plan is the development of an operating plan thereunder, based on a definite requirement which will command universal approval. The one such requirement which can be suggested without fear of dispute is the safeguarding of our own soil from foreign aggression. If we develop a wise plan of home defense to cover the period necessary for the full development of our industrial strength, during which period we can prepare for such later offense as may then be desirable, we shall arrive at a minimum war reserve program which we can present to Congress with every assurance of a favorable reception. It can be done and it must be done. It will require the cooperation of other services but that can be secured. It should be prosecuted on our part with such definite determination of basic factors and searching analysis of allowances and expenditures that never again shall we set up special rates for special purposes or find any authorizations in our files based on different conceptions.

It should be prosecuted on the part of all concerned without the slightest admixture of financial considerations, which should follow and not lead its determination.

Its results should be a munitions policy which can be confidently submitted to Congress and, once approved, become the sole basis for all future estimates.

Let me venture one prediction. The financial results of such a minimum plan will not be prohibitive and will be the cheapest insurance premium in relation to the importance of the policy protection ever offered the American people.

Skeptics have said that Congress will never approve a definite policy for munitions and reserve. Speaking on this subject in the House of Representatives on February 2, 1928, the distinguished Member in charge of the War Department Appropriation Bill said (I quote at random from his remarks)

"The amount of the reserve necessary to have on hand is based on a certain program of the War Department, which, of course, is based on certain assumptions and the question of adequacy goes right back to those assumptions. The character of operations that we would like to carry on in case of war, our geographic position, and other elements, enter into the question of adequacy. I do not believe that it is contemplated that the United States would, in the beginning, carry any war to foreign soil, although that might be necessary at a subsequent time. It would be necessary before we were in danger in this country for some enemy to come across the sea and land their forces on our shores. An enemy is not going to land on our shores right away, by any means. Consideration and study of this very complex question will be continued by the War Department Any plan that may be submitted will have the serious consideration of Congress."

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Here is advice and an invitation which should be heeded
Between two extremes of thought, one, that our Navy would always
successfully safeguard our shores from invasion, and the other,
that we shall conduct maximum land operations, beginning with M Day,
a safe but sane decision must be reached as to the military protection
which reasonable prudence dictates. Our country has fought many wars,
let us hope it may never have to fight another. Insurance against
disaster neither invites nor predicts the catastrophe. Should the
disaster of war ever again fall upon us, flesh and blood unsupported
by adequate supply power may withstand the shock, the World War
furnishes examples both of success and failure, but at a loss that
one does not care to contemplate. No more important question con-
fronts the War Department, no more important question confronts the
Nation, that the settlement of the problem that we have endeavored
herein to outline. Supreme in man power, equal at least in ability
to properly utilize available resources, we must not longer delay
the consolidation of our military strength by neglecting that most
important element of supply power, an adequate balanced war reserve.