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ECONOMIC MOBILIZATION

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ECONOMIC MOBILIZATION¹

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Almost all countries entered the World War without economic preparation. The course of the war, which in the end developed into a war of material aid in which the Middle Powers, due to the blockade were being constantly hard pressed for subsistence, had the final result of bringing to light the true importance of economics. Economic preparation for carrying on a major war really existed only in France. In Germany, however, the necessity for the preparation of industrial mobilization was recognized even in Bismarck's time when at first only financial provisions, assurance of subsistence for the armies, and especially the maintenance of fortresses received consideration. The matter received, first in 1906, a new impetus through Admiral von Tirpitz, later through the Reich's Secretary of the Interior, Dr. Delbrück, and also through a book by Riessers (Financial Preparation for War and for the Conduct of War, Jena, 1909) which touched upon the importance of this question. In spite of this, the work on this problem had not progressed to the same extent as the preparation for purely military mobilization although advance was made, especially in the matters pertaining to subsistence.

The Commission of Economic Mobilization within the Department of Interior established in 1912 realized the difficult situation the country would have to face in case of a war on two fronts, although generally speaking no adequate measures were presented before the outbreak of the World War. Many ideas not of political nature existed concerning decisive measure in the field of economics which could not remain concealed; however, a conception of the long duration of war was not prevalent. The War Department is supposed to have taken personnel which could be used on business and economic problems.

In Austria-Hungary the question of economic mobilization appeared to have received little consideration. Worth mentioning is the proposal of the Vienna Chamber of Commerce and business which, in view of the unsafe political situation in 1912, demanded an economic mobilization plan. Financial preparation for war received as little consideration as measures of subsisting the people, while as regards the maintenance of the armies a few reserve supplies

¹ Article "Wirtschaftliche Mobilisierung", published in Militarwissenschaftliche Mitteilungen, February and April 1934 issues. (Translated by Lieut. Col. Hans R. L. Herwig, O.N.C.)

were depended upon and only in matters pertaining to conservation were extensive preparations considered. The munitions industry in 1914 could not meet demands.

The neglect of this problem, next to the lack of positive political war aims, can be charged to an absence of universal conviction that more extensive wars may not await modern armed citizens' armies.

The United States, which already before its entry into the world war had supplied the armies of the Entente with all kinds of war materials and which, when it rushed to raise an army of its own experienced the greatest difficulty, was the first country to begin, after the war, the preparation of extensive industrial mobilization plans. Although the United States possessed highly developed industries it had to learn by experience that it could, by its own efforts alone, securely bring into existence before the end of the war an adequate defense on the front. The recent memories of all the difficulties which resulted from the change of industry from peace to war status, and later by the return to peace conditions, influenced the American Congress, on June 4, 1920, to pass a National Defense Act in which the entire man and material power of the country would be, in case of war, taken over and utilized. In carrying out this Act the United States launched itself upon the project of preparation for industrial mobilization. On account of propaganda and a thoroughly open discussion which had been carried on by the Press, the idea of industrial mobilization had, in interested circles, become almost a byword, and it was believed that to a large extent preparation for war will be complete when, in addition to the mobilization of the armies, the change of industry from a peace to a war basis is prepared for.

This, however, is not so. The United States is a rich land, it can therefore limit for the time being, the industrial mobilization to conform to the mobilization of the armies, and because the United States is in such a strong position in all other fields, it can without any further preparation build itself up to the requirements of a war. America is an exception to the rule which applies to those countries which lack many requirements. However, America is not entirely self-sufficient. It lacks, for example, rubber, tin, silk, wool, etc., and therefore these products must be secured from foreign countries. For this reason the United States has made provision for a reserve of the so-called "strategic raw materials." The United States is preparing at the present time legislation which will govern the administration of foodstuffs as well as the financing of war and the prevention of unhealthy world competition.

The weaker a state finds itself economically, the more detailed and thorough preparation is necessary for it eventually when it is thrown upon its own resources. As each branch of economics influences others, the conclusion is reached that the majority of countries cannot limit the preparation for war to the army and industry, but their plan must, to more or less extent, cover the entire field of economics. Neither can those branches of business be neglected in which surpluses exist, as they may be matched against deficiencies to square up the total requirements. This points to the necessity therefore of mobilizing the entire economic life of the country. The mobilization of a part of a country's resources, for example, industry alone, would suffice only in exceptional cases. For this reason one must in general speak of economic mobilization and industrial or financial mobilization must be considered only as a part, even though the most important.

As in the mobilization of armies, conforming to different war conditions, consideration is given to the difference between general mobilization and partial mobilization, so also in economic mobilization a difference must be recognized in order that unnecessary measures in individual cases will be avoided.

Every war displaces fundamental principles of economics which depends upon unchangeable natural laws. For this reason a difficult situation will exist, which should not result in the infliction of violent political changes upon the state when such is not absolutely necessary.

Austria, as a result of the Treaty of St. Germain, is not permitted to prepare mobilization plans. Plans for mobilization can therefore assume only a theoretical status.

The term "economics" includes every activity through which mankind procures the material means for the satisfaction of his requirements, and which can be utilized when procured for the satisfaction of such needs. This definition is drawn to include the total need and does not deal merely with military requirements, nor alone with the products of industry, but also includes agriculture, mining, commerce and trade.

A solution as to the content of an industrial mobilization plan generally valid for all conditions and all countries is just as impracticable as the compilation of a purely military mobilization plan which would suffice under all circumstances. It can therefore only follow that every department of business must be included, the consideration of which may be pertinent in the preparation of the plan. When and in which circumstance the individual elements may be considered is determined in accordance with the conditions of each case.

In the carrying out of these studies it is recognized that the economic mobilization plan can also be important for domestic politics, for through these plans it will be possible to determine where early or later deficiencies may occur which would weaken the resistance of the nation.

The course of the world war proved the necessity of entering even before the advent of combat developments, into trade agreements. This thought is not new. Even in 1892 an agreement was entered into between the Prussian War Department and the imperial and royal War Department of the German Empire in which the Austro-Hungarian army administration, in case of war, promised to purchase in the monarchy 50,000 meter - hundred weight of cereal, 350,000 meter - hundred weight of grain, and 400,000 meter - hundred weight of corn, to be at the disposal of the Prussian War Department when paid for. In this agreement the right also was yielded to the German Empire to bring supplies out of East India by way of Trieste. The Empire undertook also to provide 10,000 tons of rice for Austria-Hungary and to place at the disposal of the War Department the Imperial Austria-Hungary's wheat surplus.⁽¹⁾ This agreement was enlarged in 1906 and the right was yielded the German Empire to permit purchasing by Prussian commissioners in Austria-Hungary if the monarchy should remain neutral in a war, therefore her frontiers would not be opened up.⁽²⁾ This agreement did not exist in 1914, it would have made the situation of the monarchy still more difficult than it was without the agreement. How necessary these kinds of undertakings are may be easily shown by a much more recent example. Austria and Hungary were before the collapse, allied in prosperity and adversity. The Danube Empire consisted of a common customs district. The natural outlet for export of Hungarian agricultural products was Austria, that for the Austrian products of industry was Hungary. Custom policies were built upon these facts. The duty determined for grain was so regulated that the importation of foreign grain did not come up at all. The outlet for Hungarian agricultural products was thereby assured in the same manner that many articles, which were the products of Austrian industry, had an assured outlet in Hungary. One may readily believe that, in return for these unquestionably valuable custom measures, both countries assumed also obligations toward each other which could have included an agreement on the part of Hungary to furnish Austria a certain amount of agricultural products, and on the part of Austria to provide Hungary with a certain amount of industrial products. All this was kept to unrestricted business operations and even in the event of war nothing was arranged. There were no binding agreements even for the maintenance of the common imperial army. The results of these omissions showed up when it became necessary to accede here and there to government control

(1) Archive of the Empire. Preparation and Economics of War.
Vol. I, Part 69. Appendix 69

(2) Archive of the Empire. Preparation and Economics of War. Vol. I,
Appendix 71

of food stuffs, which practically meant the separation of their common business arrangement when in effect at a time when the Austrian half of the empire had lost its grain territory, East Galicia. Austria could at that time cover its deficiency of grain from Rumania; the price range caused Austria to suffer a severe financial sacrifice in the procurement bread-stuff as a result of the high price of Rumanian grain.

The main point in every large undertaking is a suitable organization and likewise a separation of activities. One method of organization might be in accordance with the elements of mobilization as shown below:

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|-----------------|--|
| 1. Man power | 7. Subsistence |
| 2. Finance | 8. Trade and Commerce |
| 3. Raw Material | 9. Morale |
| 4. Power | 10. Information (Military) |
| 5. Transport | 11. Reconnaissance and Report (Business) |
| 6. Industry | 12. Statistics |

It is obvious that within these fields a lower division must take place as will be shown in the brief discourse on each part.

1. Mobilization of Man power

The basis for the mobilization of man power is a universal war service act. In this legislation it will be necessary to determine basic wages and hours of work for women and child labor. The use of personnel for service in the armed forces takes precedent over industrial service and does not come within this discussion.

In the Austro-Hungarian Army there were exemptions from military service. The exemptions from a specified mobilization period were differentiated from the exemptions for the duration of the war. In the first category belonged those persons required until their positions were filled, principally railroad employes, to the second groups belonged all of those who were required to fill their peace-time position for the duration of the war. These included principally, persons on foreign missions, government employes that could not be spared, also operating employes of specially important war industries and similar cases. That too little attention was doubtless paid to this class was borne out by the many exemptions from military service during the war. The shortage of man power at the beginning of the war caused a stagnation of business just at the time the maximum production of raw materials and manufactured article is supposed to have occurred. This caused the loss of valuable time. The operating personnel so essential at home in the production of munitions were also irreplaceably lost in the heavy casualties of the early engagements of the war.

Before progress can be made in the mobilization of man power it must be determined which industries can be kept up during war, which can be changed or enlarged in accordance with war requirements, and which must close down because their production can be spared during the war or because the raw materials needed in its operation cannot be procured.

The personnel requirements for each single undertaking must be determined, and in the case of that personnel we shall have to deal in the very beginning with a large number of people unfit for military service, such as invalids and women. Agencies that are vitally important in their operations must be left unchanged without regard to the usefulness of their personnel for war service, unless such personnel can be adequately replaced by those unable to render military service.

The distinction of the various classes of personnel is indicated by their use and training. These may be grouped in (a) leader and (b) those led.

Without these groups commercial and technical men and government employees, as well as skilled and unskilled labor, should be differentiated.

The basis of the mobilization of man power within the framework of the economic preparation for mobilization can only be a list which contains all those able to work and therefore subject to labor in war. For obvious reasons this list must be compiled in conjunction with cadres for military service.

2. Mobilization of Finance

That money was necessary to the conduct of war had been clear to our ancestors, who, primitively clothed and armed, with small requirements of subsistence could conduct, according to present ideas, small armies in the field.

In the same manner as changes have occurred in armament and equipment in armies - so changes have developed in finance and credit. To have capital available for carrying on war in the form of a sufficient war treasury is today impossible and also not absolutely necessary. One will have to differentiate between preparedness for war, mobilizing for war and financing for war.

Preparedness for financing the war would unquestionably be advanced through a war treasury which Germany had since 1871. This sum (120,000,000 marks) did not of course suffice to finance the war. The concern of the Empire, before the war, was also directed to a

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replenishment of the war treasury by means of a gold and silver reserve. These measures could, until the beginning of the World War, be carried out only to a small extent; the gold reserve had at first reached 85,000,000 Marks, the silver reserve carried was 6,000,000 Marks. A regulated political economy, an equalized budget, a flourishing domestic economy, and a rich people strengthened the financial power to meet the enormous requirements of war.

Banks and savings institutions must to a certain degree be maintained liquid. That is, they must at all time be able to make a certain part of their assets available. They should not be permitted to invest their capital entirely in real estate, or in projects from which money cannot be withdrawn within a few days, for at the outbreak of war a great demand is placed on the money market. This applies particularly to the national bank that certainly cannot fail to consider the requirements of a well developed mobilization plan. The Government must prepare laws, and pass them at the right time, in order that the financial mobilization can proceed without difficulty. Germany had worked out such a law, it stood well. This, however, was not the case in Austria-Hungary.

The before-mentioned mobilization plan of the national banks had in the first place to take care of the money needs of the Army, which could be figured. They had a still greater problem, for industry, trade etc. needed immediately a great deal of money. At the outbreak of a war the majority of the people attempt to liquidate their outstanding debts, in order to be ready for any eventuality. Debtors have the tendency not to meet their obligations immediately. The more uncertain the situation the greater will be the fear of banks and savings institutions at the outbreak of war. The Government must take control in order to make possible a moratorium for debtors. Merchants will endeavor to hypothecate their stocks to obtain ready cash, and the government must take measures to regulate these conditions.

These suggestions, which can make no pretense of completeness, and where closer examination would exceed the scope of this study leaves, nevertheless, the conclusion that there is a great deal of work to be dealt with, the solution of which is today controversial. In this, reference is made to inflation, attainment and management of the profits of war, changes in tariff policies and the activity or inactivity of the stock market.

The financing of war lends itself with difficulty to preparation, because here the exact course of wars assumes different aspects. Preparation is certainly possible as, for example, a credit from a foreign country concerned in the outcome of the war. In the majority of cases it is impossible to predict how, when, and

in what circumstances a loan may be obtained during a war. Nevertheless the question of loans must be studied continually and a clear conception obtained regarding the possibility of imposition of war taxes and income taxes, issues of bonds, and similar matters. In order merely to give an idea of the extent of the cost of the war it is cited that the cost to Austria-Hungary reached the sum of 90,000,000,000 paper kronen equivalent to 49,000,000,000 gold kronen. However, since the paper kronen was valued daily during the war in accordance with the monthly or yearly averages of its gold values, one arrives at different figures. The figures cited spent for government debts contracted during the war shown for:

Austria 57,400,000,000 paper kronen equivalent to
31,300,000,000 gold kronen

Hungary 31,100,000,000 paper kronen equivalent to
17,923,000,000 gold kronen.

The 49,000,000 people of the Monarchy contracted therefor a per capita war cost of 1,000 gold kronen (Austria 1,107, Hungary 802)

3. Preparation for Mobilization of Raw Material Procurement

In war time raw materials become of the greatest importance. Subsistence, industry, trade and commerce, and therefore the entire conduct of war, is dependent upon them. There is scarcely a single raw material whose control is not necessary at the outbreak of war. If the Government is in need of a raw material, or may be expected to become so, it then becomes necessary to control its use and to provide in sufficient time a substitute. If the Government has an excess of a raw material the control is necessary too, in order to be able to employ such material for exchange and other trade purposes. This is also the case with partially and entirely manufactured articles which must be controlled and used according to a plan.

Production is the most important means of procurement of raw materials. The objective of preparedness is to organize production so that in case of war the maximum production can be obtained. It is quite evident today that many mistakes were made in this respect for which no single person can be blamed. Those engaged in the work did not have the advantage of theoretical studies which could be used as a guide for economic management under the various conditions which arose with the Middle Powers,

and this was largely the reason for their inexact solution. In these matters nothing, or very little, had been prepared. Under the direction of the Government consideration was given in Austria-Hungary in many cases only to the organization for the distribution of raw materials, while for base production but little was done. The embargo, or Government control, took place in Austria in most cases too late and then without considering the reaction caused thereby. As an example let us take the control of foodstuffs. As flour and bread shortage arose it became necessary to introduce among the population bread and flour cards. The result of this limitation was an increased consumption of meats. As meat, due to increased consumption, became scarce, it was rationed, and so on until the number of foodstuff cards and foodstuff bureaus became enormous. The situation became more acute as a result of price control, and gave rise to smuggling which in such time never can be entirely avoided. Things were different in Hungary. There, after the harvest, one could satisfy his requirements as to flour and bread products by uncontrolled purchase and only the balance was controlled by the Government. This fact alone proves that the shortage of foodstuffs in Hungary was never so serious as in Austria.

Harvest statistics of cereals show that the root of the evil lay in production.

Year	Austria-Hungary Total production in million meter- hundred weight	Austria-Hungary grain deficit in million meter-hundred weight
1914	90.2	9.8
1915	79.4	20.6
1916	62.9	37.1
1917	62.2	37.8
1918	52.7	47.3

At the same time production of barley and corn fell off one half and the production of potatoes from 211 million pounds to 93.

These developments could naturally not be attributed alone to a deficiency in organization. Hungary in 1914 had a very considerable crop failure which would not have had any materially different outcome even with the employment of more workers and animals. An additional cause was a lack of fertilizer. Political conditions alone influenced production results because of stocks hoarding.

Similarly there was a decline in other fields of production, as in the mining industry, even in lumber, of which we, in Austria-Hungary, certainly had enough, the demand was hardly ever entirely met.

A decline in production will take place in every war even with the best organization of production and distribution. The measures required for well planned production and distribution must constitute a comprehensive part of the preparation for mobilization if decrease in production is to be checked. The demand must be determined in the preparation of the production plan. This in many cases will present a difficult and even at times an unresolvable problem; often estimations which produce more or less inaccuracies must take the place of exact computations.

The ability of the Government to produce raw materials, compared with the demand, gives the picture of the raw material situation. The next plan would cover the supply of deficient raw materials and the use of surpluses. Unobtainable raw materials can usually be replaced by domestic substitution. The use of substitutes must be studied and tested continuously if results are to be had.

The computation of raw materials cannot be based simply on statistical evidence of peacetime production, for in peacetime even if one does not take into account the present severe economic crisis - there are plants whose managements are unremunerative which therefore must close down. In war, however, the unremunerativeness of a single management has little or no importance, but the main issue is the possession of the raw materials whose cost must be paid even where it is disproportionately high.

Replenishment of stocks is possible by means of an accumulation of reserve stocks. The United States was supported by such stocks. They cost a great deal of money which lies idle, for that reason most countries cannot, or only in a small measure, employ this method. Considering raw materials which can also be used in peacetime production the matter is somewhat simpler, for such materials can, in case of being required by the government, be drawn in and replaced by less valuable materials.

Thus for example, in a country which has no domestic copper the use of copper utensils in hotels, as a condition for obtaining an operation permit, could be provided for by law. Also within the armies there are possibilities that such strategic raw materials may be similarly handled. For example the field kitchens of the Austro-Hungarian army were equipped with kettles

and similar utensils of pure nickel which, even in the first year of the war, were replaced by galvanized iron utensils, because of the shortage of nickel for munitions production. The copper mess equipment of the Russian prisoners of war were replaced by enamelware on account of the prevailing copper shortage, for the same reason it was necessary to seize bells, door locks, brass utensils and similar articles.

One might object that nickel and copper are more expensive than other materials. This however is more apparent than real. The production costs are certainly higher; however, if one considers the durability and its salvage value, the conclusion is reached that in most cases the material of greater original cost is not more, or at least not much more expensive.

Raw materials, if their need by the Government in time of war is noted, and for which no substitute exists or of which no reserves are available, must be imported. The importations in each war situation which are subject to different viewpoints require exhaustive preparation and, where possible, ratified trade agreements.

The dependence of a state upon foreign countries as regards raw materials is of the greatest importance. The experience in this respect during the world war has led many states toward an effort to obtain self sufficiency. The determination of the measure of dependence upon other countries is therefore one of the objectives of preparation for industrial mobilization. The production of raw material must depend upon a plan worked out in concrete detail. The personnel required for the execution of this important work must be made available. In Old Austria, the supervision, and in part also the conduct of industrial production, was placed upon teachers, the clergy and others who were not called into war service. Possessing only a general but not thorough knowledge they took great pains to accomplish correctly their task, in future wars other personnel will not be available for this work, therefore it will be necessary to give thought to at least the elementary training of these persons for this war service.

Binding regulations must be promulgated for production in accordance with local conditions. Production is not served by propoganda nor with generalities. As proof of the correctness of this statement reference may be made to the sugar production in the old monarchy. Austria before the war had exported 54% of its sugar. Germany had also an excess of sugar so that after the sugar campaign of 1914 large supplies were on hand. The Government then, in view of the shortage of cereals, reduced the beet-sugar

crop. The agriculturist gladly complied with these demands. Naturally! The preparation of a field of grain required less man power than a field cultivated for vegetables and then too, the shortage of man power was severe. These means finally resulted in the use of saccharine, entirely valueless as means of sustenance, instead of sugar which is an immensely important article of food.

In order to increase the supply of raw materials in time of unusual conditions, beside the normal production, the use of salvage materials or byproducts becomes an objective of special importance.⁽¹⁾

The distribution of raw materials must be organized in requirement groups, in general perhaps according to Army, industry, agriculture and forestry. The divisions cannot be the same for all materials. It can therefore only be said that the division must take place in important items while the distribution of small items must be by its own central organization. Many opinions exist concerning the form of the central organization. Although the central organization in Old Austria exhibited many defects, and was therefore to a great extent condemned, one must admit that in general its objectives were obtained as well as it was possible at that time.

4. Mobilization Preparation for Power

This should include water power, electric power, coal, petroleum (gasoline), benzol, benzene and oil.

The Power industry has made great strides since the World War. Changes due to the war, however, have required considerable study of new ideas and plans. To these belong the plan of mutual assistance of single power plants that may drop out through enemy influence. Sites of plants and transmission of power must also be given special study. While mistakes in location or construction might increase or decrease the chances of destruction by enemy aircraft they cannot be changed at the last minute.

In the U. S. there is a chart showing all transmission lines carrying more than 5000 K.W. By the use of this chart it is possible to give service where needed. The heads of the Power Districts have, in time of war as regards use of current, dictatorial powers.

The question of motor fuel has kept chemical engineers busy in all countries where gasoline or oil is not a domestic

⁽¹⁾ See Hevler, Waste and Its Utilization. Military Science, 1933 edition p 625

product. Experimentation with fuel is a part of economic mobilization. In this connection attention is drawn to the experiment by Bergius and the use of wood alcohol as a motor fuel.

5. Transport

In war transportation plays an outstanding part, not only in operations but also industrially. The strict military control of rail transportation during the war by the Central Powers was of outstanding service.

In time of war a strict control must be exercised over the other means of transport such as motor and animal. Plans must be made so that transportation will be apportioned for the economical use of industry and the Army. The enormous need of transport and the quantities of fuel used by the Army makes it mandatory for others to exercise the greatest economy and to compel reduction of its use in private homes and for the manufacture of articles of luxury. This restriction must begin at the outset of war.

6. Industrial Mobilization

Industrial mobilization is the largest and most important part of economic mobilization. Its preparation demands much time and labor. The United States has been engaged with it for more than ten years and are still working. The further they go the more they find to do, as still more branches of industry must to a more or less degree be drawn in. Industrial mobilization is impossible without the consideration of labor, raw materials, power and transport.

The change of industry from peace - to war-time production must be done systematically if the best results are to be obtained. This will require not less than a year for totally demobilized nations as most of the various branches of their industries are deficient in almost everything. They lack specialists. Since the development of machinery in industry has so greatly progressed it is possible for great masses of unskilled labor to be put to work, permitting mass production. However, before mass production can set in the required machinery and instructors must be provided. Without training the cooperation of several factories is impossible. The training of instructors must go on unceasingly hand in hand with standardization.

It is impossible here to examine the details of the various branches of industry. One can get some insight, however, as to the decisions of far-reaching importance that have to be made regarding new construction expansion, etc. For example, in England there was a highly developed textile industry. Its products were mostly exported. Soon after the outbreak of the war the question came up what to do with textile machinery and what use to make of the weavers. Should the textile machinery be placed in the attics and the weavers assigned to turning benches? Or, should ammunition be purchased from the United States, paying as much as possible from the receipts from sales of textiles. Many a man pondered over this question. England decided to adopt the latter plan. That put her in a position to use her raw materials, and she saved the expense of equipping plants for the manufacture of ammunition. At the time peace was concluded the English textile industry was going at full capacity. There was a ready market for their products and the machinery was in top shape. Had they converted the textile factories into ammunition plants, the raw materials on hand would have remained unused until the end of the war, the textile machinery would have rusted in the attics or cellars, and the war debt to America would have been much higher. The starting up of the textile industry would have required the purchase of new machinery costing a great deal of money. England's decision not only reduced considerably the national debt but resulted in the retention of her markets for her textile trade. It cannot be doubted that America included her investments in the price of ammunition; however, England was willing to pay that price.

The work of Industrial Mobilization falls in the following categories

- a. Raw materials, fuel, power, partial and whole manufactures.
- b. Machinery including labor, electric, tools, buildings, etc.
- c. Munitions of war, including arms, ammunition, power vehicles, airplanes and technical material.
- d. Chemical industry including powder, explosives, gun cotton, gas, medical supplies and fertilizers.
- e. Leather, including shoes, saddles, straps, harness etc.
- f. Clothing, including wool, cotton, linen, jute, silk surrogate, textile weaving and spinning, wearing apparel, dyeing and trade in ready-made clothing.

- g. Food including mills, bakeries, sugar, conserves, marmalade, beer, yeast, alcohol, potato preparations, coffee, milk fats and fat substitutes.
- h. Construction material, including lumber, steel, cement, chalk, road metal, etc.

For the purpose of industrial mobilization the United States has been divided into 20 working districts, each covering about 20,000 plants. Each of these plants has a factor plan, and each district compiles the expected results of the factory plans into a production plan. The factory plans and other preparations of mobilization are examined, inspected, and tried out by small contracts to test production ability. Thereupon distribution is made of personnel, capital, raw materials, electric power, coal, transportation, fuel, etc.

In the United States the motto is "the greatest production with the least Government interference." This is just the opposite in France where the Government has almost complete control. In time of war the the Department of National Defense takes complete charge on the grounds of preparing plans for the distribution of raw materials. All industries - steel, iron, metal and coal, the munitions and chemical industries, wharves and transportation come directly under this Department. These two extremes show that no scheme has as yet been found to the satisfaction of all concerned. It can be taken for granted that in both countries the preparation for economic or industrial mobilization will obtain the desired results no matter how it is done.

Finally we point to Russia, showing that steps have been taken there in her five-year plan to provide in case of war for production and distribution.

7. Food

Plans for providing food include all steps such as the growing and distribution of food supplies. The calculation of requirement would give a basis upon which to work.

Our present generation is aware of the food problem we have in time of war. In the past the support of the fighting forces only was considered, but today there is no doubt in anyone's mind that an Army with a starving population in the rear cannot succeed. News from home about his family worries the soldier at the front; the diminished output of the undernourished workers in the shops will lead to an unendurable shortage of all kinds of war materials needed so urgently by fighting forces.

The smaller the food supply of a country the greater the control that must be exercised by the Government in providing a systematic and well-planned distribution of food supplies. The use of substitutes is important. Experiments with all substitutes are of the greatest value and are within the scope of preparation for industrial mobilization. Not only should use be made of all available supplies but steps should be taken to increase production and use it. Experience in the World War has taught us many lessons and we must study them thoroughly. In Denmark, for instance, upon the advice of Dr. Hindhede all pigs were slaughtered and thereby the consumption of fats was stopped. Of course the practical people, or the producers of pork, fought this edict. But no matter how much business people disliked it, the fact remained that during the war the health of that country was improved and the death rate decreased. In Austria, also, the well known Professor Perquet disclosed his views regarding the consumption of fat by explaining that the eating of pork was as rational as the eating of piano feet. The opinion of both doctors seems to be extreme. We know, however, that too much fat is used. If the cultivation of the soya bean, which contains fat and albumen, was given more consideration and produced on a larger scale a complete change of fats could be realized in some countries in war services.

The organization of distributing points with reference to consumers belongs just as much to a food plan as a well thought-out system of food cards.

8, Trade and Commerce

In the matter of preparation consideration should be given the necessary curtailment of import and export transport, tolls and agreements with neighboring countries. Close cooperation must be maintained with all concerned in order to obtain raw materials from foreign countries.

High costs will drive wares from the market and yet it is not possible to have price fixing through the medium of supply and demand. In time of war the State or Government is the sole consumer of many articles. The cost of their production would be exorbitant in time of peace as there would be very little demand for them. The question of price fixing would, under these conditions, be an extremely vexing problem which cannot be ideally solved. Nevertheless, it requires absolutely the cooperation of all concerned, the producer and the consumer, including Government officials, to prevent price-cutting and other underhanded business. This can be prevented if officials keep a careful watch over it. If not, the producers and salesmen, or middlemen, will practically

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dictate their own sales prices under the cloak of the Government whose position will be undermined by their tactics.

In connection with price, the quality of the product must in many cases be fixed. Under ordinary conditions marketable products may not come up to standards.

One must have a clear understanding of price ranges in order to combat price-forming and inflation. Opinions, however, seem to differ on the question of inflation. Some dread it and others claim it is the only means by which to build up business. Even in America they are attempting to improve business through inflation.

9. Morale

Plans must be made and measures taken in time of peace to prevent confusion in time of war in the support of indigent families of the dead and missing, invalids and sick, and the establishment of war or soup kitchens, heated halls, etc.

The support of the families of those called to arms is unquestionably necessary. It is a large and important undertaking and must be given special consideration. The same plan cannot be used for every family no matter how unsocial it may seem. The wife and children of a laborer who has been called to service, and upon whom the family depends, must be given full support especially when the other members of the family are unable to earn a livelihood through physical condition or other incapacity. Of course this does not apply to the families of farmers whose support is assured in spite of the fact that the head of the family is absent. If this class of families receives the same relief in money as the laborers' family, a drop in production would probably ensue, a condition which, as heretofore stated, must certainly be avoided in times of war.

10. Intelligence Information

Business information service requires, as is the case of the military, a thorough and widely branched organization if it is to function successfully. In the past this service has not been given much attention. The World War has taught us differently and the work of the Control Commission opened the eyes of all who still believed that a war would be decided by arms only. The discovery of business secrets of hostile nations, and the protection

of our own business and industries from espionage and sabotage is the mission of the Business Information Service. It should operate of course hand in hand with the Military Information Service. Smuggling on the border, to be encouraged for our own requirements, is part of this service and requires preparation in peace time. The patent records must be given a very close study as regards inventions which may be of some use to the military or to industry.

11. Business Reports and News Items

Reports and news items through press and radio will play a greater part in the next war than ever before. The objectives, plans and preparations in this field of activity would require the drawing in of trained men from all branches of industry for a thorough study of such plans.

12. Statistics

Statistics form in many cases the basis for important measures. No part of business or industry can work without statistical aid. The preparation for this work of such wide scope requires, therefore, thorough study and organization. Since we have attempted to draw a line as to how far we shall go with the preparation for industrial mobilization, the question now presents itself how shall these various sections of divisions be controlled and directed? It is certain that commissions without authority, not to speak of dictatorial powers, cannot accomplish much. To work with industry presents difficult and perplexing problems; if force is used industry may be antagonized and considerable damage result to the State or Government. These reasons indicate that this important work must be undertaken by trained industrial personnel who are responsible to the Government and who will see that obligations are carried out. Industrial leaders are part of this Control Board. Of course these leaders are primarily business men and have little interest in becoming leaders of warfare. Since they are involved in the preparation for industrial mobilization they must be brought in line. This can only be accomplished through soldiers and not through business men. There are exceptions of course. A leading role therefore falls to them as well as to the industrialist. If they would come to an understanding with the industrialists, pull together with them, and lead in the interest of the conduct of war, they must have at their disposal the necessary equipment in the way of economic education and experience, otherwise they do not become leaders but those who are led.

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In the past the Commander of the Army has demanded from industry what he needed and has generally received it. Modern war, with its enormous expenditure of materials, has compelled industry to give whatever it produces, and it is the business of the Commander to obtain results from the material available. Industry, therefore, should be directed so that it will produce a maximum output. Then with the material on hand the highest peak of fighting power should be obtained.

In the United States the authority for preparation of war comes under the leadership of The Assistant Secretary of War. The head of each of the 20 districts is an industrial executive. He has at his disposal an advisory staff of trained industrialists and especially trained officers. For the training of these officers there was organized in 1924 an institution of higher learning known as the Army Industrial College in which Regular Army officers were instructed in the requirements and work of industrial mobilization. Reserve Officers are also trained in the practical industrial mobilization service. They are also sent to factories to learn production methods and they attend Chamber of Commerce meetings. The War Department estimates that from 4,000 to 6,000 officers are needed for this work. Students of the Army Industrial College also attend lectures at the War College, both Colleges cooperate closely.

England has a similar plan. At the Imperial Defense College, officers and officials are informed on questions of industrial mobilization. Aspirants from the Dominions are brought to this College to be informed and instructed so that afterwards there is a personal contact between leading persons of the different commonwealths.

In France, industrial mobilization has been worked out to a fine degree. In the mobilization of the nation the Government has by law dictatorial powers. The Cabinet President is responsible for industrial mobilization. The operation and paying of the industries during war are controlled by the Army. We understand by this that in France also they are training personnel for the purpose.

From the foregoing it is seen that preparations for industrial mobilization are far-reaching and require time and labor, and that nations now unprepared are at a great disadvantage when in trouble with countries well prepared. Improvisation in the industrial world cannot take the place of a well-constructed plan, is certainly unbusinesslike, and therefore more expensive.