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THE DEVELOPMENT OF THE GENERAL MUNITIONS BOARD.

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THE DEVELOPMENT OF THE GENERAL MUNITIONS BOARD.

Gentlemen, I am very glad to be here to take my part in the serious work that you are now doing. It is eight years since the time when the things about which I will tell you transpired, and so I have quite the feeling that I am talking about work that someone else did and about the experiences of some man other than myself.

It is natural, when I look at this group, that I should contrast the number of men who are here studying the supply questions, and preparations necessary in the event of a great emergency, with the meagre number of professional soldiers who were available in the supply departments at the outbreak of the World War. There were on duty in Washington sixteen men in the Ordnance Department, four in the Construction Division of the Quartermaster Corps, and so on through the other departments. The interest you men are taking in this work appeals strongly to me. It means that if the College is maintained, as I am confident it will be, enlarged and developed as naturally it will be, never again shall we face a crisis, as serious as the last one, so poorly equipped to meet it as we were at that time.

It is impossible to cover in one lecture, however long one might make it and however tired the audience might become, the problems or even the general principles that were involved in the work of the General Munitions Board and the War Industries Board, so it is useless for me to attempt to do it in that way. I have thought, if it were agreeable to the officers of the school, that each time I appear, the simple way would be to generalize insofar as that experience suggests to me general principles, and to specify distinctly certain things and to carry that policy on from class to class; then from the mimeographed copies each class would be brought up to date. It is my understanding tha t you have had submitted to you a copy of the address delivered here in January, 1925, which outlined in a very general way the conditions present in the supply departments upon the declaration of war in 1917. On this occasion I shall allude particularly to the rifle program and cantonments.

A study of our procurement problems in 1861, 1898 and 1917, discloses many phases of similarity. However, there has been no general study of the problems that our country faced in those three crises, nor any sufficient collating of the solutions to the problems; so that even today, neither you not I have available a full story of the trials of those times or of our methods of overcoming them. Therefore, on

each succeeding occasion we have had many of the same errors.

As I see it, through the agency of this College, we can bring together the history of the procurement problems of the former periods; we can discover the answers; how sufficient or insufficient those answers were; begin to dissect the principles from the methods -- or, as I presume the General Staff would want us to say, the strategy from the tactics -- and discover how closely the answers of those periods might be applicable in the event of another great emergency. We would find, of course, that some of the underlying economic conditions would not have changed, and, on the other hand, that some of the answers applicable at those periods because of economic conditions then existing would not be applicable to other periods. That is one of the reasons why I question the appointment, in time of peace, of a War Industries Board. There would be too great a tendency to try to apply to a crisis still in the future the answers that were satisfactory in the past, as well as the danger of having limited and defined a power, the very essence of the value of which is that it is unlimited and undefined.

The activities of the Confederate Government during the Civil War are worthy of our study because we will find in many respects that they have a peculiar bearing on a situation of major war in which, as we know, the entire resources of a nation - human, moral and material, - must be made available. The South gave us that kind of an example and much better than the North, because the North had control of the sea and access to the markets of the world throughout the war, whereas the South was blockaded with increasing effectiveness. The South had to rely almost entirely upon her own resources, and the story of the development of those resources is a very interesting and instructive one, particularly the development of their Ordnance Department, because in that field of manufacture they were much behind their adversary.

OUR PROCUREMENT PROGRAM CANNOT REST UPON A THEORY OF MASS PRODUCTION FROM THE BEGINNING.

Now I am getting within the zone of fire, I know. However, as I believe what I say, I will emphasize that our procurement program cannot rest upon a theory of mass production from the beginning any more than our initial army can represent our full available military manpower. In the beginning, we must feed our battle line from our reserves, like the replacement of the combatant branches. The procurement program must be cumulative and must aim to begin modestly, but immediately, and multiply as it proceeds.

It may help us to remember that there are many points of resemblance between industrial preparation and direct military action. I think it will help you men, particularly those who come from combatant branches of the Army, to bear this in mind. In both cases we must begin immediately with whatever resources of men and material are available. That, of course, relates to the problem of time, which I have stressed before and, curiously enough, one of the things I observed that some military men did not have sufficiently in mind. Time is the one element which must not be lost. You may lose men and money; you may be able to replace men and money, but you can never replace time lost.

Now as to the utilization of men and material at hand. I am taking the Ordnance Department in the last war as an example. There were sixteen officers on duty in Washington and they began, immediately upon receipt of orders, to function as if they were sixteen hundred. They undertook their program on the largest scale then given to them, and carried it on as best they could, strengthening their personnel as they went. I will use the rifle situation, later on, to illustrate the effectiveness of that procedure.

We must concentrate our greatest strength at the point of greatest need or opportunity, just a a general in combat would undertake to have his greatest force at the point where he aimed to penetrate or where his defenses were weakest. In the last war, the equipping of the soldier and furnishing him housing and living facilities when he was first called to service were the two points on which the Ordnance and Quartermaster Departments had to concentrate their strength in the beginning. You will find that the very earliest contracts let were for the equipment of the soldiers so that when men were called to the cantonments they would have things with which to make themselves comfortable from the day they arrived. You will recall that in 1917 the Ordnance Department furnished certain of the personal equipment which is now supplied by the Quartermaster.

Continuing this parallel: we must retain control of our organizations and procurement program, maintaining orderliness in both. We can develop a confused action in the procurement departments as easily as the armies did in the Battle of the Wilderness. You gentlemen who have studied that particular battle will recall that after the troops were set in motion, on both sides the commanders lost contact with them. Even small units at times were out of touch with their commanding officers, who did not know which way their commands were facing, or whether they were succeeding or failing. At the

end of the battle, after General Longstreet had been wounded, the Confederate charge was held up by Lee until he could discover his situation. The Federal lines had been strengthened during that lull, and the Confederates lost a chance for a considerable success. We can do just the same thing in the supply departments by letting our programs become confused - as we surely will have tendency to do with the enlarged and inexperienced personnel required under war conditions. It is just as important to our success that we avoid that as if we were in the field.

In both branches of military activity the presence of a sufficient staff, trained to handle the problems involved, is essential for the greatest results. That has been recognized for a long time in the combatant branches, and this College is the first considerable evidence we have had of recognition of it by the procurement branches. Actions have been lost and potentially great results have been minimized because of poor staff work, the best example being the Seven Days fighting around Richmond. If the Confederates could have concentrated their forces, as their orders directed them to do, they might have destroyed the Federal Army; but poor staff work lost the opportunity.

We need the trained staff we are going to obtain through this College; indeed, as war is now so tremendously dependent upon the material resources of a country, we need that kind of a staff today more than ever before in military history.

I will touch on two general subjects dealt with by the General Munitions Board, reminding you first of what I told you in the previous lecture, that the Board was a group composed primarily of officers of the Army and the Navy who had associated with them certain civilians, there having been delegated to the officers, from their respective branch chiefs, authority to represent those chiefs and carry the legal powers which applied to the respective chiefs.

There was no power in the Board to contract for anything or to put the Government's signature to any paper. The Board acted to a certain point, then the respective officers would report to their departments the Board's opinions on subjects; the departments being free to act thereon, or, in case it was desired, to start all over again. It was by no means an ideal form of organization for making war, but it was a tremendous advance over the departments acting separately.

There was also authority given to the Board, under the National Defense Act of June 3, 1916, to fix prices; that authority having apparently been transferred to the President

and the Secretary of War by that act, and by them delegated to the Board. The Board had, associated with it, many committees of industry formed under the Authority of the Army Appropriation Act of August, 1916, giving the Council of National Defense authority to organize subordinate bodies.

Those committees rendered a great service. They furnished essential information and saved a tremendous amount of time. I am sure their judgment was as disinterested as it could be from men who were involved in a particular calling and especially trained in it. I am satisfied that those men all endeavored to perform a true and patriotic work, and that they put their knowledge and ability at the service of the Government. At the same time, the form of organization did create a situation that was embarrassing and hard to defend when it was charged that those men were doing business with themselves.

That situation was one of the reasons for bringing forward the cost-plus contracts, the thought being that in fixing and limiting the profit they relieved everyone of criticism. Another reason was that in many cases people were going to be required to perform services which they had never performed previously, and therefore had no means of knowing what the value of the services might be, what the cost of materials and cost of labor under war conditions might be, what dissensions might arise during the war, etc.

Now, referring directly to the cantonment subject, a very serious problem and one which has drawn a considerable fire of criticism since. After a number of years, and much thought, I am still unable to see how the Government could have carried forward that tremendous work under the conditions it faced in any manner better than the one selected, and still have attained the same degree of success. To aid in France, we had to have troops; to organize troops we first required cantonments. September was the latest date allowable. Success in that undertaking was absolutely essential to the success of our main effort. You men who served in the combatant branches and saw the very slight margin of time by which we won, know that we could hardly have hoped for success had our drafted men been called two months later. That delay would have endangered the Allied cause.

It was the plan of the General Staff to establish thirty-two cantonments, sixteen for the National Guard and sixteen for the Regular Army. At that time, the Selective Service Act had not been passed and there was a question whether that would be the form of service or whether we would proceed under the old volunteer system. So long as that was an unsettled question, it was impossible for the General Staff to decide where the cantonments should be located.

One of the first inquiries received by the General Munitions Board was whether the new army could be housed under canvas. The Board was used in many cases as if it were a branch of the Great General Staff. Many of the functions of the General Munitions Board resembled those of the Great General Staff in Germany. I should like to have the significance of that brought to the attention of this class.

Our investigation of the canvas situation took into account all canvas available and gave us ample evidence that no matter how heterogeneous and unmilitary an appearance the General Staff might be willing to approve, it was a physical impossibility to house those men under canvas. Therefore, there were two ways open - one to billet the men, and the other, to put them into cantonments. I understand that since the war the question of billeting has again come forward and is viewed with more approval than previously.

The General Staff decided that as soon as they could learn definitely that the Selective Service Act was to pass, they would develop sixteen cantonments built of wood, but they did not then select the final sites. In that interim the Board, with the aid of the Construction Division of the Quartermaster Corps, worked up and developed a plan of action to be followed as soon as the General Staff gave the word.

The men working in the Construction Division at that time were Major Littell, Major Dempsey and Captains Marshall and Curry. Those men were charged with the duty of caring for every army post from Maine to the Philippines, and, in addition, preparing to build thirty-two cities of forty thousand people each, within a period of four months. That sounds amusing now, but it was not at that time. The men of the Construction Division were brave men, and I am glad to pay a tribute to them. Undertaking the work under the authority of the Secretary of War, they were transferred by order of their chief to a building where the department could expand, and began to call their Reserve Corps men who had had construction experience throughout the country. Major Littell received an order to report direct to the Secretary of War soas to avoid any loss of time from army routine. They drove the work forward at a rate making it possible to report to the General Staff, in September, that the buildings were ready for sixty percent of the men to be called. As I remember it, the number had been increased until the sixty percent represented about the entire number originally called for in May. As you men who went to the cantonments know, by November we were practically housed and the Ordnance Department was ready with its personal equipment, the Quartermaster Corps with its bedding, etc., so that the delay resulting from that possible difficulty was almost entirely eliminated and of no great military consequence.

We developed the method of approaching that problem from the experiences of the DuPont Powder Company in establishing Hopewell. We knew that the DuPont Company had erected a city of its own. We asked Colonel Buckner, Mr. Tallman and certain engineers of the DuPont Company to come here, to bring their plans and tell us how they proceeded with their problem. The general methods employed were accepted and followed through. It was absolutely impracticable to do that by a straight contract system. Most of the sites selected were of such a nature that a contractor could not even see the ground for his work. Yaphank is a good example- a forest of second growth so that one could not see the topography of the site.

To ask a contractor to make a bid which would include finding a water supply, bringing in power and light, putting in a satisfactory drainage system, arranging transportation lines, building housing facilities for troops - which, as you gentlemen recall, were changed in the midst of operations to accomodate companies of large size, etc., - hospitals, refrigerating plants, heating plants, and more hardware, plumbing facilities and wrought iron pipe than were in the country at that time, etc., was impracticable. You can see that if thirty-two contractors had been let loose to bid against each other for those facilities, it would have been a physical impossibility to furnish a bid; and if a bid had been furnished, the uncertain elements would have produced for the Government either many difficulties with the contractor struggling to do something he could not do under war conditions, or resulted in a great loss of time. The Government was not looking for difficulties - it was looking for camps and to have the camps ready when the troops were called. That might mean the life of the nation.

This phase has attracted much attention, and a study of it is worth while, because you men may some day have to face a situation and render a decision on something from which you can see trouble arising, just as those men saw it. If you face that situation as a soldier serving his country, you must give an answer and go forward and face the consequences, even though they may not be altogether pleasant. The Quartermaster Corps, by utilizing the General Munitions Board and bringing in a civilian personnel to take care of the detail load, gradually got control of the situation and the Construction Division became a very effective department.

The Ordnance Department took similar action in connection with its rifle problem, and functioned very well. You will recall that the Chief of Ordnance reported that at the outbreak of war there were six hundred thousand (600,000)

Springfield and one hundred and sixty thousand (160,000) Krag rifles. We bought about twenty thousand (20,000) Ross rifles and from one hundred and forty thousand (140,000) to one hundred and fifty thousand (150,000) Russian rifles for training purposes. The six hundred thousand Springfields were those available for issue or already in the hands of troops.

The British had been using, in our country, three large rifle plants - Winchester, Eddystone and Ilion. They were about through with those plants when we went into the war, and suggested that having already received a million rifles, they had as many as they needed and would either transfer the plants to our Government or take the special rifle machinery to England and sell the rest in the United States.

It was the decision of the President, the Secretary of War and the Chief of Ordnance that our Government should take over the rifle plants just as they stood, allowing the British to finish up to their million quota and then withdraw their material. This question was also referred to the General Munitions Board.

When the question was asked, "Shall we drive this bargain as hard as it can be driven, or what is to be the procedure"?, the President's instructions were that it was to be a businesslike arrangement, such as would be made between two friendly partners. That was the basis upon which the discussion proceeded. The British claimed, and had certificates of certified accountants to show that they had expended about $20,000,000 for machinery, jigs, fixtures, gauges, etc., which were available for continuing the rifle work. They sold the plants to our Government for approximately $16,000,000.

The plants were taken over immediately by the organizations then in them, for our Government, and all the details of the transfer were worked out through many weeks while the process of manufacture was going forward. The task was turned over to General Thompson, Chief of the Small Arms Division, and he worked out the interchangeability of the rifle parts as between the several plants, which the British had not had in their manufacture.

In the meantime, a military committee, on which I can recall General Bliss and General Crozier, decided that it would be satisfactory to use the Enfield rifle rechambered for American ammunition, so the same ammunition would be available for all troops. That decision was purely a military one and the civilians were notified thereof. It was made so the manufacturing processes could proceed more rapidly.

The contract between the several companies and our Government was worked out originally by General James A. Drain, who was, I think, Ordnance Reserve Officer No. 2. He was a practicing lawyer here in Washington, not in uniform at that time; but he had been notified he was to be called. He drafted that contract for the Chief of Ordnance. It was surveyed by the General Munitions Board and went into effect. The Chief of Ordnance, in that instance, had secured for his department the performance of two very important services - the machinery had been acquired and the contract prepared by people outside his department, but by authority of the President of the United States, thus saving a month's time.

The result was 2,193,000 modified Enfields by November, 1918. The arsenals during the same period added about 313,000 Springfields. The cost of the Enfield rifle to the British had been $42, while our modified Enfield cost $26. I presume that was the lowest amount paid for a rifle by any government during the war. That is a tribute to the work accomplished by General Thompson.

Those are the only examples I am going to cite this morning. As you proceed with your work, you will naturally feel that you are working especially for the military branches of our Government. As I come to you from industry, I can tell you that that is not the case. You are working quite as much for industry in general in the United States, and for all those dependent upon industry, as you are for the military branches. In the event of war, next to losing the war, the greatest harm that could befall American industry would be again to have the immense pressure brought to bear on it as in the World War, as a result of chaotic conditions in the supply branches. To know clearly and distinctly what is to be done, how raw material is to be furnished, how prices are to be controlled, transportation and labor supplied, is essential to safeguarding the industries of our country and essential to winning a war. Therefore, you are fully justified in calling on industry for whatever cooperation and support may be necessary in pursuing this task, and I think you have ample evidence, in the attitude of men in our large centers, that they well appreciate the value of the work you are doing. I will cite the Advisory Committee for the Ordnance District in New York.

I realize that the answers to all the questions raised in 1917 need not necessarily apply in another emergency. I spoke of that in the beginning. At the same time, I know of no way to judge the future but by the past. You have to meet the new occasion in a new way, but at the same time you must be informed as to how a similar problem was dealt with in the old time.

In 1917, civilians, very hastily summoned, played a very helpful part in bringing order into the situation here. I am sure it is not too much to say that they saved the supply departments of our country from the fate which befell those in Great Britian.

Having said this much, I want to add that, thus far in my life, I have not met any other body of men whose patriotism, courage, disinterestedness and devotion were equal to the little band who were here in the Regular Service when I arrived in 1917. I congratulate you who are engaged in this great professional service and are continuing to maintain for the benefit of our country a nucleus of men who can lead the rest of us when the occasion for leadership arises.

General C.C. Williams, Chief of Ordnance:
(Preceding Open Discussion by Class).

The next war will be fought not on the basis of immediate mass production, and that reserves are necessary to tide over the time until we can get into mass production is one of the positions we have to proceed on. There is no such thing as immediate mass production. It cannot be done, and no one should get into his mind that any kind of a plan can, between morning and night, be put into effect; it is going to take time to do it, and we should be able to do it in shorter time than in the last war. We will not be able to get into mass production quicker if we do not properly prepare in advance in our programs.

Capt. Elliot Snow, C.C., U.S.N.

You have emphasized the meaning of the loss of time. I would like to ask what, in your estimation, is the period in which loss of time has to be reckoned with. Is it the planning period, during the preparation period, during the period of determining priorities, or only during the production period?

Col. Scott:

You have emphasized the seriousness of this before. Time lost from any cause is an irretrievable loss and can be created in any of the periods you mention. One of the most serious losses apt to occur is from the disposition on the part of our Regular service to demand a laboratory production under manufacturing conditions in war time. I would like to spend the rest of my life emphasizing that. It is a very serious thing to go forward with plans and specifications, demanding a type or a quality that reflects the mere thinking of your designer or the operation of a drawing room, but unnecessary in the field and almost impossible of mass production.

It would be well, in my judgment, if each procurement department were to separate, absolutely, its development work from its procurement work, making it impossible to confuse one with the other. In industry, we have found that one of the surest ways to ruin production is to let the engineer come out of his drawing room and go into the shop. It goes without saying, that an engineer who planned something yesterday had something better today. That is the law of progress. There must always come a time when that man should

be locked up with his ideas and the practical performer allowed to go ahead. When Ericcson conceived the rotating turret, he did not wait until he could perfect a battle cruiser, but fortunately went ahead with the Monitor.

I should say that so far as practicable, we should make ourselves ready, in peace time, to give immediate answers on the problems as they are confronted. There is the necessity for discovering the sources of raw materials, so that we may have materials in the country or continued access to sources of supply until we can get the materials into the country. This requires the cooperation of the Navy. As I forecast the work of this College, coordinated with the work of the General Staff, there is nothing in our industrial, financial or political life, or in the life of the country, that will not eventually come under the scrutiny of and be evaluated by this group of men.