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AMERICAN EXPERIENCE IN ECONOMIC MOBILIZATION PRIOR TO WORLD WAR II

28 August 1952

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DR. HUNTER: This morning, gentlemen, you will get the full treatment. We will really cover a lot of ground and I hope you will bear with me.

Yesterday morning I discussed with you the nature and problems of economic mobilization in our own day. This morning I want to review with you some of the economic problems of warfare as we faced them in two previous wars. Then I shall conclude with a brief account of our economic mobilization planning activities between the First and Second World Wars--planning, as it was then called, for industrial mobilization. Then tomorrow I will give you an over-all view of how we mobilized the American economy in World War II.

The military profession has always been historically minded, has always given much attention to the study of past wars and past campaigns. More recently there has been a certain reaction against this preoccupation with what has happened in the past, a reaction that is reflected in the frequently quoted remark about the military preparing to fight the last war, with the implication, of course, of an inability or unwillingness to recognize and to adjust to new conditions, new problems, and new needs.

Granting the real danger here, nonetheless I think we would be foolish to ignore or to slight past experience, for change does proceed slowly; and much of the experience of past wars does have great value for the understanding of present-day problems, if not, of course, for their solution in a specific way. There is still a lot of truth to the old proverb that he who ignores the mistakes of the past is condemned to repeat them.

The conduct of warfare in every age has its economic base, as I stressed yesterday, and the conduct of war is confined within the limitations of that base. It is obvious, for example, that a backward or retarded agricultural economy, such as is found in most countries of the Middle and Far East, an economy in which most of the people are living close to the margin of subsistence--such an economy cannot support warfare on the scale and with the intensity that an advanced industrial economy, such as we find in this country and in western Europe, can support.

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As I emphasized yesterday, the war-making capacity of a nation depends on the ability of its economic system to provide the forces, the equipment, and the supplies essential for the conduct of military operations. It depends, above all, on the ability of the economy, of the economic system, the productive system, to produce a surplus of goods beyond the bedrock requirements of the war-supporting civilian population. The larger this surplus, the greater the scale of military operations that can be supported.

I have prepared a chart which helps illustrate this close relationship between national wealth and the war-making capacity of this Nation in American history from the Revolutionary period down; I have called it "The Rising Cost of Waging War" (see following page).

I want to direct your attention first to the first three columns on the left in this chart. Several basic trends are shown here and, because these trends are very important for an understanding of the ability of a nation to wage war, they are worth considering in a little detail.

Three trends are shown in the first several columns--in population, in national wealth, and in the cost of war. The population figures pretty much explain themselves. They show what has been indeed an extraordinary rate of population increase over 175 years--a tenfold increase between the Revolutionary and the Civil Wars, a fourfold increase between the Civil War and World War I, and a 30-percent increase between the World Wars I and II. You will note a gradual slowing down of the rate of increase.

The figures of national wealth--not national income--require a little explanation. By national wealth we mean the total value, measured in dollars, of all the durable property in the Nation, regardless of whom it belongs to--private individuals, business and other organizations, or the Government. It consists mainly of such items as land, all buildings and structures upon the land, and the equipment within these structures, as well as inventories of goods of all kinds.

Another qualification with respect to these figures must be noted. They show an increase from three-quarters of a billion dollars to 750 billion dollars in a period of about 175 years, but they can't be taken literally, for two reasons. In the first place, they are all estimates; and those for the earlier periods are very rough estimates indeed, with a wide margin of possible error. In the second place, allowance has to be made for marked changes in the value of the dollar over this long period.

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The Rising Cost of Waging War

	Size of Population	Total national wealth (millions of dollars)	Per capita wealth (dollars)	Total cost of war (millions of dollars)	Average Annual cost of war (millions of dollars)	Annual per capita cost of war (dollars)
Revolutionary War (7 years)	2,500,000	750	300	125	17	7
Civil War (North) (4 years)	24,000,000	15,000	625	3,300	825	35
World War I (2 years)	100,000,000	250,000	2,500	35,000	17,500	175
World War II (5 years)	132,000,000	750,000	5,700	350,000	70,000	530

As a rough estimate the dollar of 1775 would probably buy four times as much in commodities as the dollar of the 1940's. In terms of real commodities instead of elastic dollars, therefore, it will be safer to estimate that the national wealth increased, not 1,000 times from 1775 to 1940, but, let us say, somewhere around 250 times.

One further qualification--of course, the population has been changing rapidly during this period. So we can visualize this national wealth better if we reduce it to per capita terms. Whereas in 1775 the national wealth averaged out at around \$300 per person, in 1940 the figure had risen to nearly \$6,000 per person, a nearly twentyfold increase in terms of dollars, or, in commodity terms, allowing for the fourfold decrease in purchasing power, we have about a fivefold increase in the per capita real wealth over this period of 175 years.

Let's stop at this point and see what the data so far presented on this chart add up to for military purposes. They mean simply this: There has been a steady and great increase in two of the basic resources from which armed forces must be recruited and supported--the population and the wealth of the nation, whether considered in total or per capita terms. It means that not only can larger armies, navies, and other military forces of the period be raised from a population that doubles on the average over this long period about every 40 years; but, since the national wealth in real terms increases five times faster than the population, your armed forces can be equipped more lavishly and more effectively.

Financing the Revolutionary War presented almost insuperable problems, as you may recall from your history, and we barely scraped through. But financing World Wars I and II by comparison can almost be described as a cinch.

All right. Now we're ready to take a look at the last three columns in the right of the chart, which trace the sharp upward trend in the cost of waging war. Only the direct monetary costs are shown here and they are arranged under three headings: total cost, average annual cost, and annual per capita cost. These figures are round number estimates; but, since they are based on data on government expenditures which are fairly well recorded, they are not too far from the mark.

Since the wars are of varying length, I've reduced the total cost to an average per year basis and have indicated the approximate length of the war under the headings on the left-hand side of the chart. And this annual cost can be compared with the total national wealth, which can be regarded as the economic base of the income from which the costs must be met.

The climb upward from 17 to 825 to 17,500 to 70,000 million dollars a year has been extraordinarily steep. Even when we allow for the changing value of the dollar, it is still a colossal thing.

In the last column I've tried to bring these figures down to earth by showing the extent of the burden upon the so-called average person in cost per capita per year.

The annual per capita cost of our wars, as you can see, climbs much more rapidly than does the per capita wealth of the Nation. Obviously, it is only because of the great increase in national wealth and in the national income derived in important part from this wealth, that it is possible to wage wars on the lavish scale characteristic of the past generation.

There's one rather interesting feature of this chart which I haven't mentioned but which I'm sure you've all noticed and doubtless wondered about. It has puzzled me too. It's the downward decline of the top line of the chart. This is the draftsman's contribution to our understanding of war finance problems. It's my hunch he's a Democrat and is trying to play down what's taken place in wars fought under Democratic administrations.

This close relationship between military power and economic development is beautifully illustrated in the case of our own Civil War, a fracas which, south of the Pentagon, is usually referred to as the War Between the States.

The Civil War was a struggle, of course, not only between the Confederacy and the northern Government. It was a struggle also between the economic and social systems of the belligerent sections. It was a struggle between economies which differed in important respects. If we go back to the period of the late eighteenth century--say the years which followed "independence"--we find surprisingly little difference between the Northern and Southern States with respect to either size of population or total wealth; and, so far as the great bulk of the people in each section were concerned, very little difference in the general character of economic life.

But in the 75 years between the Revolution and the Civil War, the American economy underwent great changes. The population increased, as we have seen, many times. The wealth of the Nation increased in much greater proportion than this increase in population. And, most important of all, and responsible for this increase in wealth, was the rapid advance beyond the rather simple agricultural economy of the 1780's and 1790's. The character of this advance can be summed up in a single word: industrialization--the extension of the methods and techniques of the industrial revolution in England to the United States.

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During the 75 years between the two wars the iron, coal, and metalworking industries underwent a very great expansion. For the first time these industries assumed a fundamental role in our economic system. Steam power was introduced in a large way and brought about a revolution in transportation through the rapid extension of the railroad and inland steam navigation. The new transportation facilities and service greatly accelerated a shift from a largely self-sufficient agricultural economy to an industrial economy with a growing measure of specialization. Then, favored by steam power and improvements in metalworking techniques, mechanization spread steadily through manufacturing industry. Machine methods began to replace hand methods. Even agricultural operations began to feel the effects of machinery in the 1850's. Important beginnings were made in developing the techniques of mass production. And, finally, along with all these changes and influenced by them, there was a steady shift from the small shop to the large factory.

The significance of these developments for war is obvious. The productive efficiency of the economic system was greatly increased. The economic surplus available for military purposes, a surplus which the Government could tap through taxation and borrowing, likewise underwent a very substantial increase. This in turn made possible the support of military operations on a far larger scale in proportion to the population than was the case in the War for Independence.

While the Nation as a whole had greatly increased what we call its economic war potential, this potential, this surplus productive capacity, was divided very unequally between the two belligerents. The North since the Revolutionary War had moved far ahead of the South in population and wealth; in transportation facilities and service; in shipping and foreign trade; and, above all, in industrial facilities and capacity of all kinds.

Because of its great economic superiority, the North was able to raise and support its large armies and navy without great difficulty. In the first year of the war there was an extraordinary amount of confusion and disorder in getting organized to do the job, because we started out virtually without an army and with a relatively small navy; we had no plans for doing the job. But after the first year the equipping and supplying of the Federal armed forces was just a large-scale procurement job.

In the North the normal peacetime economic life went on pretty much as usual. Industrial and agricultural expansion, immigration, and the advance of the frontier continued with little check. Throughout the war there were very few scarcities of any importance and there was very little hardship among civilians.

There was no economic or even industrial mobilization, in the proper sense of the term, in the North. There was almost nothing of the central planning and directing which marks the true war economy. No controls

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were established over resources, over production, over prices, or over labor (except for the draft). The Government was authorized in 1862 to take over railroad and telegraph systems; but, except in the war zone, did not do so.

The position of the Confederacy was very different and far more difficult. The southern economy centered, as you will recall, in the production of a few staple crops, chiefly for foreign markets. The loss of these markets and the income from them was a very serious blow for the South. The South was dependent for manufactured goods of most kinds upon imports from the North and from England. Just as the naval blockade pretty completely cut off the export of their staple crops to Europe, so it largely cut off foreign supplies.

The South had almost no heavy industry and was very deficient even in such items as textiles, clothing, shoes, and leather goods. It had no munitions plants at the beginning of the war. Not only were its transport facilities far inferior to those of the North; but, for lack of replacements of rails, rolling stock, and locomotives, its railroads steadily deteriorated. The result was that the Confederacy found it increasingly difficult to move and supply its armies in the field and to concentrate in the areas of military operations supplies drawn from all parts of the Confederacy.

Interestingly enough, the supply problems of the Confederacy were not primarily in the field of munitions. Its military position was never seriously threatened by a lack of small arms, powder, and shot. For one thing, after a battle, when the Federals, for one reason or another, made what some are wont to call a strategic withdrawal, they left large quantities of small arms on the field; these proved a great boon in meeting the supply problem of the Confederacy. Shortages in field artillery did at times definitely handicap the Confederate armies. It was fortunate for the South that both sides relied upon hand weapons chiefly, weapons of a simple, not to say antiquated, construction. If the weapons had been of a more complicated kind, the industrial North would have had a still greater advantage over the agricultural South.

The really serious problems of the Confederacy in war production and supply centered in such commonplace items as clothing, shoes, harness, rails, locomotives, and rolling stock. Two other shortages assumed serious proportions, surprisingly enough--they were horses and salt. And the most critical shortage of all was not in material but in manpower.

Now, very obviously, the outcome of the War Between the States was not determined solely by economic factors. But to the extent that it was, one thing seems pretty clear. Because of its limited resources,

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the South could only hope to win if its resources were used with maximum effectiveness. The Confederacy really found itself in a situation calling for an economy directed and controlled by the central government. That is, in order to use its limited resources in the manner most effective for the support of the war, the systematic mobilization of these resources by the government was essential.

But there were numerous and serious obstacles to such a mobilization. There was no experience in this country or elsewhere to provide guidance in such a mobilization. The Confederacy not only didn't have the strong centralized administration required for such a mobilization, but the southern leaders were opposed on principle to such a strong central government. And the state governments were either reluctant or unwilling to allow the general government of the Confederacy to exercise much authority.

In spite of the difficulties, the Confederate government did take measures to mobilize its limited economic resources. It did this under the pressure of urgent necessity and on a piecemeal and improvised basis, not as a matter of conscious and advanced planning or as a result of the deliberate consideration of all that was involved.

These measures, taken collectively, represent the beginning of a controlled and directed war economy. They included principally the establishment and operation by the government of plants for the manufacture of a variety of supplies--clothing, shoes, small arms, artillery, powder, salt, even transportation equipment. Second, they included the setting up of certain controls over transportation, chiefly the railroads. In the third place, they established certain limited controls over manpower and materials, operating chiefly through the draft and draft exemptions so far as manpower was concerned and through transportation priorities of a very crude sort so far as materials were concerned. The Confederate government also exercised control over foreign trade, including government operation of blockade runners; and, interestingly enough, Confederate conduct of "illicit trade" between the North and the South. And then there were controls, reluctantly and belatedly imposed, on agriculture, chiefly restrictions on cotton and tobacco planting. They couldn't do anything in the South with new crops and there was a tendency of planters to keep on producing the old ones even though they knew they couldn't dispose of them.

In terms of what the Confederate government tried to do, the record is a rather impressive one. But in this effort to mobilize their resources they had very limited success. They failed and at last the economy almost literally broke down. So I think we may say quite accurately that the Confederacy lost the war not so much on the battlefields as on the economic and administrative fronts.

This experience of the Confederacy is interesting because the South in important respects was closer to total war than anything we experienced in this country in either of World Wars I and II. For example, substantially the entire white male population of military age, not exempted by law, was enrolled in the army, amounting to an equivalent of three years service from over a million men out of a total white population of only 5.5 million. So far as the civilian population was concerned, nothing in the United States during the two world wars can compare with the hardships and deprivations suffered in the Confederacy. In view of the great differences in the material resources of the belligerents, it is surprising that the South continued as long as it did.

Between the collapse of the Confederacy and the outbreak of World War I in 1914--50 years--a great deal took place in this country. The population expanded many times, as we have seen. Industrialization advanced much more rapidly than before the Civil War. Large-scale business organization and mass production became characteristic of nearly all branches of economic life. Mechanization made great progress. New materials, such as rubber, steel, and petroleum, and various industrial chemicals, came into being in a significant way. New sources of power, such as the electric motor and the internal combustion engine, came into wide use.

The economic results of this widespread industrialization were very great and were reflected in a great increase in national wealth and national income, as we have seen. National income increased six times between 1860 and 1910. And the surplus income beyond the bedrock requirements of the civilian population and available for the support of warfare showed an even greater increase.

Another equally significant result of the great advances in productive efficiency and technology, was the new types of weapons and other military equipment which these advances made possible. These new weapons in turn provided the basis for a new kind of warfare. The key to this new warfare is found in two developments, broadly speaking: the mechanization of combat and the industrialization of supply.

As I pointed out earlier, a beginning had been made in the industrialization of supply in the Civil War. But, with minor exceptions, actual combat, as in the War for Independence, had continued largely a hand operation, employing hand-manipulated weapons. But by the First World War, combat itself had become mechanized to an important degree, as the result of the development and introduction of new weapons--the breech-loading rifle, using metallic cartridges; the machine gun; the breech-loading, rapid-fire field gun; and similar advances in the mechanization of naval weapons, above all, the shift from sail to steam, and the introduction of the submarine.

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Combat was mechanized further by the introduction of the airplane and the tank, both made possible by the internal combustion engine, even though these two weapons were used to a relatively small degree in the First World War. The motor truck and the auto in turn carried the mechanization in transport and supply right up into the combat areas.

Thus, by 1914 the ground had been prepared for the conduct of warfare on a scale and with an intensity that were unprecedented. Huge conscript armies of millions of men were mobilized and put in the field. The early attempts of Germany to force a quick decision were followed by the long stalemate of trench warfare, on fronts of hundreds of miles long.

The large numbers engaged, the long-sustained actions, and the high rate of fire produced enormous expenditures of ammunition. For example, in the third battle of Ypres, 1917, some 2,300 guns on a 15-mile front expended 100,000 tons of shells in several days. The average weekly expenditures of shells by the British in France rose from 2,000 tons a week at the end of 1915 to over 100,000 tons a week at the end of the war. Naval warfare was much less intensive; but the submarine, as you recall, took a heavy toll of shipping and supplies.

The scale of the supply problem exceeded by far anything that had been anticipated by any of the belligerent powers. The struggle soon settled down into an endurance contest in which the outcome, it became rather clear, would depend to a large extent upon the ability of the belligerents to meet the heavy drain upon their productive resources.

The main burden of the war, this war of attrition, fell upon the industries supplying the munitions requirements of the armed forces. Scarcities of raw materials, industrial capacity, and manpower soon appeared. Supply crises in one form or another developed within all the belligerent powers and threatened the success of military operations.

Under the compulsion of these conditions, the governments established direct controls over their economies at critical points-- control over scarce materials in order to channel them into war production; control over foodstuffs through rationing; control over prices, profits, and credit; and control over transport facilities, manpower, and so forth.

These controls were established only gradually and in a piecemeal fashion, as the pressure of events compelled the governments to act. Collectively, they changed radically the operation of the economic systems of the belligerent powers. So that we can say that in the First World War the war economy was born.

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When the United States entered the war in April 1917, the position of the Allies, you may possibly recall, was critical. They were approaching the limits of their resources in materials, manpower, and productive capacity; in some cases they were exceeding them--for example, in credits for purchases abroad. We brought to the Allies the greatest industrial capacity of any nation in the world.

But it was capacity geared to the production of civilian-type goods for civilian needs. The first and most critical problem therefore, was to convert this industrial power into military power and to do it fast. However, with all our production skill and the best will in the world, under the pressure of these war conditions, from 12 to 20 months were required to get into production on the more critical items, such as artillery, planes, and machine guns; and there was much reluctance on the part of many manufacturers to convert to war production.

A second major problem appeared at an early stage--raw material scarcities--in the basic metals, in fuels, lumber, foodstuffs, and in heavy chemicals. Production capacity could be increased only very slowly. So that priorities systems had to be devised and operated to channel these scarce materials where most needed.

A third major problem was a transportation bottleneck, which retarded both industrial and military aspects of the war effort. On top of a great increase in domestic transport requirements, growing out of the great increase in production, was added the huge job of transporting an army of 2 million men to Europe; and, after getting them there, keeping them supplied, plus heavy shipments of supplies to our allies, minus a heavy toll of shipping from submarine warfare. We had to build up merchant tonnage on a large scale and quickly; this required an enormous expansion of shipbuilding facilities.

Rail transport broke down under the load of wartime demands; this required further expansion. It required, or it led to, at any rate--whether it required it or not has been a matter of long dispute--but it led to the Federal Government taking over the operation of the railroads for the duration of the war.

Other major problems centered in the fields of labor and prices. Neither of these proved nearly so tough as in World War II, but they gave plenty of difficulty. Price inflation perhaps presented the more serious of these two problems. The problem was not simply one of price stability to minimize disturbances to business operations. It was also one of keeping down the cost of the war and, as important, of keeping up public morale.

Finally, there was the problem of over-all coordination of war production that I referred to yesterday.

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All these problems I have mentioned, and many lesser ones, were not separate and distinct problems. They were all interrelated and interdependent. No one could be solved simply itself.

There was the problem of keeping the various production programs in balance with each other, so that we would not have too much ammunition and too few guns to use it. Unless we had enough shipping to get the stuff to Europe, why produce it? Somebody had to sit on top and exercise direction and control over the many phases of the mobilization effort.

So this brings us to the organizational and the administrative aspects of our industrial mobilization. When we entered the war, the military authorities and a few civilians had some general idea, though it was little more than a general idea, of the nature and the size of the job to be done, chiefly as the result of their observation of developments in the European war. But we were almost completely lacking in plans for doing the job. We had little conception either of our requirements for everything from end items to raw materials or of our industrial capacity and output.

There was also very little real awareness of the need for central direction and control of war production. So we had to develop the elaborate system of war agencies to direct the various phases of the mobilization effort. But we did this slowly, we did this reluctantly, and we did it by a series of improvisations and makeshifts and half measures. By the time the organizational machinery for the direction of the war production effort was fairly complete, the war was practically over.

Much the most important of these war agencies was the War Industries Board (WIB), set up in July 1917, to replace an advisory commission established some months earlier. Under Bernard Baruch, its chairman, the WIB developed into a kind of industrial general staff for the direction and coordination of efforts on the economic front of the war.

The main attention of the WIB was given to such urgent matters as the conversion and expansion of industrial facilities, the opening up of new sources of critically short raw materials, and to developing and operating a priorities system for the distribution of scarce materials where most urgently needed. It gave much attention also to the conservation of scarce materials and labor and, of course, to price control.

The WIB was only the most important of a score or more of war agencies set up to deal with problems of production, distribution, and control in other fields. There was a Fuel Administration and a Food Administration. There was a Railroad Administration and a Shipping Board. And there were many others to deal with labor, foreign trade, communications, and so on.

In this mobilization, however, we moved, as I suggested, very slowly. We had been at war nearly a year before our industrial mobilization began to make real headway. It wasn't until 13 months after we entered the war in April 1917 that the WIB was given the priorities power essential for its effective operations.

There was strong public resistance to these wartime controls. For example, the automobile industry succeeded in opposing all the efforts of the WIB to restrict auto production until the spring of 1918. Then an agreement was reached to reduce to 30 percent of capacity and then to end production at the close of 1918. One of the most prominent auto manufacturers refused to go along with the industry until finally brought around by the threat of commandeering his coal supply and denying him railroad cars.

Well, as you will recall, the story did have a happy ending. We did win the war, and the mobilization of our economy was in many respects a great achievement. With only a small headstart from Allied orders, we built up a war production system of tremendous capacity. We supplied our allies with great quantities of food, raw materials, and equipment. We recruited, trained, equipped, and transported to France an army of over 2 million men. We moved from an economy without controls to one which in many respects was highly regimented.

But against these accomplishments must be balanced serious shortcomings; First, the failure early to establish central direction and controls over war procurement and production resulted in great delays and great losses in manpower and materials. The second serious weakness was the failure to restrict sharply nonessential production in order to force industrial conversion to war production. In the third place, the mistakes and the delays in the determination of military requirements and, surprisingly enough, in setting production goals too high, led to a disproportionate absorption of labor, facilities, and materials simply in tooling up for production. Fourth, as a result of these many delays, from these various causes, war production was just getting into high gear when the war came to an end. In major items of materiel--airplanes, shells, artillery--the American Expeditionary Forces were supplied chiefly by our allies. Finally, government agencies gave literally almost no thought to plans for industrial demobilization at the end of the war. So we ended the war in as much confusion as we began it.

So much for the First World War.

This brings me to the last part of my talk: planning for industrial mobilization in the 20 years between World War I and World War II.

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In the years immediately following the First World War, a great deal of attention was given by the services and Congress to a review of our wartime experience, just as following the recent war, with attention centered on the weaknesses and shortcomings of the military establishment as revealed by the war. The results of this investigation and these deliberations were embodied in the National Defense Act of 1920.

Among the various lessons which we learned from our experience in World War I, two are of particular importance to us. One, obviously, was the demonstration of the central, the basic, role of industrial mobilization in modern war. The second was the importance and the necessity of planning--of peacetime planning for the eventuality of war, not only the preparation of strategic war plans, in which a certain limited beginning had been made before the First World War; but, of equal importance, planning for the industrial support of military operations.

A dictatorship may keep military forces in being on such a scale that planning loses something of its importance. But in a democracy, especially in one such as ours, accustomed to maintaining its armed forces on a nominal scale in peacetime, planning for rapid expansion assumes a very great importance.

Formal military planning in this country dates, I think we may say, from the act of 1903, which established the General Staff and gave it responsibility for formulating war plans.

The Defense Act of 1920 went a step further. It recognized the importance of the industrial foundations of warfare and it made specific provision for planning in this field. Within the War Department it created the office of the Assistant Secretary. And the act specifically charged the Assistant Secretary of War with two major duties: first, the supervision of military procurement within the War Department; and in the second place, with "the assurance of adequate provision for the mobilization of material and industrial organizations essential to wartime needs."

This rather awkwardly worded clause provided the basis for 20 years of industrial mobilization planning, not simply planning for the War Department alone, but for the military establishment as a whole and for the entire Nation.

Within four years of the passage of the Defense Act of 1920, three agencies had been established to carry on these planning activities. In 1921 the Planning Branch was set up in the Office of the Assistant Secretary of War. This branch carried the main load of the planning work in the military establishment during the next 20 years. It was never a large outfit, operating most of the time with only 25 or 30 officers.

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In the second place, in 1922 the Army and Navy Munitions Board (ANMB) was set up by the Assistant Secretaries of the War and Navy Departments, as the result of the recognition of the necessity of coordinating procurement planning between the two services. The ANMB played a very slight role, however, until the early 1930's. Thereafter it played an active role in industrial mobilization planning.

Then in 1924 the Assistant Secretary of War established the Army Industrial College to train Army, Navy, and Marine officers in the problems of procurement planning and industrial mobilization. From 1924 to the closing of the school following Pearl Harbor, nearly 1,200 officers graduated from the Army Industrial College. Nearly three-quarters of this number were from the Army and the remainder were rather evenly divided between the Air Corps on the one hand and the Navy and Marine Corps on the other. Of the Army officers, about four-fifths came from the technical and supply services.

The Army Industrial College worked very closely with the Planning Branch. The officers in the Planning Branch aided in instruction. Student officers frequently worked on problems of interest to the Planning Branch.

Planning for industrial mobilization, as carried on during the 1920's and 1930's, was handled under two broad categories: first, what was known as procurement planning; and, second, planning for the over-all aspects of industrial mobilization. The first related to the specific responsibilities of the armed services for procuring all their own equipment and supplies; and the second related to the measures of industrial mobilization necessary to insure that procurement goals would be met.

In the field of procurement planning, the Planning Branch simply laid down general policies and reviewed, analyzed, and coordinated the detailed planning work, which was carried on largely by the supply services of the War Department and by the supply bureaus of the Navy.

The detailed procurement planning broke down into such planning activities as the computation of requirements for the principal items of military supplies and equipment; the determination of industrial sources of supply and the making of plant surveys; the allocation of industrial facilities as between the Army and the Navy, to prevent competition for the use of these facilities should such an emergency occur; and the negotiation with the managements of the allocated facilities, leading to what were called accepted schedules of production, which would become operative when in an emergency these suppliers received formal contracts. Then, beginning in 1939, funds were made available for "educational orders" on a few difficult-to-make items--small orders, to give the supplier experience in producing the item.

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In support of what might be called the operational side of procurement planning--that concerned with the ultimate placing of supply contracts--numerous studies were made in the Planning Branch of such problems as the supply of raw materials, manpower, power, fuel, transportation, war trade and war finance, contract forms and procedures, construction, and all that sort of thing. All the foregoing related primarily to the procurement responsibilities of the services--plans and preparations for meeting these responsibilities when an emergency came.

Then there was the second phase of planning, which had to do with the broader aspects, what might be called the civilian aspects, of mobilization the economy for war, with the mobilizing of the economic resources of the Nation in support of military procurement, with the various types of controls over the economy and with centralized planning and direction; and then with organizational arrangements to exercise this direction and this control. This was the phase of planning which received the chief publicity and aroused the most interest on the part of the general public.

The end products of this over-all planning were the Industrial Mobilization Plans, of which the first was made public during the hearings before the War Policies Commission in 1930-1931. There were three formal revisions of this plan issued as government documents in 1933, 1936, and 1939.

These plans did two principal things. They indicated and described the various types of economic controls believed essential for making industrial mobilization effective; and they outlined the organizational arrangements to be provided for administering these controls and for performing various other functions required to carry out an effective mobilization of our productive resources.

In the main, the plan proposed that these controls and functions would be administered, not by the regular old-line civilian agencies, but by special emergency civilian agencies, set up when the emergency came and to be abolished at the end of the emergency.

The story of industrial mobilization planning, especially of the Industrial Mobilization Plans, is a long and rather complex one. For those interested, I'll simply refer you to the monograph on this subject--"Economic Mobilization Planning and National Security"--R-151. I will limit myself here to a few brief comments.

When the emergency came, neither the detailed procurement plans of the supply services nor the over-all Industrial Mobilization Plan (IMP) were put into effect. Specifically, the IMP in its last revised form, that of 1939, was virtually ignored in our actual mobilization. I will refer briefly to the reasons for this in my remarks tomorrow.

The facilities allocation system, which was in many respects the heart of the procurement plans of the armed services, broke down when the emergency came. It was never made effective except in a very limited degree.

Despite the failure to place in operation the formal results of 20 years of planning, this planning effort was by no means wasted. As a result of the publicity given industrial mobilization by the planning authorities, there was some general awareness in the country of its character and needs, especially among businessmen, men in public life, and in the Government, a certain general awareness of the nature and problems of industrial mobilization for war. This awareness existed, too, within the armed services, as a result of the activities of the planning agencies--the Planning Branch, the Army and Navy Munitions Board, and the supply services.

There was a rather general awareness of the conditions and problems of industrial mobilization and of the load which the armed services and the Nation would have to carry in wartime. So that when war did come, the armed services knew in many ways what the score was; and they not only knew what problems they were up against but they had ideas on how to deal with these problems. These were very important advances over the situation in 1917.

This brings us to the end of today's discussion. I will resume with an account of economic mobilization in the Second World War.

COLONEL BARNES: We are ready to go on with the discussion period. There were quite a number of hands that I wasn't able to recognize yesterday on account of the shortage of time. Any comments or questions with regard to yesterday's lecture will be valid to introduce today. It is all the same general subject.

QUESTION: I would like to get in one on yesterday. It is about the conversion of facilities to war production, the reluctance of manufacturers to change over from their normal business to war production. Don't you think there will be less of that in the future, because they all realize that they are all going to have to convert eventually and they will think they might as well get in on the ground floor?

DR. HUNTER: Yes. It may well be that the changed position of this country, the great awareness of it which has developed during the unhappy recent years, will alter that somewhat--perhaps considerably. It looks as though we will continue on a partial mobilization basis rather indefinitely, and that this will give to more and more people a greater familiarity with and understanding of military requirements and the conditions of contracting and the like. But I have some doubt whether, if the time should come to shift from the present limited mobilization to an all-out effort, you will find that all such reluctance has been eliminated. Perhaps so; I hope so.

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QUESTION: On the bottom line of the chart you show 750 billion dollars as the national wealth and then the total cost as 350 billion dollars. Does that indicate that we started out with 400 billion or that we started out with 750 billion and expended 350 billion?

DR. HUNTER: I am glad you raised that point, because these figures at first glance, perhaps at second or third glance, may lead to some confusion. Think of the national wealth as representing simply the value of your total capital equipment of the Nation, the value of the total productive resources; so that in using the capital equipment for production, whether it is agriculture, mining, or manufacturing, you don't necessarily reduce that capital. You may do just the reverse. You may plow more funds into capital equipment.

It is only when you reach the point where the demands of war, of military operations, are such that you have to get material so badly that you sacrifice the maintenance of your capital equipment, you allow it to run down, you won't allow sufficient steel and other raw materials to maintain in repair and efficient working operation your capital equipment--only under such conditions need your capital equipment deteriorate and decline, relatively if not absolutely, in value.

That is one reason why I put over in this next to the last column on the right the average annual cost of the war--because we have to think in terms of the drain of the war on an annual basis, in terms of annual military expenditures, seen as against annual national income. I haven't made a place for national income on the chart; because I didn't want to get too many things on it. Perhaps there are too many now.

Does that help you?

QUESTION: I am still confused. This 750 billion dollars--when you speak of that as national wealth, does that represent facilities, not resources in the sense of natural resources? Is that what you had in mind?

DR. HUNTER: That is right. It represents the value of all its tangible productive resources--mines, farms, factories, equipment of all kinds. It does not however, include minerals in the ground; crops not yet raised, and so on.

QUESTION: Seriously, when you speak of 70 billion dollars as the annual expense, in all seriousness now, does that mean 70 billion dollars expenditures consumed in fighting the war; or does that include both those things that are consumed in fighting the war and those things which are retained as facilities? Or, specifically, you could compare ammunition and bombs versus factories.

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DR. HUNTER: That is right. That covers total expenditures, making no allowance for the facilities, equipment, material, installation, and so on, which remain after the war and which have some usefulness and value for peacetime purposes.

QUESTION: Yesterday you mentioned this three-legged stool in the fighting of a war, and you mentioned financing the cost of the war as being one of those legs. Would you care to comment on how it was possible for Germany under the Weimar Republic, having gone bankrupt, shortly thereafter, when Hitler took over, suddenly or within a relatively short time to become a world power. I was going to say, a world-dominating power.

DR. HUNTER: Thank you for the confidence you show in my capacity to deal with a problem of that sort. Unfortunately, although I have a rough notion of what possibly might be the answer, it would be pretty largely a shot in the dark. It just so happens that I am not too familiar with that situation.

Perhaps we have others here who would take a crack at that. Does anyone here volunteer?

STUDENT: I don't know any more than you about the absolute facts--

DR. HUNTER: I appreciate all the more your sacrifice.

STUDENT: That was a general problem that we ran into in many countries that undertook vast programs of expenditures without any obvious source of funds. I think the answer is plainly the use of the printing press. So long as the government can, through manufacturing the means of exchange, command its population and its resources, in other words, by printing paper money with which to pay for labor, material, and so forth, it can do almost anything.

I believe that the Weimar Republic did it largely by not paying its just debts. To a great extent we find that in our work--in the matter of juggling what you owe and what you have so that you come up with some result that you think you can use. They just don't pay except by mortgaging the future.

I think I have confused you further.

COLONEL BARNES: Does anyone else want to take a crack at it? I think that is one that we ought to save up until Andy Kress gets on the platform. Don't you think so, Louis?

DR. HUNTER: Fine.

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QUESTION: You mentioned that during World War I requirements were overestimated and therefore facilities were overtooled. Is that correct? Was that a deficiency of the mobilization?

DR. HUNTER: I perhaps phrased that rather badly. Here is the problem you are always faced with in the early phase of an emergency: If you think the emergency is not going to last too long, you may get by with the production facilities that you have. But if you are expecting a long hard pull, if you think the war is going to continue for a long time and the demands are going to increase, then preparations must be made for the long pull by building a lot of new facilities to increase productive capacity to meet the expected requirements. And the higher you set your goals, the more materials, manpower, and equipment you have, to put into that capacity and the less you will get in output of end items for the short run. Obviously, when you finally start rolling in production, your output will be tremendously higher when you get it. But you will be much longer in getting into full production and in putting strategic plans into effect.

So, you see, we can't criticize the people who were responsible for taking the position that they did, setting the goals at the point they did. Who could tell just how long the war was going to last and just where we ought to set those goals? We may be thankful that the war did come to an end when it did, and that we didn't have to continue for a couple of years longer just to take advantage of this enormous output that was getting under way.

Do I make that clear?

QUESTION: Yes. I asked the question because I was wondering whether the submarine menace was a large factor in their overestimates. Also I was wondering what possibility there was in the future of our considering that same problem--the efficiency of submarine attack.

DR. HUNTER: You raised an interesting point but I just don't know the answer to it.

QUESTION: Do you have any comparison between the total national wealth and the size of the war expenditures?

DR. HUNTER: No. I don't have that immediately at hand and I am not sure that it is available. A great deal of attention has been given in recent years to getting data on national income that is full, detailed, and current. National wealth is of more academic interest and relatively few studies have been made of it. In fact, only just last year the National Industrial Conference Board (NICB) came out with a study on national wealth, which is the first important thing that has come out for many years.

When I had this chart up last year, there wasn't any figure on current national wealth on it. I took a shot in the dark and said that in World War I it was 250 billion dollars, and what is it now? I put it down as 400 billion dollars. I sold my country short.

COLONEL BARNES: How did you get the present figure for it?

DR. HUNTER: The NICB's study on total national wealth came out and gave it. Even so, that figure was for 1948 and I wanted it to the end of the war; so I deducted some 50 billion dollars as a rough estimate.

QUESTION: I am still confused. I can't get the relationship between the 750 billion and the 70 billion. Does that 70 billion decrease the 750 billion?

DR. HUNTER: Let us see what we have here (indicating chart). Suppose we have "the corporation of the United States," and this corporation owns everything. There is no private property. The Government own everything. It owns all the farm land, it owns all the farm buildings, all the mines, factories, mills and everything in them, just as it now owns the roads, bridges, and so on. So we will call this the total capitalization of the corporation of the United States. Think of it as capitalization, if you like. That is not too accurate, but I think it will serve our purposes for illustration. So here is one big company that has a capitalization of 750 billion dollars.

Now, here is a program that they go into. This is in terms of annual expenditures. This corporation of the United States is not only providing everybody with a living--a pretty good living during the war--but is paying the cost of fighting the war. This is money that the corporation is paying out for expenditures each year (indicating the figure of 70 billion). So you have corporation with a capital of 750 billion dollars and 70 billion dollars expenditure. That brings the thing more in line. But that is only a very crude way of differentiating between the two.

This would perhaps be a little clearer if I had another column here which gave national income for each of these war periods. It would have to be crude estimates of the annual income for the earlier wars. In 1940 our annual income was 80 billion dollars. It began around 80 billion in 1940 and went up by the end of the war to something like 180 billion. So that we may think of this 180 billion annual income, is so to speak, based on the operation of this capital equipment which we call national wealth.

Then from this 180 billion annual income we take the average of 70 billion, something less than 70 billion in the last years of the war, which comprise the major item of national defense in the war years. Does that help you?

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QUESTION: I am just trying to balance the books. Would you take that 180 billion and subtract that 70 billion, or do you take this 750--

DR. HUNTER: No. Come around this afternoon and we'll go over it in detail.

COLONEL BARNES: I think what you are trying to get at is whether or not this 70 billion here has decreased the 750 billion. Is that what you mean?

STUDENT: Yes.

COLONEL BARNES: I would say that it does, to the extent that material in the 750 billion, classified as part of our capital, was actually destroyed during the war--ships sunk at sea, the tearing down of some capital equipment represented in this 750 billion dollars, the minerals that go into the ammunition that is shot off and forever consumed to that extent.

QUESTION: Doesn't that 70 billion represent some capital expenditures that automatically increase your 750 billion dollars?

DR. HUNTER: It does increase it to some extent.

We have various studies put out by the War Production Board and other agencies which show--and you can find much of these data in the U. S. Statistical Abstracts which are put out on annual basis, and which many of you are familiar with--you can find how much the war cost year by year. You can get the annual income year by year. You can get the total capital investment year by year. I guess that is not perhaps in the statistical abstracts, but you can find how much money went into war plants, both those financed by the Government and those financed privately.

It is a rather complex situation that we have to deal with here. But, while we can't resolve all aspects of it today, we are going to have considerable attention given to these concepts of national income, gross national product, and so on, that are rather basic to an understanding of how the national economy works and how we operate, how we actually finance a war.

If you have not had occasion to work with these concepts, as many of you have not, it is difficult to understand them at first. You needn't be surprised at that. You needn't be surprised at the difficulty you will find. But we will give a good deal of attention to it, and I think by the end of the year you will be talking about gross national product

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(GNP), national income, and national productivity, and so on, just offhand at home and other places.

QUESTION: I would like to ask: This 750 billion represents national wealth, not annual income in any sense of the word?

DR. HUNTER: Right.

QUESTION: There is no comparison between the 70 and 750? One is annual and the other is static, as we spend it today, tomorrow, and yesterday? Is that right?

DR. HUNTER: Yes.

COLONEL BARNES: I still maintain that some of the 70 billion-- (rest of sentence obscured by laughter).

That is all. Thank you very much, Louis.

(18 Sep 1952--750)S/ss