

DEFENSE

one
year

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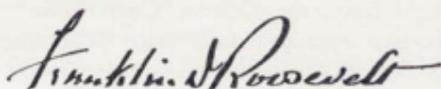
THE FOUR FREEDOMS

MESSAGE TO THE 77TH CONGRESS

JANUARY 6, 1941

IN the future days, which we seek to make secure, we look forward to a world founded upon four essential human freedoms.

- ★ The first is freedom of speech and expression—everywhere in the world.
- ★ The second is freedom of every person to worship God in his own way—everywhere in the world.
- ★ The third is freedom from want—which translated into world terms, means economic understandings which will secure to every nation a healthy peacetime life for its inhabitants—everywhere in the world.
- ★ The fourth is freedom from fear—which translated into world terms, means a world-wide reduction of armaments to such a point and in such a thorough fashion that no nation will be in a position to commit an act of physical aggression against any neighbor—anywhere.



President of the United States.

DEFENSE—ONE YEAR

JUST a year ago an alarmed America rolled up its sleeves and tackled the biggest job in its history.

Poland had fallen, Belgium had surrendered, and France was fighting desperately for her life. Britain was preparing to quit the continent via Dunkirk and was fortifying itself against a Nazi invasion.

On May 28, 1940, President Roosevelt took the first step toward arming this country for any eventuality. Seeking to harness industry to the rearmament program, the President appointed a seven-member Advisory Commission to the Council of National Defense.*

Authority for the creation of the council and the commission was contained in a 1916 statute directing the Chief Executive to set up a Council of National Defense composed of the Secretaries of War, Navy, Interior, Agriculture, Commerce, and Labor. The council in turn was directed to nominate, and the President to appoint, "an Advisory Commission of not more than seven persons," each of whom would have some special qualification for the task at hand.

The commission's task was tremendous. It involved not only the gearing up of American industry to an emergency speed but preparation of plans and the provision of adequate supplies both for the present and the future. Out of all this was to come, as quickly as possible, airplanes, tanks, ships, and guns. Time was of the essence.

Despite the fact that the whole program of national defense had not crystallized fully, the Defense Commission lost no time in translating congressional appropriations into Government contracts. A total of \$825,000,000 in Army and Navy awards was approved in June, another \$1,137,000,000 in July.

* The seven members of the National Defense Advisory Commission were: William S. Knudsen, in charge of industrial production; Edward R. Stettinius, Jr., industrial materials; Sidney Hillman, labor; Leon Henderson, price stabilization; Harriet Elliott, consumer protection; Chester Davis, agriculture; and Ralph Budd, transportation.

The tempo was necessarily slow at the outset. The National Defense Advisory Commission warned the public not to expect too much too quickly. Months of effort must be expended on design, on factory construction and enlargement, and on tooling before actual production could begin.

American industry was geared for only normal peace-time production. The World War had been over 22 years; and, even if the armament industries of that day had been still in existence, their facilities would have been obsolete.

Prior to June 1940, American plants were turning out few military planes, ships, tanks, and guns. Small quantities of British and French orders had been placed in the United States for aircraft, machine tools, and basic raw materials.

Because war had turned to the air as its major battlefield, first attention was given to aircraft manufacturing. On July 1, 1940, the Army and Navy had approximately 5,200 airplanes in service. By July 27 an additional 5,974 were on order with 80 percent scheduled for delivery within a year.

Four months later 25,000 planes were on order. The Army had contracted for more than 16,000 combat vehicles, including tanks, and had sharply increased its orders for field artillery and guns.

Meanwhile, the defense program had taken more definite form. The Selective Service Act had been enacted by Congress. A goal of a 2,000,000-man Army, a two-ocean Navy, and a greatly expanded air force had been set. Army cantonments were under construction; American youths were preparing to go to camp. Clothing, shoes, tents, and food, as well as fighting equipment, had to be procured. The job of the Defense Commission was expanding.

Less spectacular, but equally important, were the specific tasks of laying up stocks of raw materials so that industry would not be retarded, of providing an adequate labor supply where it was needed and of training the skilled workers of the immediate future, of keeping prices stable, protecting consumer interests, insuring an adequate supply of agricultural products and fair prices, and preparing the Nation's railroads and trucks to haul war goods.

By December progress in the defense undertaking was apparent, but defense officials were far from satisfied.

Optimistic predictions as to potential plane production in July had to be trimmed. Efforts were being made to subcontract parts of planes to body manufacturing companies and others. The forecast of 1,000 planes a month by January 1941, had to be scaled down by 30 percent. The aircraft industry still was in the expanding stage; expanding from a production of approximately 1,800 military planes during all of 1938 and 2,100 in 1939.

The machine tool industry, which had constituted one of the first bottlenecks, was showing definite progress. Production of machine tools for 1941 was running well ahead of 1940, setting an example for other defense industries.

A reorganization of the administration of the defense program was forecast in December when Mr. Knudsen said he considered "the defense effort to date not satisfactory enough to warrant hopes that everything is all well."

On December 29 President Roosevelt set an even greater goal for the defense program than the rearmament of the United States.

"We must be the great arsenal of democracy," he said.

Declaring that present efforts were not enough, he warned his countrymen to "discard the notion of 'business as usual.'" The defense program must go into high gear.

A few weeks later the President outlined to Congress a plan for "billions of dollars worth of weapons," and soon the lend-lease legislation began to take form.

On January 7, 1941, the President enlarged the administrative structure directing the defense effort by creating the Office of Production Management and providing for the coordination of the activities of the National Defense Advisory Commission, the OPM, and other defense agencies through the Office for Emergency Management. The OEM was designed to serve as extra eyes, hands, and brains for the President.

As collateral defense agencies were brought under the OEM, a Division of Defense Housing was created by Executive order to insure the orderly and prompt erection of dwellings for the workers and their families who migrated to centers of defense construction or production.

The second stage of the program was under way with the citizenry more alert to the national danger, industry better prepared to turn out ships, airplanes, tanks, and guns. America was moving at an increasing pace.

But a shortage of machine tools threatened to retard this pace at the outset. The appropriate division of the OPM went into action. Priorities Director Edward R. Stettinius, Jr., on January 31, requested machine tool builders to deliver machine tools after February 28 only to defense contractors.

This was followed by collateral action by the Price Stabilization Division. The first of a series of price schedules striking directly at profiteering in second-hand machine tools was issued.

About this time the National Defense Advisory Commission announced that plant expansion contracts in January aggregated \$357,685,332 as against \$700,000,000 for the previous 7 months.

More concrete evidence that the defense program was well under way came in the OPM disclosure that during January 1,036 airplanes were delivered by United States manufacturers to the Army, Navy, Britain,

other governments, and commercial air lines. Of these, 957 went to the Army, Navy, and the British.

With the coming of March the Priorities Division acted again to insure vital raw materials and tools for defense industries. Aluminum producers and machine tool makers were placed on a mandatory priority status in the first industry-wide orders. Magnesium, nickel, and neoprene followed.

The OPM Division of Purchases, under direction of Donald M. Nelson, meanwhile was helping the Army and Navy get what they wanted as quickly and as economically as possible. On February 5 it took over the job of passing on all major defense contracts.

As the President envisioned a \$28,000,000,000 defense program, the magnitude of the task increased substantially. Its breadth was indicated by comparison with the estimated wholesale value of all passenger cars and trucks turned out by the automobile industry in 1940—\$3,184,959,808.

While the Production Division put the spur to industry, two significant steps were taken to insure adequate and satisfied labor. The OPM, by regulation and with approval of the President, established a Labor Division to work with the Divisions of Production, Purchases, and Priorities.

Sidney Hillman, Associate Director General of OPM, in a review of the first half year of defense, earlier had stated that "labor's present contribution to the defense of the Nation has never been excelled at any time in all history." Less than 2 hours per worker were lost in defense industries during 1940 due to strikes.

On March 19 the President set up the National Defense Mediation Board, and its prompt settlement of the 75-day-old Allis-Chalmers tie-up and a number of smaller strikes was of material assistance.

Future needs of defense industries for skilled labor meanwhile were not being neglected. The Labor Division of OPM reported that 816,000 men and women were being given vocational training in April 1941, and it was estimated that the number would reach 1,000,000 before June.

The defense picture broadened as the Office for the Coordination of Health, Welfare, and Recreational Activities under Federal Security Administrator Paul V. McNutt outlined the needs of scattered communities for schools, hospitals, public utilities, and amusement centers where defense industries had overtaxed their normal facilities.

In production, time was still the most important factor. Progress was apparent, but was it rapid enough?

America was engaged in the biggest job ever undertaken by any country in the length of time, and it called for the maximum cooperative effort of every man and woman in the United States to get it done.

As industry boomed the President moved promptly to forestall threatened rises in prices by creating the Office of Price Administration and Civilian

Supply. Leon Henderson, the administrator, already had placed ceilings on many vital materials as Price Stabilization Commissioner.

The national defense program was now moving into the period for which all the previous work had been preparatory—mass production of planes, of tanks, guns, and ammunition.

The more tedious and less spectacular phases of national defense were behind for the United States. Billions of dollars in appropriations, thousands of blueprints, hundreds of contracts were now translated into swelling streams of fighting equipment.

Then enactment of the Lend-Lease Act greatly enlarged the task.

The additional load of becoming "the arsenal of democracy" increased the production job of defense industries by 60 percent and called for 28 billion man-hours of labor within a maximum of 27 months.

To increase the available supply of skilled labor and raw materials, the automobile industry agreed to reduce its output of automobiles by 20 percent beginning August 1. A further release of machine tools was promised as leading manufacturers announced they would forego a change in design for 1943 models. President Roosevelt asked that machine tools be used 24 hours a day, 7 days a week.

As production of planes and tanks began to swing into quantity proportions, the National Defense Advisory Commission's duties were being transferred to the OPM and other operating defense agencies. Functions of the Agricultural Division were assigned to the Department of Agriculture.

A Division of Defense Aid Reports was established to report on the lend-lease program under Maj. Gen. James H. Burns as executive officer. Aid to Britain was being accelerated.

On May 20 the President established the Office of Civilian Defense within the OEM as a means of coordinating Federal, State, and local defense activities and to facilitate constructive civilian participation in the defense program. New York's Mayor Fiorello H. LaGuardia was put in charge. The role of the Man-in-the-Street in national defense was growing in importance.

The public, industry, and labor were now indicating full support of national defense. United they provided an almost inexhaustible reservoir of manpower and potential equipment pledged to save democracy.

Progress during the first year of defense effort had been good regardless of the handicaps. But it was not good enough.

Almost all of Europe was under the heel of Nazi armies; Britain was fighting for her life. The peril had grown even more rapidly than America's armament program. An all-out effort by every citizen was essential as industry swung into quantity production of planes, tanks, and guns. Every hour, every minute counted.

One year of defense was behind the United States, but a greater year was ahead.

WHAT IT COSTS:

Appropriations, contracts, payments

ARMAMENT for defense costs money—lots of it! The total program by mid-May called for expenditures of approximately 40 billion dollars (U. S. and British orders), almost all of it in 1941 and 1942. That is a staggering sum—\$310 for every man, woman, and child in the United States. Yet even it will not be enough. The security and freedom of America cannot be measured in billions of dollars.

There are three major steps in the translation of the taxpayer's dollar into weapons of war. Congress appropriates it. The Army and Navy, with the advice of civilian defense agencies, award contracts. And the Treasury pays out the money as services are performed.

Appropriations and contract authorizations amounted to 37.3 billion dollars on May 17. British orders, which also are being filled by American industry, add another 3.7 billion.

An idea of how the 37.3 billion dollars will be spent may be obtained from the following breakdown:

	Billions of dollars
Airplanes and accessories	6.5
Ordnance (guns, powder, etc.)	7.2
Ships, motor and rail equipment	8.8
New industrial facilities	3.8
Military posts, depots, fortifications, and defense housing	3.3
Other Army and Navy equipment	1.8
Miscellaneous (pay, food, reserve materials, etc.)	5.9

What makes a defense program so expensive?

A 35,000-ton battleship, such as the U. S. S. *North Carolina*, costs 70 million dollars. It takes 50 million to build an aircraft carrier, 20 to 30 million for a cruiser, 8 million for a destroyer, and 6 million for a submarine.

And, even after these maritime fortresses are built, they are expensive to maintain.

For instance, it costs \$900—about the price of a small family car—to fire a 14-inch gun from a battleship. And there are 124 guns in the fleet with more scheduled for the two-ocean Navy. A 16-inch gun costs \$1,600 to fire.

Aircraft is not so expensive, but it takes more planes than ships to arm the United States. Yet a four-engine bomber, complete with spare parts, costs close to half a million.

Tanks are less expensive, but the prices are many times the cost of the family auto. The Army pays from \$27,000 for a light tank to \$67,000 for a medium tank and \$114,000 for a heavy tank, not including the cost of guns.

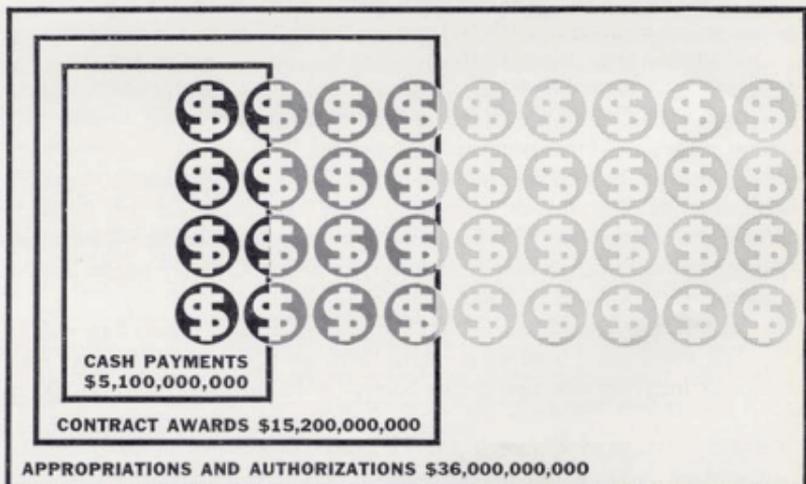
Out of the 37.3 billion the Army will get 13.1, the Navy 13.1, and Lease-Lend 7. Other United States defense agencies will share 2.3 billion, while Government lending agencies will distribute 1.8 billion.

Contract awards on May 1 amounted to 15.2 billion. The Army and Navy accounted for 13.6 billion and other defense agencies for 1.6 billion. British orders of 3.7 billion brought total orders to 18.9 billion. Cash payments amounted to only 5.1 billion dollars on the same date.

Here's how the 5.1 billion was spent:

	Millions of dollars
Naval ships.....	621
Aircraft.....	605
Ordnance.....	501
Total.....	1,727
Stations, bases, fortifications, etc.....	1,104
Industrial facilities.....	305
Other materials, equipment, and construction.....	1,100
Pay rolls.....	864
Total.....	3,373
Grand total.....	5,100

APPROPRIATIONS, CONTRACTS, PAYMENTS—MAY 1, 1941



Each symbol=1 billion dollars

BUILDING DEFENSE PLANTS: Construction and expansion

WITHOUT a coordinated industry producing airplanes, tanks, guns, and ships—and the materials used in their manufacture—a modern army is impossible.

It has been the particular task of the Office of Production Management, and the National Defense Advisory Commission before it, to stimulate the building of defense plants and the enlargement of existing factories.

Defense industries have been springing up on all sides during the year. And the end is not yet. More than 1,600 plants were being constructed or enlarged at a cost of \$2,839,503,000 after 10 months. Some had been completed and were in operation, while most were nearing completion.

Billions of dollars worth of United States plants have turned from peacetime to defense orders. The Government is paying for three-fourths of the new plants needed for defense. Private industry is financing the remainder.

Four methods of financing the cost of defense-production facilities are being used.

Under the first method plants are built and operated by the Government. In the second private industry invests its own capital and operates the plants. The Government also makes loans for defense plant expansions and builds plants which it leases to private industry. It may or may not hold title to the completed plant.

Almost 2 billion dollars is being expended by the Government to finance 331 plants. About half of this is for 99 Army and Navy plants which will be Government-owned when completed. Fifty-four, costing 625 million, will serve the War Department. Forty-five, costing 400 million, will serve the Navy.

Ammunition will be produced in 42 of the plants under construction at a cost of 554 million dollars. Small-arms ammunition manufacturing, which was negligible before the defense program was launched, will be undertaken at four plants costing 90 million.

Aircraft parts will be turned out by 115 plants with an investment of 487 million dollars. This is almost six times what the aircraft industry spent in 1940 expanding its own facilities. The amount being expended upon airplane engine production alone this year is almost twice as much as the the aircraft industry spent on all production expansions in 1940.

The Government is spending 161 million to build 34 plants for the

manufacture of guns. Seven will turn out machine guns, of which there was no substantial production a year ago. In the manufacture of artillery, of which only pilot models were made in 1940, 106 million dollars is being invested in 25 plants. Sixteen million is being spent on 19 machine tool plants.

New production facilities in 40 shipbuilding plants will cost 343 million when completed. That is far above the value of ships built and repairs made in 1939. A dozen armor plate and heavy forging plants are being built at a cost of 106 million.

When the war started in September 1939, total United States daily production of smokeless powder would enable one of our battleships to fire a single broadside from its big guns. The daily output of one of our new plants nearing completion would furnish powder for 15 United States battleships to fire 3 broadsides from their main guns and 6 rounds from their secondary guns.

Private capital, as represented by 1,225 certificates of necessity, accounts for 733 million. This investment is largely devoted to making improvements in existing plants. Plant owners are permitted to amortize costs out of tax-free earnings over a 5-year period.

Among new industrial facilities privately financed, plants producing nonferrous metals and their products account for 158 of the 733 million dollars invested. Plants to produce, smelt, and refine aluminum account for 78 million; iron and steel industry expansions, 152 million.

Privately financed aircraft plants are costing 96 million dollars and ammunition industries 38 million.

NEW DEFENSE PRODUCTION FACILITIES

84% GOVERNMENT FINANCED

16% PRIVATE

AIRCRAFT \$582,902,000

66%

TANKS AND VEHICLES \$50,121,000

88%

GUNS AND PARTS \$182,550,000

97%

SHIP CONSTRUCTION AND REPAIRING \$352,416,000

94%

AMMUNITION, SHELLS, BOMBS, ETC., INCLUDING COMPONENTS \$591,960,000

NOTE: DATA BASED ON FACILITIES COMPLETED, UNDER CONSTRUCTION, OR UNDER WAY MARCH 31, 1941

PRIVATE FINANCING BASED ON CERTIFICATES OF NECESSITY APPROVED UP TO APRIL 15, 1941

FEEDING THE FACTORIES:

Raw materials and priorities

WITHOUT iron, coal, tin, copper, chromium, bauxite, tungsten, and a long list of other minerals dug from the earth, no nation can produce planes, tanks, or guns.

The United States normally uses about 60 percent of all the rubber produced in the world, 40 percent of the tin, 45 percent of the chromium, 56 percent of the silk, 40 percent of the nickel, 40 percent of vanadium, 36 percent of manganese, and 33 percent of antimony. It imports substantial quantities of 15 industrial minerals and a number of other raw materials.

Even when raw materials have been assured, supplies may be too small to meet all demands of both defense industries and manufacturers of goods made for civilian consumption. That's where the OPM resorts to priorities, which means putting defense needs first.

Shortages in raw materials can be minimized by four major methods. Defense agencies have resorted to all of them in a determined effort to provide sufficient supplies for any emergency. The four methods are:

- (1) Increase domestic production if possible.
- (2) Find new sources of supply close enough to home to insure delivery.
- (3) Find substitutes. Synthetic rubber is an example; the output was doubled during the year. The possibility of substituting molybdenum for tungsten in the manufacture of steel is being studied.
- (4) Salvage and reclamation.

Progress was made during the year in the building up of stockpiles in most raw materials vital to defense, but the rapid increase in consumption and shipping difficulties have handicapped accumulation on such a scale as had been planned originally. Increased production, however, will necessitate an even greater accumulation of reserve raw materials. The status

of some of the principal items near the close of the year was, in brief, as follows:

Chromite: (Ore used in making chromium.) Stockpile sufficient to supply industry for more than a year at current rate of consumption. Much more had been ordered, and domestic production is being encouraged.

Copper: Two orders of 100,000 tons each placed with Chile, and delivery of first order being completed.

Graphite: (Military uses principally for foundry and crucible work, paints and pigments, electrical machine brushes, electrodes and dry batteries.) Stockpile adequate to supply industry nearly a year at present rate of consumption.

Manganese: (Used in iron and steel manufacturing.) Stockpile sufficient to meet industrial needs for 16 months. Probable domestic production, plus Cuban deliveries, could supply industry through 1943.

Mercury: (Used in the manufacture of a compound for high explosives, drugs, and antifouling paint for ship bottoms.) Domestic output has risen to record heights. Stockpile adequate to supply industry for more than half a year.

Mica: (Used in radio and electrical equipment manufacturing.) Stockpile enough to supply industry for more than a year. New sources in western hemisphere being investigated.

Nickel: (Used as an alloy in steel to increase toughness.) Current supplies are low, but most of world supply is in Canada and defense requirements are assured.

Quartz Crystal: (Principal use is in radio frequency control.) Stockpile is sufficient for some months and growing.

Tin: (Used in the manufacture of motor vehicles, gun metals, etc.) Present stock will supply industry more than a year. Large tonnage ordered from China. Bolivia to deliver 18,000 tons a year for 5 years.

Tungsten: (Used to give alloy steels high tension characteristics.) Stocks are low, largely due to an interruption of imports while the Burma Road was closed. Domestic production being stepped up so that peacetime needs can be met without imports. Substitutes are being studied.

Zinc: (Used in galvanizing and manufacturing brass.) Shortage being met by partial priority control and expansion of existing plants. Domestic supply may be supplemented by purchases from other nations of the western hemisphere.

Rubber: Record imports have built a sufficient reserve for about a year. Exchange of United States cotton for British rubber helped build stocks. Synthetic production increasing but still insignificant. Conservation and increased reclamation being studied which, with moderate application, would stretch supply for about year and a half.

These and other raw materials go into the more familiar semifinished

products, such as steel, aluminum, and brass, which in turn become tanks, airplanes, and shells. It is the responsibility of the OPM Materials Branch to see to it that there are sufficient fabricating facilities—for making special armor plate, for forging aluminum, and for rolling brass sheets—to meet all requirements.

Altogether, the OPM Priorities Division has imposed some form of control on 24 materials and classes of materials.

The most far-reaching method which has been used in cases where especially serious shortages have arisen is the technique of industry-wide mandatory priority control. So far, this form of control, usually involving the allocation of available supplies, has been imposed in the following fields: aluminum, magnesium, nickel, nickel-bearing steel, ferro-tungsten, neoprene (synthetic rubber), and machine tools.

Partial control has been imposed on zinc supplies. Each producer of zinc is required to set aside a certain percentage of his monthly production, thus creating a pool out of which the Priorities Division may allocate to meet urgent defense needs.

On May 1 the Priorities Division imposed a special form of inventory control on 16 metals and classes of metals. Suppliers and customers for these metals are required to make sworn statements in connection with inventory situations. The general purpose of this new control is to see to it that industrial inventories are not built up to excessive levels.

A large number of other products are under priority control in the sense that they appear on the Priorities Critical List. This is the list of items needed by the Army and the Navy. When Army and Navy officers give contracts for items appearing on the list, they may also assign preference ratings to these orders, thus assuring prompt delivery.

During May the Priorities Division moved to expedite defense production by issuing a formal allocation plan for the distribution of nickel and a priority plan for producers of "off the shelf" defense supplies.

Priorities Director E. R. Stettinius, Jr., stated that American industry in May had approximately 15,500,000 pounds of nickel, almost all of it coming from Canada. This was the largest amount ever made available for industrial uses in the United States in any one month.

The creation of a joint committee of American and Canadian officials to exchange vital information on supplies of strategic raw materials in the two countries improved the outlook for keeping the defense machinery running full force.

The Priorities Division does not use any single, rigid method of administration. It operates on the theory that the most important thing is to make sure that defense needs are filled, and that it is more important to fit the treatment to the problem than to try to fit the problem into a rigid, preconceived treatment.

THE PEOPLE AND NATIONAL DEFENSE

THE FRONT LINE of war or defense today extends far beyond the battlefield. It reaches back to the factory, where men and machines turn out planes, tanks, guns, and machine tools. It goes to the farms which feed the armed forces, and to the mines and wells which supply the fuel and raw materials that feed the factories. All serve an expanded Army, Navy, and Marine Corps.

The President is the director of our national defense program—as Chief Executive of the governmental departments and as Commander-in-Chief of our armed forces.

Enlargement of these armed forces into a 2,000,000-man Army, a 2-ocean Navy, and a greatly expanded air force is a military function, directed by the War and Navy Departments. Provision of these fighting men with arms and equipment, housing, and supplies is a duty of civilians which they discharge through the civilian agencies of the Federal Government.

Because it obviously is impossible for one man to direct the detailed operations of the civilian defense effort, the President created the Office for Emergency Management to act as his extra eyes, hands, and brains.

The OEM, through its several operating units, assists the Army and the Navy by placing industry and labor at their service. It also seeks to put into practical effect the President's goal of making America "the great arsenal of democracy."

The civilian's part in the defense program will become *increasingly important* as the newly-created Office of Civilian Defense swings into action.

The Office of Production Management, a unit of OEM, is the agency which directs defense production.

Other OEM units deal with correlated civilian problems as labor disputes, control of prices, building of houses for defense workers, health and welfare of the civilian population, communications, transportation, and relations with neighboring nations of the western hemisphere.

FINDING THE MANPOWER:

Training and placement

THE ROLE of labor has been and remains vital to the success of the defense program and to the survival of democracy itself. However complete the Nation's mechanical equipment, there must be human energy and skill to operate the machines.

The OPM Labor Division, as well as the Labor Division of the National Defense Advisory Commission before it, has sought, with the aid of organized labor, to see to it that no wheel failed to turn for lack of qualified workers.

A committee of officers of the American Federation of Labor, the Congress of Industrial Organizations, and the Railroad Brotherhoods was formed under direction of Defense Commissioner Sidney Hillman on July 2, 1940.

One of the first tasks was to list all workers available for defense jobs in the United States. The United States Employment Service, through its 1,500 offices, performed this work at the request of the Labor Division. Today this list carries the names of nearly 6,000,000 workers.

Equally important was the question of precisely what labor would be required, where, when, and in what skills for the swiftly expanding defense contracts.

Under the direction of Isador Lubin, Commissioner of the Bureau of Labor Statistics, methods were devised for translating each contract into terms of labor, skill, and time. It was found that 117,000 workers employed in aircraft when the defense effort began would have to be increased by steps to 390,000 in order to deliver 15,000 planes by October 31, 1941. Shipbuilding, which employs 250,000 workers today, must have an additional 309,000 skilled men within 18 months.

In all the defense program so far has shown the need for 16 million man-years of labor: that is, 6 million man-years of skilled labor, 6 million of semiskilled, and 4 million of unskilled.

Under the stimulus of armament production, nonagricultural employment has reached the highest level on record. The Bureau of Labor Statistics reported that employment in 18 selected defense industries aggregated 2,100,000 in March 1941, as against 1,500,000 in May 1940.

It soon became apparent that new skilled workers would have to be trained if the wheels of defense were to keep turning at a constantly accelerating tempo.

With the cooperation of Federal, State, and local educational agencies, management and labor groups, vocational training has advanced to an

all-time peak and has been geared to the direct needs of industry. During the entire World War only 60,000 workers were given vocational training. The defense program is about to graduate its millionth trainee.

Recognizing that in the defense of America there is no place for prejudices, the Labor Division has sought to effect the employment of all workers alike without regard to race, color, or creed.

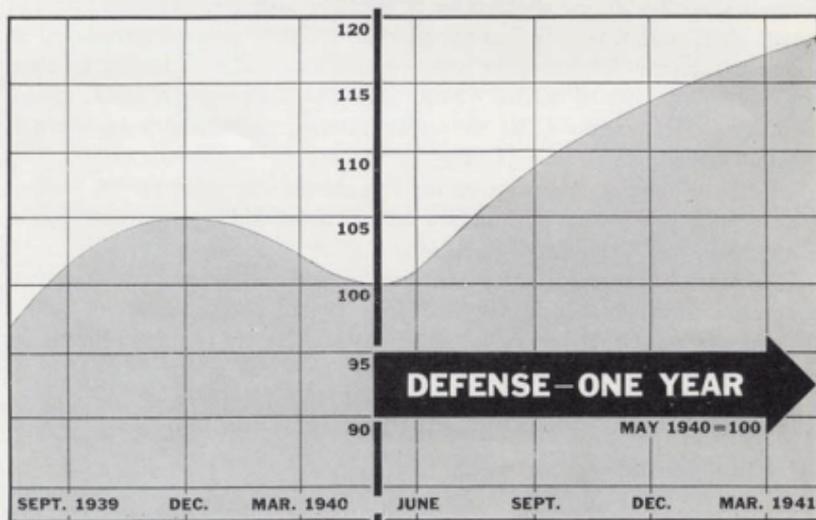
The adjustment of employer-labor relations, in the interest of both peak production and high morale, has been an objective of the Labor Division from the outset. The United States Conciliation Service of the Labor Department and the Labor Division together have composed 520 disputes in defense industries without a day being lost through strikes.

The National Defense Mediation Board, which was established in March, tackled the more serious cases. During the first 2 months of its existence approximately 30 disputes were acted upon and settled; more than 625,000 men returned to work either because of agreements or postponed strikes.

In the vital shipbuilding industry a voluntary agreement covering the Pacific coast zones was effected, and a similar accord for the Atlantic coast was being negotiated.

Thus far in the defense program the rapidly expanding machine capacity of the Nation, with few exceptions, has been made productive by an adequate labor supply. Peak production, however, lies ahead. The principle of voluntary cooperation of the defense of democracy is daily demonstrating its capacity to attain that peak.

EMPLOYMENT (MANUFACTURING INDUSTRIES)



PLANES, TANKS, AND SHIPS:

The production record

THE PURPOSE of the defense program is to produce planes, ships, tanks, and guns and equipment for an enlarged Army and Navy and beleaguered democracies. Congressional appropriations, plant construction, acquisition of raw materials, and enlistment of skilled workmen are but the prelude to production.

Without machine tools, modern weapons of war cannot be manufactured. Consequently, the machine tool industry became the first bottleneck of production.

But the industry responded promptly to the challenge. About 1,000 machine tools were being delivered to defense plants daily. The output was three and a half times that of the World War period.

What have the machine tools built?

Aircraft: Actual production of 1,376 military planes in April was more than three times what it was last June 1940. Manufacturers' estimates for May 1941 represented quadrupled production within the year. Monthly production in March 1940 was only 287.

Output of all types of military planes was almost 9,000 for 11 months. By the end of May 1941 it was scheduled to fall just short of 10,500.

Estimated May production of bombers and pursuit planes was more than two and a half times the July 1940 figure. Scheduled deliveries of trainers were even greater, and expected output of observation, transport, and other tactical planes, while numerically smaller, was more than four times July deliveries.

Tanks: Light (13-ton) tanks are being produced at the rate of about 150 a month. Medium (26-ton) tanks were redesigned—in the light of experience of the British and French in Flanders. Production was delayed purposely so that machine-tool priority could be given to more critical military weapons. Quantity production is scheduled for summer.

The Army has more than four times as many light tanks on hand in May as it had in July 1940. By July 1941, the increase will be sixfold. Production is 600 percent higher than May 1940.

Ships: Major combat ships under contract or on order May 1, 1941, numbered 358, of which preliminary work actually had started on 312. The Navy contracted for 629 vessels, large and small, during the current fiscal year. Ship construction is the slowest of all defense production, but many vessels were being built ahead of schedule.

The following tables present the picture of progress briefly. Ships on

hand are less than a year ago because of the transfer of 50 destroyers to Britain in exchange for naval air bases. Combatant ships also were reduced by the reclassification of 30 destroyers as "special purpose" vessels.

Combatant Ships

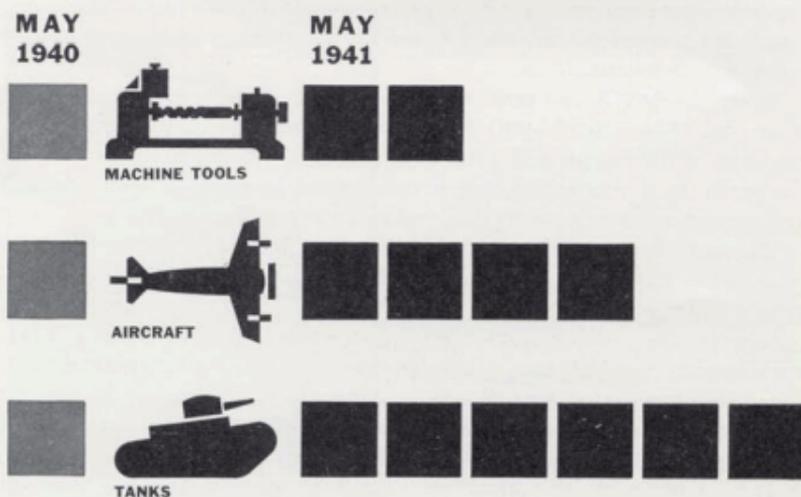
	Jan. 1, 1940	May 1, 1941 (On hand)	May 1, 1941 (On order)
Battleships	15	*17	15
Aircraft carriers	5	6	12
Cruisers	34	37	54
Destroyers	218	165	199
Submarines	87	109	78
Total	359	332	360

*Includes U. S. S. *Washington*, 35,000-ton dreadnaught, which was commissioned May 15.

Scout Cars: Scout cars, which are well-armed combat vehicles, are being delivered at the rate of 400 a month. By July the Army will have its present requirements.

Ordnance: Because they are easiest to produce, machine guns, rifles, and ammunition are being turned out in vastly increased volumes. Powder output has risen 1,000 percent, small-arms ammunition 1,200 percent in less than a year. Twice as many Garand rifles are coming out monthly as in July 1940. The output of .30-caliber machine guns has trebled, .50-caliber machine guns quadrupled. Gains of 40 and 35 percent, respectively, have been made in the manufacture of field and antiaircraft artillery.

TOOLS AND WEAPONS (MONTHLY PRODUCTION RATES)



HOUSING FOR DEFENSE:

Camps and homes for workers

LIVING quarters must be provided for three groups of persons under the armament program. These consist of cantonments for the selectees, dwellings for the families of noncommissioned officers, and homes for defense industrial workers.

The Army had 264,128 officers and men last June. By July of this year it will have 1,400,000. New and larger quarters had to be provided rapidly following the passage of the selective service program last September. One hundred and sixty-six building projects were finished or nearing completion 9 months after Congress had authorized the conscription of America's youth.

The Army had prepared housing for more than 1,100,000 men by May 1 and expected to have accommodations for 1,350,000 by the end of June.

As of May 1 the cost of all troop housing construction was estimated at 940 million dollars, while the cost of new troop housing at the Army's camps and cantonments was 628 million dollars. By the end of June the plans of the Army Quartermaster Corps call for 47,000 buildings and barracks and close to 100,000 tent frames. Thousands of buildings are being constructed for the Army Air Corps.

Besides camps and cantonments, the Army has been expanding housing at reception and replacement training centers, hospitals, Air Corps bases, and adjacent to harbor defense projects.

Some of the cantonments are as large as cities. The biggest is at Fort Bragg, N. C., where a community of 60,000 officers and men is arising and will be completed in June. This is a sixfold increase in the size of the Army post. It will make Fort Bragg the third largest city in North Carolina, and equal in population to Durham, N. C.

The Navy Department on April 1 had expended \$12,575,000 of a 62-million dollar defense housing program on 45 projects. Because the Navy expansion is not so large as that of the Army, its demand for living quarters was not nearly so great.

To coordinate all defense housing construction outside the building of camps and cantonments the Division of Defense Housing Coordination was established January 11 by executive order of the President.

Eight Government agencies, other than the Army and the Navy, are

engaged in providing dwellings for civilian workers who suddenly have moved their homes to fill industrial defense jobs. Some projects are financed directly by the Government, while others are built either with United States aid or by private capital insured by Federal funds.

On May 3 Government funds were being expended in building 58,542 dwelling units in 124 localities of 45 States and Territories. These included 9,604 units in 34 localities of 18 States and Territories which had been completed. Of this number 3,869 are occupied by families of enlisted men, and 5,737 by civilian workers and their families.

Because defense housing, in some instances, did not keep pace with labor migration to defense industries, temporary quarters have been provided in a few localities until permanent homes could be built. Automobile trailers have been set up for married workers and demountable dormitories for single persons.

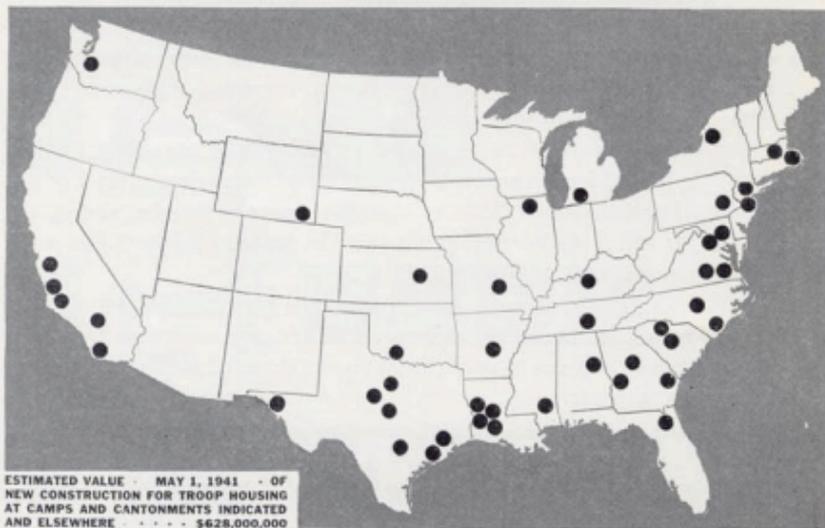
Allocations for new housing projects aggregated 87,260 units in 47 States and Territories on May 1. Of these approximately 10,000 had been built.

These figures do not include the thousands of homes being built with private funds, partially as a result of growing industrial activity.

Projects constructed with public funds are handled through the United States Housing Authority and local housing authorities, the Public Buildings Administration, the Federal Works Agency, and, in certain instances, the Farm Security Administration and the Tennessee Valley Authority.

Financing of private construction is aided by the insurance of the Federal Housing Administration and the work of the Home Loan Bank Corporation.

NEW OR EXPANDED TRAINING CAMPS—MAY 1941



FARMING-OUT:

What subcontracting means

WHEN the defense program was launched a year ago, it was natural that the first large production contracts should go to existing big industries capable of handling them. Soon, however, it became apparent that industrial facilities were inadequate for the tremendous task ahead.

New plants were started, old factories were enlarged, but still orders piled up faster than the big industries could fill them. America's full production power, from big industry to small plants, was needed to do America's No. 1 job.

To cope with this problem the Defense Contract Service was organized within the Office of Production Management.

The task of the Defense Contract Service was to find the means whereby new prime contractors could be brought into the program, and whereby plants already working at capacity could take more and more contracts without delay either on the old or the new orders.

The DCS had to find the plants, the workmen, the machines; and, then, find suitable defense work that they could do.

Facilities already established in every section of the country were utilized for this search. Offices and officials of the Federal Reserve Bank System became volunteer DCS offices and advisors. Thus, the 12 Federal Reserve Banks and the 24 branch banks made the DCS available to serve prime contractors and prospective subcontractors close to home in 36 cities.

The DCS offices became the clearing houses for defense contract information.

Professional engineering societies, trade and manufacturing associations, and various public and private organizations also volunteered to work with the bank officials in compiling lists of plants, equipment, and skilled men in the areas surrounding each of the 36 cities.

Machine tools, material supplies, and other facilities in the various regions are being indexed as a defense production catalog for each area.

The DCS offices also have made available lists of defense contracts already let and other details on the needs of defense production. They have the information on how and where to bid, and the types of plants and machines needed.

DCS is decentralized to put the OPM in closer touch with the production facilities of the Nation, and to make information available to prospective contractors and subcontractors, without the expense or the delay of trips to OPM headquarters in Washington.

Remarkable success had been achieved by OPM in some areas in spreading defense work and speeding up production through encouraging subcontracting, but the results had to be improved. There are other areas where large and small plants have been slow to seek defense contracts.

The Army-Navy Munitions Board recently found that 4,750 primary contractors were employing 28,000 subcontractors and sub-subcontractors. But an even more widespread distribution of the defense work is necessary.

DCS is a "mothering" plan. One central contractor acts as a "mother" for a number of smaller plants from which the central contractor can get needed parts, machines, men, supplies, and thereby expedite production.

Through the help of DCS in getting the various factors together, a prime contractor in New Jersey, for instance, has put men and machines to work in Texas and Iowa.

Another large prime contractor in New York has reached out to 16 States, including Ohio, Indiana, Wisconsin, North Carolina, and California, to utilize the men and facilities of 110 subcontractors and suppliers. This means that one Government prime contract is being spread to hundreds of men and machines in 110 separate shops—large and small.

SUBCONTRACTS OF A DEFENSE AIRCRAFT PLANT



THE COST OF LIVING:

Prices and purchases

EVERYONE who was old enough to be conscious of the material necessities of life remembers the high prices that prevailed during and following the World War.

So far a corresponding rise in the cost of living has been avoided in this country. During the last year the United States has experienced the greatest increase it ever knew in industrial production. Yet while production was rising about 25 percent, wholesale prices increased only 7 percent and the cost of living index rose but 3 percent.

Prices have been approached from two angles by defense agencies. The Office of Price Administration and Civilian Supply exercises a restraint on prices, while the OPM Purchases Division bargains for the tremendous assortment of goods purchased for the Army and Navy.

Ceilings on prices that could be charged for several of the products essential to national defense and on a variety of raw materials and other manufactured products have been imposed by OPACS and the Price Stabilization Division of the National Defense Advisory Commission, which preceded. While no price schedules have been issued on normal consumer goods, a division designed to protect consumers' interests has operated from the outset of the defense program.

The Government has moved on three fronts to maintain the stability of our economic system in the face of threats of serious dislocation because of the armament program. It is controlling prices where necessary, it is expanding supplies of goods where possible, and it is curtailing consumer buying power by taxes to discourage both inflation and the use of materials vital to defense.

Expansion of production and supplies to meet increased demands is the first approach to the price problem. Nothing boosts prices quite so quickly as a scarcity.

Where supply or production could not be stepped up as rapidly as the demand grew, price schedules have been imposed. In some instances, as during the bituminous coal strike, price-fixing was only temporary.

Ceilings were placed on used machine tools, aluminum scrap, zinc scrap, scrap iron and steel, and steel because of unusual demands.

Warnings that controls would be imposed if prices of specific goods or materials were not adjusted voluntarily by the producers have been sufficient in many instances to prevent inflationary rises.

The objective of the Purchases Division is threefold: (1) To see that the Army and Navy get whatever they need as quickly as possible; (2) to buy economically; and (3) to make purchases in such a way that civilian consumers will suffer least.

Various means have been employed to that end. Competition has been encouraged through increasing the number of bidders. Orders from a single firm have been limited. Military specifications have been revised, without lowering standards, to spread the business. Delivery dates have been changed so that large purchases could be made under favorable market conditions. The Purchases Division has found that better prices often are obtained through negotiation of contracts rather than competitive bidding.

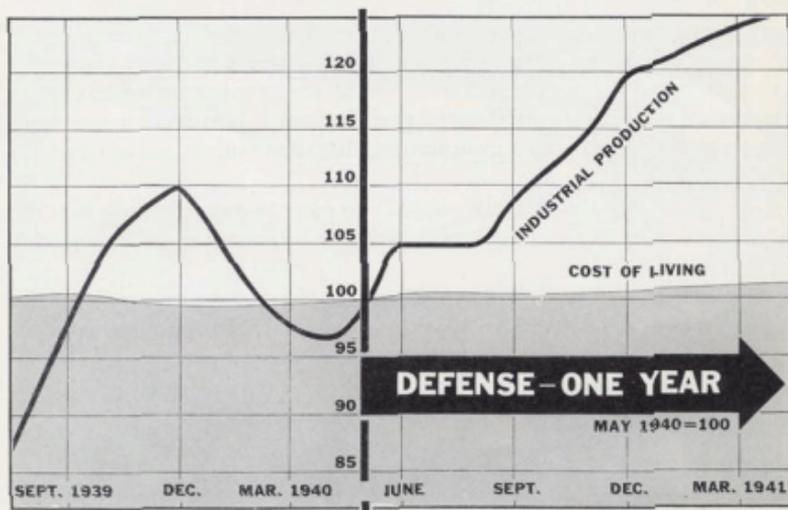
All major Army and Navy contracts are approved by the Purchases Division before awards are made.

This mass purchasing covers a wide range of goods. It has been steadily growing in size. During March contracts called for expenditures of 937 million dollars. The Army alone bought 46 million articles of clothing in 9 months.

Since the defense program began nearly a half billion dollars worth of textiles and textile products have been bought—this includes more than 3 million sheets, 11 million khaki shirts, 18,000,000 pairs of pants, 33 million pieces of cotton underwear, 63 million pairs of socks, and 9 million pairs of shoes—all for Uncle Sam's expanding Army and Navy.

Food purchases amount to almost \$700,000 a day.

COST OF LIVING AND PRODUCTION



WHAT LIES AHEAD: "24 hours a day, 7 days a week"

AMERICAN industry and labor were just beginning to show what they could do in armament production as the first year of defense ended on May 28, 1941.

"But it is not enough," said the President in a letter to the Office of Production Management asking that machine tools be utilized 24 hours a day, 7 days a week.

"The ever increasing demands for munitions, planes, and ships caused by the critical situation which confronts our Nation," he added, "requires that they be produced in even larger quantities and ahead of the schedules assigned to them."

Progress has been made in a year of defense, but it has been largely preliminary to the real production which must come. Defense industries have been built and equipped; others are nearing completion. Raw materials are being accumulated. America is now ready for mass production of weapons of defense and war on an unprecedented scale.

A brief outline of the job ahead in comparison with what has been done has been prepared by OPM Production Director John Biggers. On a monthly output basis it is:

	Since May 1940	Before end of 1941
Airplanes	trebled	must be doubled.
Tanks	600-percent increase	must be quadrupled.
Powder	1,000-percent increase	must be trebled.
Small-arms ammunition	1,200-percent increase	must be trebled.
Garand rifles	360-percent increase	must be doubled.
.30-calibre machine guns	trebled	must be increased fivefold.
.50-calibre machine guns	quadrupled	must be increased fivefold.

Aid to Britain is mounting. The President demanded more bombers. America is fortifying herself and solidifying western hemisphere defense with the construction of far-flung naval bases. Sites for eight of them were acquired from Britain in exchange for 50 over-age destroyers. Bases are being built at Newfoundland, in the Bermudas, in the Bahamas, at Antigua

and St. Lucia in the West Indies, at Trinidad and British Guiana, and at Jamaica. Others are under construction in the Pacific Ocean, on the North Atlantic, on the Gulf of Mexico.

More than 5 billion dollars was spent from June 1, 1940, to May 1, this year. If the defense program is to be carried out on schedule, next year's cash disbursements must be at least five times this amount.

As the Nazi armies marched into Poland a year and a half ago, Germany was spending the equivalent of a billion dollars a month on armaments. Today she is spending nearly 3 billion a month or 60 percent of her national income on war.

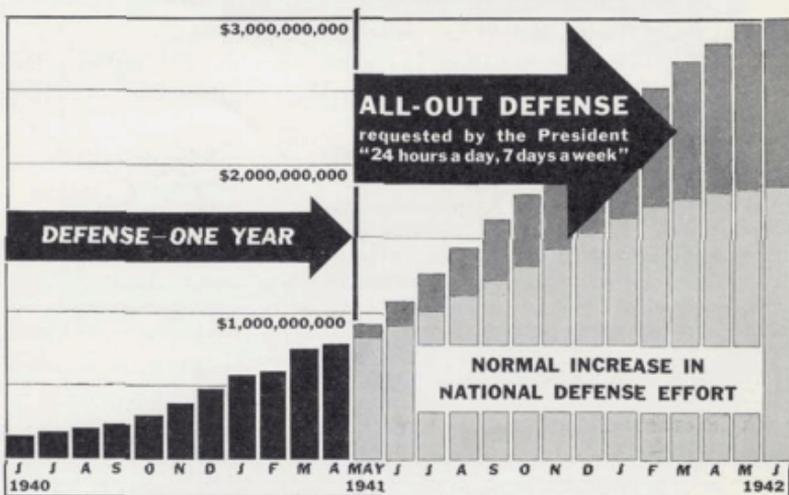
Germany also is getting booty from the countries she has conquered. France is paying more in tribute than she was paying for her own army before the conquest.

As the President has told the Nation often in recent months "business as usual" must give way to an extra "all out" effort in defense of the American way of life. A 24-hour day, 7 days a week, is the maximum toward which American industry and labor must strive. A normal increase in armament production in the second year of defense will not be enough.

"It is essential," wrote the President to Mr. Knudsen and Mr. Hillman, "that industry continue to increase the number of vital machines manufactured and that every single critical machine in the United States be used the maximum number of hours each week . . ."

He had previously set the goal—"We must be the great arsenal of democracy."

MONTHLY DEFENSE SPENDING—THE SECOND YEAR





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