AMERICAN ECONOMIC MOBILIZATION EXPERIENCE-- WORLD WAR I AND WORLD WAR II

25 August 1953

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DR. HUNTER: This morning, gentlemen, I've set up a kind of historical Cook's tour for you, reviewing rapidly for your presumed benefit American experience in economic mobilization. I really sort of hate to do this to you, but it is on the schedule and we are here so we will go ahead and cover a lot of ground and cover it pretty quickly.

1. Long-range Trends in National Wealth and the Cost of War.
2. Industrial and Technological Foundations of Modern War.
3. First Experience in Industrial Mobilization: World War I.
4. Planning for Industrial Mobilization Between Wars.
5. Mobilization of the American Economy: World War II.
6. Wartime Achievements: Stabilization and Production.

My first topic is, "Long-range Trends in National Wealth and Cost of War." The war-making capacity of a nation depends upon 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 Nation's economic system to produce a surplus of materials and goods above the bed-rock requirements of the civilian population and of the war-supporting industries which produce the requirements of the military. You can see that the larger this surplus, the larger the armed forces and the greater the scale of military operations that can be supported.

The chart on the following page is intended to illustrate this close relationship between the size and wealth of this Nation and its war-making capacity. I have called it "The Rising Cost of Waging War." Several basic trends are shown on this chart.

The population figures in column 1 pretty much explain themselves. They are in round numbers. They show an extraordinary rate of population increase in this country, unapproached by any other great nation, an increase extending over a period of 175 years--a twelvefold increase between the Revolutionary War and the Civil War; a threefold increase from 1865 to 1917; a gradual slowing down of the rate of increase, as you can see, to about 30 percent between the two World Wars.

The figures of national wealth in columns 2 and 3 require a little explanation. By national wealth, we mean the total value (in dollars) of all the durable property in the United States regardless of who owns it--private individuals, business organization, or government. This national wealth consists mainly of such items as land, all buildings and structures on the land, such as highways, railroads, mines, factories, and so on. It includes equipment of all kinds--factory equipment, home equipment, and the like--and it includes inventories of all kinds of goods.

The Rising Cost of Waging War

1	2	3	4	5	6
Wars	Size of Population	Total National Wealth (Millions) (dollars)	Per Capita Wealth (dollars)	Total Cost of War (Millions) (dollars)	Average Annual Cost of War (Millions) (dollars)	Annual Per Capita Cost of War (dollars)
Revolutionay War (7 years)	2,500,000	750	300	125	17	7
Civil War (North) (4 years)	22,000,000	11,000	500	3,300	825	38
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

In column 3, I have reduced national wealth to per capita wealth to allow for the changes in population.

Now, two warnings on these figures:

1. For much of the period covered, especially before 1900, they are only very rough estimates and are to be taken as suggestive only.

2. No adjustment has been made for price changes; they are prices current in the years covered. Of course the price level was continually fluctuating over this long period but with the long-range trend steadily upward--about 2.5 told increase from 1790 to 1940.

One further point--national wealth must not be confused with national income. National wealth is simply the capital equipment, the productive plant of the Nation. This plant, operated by the labor force of the Nation--workers and management alike--produces the national income, which, with related term, gross national product, you will hear a great deal about during this course.

I think it is hardly necessary to point out to you the significance of the figures in columns 1 to 3. They show a steady and enormous increase in the two most important resources for the raising and support of armed forces--the Nation's manpower and the Nation's capital equipment.

Now, while population and national wealth are zooming up, let's see what's happening to the cost of war, as shown in columns 4, 5, and 6. To make our major wars roughly comparable on a time basis, I've reduced total cost to annual and per capita costs. These figures, too, are in current, not constant, dollars.

Even leaving out the Revolutionary War, we see that per capita costs of war go up faster than per capita wealth.

Now, what conclusion do we draw from the figures in this table? Very clearly, I think, the extraordinary increase in the scale and intensity with which our wars have been fought has been made possible only by an even greater increase in the productive resources, that is the manpower and wealth of the Nation. The figures that I have given here for the United States could be paralleled, of course, for any of the great powers.

The Civil War offers an excellent example of the close relationship between economic resources and military strength. The North had half again as large a population as the South, even counting the slaves in the southern population, and had twice the wealth of the South. The North contained the great bulk of the industrial life of the Nation and with its merchant shipping dominated foreign trade. The South was

particularly deficient in heavy industry and indeed most branches of manufacturing industry, including even textiles. She had long gotten most of her supplies of manufactures from the North or from England.

The North fought the war with very little disturbance to business as usual. There was nothing here of the central direction and control which marks the true war economy. There was neither industrial nor economic mobilization in the sense in which we use those terms today.

The Confederacy, on the other hand, moved from one supply crisis to another as serious shortages developed not only in munitions but equally or even more so in transportation equipment and service, salt and medicine, foodstuffs and clothing. In a clumsy, unplanned way, the South actually moved toward a war economy--setting up a variety of Government owned and operated manufacturing plants, establishing controls of a very crude and imperfect kind over transportation, manpower, raw materials, foreign trade, even over industrial and agricultural production. But these efforts were too little, too late, and too badly administered. The Confederacy lost the war--as many of you from south of the Mason and Dixon line would readily agree, I suppose--not so much on the battlefields as on the economic and administrative fronts.

This brings me to the second item in my outline, "Industrial and Technological Foundations of Modern War." In the 50 years between the end of the Civil War and the outbreak of World War I, there were economic developments of great importance for the conduct of war, not only in this country but throughout the western world. These developments can be summed up in a single word--"industrialization." The old system of handicraft production in small shops with hand tools and muscle power was in steady retreat. Machine production, with steam power, advanced in one industry after another. Large scale organization and mass production in factories came more and more widely into use. The revolution in transportation, started earlier by railroad, steamboat and steamship, was completed. A new revolution got under way at the turn of the century with the introduction of the internal combustion engine and the automobile.

The coming of electric power about the same time had equally important results. Many new industries of vital importance for warfare came into existence in this half century--steel, rubber, aluminum, petroleum, the electrical industries, including radio communications, and important industrial chemicals, including new explosives. Now, all these developments added up to the extraordinary increases in productive capacity and war potential which I have summed up in the statistics on the increase of national wealth and national income.

The most spectacular military result of industrialization was, of course, in the field of new weapons and new materiel--the breech-loading rifle and metallic cartridge, the machine gun and rapid fire field gun, the new types of explosives, and so on.

Many of these new weapons had been invented and introduced many years before, but now, for the first time, with the new production methods, they could be turned out in great quantities.

Similar advances were made in naval weapons and equipment. Especially important were: the shift from sail to steam and from wooden to armored vessels; the introduction of the submarine had major consequences for naval and economic warfare; a beginning was made in air and tank warfare, and this placed an added load on industrial resources that were already badly strained; rapid advances were made in the mechanization of field supply through the large scale introduction of the auto and truck.

Now this takes us down to the third heading in the outline, "Industrial Mobilization in World War I." 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 hundreds of miles long, interrupted from time to time by tremendous offensives by one side or the other.

The large numbers engaged, the long sustained actions, and the high rates of fire of the mechanized weapons resulted in enormous expenditures of ammunition and other supplies.

The scale of the supply problem was far greater than anything anticipated by any of the belligerent powers. The struggle soon settled down into an endurance contest in which the outcome, it became clear before long, would depend largely upon the ability of the belligerents to meet the heavy drain upon their productive resources.

The main burden of the war of attrition fell immediately upon the industries supplying the munitions requirements. But scarcities of raw materials, supporting 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 unprecedented conditions, governments found themselves intervening directly in the conduct of industry, of transportation, and of agriculture. Businessmen lost much of their freedom to run their own businesses--to buy, to sell, to manufacture what they pleased. Private property lost much of its privacy. For the first time, industry learned the meaning of the word controls--controls over raw materials, controls over foodstuffs, controls over prices, profits, and credit. All these government controls were found essential to divert materials, manpower, and industrial capacity to meet the urgent demands of military requirements, and they changed rather radically the functioning of the private enterprise economies. In this manner the war economy was born.

The United States on entering the war brought to its allies the greatest industrial capacity of any nation in the world, but this capacity was geared to the production of civilian goods to meet civilian needs. The first and most critical problem was to convert this industrial power to military power and do it fast, for the military position of the allies was critical. Yet--and this is very important--with all our production skill and with a full awareness of the urgency of speed, it took from 12 to 20 months to get into full production on the more critical munitions items, such as artillery, machine guns, and planes.

Another major problem appeared at an early stage--raw material scarcities in the basic metals, especially steel and copper; in fuels; in heavy chemicals; in lumber; and in foodstuffs. Production capacity adequate to meet tremendously increased requirements could be provided only slowly. So priorities systems had to be devised and put into operation for channeling scarce materials where they were most needed in the war production program. To accomplish this, that is to work out the provisions of the priorities system and put them into effect proved to be a tremendously difficult job administratively.

Another major mobilization problem developed early in the field of transportation. The stepping up of production in all fields greatly increased domestic transport requirements. On top of this was added the huge job of transporting an army of 2 million men to Europe and keeping them supplied; plus heavy shipments of supplies to our allies; minus the heavy toll of shipping and supplies caused by submarine action. We had to expand our merchant marine tonnage on a tremendous scale and we had to do it quickly. Under the strain of unprecedented conditions and requirements, rail transport threatened to break down; so the Federal Government took over the railroads and ran them for the duration of the war.

These are only a few examples of the many problems with which the Federal Government had to deal back in 1917 and 1918. An elaborate system of war agencies was set up to handle the problems in the many different fields. In fact, several score of these agencies were created. The most important of the lot was the War Industries Board headed by Bernard Baruch, in connection with which he first rose to national fame. This Board served as a kind of Industrial General Staff to direct and coordinate activities on the economic front of the war. Baruch's main job was the conversion and expansion of industrial capacity to meet the enormous requirements of the large military machine, but there were the closely related problems of developing and operating systems of priorities, establishing control over prices, and coordinating the activities of a score or more major war agencies with fuel, shipping, labor, communications, food, the railroads, and the rest.

Now in carrying out this vast national productive mobilization, we moved very slowly. This was not surprising in view of the size and

tremendous complexity of the job, and especially in view of our complete lack of experience and of planning in this field. We had been at war nearly a year before our industrial mobilization began to make real headway. Not until 13 months after we entered the war was the War Industries Board given the priorities power essential to make its decisions stick.

There was strong public resistance, strong industry resistance to wartime economic controls. For example, the auto industry succeeded in opposing all efforts to restrict automobile production till the spring of 1918, and one outstanding automobile manufacturer refused to go along until they threatened to shut off his coal supply and to refuse him any railroad cars.

The sheer size and complexity of the administrative job of setting up and running the industrial war machine made the process of mobilization a slow and fumbling one. Of course, as you will recall, we did win the war, and the mobilization of our economy was in many respects a great achievement:

1. With only a small head start from allied orders, we built up a war production system of tremendous capacity.

2. We supplied our allies with great quantities of food, raw materials, and manufactured goods.

3. We recruited, trained, equipped, and transported to France an army of over 2 million men.

4. We moved from an economy without controls to one which was, in many respects, managed by the Federal Government.

But against these accomplishments must be balanced serious shortcomings:

1. Our slowness in establishing central direction and controls over war procurement and production caused great delays and great losses in manpower and materials.

2. Another serious weakness was our failure to restrict sharply nonessential production in order to force industrial conversion to war production.

3. There were mistakes and delays in determining military requirements and in setting production goals. Too large a share of labor, facilities and materials was absorbed in tooling up for production.

4. In fact, war production was just getting into high gear when the war came to an end. Major items of materiel--airplanes, shells, artillery--for our expeditionary forces were supplied by our allies.

This brings me down to the fourth heading in my outline, "Planning for Industrial Mobilization Between Wars."

Our experience in World War I drove home two very important lessons to the military and to the American people. One was the vital and fundamental role of mobilizing the productive resources of the Nation in modern war. The second was the urgency of peacetime planning for the possibility of war, not only strategic planning but, of equal importance, planning for the logistical support of military operations--that is, for industrial mobilization, as it was called then, or economic mobilization, the broader term that we use today.

Our not-too-happy experience in World War I led to the reorganization of the military establishment by the Defense Act of 1920. One clause in this elaborate act assigned to the Assistant Secretary of War responsibility for "the assurance of adequate provision of material and industrial organizations essential to wartime needs."

This rather awkwardly phrased clause provided the basis for nearly 20 years of industrial mobilization planning by the War Department. This planning was not only for the War Department but for the military establishment as a whole and for the Nation.

Within 4 years, three agencies were set up to carry on economic planning activities under this act:

1. In 1921, the Planning Branch in the Office of the Secretary of War. This Branch carried the main planning load. It was never a large outfit, operating most of the time with 25 to 30 officers.

2. In 1922, the Army and Navy Munitions Board was set up to coordinate procurement planning between the two services.

3. Then in 1924, the Army Industrial College was established to train Army, Navy, and Marine officers in problems of procurement planning and industrial mobilization.

Now, during the 1920's and 1930's industrial mobilization planning was handled in two broad categories, to which I will refer just very briefly. The first of these was procurement planning and was concerned with the specific responsibilities of the Armed Services for procuring all their equipment and supplies in an emergency. It covered such important matters as computation of requirements for the principal items of equipment and supply; locating industrial sources of supply and making plant surveys; allocation of industrial facilities as between the supply services and bureaus in both War and Navy Departments. The purpose of such allocation was the avoidance of competition for such facilities within the services and between the services, competition which had caused trouble during the First World War.

The second category of industrial mobilization planning had to do with mobilizing the industrial and other economic resources of the Nation in support of the large-scale military procurement which the services themselves would be directly responsible for. This second category of planning was concerned with such things as the conversion and expansion of the productive capacity in the major industries, the basic raw material industries, basic processing industries, as well as the expansion of end items production. It was concerned also with planning for setting up and operating the various kinds of economic controls and the agencies to administer those controls in an emergency. In other words, the second category dealt with the over-all aspects of mobilizing the national economy for war, as distinguished from the military aspects.

It was in the second category of planning chiefly which came to the attention of the public and attracted public interest. The procurement planning side was little known by the public outside industry. Its end products were a series of so-called industrial mobilization plans, the first made public during hearings before the War Policies Commission in 1930 and 1931. After that three formal revisions of the industrial mobilization plan were issued respectively in 1933, 1936, and 1939.

These plans did two principal things:

1. They indicated and described the various types of economic controls believed essential for making industrial mobilization effective in supporting military procurement and supply operations.

2. They outlined the organizational arrangements to be provided for in administering these controls and for performing various other functions necessary to carry out an effective mobilization of our productive resources.

This is summarizing very briefly and inadequately, but such were the principal things that were done in over-all planning for industrial mobilization.

To a very large extent the industrial mobilization plans in their principal features were based on the experience of World War I, both as to policies and as to organizational arrangements, though of course a variety of modifications were introduced as suggested by the lessons of hard experience in the first World War.

So much, then, for the industrial mobilization planning in the 1920's and 1930's. We will see shortly what happened to the products of this planning when war came in 1939.

This brings us down to point five in the outline, "Mobilization of the American Economy: World War II." Let us take a look at some

of the high points of economic mobilization for this greatest of all wars, the second World War. There were important similarities to the experience of the first World War. In both wars, we moved in this country from peace into war by degrees, by a succession of small steps, and, as you will recall, with great reluctance. In both wars, our role for many months was to support the economic mobilization of our friends abroad by providing them with materials, with munitions, and with financial aid, that is with credit.

In the second World War we faced many of the same basic problems of economic mobilization as we did in the first--tremendous military requirements; insufficient industrial capacity; critical shortages of essential raw materials. We faced the same problem of accelerating the conversion of industry to war production, the same problem of determining requirements and of adjusting requirements to capacity, the same problem of upward spiraling prices and of economic stabilization through price control and related measures. There was the same problem, then, too, of setting up and staffing the huge emergency agencies to handle the various mobilization functions--and all these things were done amid the same confusion, blundering, and public controversy that we had in Washington in 1917 and 1918.

But there were important differences between the two wars as far as economic mobilization is concerned:

1. The scale of the mobilization effort was vastly greater in World War II. We fought in theaters all over the world whereas in the first World War our military effort was chiefly in Europe. In the second war we were in the war 44 months compared to only about 18 months in the first war. The difference in the scale of the two wars can be roughly summarized by the figures of cost. The second World War cost about 10 times that of the first World War.

2. In the second place, the material requirements were for items that were not only much greater in number, but they were far more complicated, and far more difficult to produce than the major materiel items used in the first World War. Compare, for example, World War I aircraft and tanks with those of the second World War. Or take the whole new field of electronics which played so vital a role in the second World War in such areas as radar, fire control, and communications.

3. Because of the far greater load on our productive resources, we were faced in the second war with a far tighter situation with respect to materials, facilities, and manpower, and we had to develop much more elaborate and much tighter controls over these resources than were used during the first World War.

4. Economic stabilization presented a much more serious and difficult problem in the second war than in the first. The extraordinary expansion of production, the great rise in the labor force,

and the sharp upturn in take-home pay placed an enormous purchasing power in the hands of the public. This was done at the same time that production of consumer goods was being cut down at many points. The result was the building up of tremendous inflationary pressures which threatened the stability of the economy and the efficiency of war production.

All right, let us get down to the actual mobilization of the economy as the war emergency developed from 1939 on. First, just a few words on what happened to the Industrial Mobilization Plan. Actually, the 1939 revision of the plan was completed some weeks before war broke out in Europe early in September 1939. A War Resources Board of leading businessmen, industrialists, and educators was appointed early in August to review and evaluate the plan. They did that and came up eventually with a report which was not published until after the war. In the main they expressed approval of the plan, but from then on, nothing happened "according to plan." For all effective purposes, the industrial mobilization plan was tossed overboard--ignored is a more accurate phrase.

Why was it that after all these years of planning effort the main results of planning went into the discard? There is time here to suggest only a few of the reasons; the subject is still a controversial one.

In the first place, keep in mind that the plan was the product of a small branch within the peacetime military establishment. As such the plan had no official status and carried no authority--even within the military establishment, except in a limited way. Neither the President, the agencies of the Executive Branch, nor Congress were obliged to pay any attention to it.

In the second place, the gradual way in which we became involved in the war--over a period of two years--was unfavorable to the adoption of the plan, for the plan was based on the assumption of a sudden, overnight transition from peace to war. It was intended to go into effect, as a whole, immediately following a declaration of war. It was based on the assumption of a sudden transition from peace to war.

In the third place, the industrial mobilization plan failed to win enough friends and in the right places and to influence enough people to secure its adoption and implementation. It failed to secure such friends either in the administration, in Congress, or among the general public. By too many people, it was regarded with distrust, suspicion, or doubt. By still others, including men high in the administration, the plan was regarded as unrealistic and of little value for dealing with the actual conditions of the emergency as these developed. I think it is fair to say that outside of the military establishment, the industrial mobilization plan won little support except in some business and industrial circles. The plan was, in fact, one of the first casualties of the European war.

Now, let us see what actually happened following the outbreak of the war. The course of economic mobilization can be followed more readily if we break it down into two periods:

1. The defense period--which technically comes to an end with Pearl Harbor.

2. The period of full mobilization, say, from the middle of 1942 to the end of 1944.

There is also a third period, the period of demobilization, which gets under way on the planning side as early as 1943, and on the actual operational side started to move by the middle of 1944. But I shall not have time to discuss this phase.

Let us take the defense period first. The two major objectives of the Administration in this period were:

1. Advancing the preparedness measures necessary to put this country in a state of defense.

2. Assisting Britain and her allies to obtain the materials and the aid essential to prevent the Nazi conquest of Europe.

Now in pursuing these objectives, the Administration was faced with many problems and difficulties, but I shall call your attention to only two of these difficulties.

In the first place, it is important to remember that during much of the so-called defense period, we didn't know what we were preparing for. We were preparing to defend the country, yes, but defense against what and against whom? Where? When? On what scale?

In the second place, the Administration, throughout the defense emergency, was faced with strong and widespread public sentiment opposed to any involvement whatever in the European war, a sentiment which found active expression in a small but powerful isolationist group in Congress. The Administration believed, rightly or wrongly, that it must move slowly and cautiously, both to give public opinion time to move around to the Administration's view of the growing threat to our security, and to provide the isolationist bloc in Congress with a few opportunities as possible for obstructing the Administration's defense program.

From the outbreak of war in September 1939 to May 1940, a few minor steps were taken in the direction of military and industrial preparedness. However, the most important single accomplishment of this period was a political one, the repeal of certain key provisions of the neutrality legislation of 1935 and 1937. Public concern lest the United States be drawn into another European war had led to the prohibition in these laws to the export of munitions to nations at war.

Early in 1939, the President tried to get the repeal of the neutrality provisions which it was believed would seriously handicap the defense and war efforts of those nations threatened by Nazi aggression. The first effort to obtain repeal was defeated in the spring of 1939. But in a special session of Congress, called specifically for this purpose in the fall of that year, the President got the modifications he wanted. This action cleared the way for Great Britain and her allies to place large orders for munitions on a cash and carry basis.

On the whole, however, during the first nine months of the war, the general public and Congress were very cold to the idea of building up our military strength. Let me cite just one example.

In revising the military appropriation bill, the House in January 1940 reduced the Administration's request for 496 new planes to 57 planes and entirely eliminated a 12 million dollar item for an air base in Alaska.

All this was changed by the success of the Nazi Blitz-Krieg in the late spring of 1940. The sweep through the Low Countries was followed by the capitulation of the Belgian Army and by the disaster of Dunkirk. Almost overnight the defense position of the United States was seriously weakened and the Administration moved quickly to meet the new situation.

On 25 May the Office of Emergency Management was established to assist the President and to coordinate defense activities under the authority of the Reorganization Act of 1939. Three days later, the President established the Advisory Commission to the old World War I Council for National Defense, the statutory provision for which was still on the books. This Advisory Commission to the Council for National Defense was the first in a series of key defense or war agencies.

This Commission, of course, had only advisory duties although in time it was given some operating responsibilities. It was without a head. It didn't even have a chairman. Each of the seven members had cognizance over a certain phase of the defense program--industrial materials, industrial production, price stabilization, farm products, transportation, and so on, and each member reported individually to the President.

Now why did the President set up an organization as inadequate as this appears to be instead of, say, putting into effect the carefully worked out organization provisions of the industrial mobilization plan? The main reason was simply this: The Defense Act of 1916 was still on the books and it provided authority for reviving the old Advisory Commission which had existed for a time in the First World War. To have

taken any stronger, more effective action would have required Congressional authority and undoubtedly would have given rise to prolonged debate and possible defeat.

Weak and ineffective as the Advisory Commission appears to be on paper, its accomplishments were by no means negligible. Under such men as William Knudsen, Stettinius, Leon Henderson, and Ralph Budd, the first steps were taken to speed up and coordinate the defense program. These men operated as high-level expediters and trouble shooters, needling and prodding the various elements in the defense program--business and industry, reluctant to convert to war production; the Armed Services, slow to raise their sights and to break away from the slow-moving, peacetime procedures.

For all its weaknesses, the Advisory Commission's activities resulted in valuable experience and training for a growing body of officials and staff employees. Lack of authority did not prevent them from coming to grips with many of the key problems of economic mobilization. They learned what these problems were and something, at least, of what needed to be known and done if these problems were to be solved.

In the year and a half between the fall of France and Pearl Harbor, there was a steady rise in the tempo of our economic mobilization, both to handle our own rearmament program and to provide increased aid to Britain and her allies.

In March 1941, the Lend-Lease bill was passed, action made necessary by the exhaustion of British funds for paying for munitions obtained from the United States. In effect, this act provided the basis for all-out aid, short of a declaration of war, to Britain. It made us in actual fact the arsenal of democracy. It also greatly accelerated our transition to a war economy.

As the defense program took on larger and larger proportions, the problems of expediting and coordinating the whole program became increasingly difficult, and the Advisory Commission became less and less adequate for the job. In January 1941, it was replaced as the central defense production agency by the Office of Production Management--OPM.

Now, organizationally, OPM represented a considerable advance over the Advisory Commission. It was set up as an operating, not simply an advisory agency. It was given certain priority and other powers which the Advisory Commission lacked. Where the Advisory Commission had no head, OPM was actually supplied with two heads--William Knudsen of General Motors was made Director General and Sidney Hillman, prominent labor leader, was made Associate Director General. This much criticized action was politically a very wise move, for labor's support as well as management's was essential for expediting the defense effort. Actually this double-headed arrangement worked out fairly well.

Another important organizational advance came in April 1941 when the Office of Price Administration and Civilian Supply was established under the dynamic Leon Henderson. In August 1941, a new agency was set up to ride herd on OPA and OPM and to coordinate the entire defense production program. This was the Supply, Priorities and Allocations Board, a top policy outfit without operating functions. Various other defense agencies were also established prior to Pearl Harbor.

This brings us up to Pearl Harbor. I would like to just summarize briefly where we stood, how far we were along in our mobilization effort when we actually entered war.

By the end of 1941 we had a total military establishment of more than 2 million men, and facilities for a greatly accelerated training program were well advanced. All major types of armament were in production by this time. Plane production in December 1941 was at the rate of 25,000 a year. Total munitions output had reached a rate of one billion dollars a month. The main organizational structure of the war agencies had been established. Despite the confusion, controversy, and conflict centering in these agencies, and despite the overlapping of functions, the lack of clear-cut authority, and the absense of effective coordination, these agencies were in being, they were staffed though still expanding, and they were actually operating, though sometimes in a number of different directions at the same time. Finally, the attack on Pearl Harbor brought about a unity of national purpose which did much to speed up economic mobilization in the months ahead.

Pearl Harbor marks the beginning of all-out economic mobilization. Within a period of three or four months, there was a rounding out of the framework of the war agencies. A number of the defense agencies were reorganized on a more effective basis and with increased power, or were supplanted by new and stronger agencies. A number of new war agencies were created to fill the gaps in the existing mobilization structure. Under the First War Powers Act of December 1941 and the Second War Powers Act of March 1942, there was a general beefing up of the authority of the war agencies.

Now, in dealing with the period of full economic mobilization after Pearl Harbor, I am going to limit my attention--you may be very thankful for that--to two central developments--those relating to production and those relating to economic stabilization.

Let us take a look first at the production problems which we faced in this country following Pearl Harbor. They were, of course, the problems associated with getting war production into high gear with the greatest possible speed. Pearl Harbor did settle the basic issue of what we were mobilizing for. Very plainly we were mobilizing for all-out war on a global scale. Although our over-all strategy in this global war was not clearly defined until early 1943, it early became

clear that military requirements would far exceed the highest estimates of the defense period. Moreover, these requirements would be far in excess of existing industrial capacity to meet.

The production goals of the Armed Forces were raised and raised again and again as the implications of the global job to be done came to be more and more fully grasped. The major production programs increased rapidly, not only in size, but in number. There were not only aircraft, ammunition, naval ship and tank programs, but there were also huge military construction, merchant shipping, and electronic equipment programs. Before long, a landing craft program was added. These and many others were simply the top-layer items.

Military end-item programs had to be supported by programs for the production of the materials, equipment and facilities required in end-item production. For example, the expansion of production in critical materials such as steel, aluminum, copper, rubber, chemicals, machine tools, industrial equipment of all kinds, and component parts--the B items, fractional horsepower motors antifriction bearings and the like--tons of thousands of them. New programs were continually being brought into the picture, adding their demands to existing ones.

Now, it always takes production programs considerable time to get underway because of the extensive and time-consuming planning and preparatory work that has to be gone through; in other words, lead time.

The further along the various production programs got, the greater the pressure of their demands upon all supporting programs. Before long, major programs began to interfere seriously with each other by competing for scarce supplies of raw materials, components, facilities, or manpower. Military programs obstructed each other as well as essential supporting programs. Total requirements were apt to add up to double or more the total capacity of the country to produce those requirements. Soon everybody was battling everybody else to get what they needed for their own programs. Obviously, somebody, some outfit had to step in and bring some kind of order out of this chaos. OPM and SPAB were not adequate for the purpose. Somebody had to ride herd over war production as a whole. Somebody had to bring the many competing and conflicting production programs into some kind of order and balance. Somebody had to be responsible for increasing productive capacity where capacity was most essential, and somebody then had to undertake the difficult and painful job of dividing up available supplies among the many competing programs and their claimant agencies.

Now, the war agency that had all these jobs thrown right into its lap was the War Production Board--the agency which succeeded and absorbed OPM and SPAB early in January 1942.

Donald Nelson, as chairman of WPB, was charged with full power and authority over the entire war procurement and war production programs.

His authority, given him by Executive Order of the President, was far more sweeping than anything granted to Baruch and the War Industry Board in World War I. In a very real sense, Nelson was made the directing head of the American war economy. Only one major economic power was withheld from him, a very important power, authority over prices.

The story of the War Production Board's hectic career, of course, can't be told here. For much of the duration of the war it was the storm center of the whole mobilization program. Nelson and his policies were controversial subjects and volumes have been written on them.

Now let us have a quick look at the course of economic stabilization. The vital importance of economic stabilization, primarily through price control, was recognized from the beginning. All who had studied the problem agreed on the necessity of early and effective action in this field. There was some but not too much disagreement on what had to be done to maintain price stability and through it economic stability, but to secure public support, to secure the acquiescence of the various special interest groups and to obtain the necessary authority and backing of Congress was something else again. This area, as you will recall--especially if you were here in Washington--presented some of the most difficult problems of the mobilization effort. No war agency was so continuously and bitterly under attack as the price control agency, OPA.

Now, just why was this the case? Why was it that a program generally agreed upon by informed men as indispensable to an effective mobilization had such continuously rough going? Why was OPA opposed so bitterly by industry groups, by trade associations, and in Congress? There are lots of minor reasons that could be cited, such as the reputedly high proportion of College professors on its staff, but the basic reason, I feel is this: Prices, including the prices of labor, wages, rents, and so on, are the most sensitive point in the private enterprise economy. Touch prices and you touch the pocketbook you interfere with profits and you dampen the mainspring of the economic mechanism. About the only strong support and encouragement OPA got was from housewives and a few consumer groups.

The story of OPA's struggle to establish and hold the price line in the face of very great odds against it is a complex and controversial one which cannot be gone into here. There was the more or less continuous struggle to get adequate authority from Congress to do the job, and there were critical occasions in which Congress withheld with one hand the appropriations necessary to make effective the authority which it gave with the other hand. That is not a new phenomenon, of course.

Although after a time OPA was moderately successful in holding the front door closed against price increases, price stabilization was

hampered and set back through the side door of wage increases, both open and concealed--fringe benefits, upgrading, etc.; through the back door of parity prices for many agricultural products; as well as by widespread downgrading of quality and the elimination of so-called low end-items by manufacturers of consumer goods.

Economic stabilization was not accomplished by price control alone--that is by the regulation of prices of commodities, services, and rents. Wage control was, of course, a critical phase of the stabilization program--not a too happy one--and this had a long and controversial career of its own during the war.

Another useful adjunct to price control was the premium price plan by which government subsidies were given to high-cost marginal producers, chiefly in the critical metal field. The subsidy method was later extended to oil and to certain foods.

Still other essential features of price stabilization were fiscal measures designed to reduce inflationary pressures through high taxation and savings bond programs to absorb excess consumer buying power.

This brings me down to the sixth and last heading, "Wartime Achievements: Stabilization and Production."

During the war years when the struggle to get production and to stabilize the economy were under way, it seemed much of the time as though those programs had nothing but setbacks. Actually, viewed in some perspective, after the dust had settled and the confusion had quieted down, the accomplishments in both areas were very substantial.

Take price stabilization, for example. The consumer's price index was fairly steady during 1939 and 1940, at pretty close to 100. Then it rose steadily to a plateau of about 125 which it held from the middle of 1943 to early 1944. Thereafter it mounted to about 130 in late 1945, or a total increase from 100 to 130 in a period of five years. This was a far better achievement than in World War I when the whole price level rose from 100 in July 1914 to 206 in November 1918, with three-fifths of this substantial increase occurring after our entrance in the war.

What did our controlled and directed war economy accomplish productionwise? Making allowance for the price increases which took place, this is what happened. Despite the fact that over 10 million men were drawn into the armed forces, the following increases in physical output took place between 1939 and 1944: Raw materials as a group, 60 percent; all manufactured products, 150 percent; munitions production went up from a monthly rate of 1.3 billion dollars in late 1940 to a peak of over 5 billion dollars in early 1944. If you take specific items: Planes, nearly 300,000; tanks, 85,000; over 1,300 fighting ships; 53 million tons of merchant shipping. And keep in mind--

and this is very interesting--at the same time that all these things were happening, civilian consumption in 1939 dollars--allowing for price increases and despite restrictions on the production of certain types of civilian goods, hard goods, particularly--went up during the years, 1939-1944, 15 percent.

In specific industrial fields, output increased many times. Synthetic rubber output rose from practically nothing to more than three-fourths of a million tons in 1944; the machine tool industry, from 1941 to 1945, produced a total output greater than its aggregate production from 1900 to 1940. In the transportation field, the communications field, all across the board, had these extraordinary increases in output.

Considering not simply production but the over-all functioning of the economy, two basic facts are worth noting:

1. Allowing for price increases, we increased our national income--the total value of all goods and services--over 50 percent during the period of war.

2. Of this unprecedentedly great income, 43 percent was diverted to the conduct of the war in 1943 and 1944.

All in all, the achievements of the American economy during the defense and war years were simply extraordinary. They were particularly astonishing in view of the sad record of the depression years. During the 1930's the American people--even American business--had come to have doubts about the effectiveness of the much acclaimed private enterprise system. The war years changed all this. The great wartime achievements, although accomplished under government control and direction, restored and strengthened the traditional faith in the economic system. This restoration of faith in private enterprise was perhaps the most important byproduct of our economic mobilization in the second World War.

Now just a few closing comments. In these two introductory talks I've thrown pretty much the whole book at you, plus the kitchen sink and stove. Yet, as you can see, I've been obliged to pass over entirely many important phases of our economic mobilization experience. I've said almost nothing about such important matters as manpower, requirements, procurement, or public services, and not a word about technological progress or distribution logistics. But then the purpose of these talks is not to give you a complete picture of the subject, but only a preliminary view.

To many of you the subject will be new, strange and unfamiliar, and on first exposure much of the stuff won't sink in. No matter. Simply absorb what you can, relate new things to what you already know or have experienced. Bit by bit you will build up your own picture and

your own understanding of economic mobilization. Ask questions, argue, read, think! In another 10 months you will be giving talks to Rotary clubs and Kiwanis on the subject!

QUESTION: I would like to put you a little bit on the spot by asking a question about the new Office of Defense Mobilization. The National Security Resources Board was never directed or allowed to develop economic mobilization plans. The Munitions Board didn't have it in its charter. The new Office of Defense Mobilization seems to have taken over the functions of both of these agencies. How will the Office of Defense Mobilization operate? What information do we have at the present time? Is it a political gesture for economy or will that be an active operating group which will perhaps develop an overall economic mobilization plan?

DR. HUNTER: This is a large order. Of course, you wouldn't expect me to comment on whether it is a political gesture or not. The present director of the Office of Defense Mobilization, Mr. Flemming, lectured over here last spring and you can consult his lecture which has been reproduced as he gave it at that time.

There is a feeling in some quarters that possibly the change of administration had something to do with the case. There is also a feeling that the old NSRB was inhibited and handicapped and stumbled over its own feet to the extent that it acquired a not too good public reputation; therefore it might be desirable to wipe the slate clean and start over with a new agency with a new name, even though it might do the same job. There was also present in the feeling--in fact Mr. Somers who will talk to you tomorrow has expounded it--a strong view that you cannot and should not divorce planning from operations. Therefore, the concept of NSRB, as established by the Security Act of 1947, of setting up a separate and independent agency responsible only to the President to do the planning and then having other government agencies do the operating, was a mistake. So you have in ODM, the dwindling operating agency of the Korean mobilization, taking over the planning functions from NSRB.

The Munitions Board, on the other hand, is somewhat apart from ODM. The Munitions Board was an agency within the defense establishment, and the functions of the Munitions Board and some remnants of the personnel go to the Secretary of Defense's Office. Just how that is to be handled, I don't know, and I gathered from some contacts we have had that others don't know either. Perhaps the thing is beginning to jell. Does that meet in part the question you raised?

COLONEL BARNES: Raise it again tomorrow with Red Somers. He will be glad to give you further information on that question.

QUESTION: What were the major differences between the industrial mobilization plan that was discarded and the organization that grew up after Pearl Harbor for economic mobilization?

DR. HUNTER: I will refer you, without bypassing that question, to Luther Gulick's "Administrative Reflections of World War II," which is on our reading list and in which he makes a direct comparison. He not only links the organizational framework but shows the basic similarities. Of course, there are many features which were not in the mobilization plan, but there is a certain basic similarity. But I will refer you to Gulick's discussion of that particular issue.

QUESTION: Has our experience been out of line with other industrial nations such as Japan or Great Britain? Did they go through the same lack of planning that we apparently have?

DR. HUNTER: You have got me on the mat right there. I can't give you too much specific information. We have pretty good studies of the economic mobilization experience during the war itself for Japan and for Great Britain, somewhat less from studies for Germany. In the "Strategic Bombing Survey," you will find some very interesting discussions on Germany and the prewar jockeying for position by different groups and interests within Germany.

COLONEL BARTLETT: One other book on Germany is Guderian's Autobiography. He was made practically a War Chief there. It is very interesting.

DR. HUNTER: We have had lectures delivered a couple of times by Dr. John D. Millett, who is now a professor at Miami University. He was with the Army Service Forces. He went over and made a survey for General Robinson. He had some very interesting material on German experience during the war; not before.

QUESTION: Isn't it true that England had an economic mobilization plan which they used in World War I, worked over again and used in World War II, and which is being worked over again as of now? I think that is true. And Germany had a very elaborate plan which they worked on for seven years and which they had in World War II. It was very effective.

DR. HUNTER: I am not acquainted with German experience to that extent. So far as I know, no nation had any real plan in the first World War. They thought of the war as a quick decision. It was a case of building up stocks of equipment and forcing a quick decision. A strategy which did not call for a massive mobilization of the economy.

QUESTION: Yesterday you mentioned that there was a need for civilian coordination of military procurement in time of war. Do you envision that to be at the level of the Department of Defense or is that at the level of what will now be ODM?

DR. HUNTER: In speaking of civilian coordination of procurement, I intended to refer simply to the problem within the Department of

Defense as between the two services in the last war and now the three services, as well as between the various supply bureaus and services within each service. I didn't intend to raise the question of coordination of military procurement from outside by a civilian authority, that is, direct coordination as distinct from indirect coordination through the control of raw materials, manpower, etc.

This was a very controversial issue in connection with the War Production Board. Nelson had technically the authority to interfere with and control directly military procurement during the last war, but he did not undertake to assert that authority. He felt that the transition to civilian control of procurement, taking it over from the military departments in the midst of a war would have been too large a job, too frustrating and self-defeating a job. So he left the responsibility for procurement with the military. He has been criticized from one side for having failed to exercise sufficiently strong control and authority over the armed services. In his book, you might call it his "apologia," "Arming for Democracy," Nelson gives his side of the story. There are, of course, other sides.

COLONEL BARNES: We will have to stop. Louie, there are two ways of interpreting the expression "You knocked them dead." I will let the class show you which way they interpret it.