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IMPROVISATION AS A RESOURCE IN MODERN WAR.

LECTURE

By

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Before

THE ARMY INDUSTRIAL COLLEGE.

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INTRODUCTION - GENERAL RUGGLES.

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The Secretary of War regrets that he cannot be here this morning as he has an important engagement with some committees in Congress, and, as you know, the Assistant Secretary is away on a business trip. Therefore, I am honored to introduce to you the speaker of the day. It is not at all necessary to introduce Colonel Scott who, among others, is a member of the Honorary Board of Advisors of this college.

You all remember very well the very excellent paper he gave to you about three months ago at the beginning of the session of this college and other papers he has given from time to time which have proved highly interesting and valuable indeed. Everything Colonel Scott says is well worth while. He has given deep study to matters of National Defense and particularly industrial problems that accompany a conversion from peace to war; he was perhaps almost the first citizen of rank of the United States called during the war to assume a position of great responsibility; he was Chairman of the General Munitions Board and later served as Chairman of the War Industries Board. There is, perhaps, no other person in the United States who has as much practical knowledge as Colonel Scott of the chaos and confusion that must inevitably accompany such an effort as mobilization of industry for a major war when such a war comes to a people who have not used reasonable foresight in planning for such an emergency. Colonel Scott is president of The Warner Swasey Company of Cleveland; he also is Ordnance Chief of the Cleveland Procurement District. The Ordnance Department is much to be congratulated on that account. I think that I can say that no one else in this country has the past and present knowledge of Colonel Scott.

Colonel Scott - we welcome you today very heartily and with great pleasure. We know that your paper is going to prove very interesting and we will listen to it with enthusiasm. Colonel Scott will talk on Improvisation in a Major War.

IMPROVISATION AS A RESOURCE IN MODERN WAR.

This is a study, not a program.

Our study today must glance at some of the advantages of the improvisation of 1917.

There are some advantages in a program of improvisation in our country. Some of them I will point out to you.

But nevertheless it is a form of war effort which we must seek to limit to the last possible degree.

The military strength of a nation depends absolutely on the knowledge possessed by its officers. The knowledge of the art of war must be maintained within the group of professional soldiers. The science of modern war depends upon a study and understanding of military history. We must know what has happened in the past, correctly appraise the significance of these events, and deduce rules for our conduct in the future.

This was burdensome enough to military men when it involved chiefly military subjects---strategy, tactics, terrain, supplies. Now, it has come to mean all these and, as well, the vast fields of economics, psychology, and sociology. What we did in France in 1917-1918 must be known and applied in the future. What we did in this country, that made the other possible, easy or difficult, must also be known, and justly appraised.

The first of these subjects was preserved for us in a mass of orders, staff officers' diaries, reports of commanding officers, and organization histories. The second subject has scarcely begun to appear in print. Most of what we did on this side was improvised.

Today, our examination reviews very hastily some of the activities of the General Munitions Board, and of several other bodies which were extra-legal in their nature or operations, and which, therefore, must be classified as improvised agencies. A knowledge of this work, and its degree of serviceability, is essential to preparation for any future emergency. It is not easy to obtain such knowledge. No complete story of the work has as yet been written. Whenever it is written, it will doubtless bear evidence of a predisposition or partisanship, unrecognized by the writer of course, but dangerous,

nevertheless, to those trying to obtain the bare truth for guidance or suggestion. History does not come to us with the purity of a laboratory product, but diluted, and often innocently adulterated by those responsible for its preparation. This must excite caution in us, whether we are trying to write history, or are merely reading it.

Therefore, any relation of these performances should be entered into like marriage, "soberly, discreetly, and in the fear of God", and not to claim recognition of accomplishment.

Like all historical data, such statements must be related to other events and possibilities of the identical period, if their value is to be justly appraised.

To make them serviceable, we must somehow get the whole picture. What were the conditions? What were we aiming to accomplish? What resources were at our disposal? What fixed limitations bound us? What limitations that were possible of removal? What did we do? What alternatives did we have? Would some alternative have promised better results than the course chosen? What was accomplished? Would the same, or similar, conditions exist again? Should we meet them in the same way? If not, what would be our best course the next time?

For the purpose of our discussion, we may divide improvisation into two phases improvisation in organization, and improvisation in material and sources of supply. Occasionally it is a pretense for the purpose of deluding the enemy. More frequently, it is the serious use of resources that are available while awaiting the development of others which may be preferred.

Therefore, we may define improvisation in material as the utilization of munitions which we would not have specified, or dependence upon a source of supply which we would not have preferred if allowed freedom of choice; but the early acquisition of which material makes it possible for us to hold a line, occupy a territory, or delay or contain an opposing force until such time as our organization, material, or sources of supply may come within the preferred class.

However, to make improvisation in war render the full support of which it is capable, there must be some flexibility in the Staff, Line, and Procurement Departments. We can not afford to spend much time assuring each other that the particular material or source of supply is not all it might be, and, therefore, will not answer. Acceptance of supplies, or the temporary use of methods or sources which would not commend themselves, might stave off defeat, or attain a success.

In brief illustration in the Civil War, the First Cleveland Light Artillery, which later became Battery A of the First Ohio Artillery, was ordered into West Virginia in April, 1861. After it arrived at Marietta, Ohio, most of its harnesses were made by local harness makers, its caissons and spare wheels, by local wheelwrights; its cartridges were made in an improvised loading plant; and it clearly was not ready for the field until these things were accomplished. Yet its presence at Marietta, on the border of West Virginia, was a threat to the Confederate movement in West Virginia, and an encouragement to the Union element there, and the improvised supplies enabled it to move promptly into West Virginia, where it participated in two of the earliest actions of the War, both of which were Union successes.

This Battery was an improvised organization, also, for they were State troops serving beyond the borders of their State, without being mustered into the Federal service, but they obtained success.

Continuing Civil War examples we could include in our program of improvisation the Belgian muskets imported to arm early volunteer infantry. We could not include the Armstrong and Whitworth guns, and the Parrott guns, imported from England, because they were perfectly satisfactory equipment. We continued to acquire and use such guns until the end of the War, and for the full supply of them we had no occasion to establish a source in our country while we held unthreatened control of the sea. Therefore, we may again draw a distinction between improvised arms and supplies acquired abroad because we have no developed sources of acceptable supply of our own; and acceptable foreign sources of supply that repose on unthreatened control of the sea.

In the late war, while the German South Pacific Fleet was in being, we could scarcely have called our route to the nitrate beds of Chile secure, whereas, in the Civil War, during which we held control of the sea, we could not have included in our program of improvisation any approved item obtainable abroad within the necessary period of time, even though we had no domestic sources of supply.

The same definition of improvisation which we apply to munitions and supplies may be applied to the forms of organizations which we may use in such acquirements.

As we proceed, we shall see that most of the organizations outside of the strictly military field, and some within it, which we used during 1917-1918, were improvised. They were either extra-legal, or they were based on laws the precise definition of which was not sought or

tested,--so long as they formed a basis for authority helpful to the nation in its time of peril.

Improvisation--like a lie--is "an abomination in the sight of the Lord", and "an ever-present help in time of trouble", and it continues its resemblance for, having served its purpose, it is forgotten as promptly as possible. Therefore, exceedingly valuable, at times vital, work during war, in many countries, has obtained no place in history.

Among the great powers, there have been in the past and still are two classes those which prepared for war, and whose preparations operated automatically on a declaration of war, and those, like England and our country, whose preparations are always inadequate for a major war, and whose governmental functions and conduct change gradually after a declaration. To powers in the latter class, improvisation is as essential in conduct of war as an army, and no great army of these powers can be mobilized, organized, or supplied without improvisation.

In every war in which these powers have been engaged, their improvised organizations have proved inadequate, and have been superseded by regularly organized machinery. In every war, they have sacrificed men and money, and in some cases the chances of initial success, by failure to have even their improvised machinery as strong and serviceable as it might have been.

In addition to the normal weakness of military organization due to form of government and national unwillingness to become a military nation, there has been entire neglect of the very patent fact that even an improvised organization can be worked out on paper in peacetime, and that it not only can operate, but that it always has to operate without authority of statute. Where no Great General Staff exists, it is always possible for the Army General Staff to visualize these temporary organizations, if it is impressed by the need for them, and not obsessed with the idea that a purely military organization is necessary or desirable.

The existence of two classes of powers in relation to their preparedness for war, naturally creates two kinds of major war one, in which a nation becomes involved gradually, beginning with a controversial discussion with another nation or nations, and eventually declaring war, or, joining an ally who has become involved in that way, two, a deliberately planned/move^{aggressive}ment against another nation or group of nations, war being declared when preparations are complete.

Military preparation, including man and material power, necessarily advances from year to year upon a foundation of national resources. If carried on to the limit of organizing power, as it can be by a Great General Staff, and as it was in Germany in 1870 and 1914, it must eventually reach a point of maximum efficiency. Then its value will decline, and its immediate use is demanded. The result---a war of aggression.

England and the United States, debarred by the nature of their governments and the temperament of their people from this kind of organization, are thrown back upon improvised methods of final preparation. Our legislation is not now adequate to enable us to organize completely. Our problem, therefore, under our system of military organization and our organization of resources as authorized by the National Defense of 1920, plus the war powers of the President, is so to plan, provide, and decide in advance as to shorten this period of improvisation, and assure emergence upon a solid platform of permanent organization.

The necessity for inserting a brief period of improvisation into our program is a distinct advantage if we recognize and utilize it correctly. It gives a resilience which is absent in the plans of a Great General Staff, and it renders less probable the chance of our organization "going stale."

Our latest operation, which affords a field for study, was the improvisation of 1917. The first eleven months of our industrial preparation have not yet been examined as carefully as they should be. Thus far, the emphasis of your study has been on the period March 1918, to the end of the war.

In the winter and spring of 1917, the procurement divisions of the War Department may have been co-ordinated for military purposes under the Chief of Staff, in accordance with the order of the Secretary of War, issued in 1916, but for the purpose of industrial preparation for war, they were unco-ordinated, except as the Ordnance Department had authority to procure small arms and machine guns for the Signal Corps and Marine Corps. Even this was not unquestioned.

The personnel of the departments of the War Department, including the General Staff, was so small as to be barely equal to their routine work, and entirely inadequate to initiate and develop large programs. It may be that the General Staff had worked out some plans of operation for participation in the European war; but no plans had been laid out for mobilizing our army, or for training, equipping, arming, and maintaining our forces in the field.

When the General Staff was asked for its plan for industrial mobilization, by the Chairman of the General Munitions Board, in April, 1917, he was told, there was none, he witnessed the development of all things, the complete absence of which he could not understand in March, 1917. He understands now, and this recitation is made not for critical but for historical reasons, that you may appreciate the conditions then confronting the War Department.

The explanation of this amazing situation is comparatively simple. The administration had been re-elected on a peace program; the personnel of the departments, therefore, was on a peace basis, and even after it became evident that Congress would declare war, there were so many tentative elements in the situation as to make instant action impossible. The impression made on one involved in these matters at the time was that the President had not yet indicated the exact form our military aid was to take, and, therefore, many things remained in abeyance until May and some until about mid-June.

The size of the army to be raised was undetermined-- therefore, requirements plans must be tentative, the method of raising the army, whether by volunteering or by draft, was undetermined-- therefore, locations of cantonments must be tentative, the use to be made of the army when raised and equipped, whether as reserves in our country, or for early service abroad, was undetermined-- therefore, operations and training plans must be tentative; the size of the appropriation bill to provide the funds was undetermined-- therefore, contracts, even for known and recognized requirements, must be tentative. This was a situation, the appalling possibilities of which were not to become fully apparent to us until the terrific German drive of March, 1918, made it clear that the salvation of our cause had been a matter of hours in March, 1917.

After noting the lack of effective co-ordination of the Departments and Bureaus into which the War Department was divided in 1917, our next point would naturally be the beginnings of the efforts which finally overcame these weaknesses.

It would be impossible to recite in this brief review all the improvised organizations that contributed. Such a list would include most of the war-time agencies outside of the War and Navy Departments. We must, however, examine especially the Council of National Defense, for out of it, and through its activities, developed those agencies which were to have a very vital, indeed, a controlling, influence on our war organization, particularly the General Munitions Board and its remarkable offspring, the War Industries Board.

The wording of the provision of the statute which authorized the Council of National Defense made it possible to utilize the structure it authorized in a much broader way than the language suggests at a first reading. The Chairman of the Council of National Defense, the Secretary of War, Newton D. Baker, one of the ablest Americans who ever occupied that office---a lawyer of great courage and resourcefulness---and the very able Director of the Council, Walter S. Gifford, of New York, now President of the American Telephone & Telegraph Company, were quick to recognize and use, to their utmost possibilities, the powers and implications conferred by the Act.

It is fair to include in our list of improvisations all of the organizations and agencies which eventually evolved from the Council of National Defense.

The first of these to be intimately related to the Army and Navy was the Munitions Standards Board, organized in March, 1917. This body was charged with the duty of standardizing munitions production for the Army and Navy. It was composed entirely of manufacturers. E. A. Deeds, of the Dayton Electric Laboratories Company, J. W. Otterson, President of the Winchester Arms Company; Frank P. Pratt, Vice President of the General Electric Company; Samuel M. Vauclain, President of the Baldwin Locomotive Works, J. W. Vandervoort, of Root and Vandervoort, Moline, Illinois, and Frank A. Scott, Chairman.

After a preliminary survey of the conditions in the Army Departments and Navy Bureaus, a division of the first work was arranged as follows:

Small arms and ammunition	-	Mr. Otterson
Artillery	-	Mr. Vauclain
Artillery Ammunition	-	Mr. Vandervoort
Fuse production	-	Colonel Deeds
Gauges and small tools	-	Mr. Pratt
Fire Control instruments and optical glass	-	Mr. Scott.

The reports of these gentlemen are somewhere in your archives now, and they were the basis on which vast activities were developed, which continued throughout the war.

It was possible for the Chairman to report, within a few days, that the subject of standardization was purely academic for any purpose of the war then so clearly ahead of us, and that what was ^{of} real importance was the co-ordination of the several Departments of the Army and the Bureaus of the Navy in their relationship to the resources and productive ability of the country. The Secretary of War thereupon asked for an outline of some ^{form} of organization which would meet the situation. This resulted in the suggestion of the ^{was} organization of the General Munitions Board, which ^{was} formed of a representative from each of the Departments of the Army and the Bureaus of the Navy, one officer representing the General Staff of the Army, and a civilian representative from each of the four chief divisions of the Council of National Defense, with F. A. Scott as Chairman.

As viewed from within the Departments by the newly appointed Chairman, several facts relating to procurement were very plain--most of them disquieting---the chief one being that our experience in the Army and Navy Departments, up to that moment, had been to acquire a limited amount of material from an unlimited source of supply, under conditions of severe competition which had protected the military branches in the matter of quality, price, and delivery. We were about to reverse that situation. Our manufacturing experience in arsenals and navy yards had been to produce a comparatively limited number of each item, under conditions of no particular stress, with the result that our product reached a high standard of quality on a basis of production which, in most instances, had to be regarded as a laboratory process. We were about to be called upon almost to reverse that condition. Under war conditions, quality could be maintained only so long as it did not interfere with the production of the quantity necessary for national safety.

Our relations with industry theretofore had been protected, both as to capital and labor, by the competition for our business. Now, there was to be no competition, and both capital and labor were to be forced into channels new to them and to us, and we were to be compelled to develop new relationships, new methods of control, and of protection for the men who were to conduct the dealings, and for the interests of the Government.

In our previous experience, one of the most important elements to be guarded and considered was cost, and now we were to be faced with a condition wherein the most important element was the saving of time, and, next, the saving of life. In both was involved the salvation of our cause and our country, and although money had not by any means been rendered immaterial, its importance in the situation had been lessened to an amazing extent.

As the Departments of the Army and the Bureaus of the Navy were then operating, they were competing with each other, with our Allies, and with civilian industry. The natural consequence was interference and price stimulation. This indicated a need for priority control, as well as co-ordination. The legal powers of the Navy, in dealing with industry, differed from those of the Army. Their procurement was also more centralized in the Bureau of Supplies and Accounts. They took advantage of their opportunities, promptly, intelligently, and very effectively, and their co-operation was exceedingly helpful.

Right here, it should be recorded that on the day--about March 29th, 1917--that the order of the Secretary of War and the Secretary of the Navy was being circulated in the Departments, directing the designation of officers as representatives on the General Munitions Board, a co-ordinating memorandum of the General Staff was also being circulated by Brigadier General--then Major--Palmer E. Pierce, in the Army Department, thus indicating that this general plan had also been considered at the War College. The order of the Secretaries, being the broader, was followed; and General Pierce became the representative of the General Staff and the personal representative of the Secretary of War on the General Munitions Board. Subsequently, he became the first representative of the Army on the War Industries Board, organized August 1st, 1917.

It is now necessary to examine the powers delegated to the General Munitions Board. The action of the Council of National Defense was as follows:

"RESOLVED, That the Secretary of War, as Chairman of the Council of National Defense and under authority of the Act of August 29, 1916, 'For the co-ordination of industries and resources for the national security and welfare'; and under the specific authority in the Act, which provides for the appointment of 'Subordinate boards' shall appoint a General Munitions Board, Council of National Defense, to be composed of Army and Navy Department heads or officers appointed by them and representatives appointed by the Advisory Commission, the purpose being to co-ordinate the buying of the several Departments; assist in the acquirement of raw

materials and manufacturing facilities; the establishing of precedence of orders, etc, including the ordinary commercial and industrial needs and the military requirements of the nation. Such committee shall have no authority at this time to issue purchase orders, make contracts or bind the Government in its purchases, all these things to be done, as at present, by the respective departments. The Chairman of the Committee, however, shall have authority to require, when necessary, that certain (conflicting) purchases be not made until the same, with a full statement of the facts, have been submitted to the Secretary of War or Navy."

The first membership of the Board was announced as follows,

- Frank A. Scott, Chairman
- From the Army.
 - Brig. General Thomas Cruse
 - Colonel F. G. Hodgson
 - Colonel H. Fisher
 - Lieut. Colonel J. E. Hoffer
 - Major Palmer E. Pierce
 - Major Charles Wallace
 - Captain A. B. Barker
- From the Navy
 - Rear Admiral H. H. Rousseau
 - Rear Admiral W. S. Capps
 - Commander R. H. Leigh
 - Commander T. A. Kearney
 - Doctor R. C. Holcomb
 - Paymaster J. H. Hancock
 - Lieut. Colonel W. B. Lemly, Marine Corps
 - Mr. L. Mc. H. Howe, representing the Secretary of the Navy

and representatives of the following committees of the Advisory Commission of the Council of National Defense.

- Raw Materials, Bernard M. Baruch, Chairman,
L. L. Summers,
- Industrial, Howard E. Coffin, Chairman,
- Supplies, Julius Rosenwald, Chairman,
Chas. Eisenman,
- Medicine, Dr. Franklin Martin, Chairman,
F. F. Simpson,
- The Secretary of the General Munitions Board,
Chester C. Bolton.

At the first meeting of the Board on April 3rd, 1917, a committee of the five senior officers was appointed to draft a plan of procedure, which was adopted by the Board on April 4th.

"The Munitions Board of the Council of National Defense in committee assembled deems it pertinent at this time to recognize and enumerate the following

"a. That questions of actual purchase of material are not to be handled by "The Munitions Board." Its duties on the contrary, will be confined in so far as practicable to facilitating the work of purchase and supply agencies now existing in the War and Navy Department Organizations.

"b. That the mission and purpose of the country is as set forth in the Message of the President.

"c. That this committee strongly affirms its intent to maintain in so far as may be practicable the existing order of things in the industrial condition of the country, the order of delivery of military and naval material, both domestic and foreign, as provided under existing contracts, will not be disturbed unless absolutely necessary to meet requirements which may develop in the future.

"d. That in the execution of present and in placing future contracts for military and naval material careful consideration will be given to industrial requirements so far as practicable.

"e. That order of priority of delivery of various kinds of material required by the War and Navy Departments will be determined so far as possible by co-operation between the various Bureaus and Offices of these Departments directly concerned and that full consideration will be given to the importance of early and prompt delivery of materials under contract, or subsequently ordered, for shipment abroad to belligerents friendly to the United States.

"f. That it is the opinion of this committee that immediate action should be taken by appropriate authority to insure the integrity and maintenance of the industrial organization of the country in relation to preparation of military and naval material and to emphasize the very high military importance of such industrial work.

"g. The Board recognizes the importance of supervising future commitments of United States manufacturers for delivery of material to foreign purchasers and that all such prospective foreign commitments should be subject to approval by competent authority in order to prevent interference with prompt delivery of more urgently needed military and naval material."

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Around this plan of procedure was to develop the vast, complicated, and essential activities of the General Munitions Board, and, subsequently, the War Industries Board. In this plan, also, may be seen the beginning of the thought that grew into the War Trades Board, and other activities. A reading of this plan is worth while as evidence of the prescience and good sense of these officers, whose thinking is so clear and sound on the occasion of their very first gathering under the new authorization. While reading the proceedings of these early meetings, with their ample testimony of the ability and mental grasp and understanding of these officers, it is amusing to recall that even at this very time there were enthusiasts outside the military branches, who thought our cause would be aided by scrapping all this talent and beginning afresh with inexperienced civilians. War does produce a form of madness!

Now, let us examine this pioneer war-making body. Was it wisely conceived? Did it answer its purpose? Was its value recognized at that time, and in such way as to confirm the soundness of the idea?

On these points we have evidence from a valuable source. In his Leaves from a War Diary, Major General James G. Harbord, on page 141, which records September 4th, 1917, has written;

"The General (Pershing) has a plan for co-ordinating the purchase of our several supply departments, which strangely enough seems never to have been attempted before. Each supply department has its own purchasing officers. When supplies are needed they go into the market for bids, without regard for other branches of the army or other departments of the government. They bid against each other, they pay different prices for the same things, and often one supply department will be out for articles which are on hand, surplus and unneeded, in some other. It is bad enough in peacetime at home but in the theater of war, three thousand miles from America, where prices are high, and not only ourselves but our Allies are in the market for every conceivable kind of munitions of war and army supplies, it would mean ruinous prices, inevitable shortages in certain commodities, and equally inevitable friction with our friends."

"He (the Chief) is organizing a General Purchasing Board, and intends placing Colonel Dawes in charge of it as General Purchasing Agent. The title is really inaccurate, for it is not desired that Dawes shall do any actual buying or have any money accountability

The several supply departments are each to name a Purchasing Officer, and these men are to constitute the Purchasing Board, reporting to Dawes. He will co-ordinate their efforts, prevent competitive bidding against each other or our Allies."

Observe that this Purchasing Board was also extra-legal. In other words, it was an improvisation. Here, then, in France, exactly five months after the same work was begun in the United States, we find the Commander-in-Chief of the American Army struggling to work out for his purchases abroad a program which had been in operation four months in the Departments at home. The first reaction from this discovery is a glow of satisfaction at this confirmation of the necessity for the General Munitions Board, and the wisdom of its organization, the second is a feeling of deep chagrin that our staff work should have been such that General Pershing did not have full information, and his board established, by July 4th, instead of September 4th. The fact is, our staff personnel is willing to function as a staff in peace time, and when war comes they are as anxious as any infantryman to get within sound of the guns. There was a sad scampering from staff departments during the early months of the war, with a consequence that many things were overlooked that might have been handled had a greater number of experienced officers remained. The Marine Corps has pre-empted the slogan "First to fight." In the next war, let them retain it without such keen competition from staff officers whose training and talents are needed elsewhere!

While the commendation of this adoption of the idea by General Pershing and his staff is encouraging, it is not enough to give a final approval to the soundness of the plan as applied over here. Encouraged by this, now-ever, we may dig still deeper.

What were some of the earliest accomplishments of the General Munitions Board which may be claimed as justifying its existence?

First of all, it lessened the chaotic conditions in the supply departments, and gave a point on which to focus industrial activities. It became a war clearing house. It initiated many essential movements for both the Army and the Navy. Thus, for example, through its efforts, or with its co-operation, the rifle program, the original artillery program, the first artillery ammunition program, the construction of the cantonments, the original clothing and equipment of the first quota of drafted men; the establishment of priorities, price control, and the operation of priority during the first eleven months of the war, and many other things unnecessary to be recited in this discussion, were provided for.

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The first War Industries Board, as organized August 1st, 1917, was less of an improvisation. Nevertheless, it must be included in our list of improvised agencies. ALTHOUGH APPOINTED BY THE PRESIDENT, AND ACTING UNDER HIS AUTHORITY, IT REPOSED ON NO DEFINITE STATUTE ENACTED BY CONGRESS, NOR DID THE PRESIDENT, IN THE EXERCISE OF HIS WAR POWERS, GIVE MUCH DEFINITE DIRECTION TO THE BOARD AS TO THE EXACT CHANNELS IN WHICH ITS WORK SHOULD PROCEED.

The membership of the War Industries Board, as announced by the President, on July 27th, 1917, was as follows

		Frank A. Scott, Chairman
		Brig. General Palmer E. Pierce, Representing the Army
		Rear Admiral Frank F. Fletcher, Representing the Navy
Allied	(B. M. Baruch, Raw Materials
Purchasing	(R. S. Brookings, Finished Products
Commission	(R. S. Lovett, Priorities
		Hugh Frayne, Labor

We must not miss the significance of this small Board in place of the much larger body. It is interesting in this study to observe the advance in power of our improvised organization from April 4th, to July 27th. Now, its appointment comes direct from the President, and thence forward he associates himself more and more with its work.

At the time of its creation, in March, 1917, representation was given to each Department affected. Four months later, we observe these delegated powers of the Army and Navy Departments concentrated in a single representative for the Army, and a single representative for the Navy. Obviously, the President and the Secretaries of War and Navy are now persuaded of the utility, saneness, and disinterestedness of the Board, and even the most conservative officer is now thoroughly educated to the fact that no Army or Navy Department can play a lone hand in a modern war.

It was not until March, 1918, that the experience already obtained from these improvised organizations, enabled the President and his advisors to concentrate the power which was covered by the President's letter of March 4th, 1918, to Mr. Baruch, the new Chairman of the War Industries Board.

Therefore, the first eleven months of the war, with all their tremendous activities, were covered by improvised organizations in this field, and the American supplies and munitions furnished our troops, as well as the housing facilities enjoyed by them in this country, were probably all the results of improvised organizations.

It would not have been until the campaign of 1919 that the armies would have begun to receive the full benefit of the work developed under the War Industries Board after March, 1918. At the same time, it must be recognized that the work of that Board, during the Period March 1918, to the signing of the armistice, was required in order even to make possible the production of items arranged for prior to the authorization and organization of the Board. It is to be hoped that it will remain clear that this endeavor to define the work reflects no underestimation of the power, efforts, and accomplishments of the great organization which we knew as the War Industries Board at the time the armistice was signed.

Any one studying the activities of the first six months of the war can not fail to note the activities and performances of the Staff, the procurement departments, and these improvised agencies were inextricably interwoven and acted and reacted on one another. To give one example which covers the production of the Springfield-Enfield rifle: the survey of the available rifle-making equipment in this country was made by the Munitions Standards Board, the idea of purchasing the English rifle machinery in the American plants originated in the Ordnance Department, the negotiations with the English were conducted and consummated by an officer of the General Munitions Board, the form of contract covering rifle manufacture was drawn by an Ordnance Reserve officer, the machinery was inventoried and taken over by officers of the Ordnance Department. Another example, the building of the cantonments: the study of the cantonment construction problem was made by a committee of the General Munitions Board, the Construction Division of the Quartermaster's Department was charged with the duty of constructing the cantonments, the sites were selected by the General Staff, the prices for lumber were fixed by the General Munitions Board, the task of locating contractors equipped to do the work was allotted to a committee of the General Munitions Board, the form of contract employed was a joint product of that Committee, the War Department, and the General Munitions Board.

This, doubtless, is enough to show how the poverty of personnel in the regular departments was made good by using temporary organizations, and the work accomplished within a period of time which would have been absolutely out of the question if the regular departments had been left to do it unsupported. In fact, if the departments had not been reinforced by these improvised organizations, they would have broken down, the patience of the country would have become exhausted, and we would have seen a great civilian organization formed to do the work, as was done in England. Improvisation saved the day.

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Nor can we overlook the fact that improvisation has a deeper significance than saving time, hastening supply, or affording greater convenience, important as these may be. Its relationship to national forces and impulses, that are out little understood, is profound. That this point has not been stressed by historians or soldiers should only make more keen our interest in it.

THE WAR SPIRIT OF THE NATION FOUND EXPRESSION IN EVERY HELPFUL FIELD OF ACTIVITY, AND THERE WAS NO DEMAND MADE UPON OUR PEOPLE, FOR EITHER SERVICE OR SACRIFICE, THAT DID NOT MEET WITH AN IMMEDIATE RESPONSE. IT WAS THIS, PRIMARILY, WHICH MADE POSSIBLE CONTROL AND DIRECTION BY IMPROVISED AGENCIES.

Improvisation, in its relationship to large masses of people, has the psychological and political advantages that it encourages initiative, stimulates intensely mass activity, and creates substantially no harmful political reaction.

The system of price control worked out by the General Munitions and the War Industries Boards was drastic and far-reaching. It was most effective, and yet disappeared quietly with the signing of the armistice. The labor control exercised by the War Labor Board of the Council of National Defense; the Liberty Loan organizations in the several states, and the great cities, and the gasless Sundays are all good examples. On the other hand, in highly organized Germany, we find there was almost continuous friction, and many serious popular reactions, resulting finally in revolution. General Ludendorff makes constant complaints, without appearing to understand the cause of his difficulties. There can be no explosion without compression, and too much compression always produces an explosion.

The interval, March to November, 1918, which was covered by the War Industries Board in its final form, is a most valuable subject for examination. During that period was accomplished an essential and splendid service; but it represents the work of regular organization, the fruition of improvisation. Soldiers will have no difficulty in appreciating that if our country, with its vast resources of man-power, material, and organizing ability can remain uninvaded, or can contain an invader for the first eleven months of any war, it will be certain to overthrow its adversary after that time. Our problem in any future struggle, as it was in 1917, will be. can we hold the first six months? If we hold that long, we will do the rest.

Modern war involves the full power of a nation. Therefore, a complete program of preparedness, in full operation, would bring into service all the resources of a country, and all its spiritual and moral forces. Our country will not now, and it may easily be that it never will, sustain a program of Preparedness which, automatically upon a declaration of war, may become at once an effective military agency.

With our form of organization, and our program of preparedness, we must experience, first, a brief period during which we must depend on our war reserve, second, a longer period, during which we must supplement our reserve of materiel, and reinforce our war-making organizations by improvised methods, third, the final phase, in which we will be utilizing our preferred materiel from preferred sources, and depending upon regularly organized agencies to conduct war activities.

Contrasting our situation in 1917, with the conditions and opportunities in 1926, we find much to encourage us. There is more legal authority, and better comprehension on which to construct a plan of preparedness. The National Defense Act of 1920, concentrating vast powers in the Assistant Secretary of War, and charging him with the duty of providing "assurance of adequate provision for the mobilization of materiel and industrial organizations essential to war time needs", is a long stride in advance of our survey of 1916, and the tenuous authority derived from the Council of National Defense.

Co-ordination is now assured by authority of law; plans are making for definite exercise of these powers, we are training a procurement staff, we have the district organizations, we recognize and acknowledge the necessity for super-control in event of war, we have a certain war reserve of materiel, and we are prepared to educate the country to the importance of maintaining this, we recognize a need for certain legislation providing for the mobilization of our man-power. We know and are prepared to assert unendingly that whatever these things may cost, the bill will be smaller than the waste created by not doing them, omitting consideration of risk to national honor and security.

Two conditions inevitably lead nations into definite militaristic programs and organization: one, an accepted policy of aggressiveness, such as Germany and France have adopted at certain periods of their history, two, apprehension arising out of the proximity of a strong and aggressive neighbor. This has been the position of France since 1864. We are in neither of these classes.

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The strong, well-disposed nation that can now contribute the most toward any program for the continuance of peace, is the one that can in the briefest time array its man-power and materiel-power for the field. We know we are well-disposed; we know we have the man-power and the materiel-power; can we now exercise the power of will, and the brains to make these advantages serviceable? If we can, then, indeed, may we claim to be a leader among the nations. "'Tis excellent to have a giant's strength", and certainly it will not be tyrannous to use it to assure the continuance of international peace.