

ADDRESS BY COL. DWIGHT F. DAVIS,
THE ASSISTANT SECRETARY OF WAR, TO THE STUDENT
OFFICERS GRADUATING AT FIRST TERM OF THE
ARMY INDUSTRIAL COLLEGE.

JUNE 26, 1924.

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Assistant Secretary of War, to the Student
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GENTLEMEN OF THE GRADUATING CLASS:

Blazing a new trail is always difficult work. The pioneer faces many obstacles which those who follow him pass over without any realization of the effort required to smooth the way.

It is a great pleasure to address to you a few words of cheer and encouragement on the completion of the first course of instruction at the Army Industrial College. The need for such a school is apparent to anyone who has given studious thought to the industrial lessons of the World War.

It is always difficult to estimate what might have been saved during a war by proper preparedness. Those in a position to form an estimate of what might have been done in the way of industrial preparedness for the World War have placed the savings that might have been effected at five billion dollars. Whether or not this estimate is too large, of course, is impossible to say, but considering the vast expenditures of the Government during the World War, and the confusion which arose from lack of industrial plans, it is safe to say that several billions of dollars might have been saved by careful planning.

In the course of your studies you have noted that the Treasury disbursements, as a result of the war, not including loans to our Allies, amounted to nearly twenty-two billion dollars, of which more than fourteen billion dollars was expended by the War Department. For the final ten months of the war, Governmental expenditures rose to forty million dollars per day, or nearly two million dollars per hour. These figures give some idea of the importance of materiel in waging modern war.

In war, simplicity of plan is fundamental. It is very important, therefore, that you keep clearly in mind certain fundamental principles. The first of these is that war has always demanded men and materiel. The physical strength of man is a constant factor and has varied but little in the centuries of his recorded history. The trained soldier of today can march no further than the Roman soldier of twenty centuries ago, nor can he carry any heavier burdens without impairing his fighting efficiency. But we must never lose sight of the fact that man is the fighting animal, par excellence, and while his fighting efficiency is greatly increased by modern weapons, as well as his task made increasingly difficult, still wars are fought by men, and munitions are merely the tools with which they fight. However, rapidity of fire of modern weapons, the enormous wastage of the modern battlefield, and the transportation required to push supplies forward, all combined to demonstrate during the World War, perhaps for the first time in history, that nations can mobilize and train their

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manpower in a maximum effort more quickly than they can divert their peace time industry into war production for the purpose of supplying them with materiel.

Considering the three factors in the mobilization of men, namely, recruitment, training, and supply, you have noted that the General Staff, very wisely, in all our war plans emphasize the fact that supply must determine the rate of induction into service. Every delay, therefore, in the procurement of supplies enhances the cost of war in dollars and cents, but even more important, by increasing the time during which contact with the enemy must be maintained, it causes an indefensible drain upon the nation's manpower. It should be our first consideration to reduce this time element.

Still bearing in mind fundamentals, let me remind you that before any program for procurement of supplies can be launched, it must be determined -

First - What will be required?

Expressed in terms with which you are now familiar, this means experimentation, test, adoption of type, specifications, standardization and cataloging supplies.

Second - How much will be required?

This depends upon numerous factors, as you have discovered. It means a mobilization plan, a mobilization rate, tables of organization, tables of equipment, wastage, casualties, sick rate, rates of fire, war reserves, depot stocks, length of line of communications, and numerous other factors.

Third - When and where it will be required?

Reduced to military language, this means mobilization rate, mobilization areas, concentration points, supply points, location of depots, ports of embarkation, and theaters of operation.

Fourth - Ways and means of procurement, that is

- (a) Where it can be procured?
- (b) Who will procure it?
- (c) Procurement methods?
- (d) The rate of production? and
- (e) The cost, including methods of payment?

These factors involve knowledge of resources in finished products and raw materials, and how to fit requirements into these resources; they mean industrial areas dependent upon commodities, flow of raw materials

from mines, farms and forests to finished products, procurement districts, allocation of facilities, contracting methods, industrial management and control, and, above all, a knowledge of how to bring to bear upon the military problems the expert advice and assistance of industrial leaders.

A real procurement plan for a maximum effort requires that all of the factors entering into every industrial manufacturing program must be taken into account. Back of every finished article displayed in our retail stores some corporation has had to provide for these contingencies:

- (a) capital
- (b) facilities and equipment
- (c) raw material
- (d) power
- (e) labor
- (f) traffic
- (g) merchandizing

Instead of seeking capital by means of bank loans, issues of bonds and stocks, the War Department secures its money from the Treasury by first defending its estimates of cost before Congress. The control of the purse by the Legislative Branch of the Government is a fundamental principle of Democracy. Therefore, Congress has the right to know and will insist upon knowing what the War Department requires in the way of funds for procuring supplies.

Instead of having to construct new facilities and install new machinery, the War Department has the vast industrial resources of the Nation at its command if it will but tap them intelligently. Therefore we must know what we are going to procure, then list and survey the facilities where we propose to obtain same in time of war.

An Industrial Manager must go into the market for his raw materials. In a similar way the War Department must know what its demands are going to be on raw material markets in order that plans may be made to provide against a shortage. This becomes vital in the case of those raw materials which we must import.

Statistics recently published by the National Automobile Chamber of Commerce indicate what one highly, competitive industry knows about the raw materials it uses. For example, the automobile industry uses 3,400,000 tons of steel which is 10% of the finished rolled-steel output of the country. it uses 122,000,000 pounds of copper or 9.3% of our total production; it uses 47,200,000 square feet of plate glass or 53% of our total output; it uses 60,000,000 square feet of leather or 69% of the output; 547,400,000 pounds of rubber or 80% of all we import; 1,100,000,000 board feet of hardwood lumber, 14% of the country's production, and in addition, 300,000,000 board feet of soft lumber for crating; 135,300,000 pounds of lead, 12% of our output; and 7,300 tons of tin, which represents 10% of our imports. In addition it consumes 91,500,000 pounds of aluminum; 6,200,000 pounds of nickel; 14,300,000 gallons of paint and varnish; 166,000,000 square feet of imitation

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leather; and so on. Raw material is the key to any industrial program. Ask yourselves! Has the War Department an equally clear idea of the demands it will make on raw material markets?

Just as the Purchasing Agent of a factory is responsible that raw materials are in sight for a manufacturing program, so procurement branch chiefs are responsible that they know whether raw materials will be available in the United States to meet their procurement programs.

While a factory superintendent may purchase power by merely contracting with a neighboring power plant, the War Department must know whether its total demands on power in any given industrial district will exceed the available supply, and if so, curtail orders to be placed in that district accordingly.

In the matter of labor, industry is hard hit in time of war. On the outbreak of war, when we expect a maximum effort from it, we draft several millions of skilled laborers from it and pour several million unskilled men into it. Therefore it becomes necessary to anticipate in advance demands that will be made on labor in industry, and to plan how labor withdrawn may be replaced.

A Traffic Manager of a factory must see to it that raw materials are delivered as required and that cars are available to distribute the finished product. In a similar way the War Department must determine, ultimately, the ton-miles of effort which the transportation facilities of the country will be called upon to meet. Let me remind you, in this connection, that it is idle to ask the cooperation of a railroad man in any plan unless you can tell him how much material there is to be moved, what its character is, where it is located and where you want it transported.

In place of the merchandizing or selling organization of the industrial plant, the War Department has its own problems of storage and distribution. Although my responsibility ceases with the supervision of the Procurement Program, this responsibility includes supervision of contracting policies and the assurance of an economical program. Therefore plans must include a knowledge of war contracts and the control of prices being paid, as well as daily knowledge of deliveries.

I have touched upon the foregoing just by way of reminder of some of the things you have been studying in order to emphasize the broader aspects of the problem. Those of you who return for duty with your branches should constantly bear in mind that an industrial plan, just like a manpower effort, requires the utmost cooperation. Bearing in mind that the whole is greater than any of its parts, do not fail to remember that there are seven procurement branches of the War Department and that if you take up duties in a procurement district, you will find there representatives from other branches with whom you will be expected to cooperate. You will all be working for one firm, the biggest corporation in the World, so do not lock yourself up in water-tight compartments and fail to realize that yours is only a part of the task.

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During your course you have had occasion to study the reports of errors committed during the World War, submitted by direction of the Secretary of War by numerous officers who lived through the confusion of that war. I urge you to study the recorded experiences of these men, not only of your own branch but of other branches as well. Just to recall to your minds the remarks of a few of the most distinguished of these officers, I quote the following:

- (a) "The officers from the Chief down did not know the extent of the requirements of an army in the field and did not have a full appreciation of the volume of the various classes of materiel and supplies which would be called for * * * * These matters should form a part of the instructions given to officers of all arms * * * * the resources of the nation in raw materials and manufactured articles should be known and classified as to stocks on hand and as to possible rate of production * *".
- (b) "The Chief * * * * must, therefore, come before the Assistant Secretary of War with a well digested scheme, and a list of supplies which he can defend and must be prepared to cooperate with other departments * * * * I know from personal experience that the Chief * * * *, Expeditionary Forces in Cuba, 1906, and Mexican Border, 1916, was given almost nothing by either the Chief * * * * or the General Staff to help him in the way of planning work expected of him, or supplies. He had to guess at these, making up his list after reporting for work. The World War was no exception and our Allies did for us what we should have been able to do for ourselves. * * * * It is important, in peace time activities, to analyze and tabulate so that * * * * supplies can be reduced both in tonnage and number of items * * * * Following standardization, a proper method of cataloging supplies should be made * * * * The years before we entered the World War should have been devoted to preparing for the emergency. The results in the supply end do not indicate that this was done. * *"
- (c) "Underestimation of the magnitude of the undertaking prior to our entrance into the war * * * * No procurement plan had been tentatively formed which caused serious embarrassment in the early stages of the war * * * * Insufficient number of officers were trained in supply * * * *".

- (d) "There had not been set up a comprehensive requirements program for any item of equipment * * * lack of over-head control * * * * lack of touch with commercial industries * * * * changes in types - there were too many changes made in design of material after war began * *".
- (e) "Procurement should be centralized according to areas best suited to handle certain classes of supplies * * * * Industrial resources of the country should be studied * * * * Industry should be segregated territorially and assigned to depots * * * * If the * * * * as now organized cannot be expanded to meet war requirements, it should be organized to prepare itself in time of peace for war functions * *".
- (f) "Failure to appreciate necessity for mobilizing industry * * * * Failure to provide organization in peace time which should be expanded to meet war requirements * *".

It is for you who have had an opportunity of studying these matters and for those who will come after you, as well as for officers engaged on procurement planning, to read, study and apply the lessons of the World War as set forth in the few extracts above quoted, and by numerous others with which you are now acquainted. Let me urge you to take advantage of every opportunity of studying the methods used by industrial establishments in planning programs and executing them, while retaining control of the same at every stage of progress. Corporations who fail to do this either produce no dividends or ultimately go into bankruptcy.

All of our engineering schools today carry courses in Industrial Management and in every city there are consulting engineers who are paid big fees for giving advice to industrial establishments who have not sufficient ability or experience to plan their work and execute it without losing control. Control through planning is one of the outstanding features of American industrial life at the present moment because industrial leaders in this country must plan with utmost care in order to produce dividends on their capital investments while retaining for American labor the high standards which everyone wishes to see it enjoy.

In the same way in which industrial engineers are planning, executing and controlling production, the procurement branches of the War Department must ascertain what they want and plan where and how to get it, while retaining control of the orders placed and deliveries made thereunder. The Assistant Secretary of War, in time of war, will want to know, every day, the exact status of requirements and deliveries.

The Army Industrial College has an important part to play in connection with the industrial side of the War Department in time of war, just as our service schools are developing officers for General Staff duties and tactical command, so this School was created by the Secretary of War for the purpose of instructing officers of the procurement branches in the higher duties of their profession in connection with procurement of supplies in time of war. Every staff officer of a supply branch with troops operating in the field must be conversant with the manifold difficulties of production in order that he may know that, if he does not forecast his requirements in time to insure delivery when needed, requisitions are useless. As the College grows in numbers and develops increased efficiency in its curriculum and methods of instruction, it will probably become necessary to extend the length of the course and provide it with a faculty whose whole time can be devoted to instruction.

You have been invited to submit criticisms and suggestions for improvement. I hope you will take full advantage of the opportunity offered to advise me as to your impressions. In doing so you are assured of entire academic freedom, for there can be no progress without constructive criticism.

I hope that even in its small beginning, the College has opened to your eyes a broader vision of the opportunities which lie before you and the magnitude and importance of the task of planning to procure for our armies, in time of war, the materiel which they will require. If the college has assisted you in approaching with clearer vision how to plan intelligently for such a colossal undertaking, it will have justified the expectations which the Secretary of War had in mind in establishing it. Remember that while we must lean heavily upon Reserve Officers and civilian advisors, nevertheless the responsibility for planning rests primarily upon the officers of the Regular Army, and the country will very properly hold them responsible that the War Department has profited by the lessons of waste, extravagance, confusion and delay which marked the supply effort during the World War.

In closing, let me say that we would like every graduate of this college to approach his tasks with the spirit that -

"Knowledge is proud that it knows so much,
Wisdom is humble that it knows no more".