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The President

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WAR PROGRESS

E.J.

War Production Board

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Tiring "Long Toms," Trucks, and Busses

What Is "Suitable Employment"?

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WAR PROGRESS

Prepared in the War Production Board

Donald M. Nelson, Chairman

War Progress is a confidential report designed to provide a coordinated and continuing picture of the overall war program for the various war agencies. To this end, it presents, analyzes, and interprets basic statistical and economic information, and from time to time examines the pros and cons of controversial questions.

Although War Progress is an official publication of the War Production Board, statements in it are not to be construed as expressing official attitudes of the Board as a whole, or even of individual members. Conclusions, whenever reached, should be considered editorial conclusions.

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Tiring Long Toms, Trucks, Busses

Large-tire pinch shows up in fourth-quarter cuts in allotments. Labor rules slow output. So also does increased use of synthetic rubber. WMC scouts for workers.

WHEN A 155mm. "Long Tom" gun is moved to the battlefront, it rolls on ten tires, carries two spares, and is usually hauled by a 7½-ton prime mover equipped with an equal number of tires. That's two dozen in all, and they're not ordinary tires. In the trade, they're known as "14.00 by 24s," which means that they measure 14 inches in cross section and that the wheel on which they're mounted has a rim diameter of 24 inches. They weigh some 480 pounds, as against 22 pounds for the typical passenger-car tire (size 6.00 x 16). To turn out the 24 tires needed to equip one "Long Tom" for its battle assignment takes approximately as much material—rubber, fabric, carbon black, etc.—and time as to produce more than 500 passenger-car tires.

LITTLE JEEP, BIG MOVER

The 14.00 x 24 tire is only one size among more than 100 used by trucks and busses, military as well as civilian. These range from the 6.00 x 16 for the nimble jeep to the 30.00 x 40 for the ponderous earth-mover. And they include the 11.00 x 20 that goes on an intercity bus or a commercial trailer, as well as the 7.50 x 20 that's used on the 2½-ton, 6-wheel-drive truck, the Army's key hauler of cargo, equipment, and heavy artillery.

Production of these tires has more than doubled since the beginning of 1939 (chart, page 5), but that hasn't been enough to satisfy demand. Fourth-quarter allotments tell the story: Whereas the Army, Navy, Office of Defense Transportation, Foreign Economic Administration, etc. originally asked for 5,423,000 truck and bus tires, the Requirements Committee had to cut this down 28% to 3,907,000.

THE "LARGE" PINCH

But that doesn't measure the full extent of the pinch; demand is concentrated in certain sizes. In the so-called "large" tires—those measuring between 9 inches and 14 inches in cross section—fourth-quarter demand ran to 1,268,000 tires, but allotments were only 775,000, or 40% lower. All claimants were cut sharply. ODT got less than half of what it asked for (225,900 vs. 512,500); even the armed services had to be satisfied with 15% fewer than originally requested (455,600 vs. 541,200).

In addition to the "Long Tom" and its prime mover, the big intercity busses and highway freight carriers, these sizes also go on off-the-highway vehicles used for logging and mining, and on the Army's heavy-heavy trucks.

NO VOLUME BUSINESS

The tire industry was never geared to big-volume output of these whoppers; peacetime demand for them was negligible as compared with passenger-car and light- and medium-truck tires. Though capacity to produce large truck and bus tires is 70% greater than at the beginning of the year, production has consistently lagged behind capacity. In the current quarter, for instance, facilities are sufficient to turn out approximately 875,000 of these big jobs; but estimated produc-

tion is only 665,000. In other words, because capacity is not being completely used, more than 200,000 heavy-duty tires will be "lost" to the Army, Navy, ODT, FEA, and other claimants in the third quarter (chart, page 3).

Meanwhile, the shortage has become so acute that the Office of Price Administration recently canceled outstanding ration certificates for heavy-duty types. Today 6,700 big highway trucks are laid up because tires aren't available; similarly with 500 off-the-highway vehicles used for logging, plus an indeterminate number used in mining. And only last week, cities such as New York and Washington announced that local bus service may have to be curtailed.

MANPOWER MIGRAINES

This "loss" of production is a resultant of complex forces: Tire-building equipment is idle because of lack of manpower. Labor conditions within the tire plants often tend to reduce output. New technical problems are constantly arising as increasing amounts of synthetic rubber are specified for truck and bus tires. And military requirements for individual sizes are frequently changed overnight.

Practically all tire workers are paid on an incentive basis: as output increases, so do wages. But in common with other piecework industries in peacetime, tire companies customarily cut rates once workers pushed their average earnings above those for comparable jobs in the surrounding labor market; the idea was to pull earnings back to competitive levels (WP-Dec18'43,p3). On top of that, work in a tire plant—the banbury room, for instance, where crude rubber is first broken down into workable form—is hot, heavy, and generally disagreeable. Hence, among individual workers, there is a tendency to fix production quotas in line with their physical capacity and their own ideas of a maximum day's work.

In some plants it is not unknown for every worker in one department to earn exactly the same wage day after day, despite the fact that each is on an "incentive" basis. At one Akron plant, a few months ago, 75 workers comprising three shifts all earned $13.68 each in one day turning out size 9.00 x 16 truck tires. Sometimes, as a result, tire-building machines stand idle for as much as an hour before the next shift takes over.

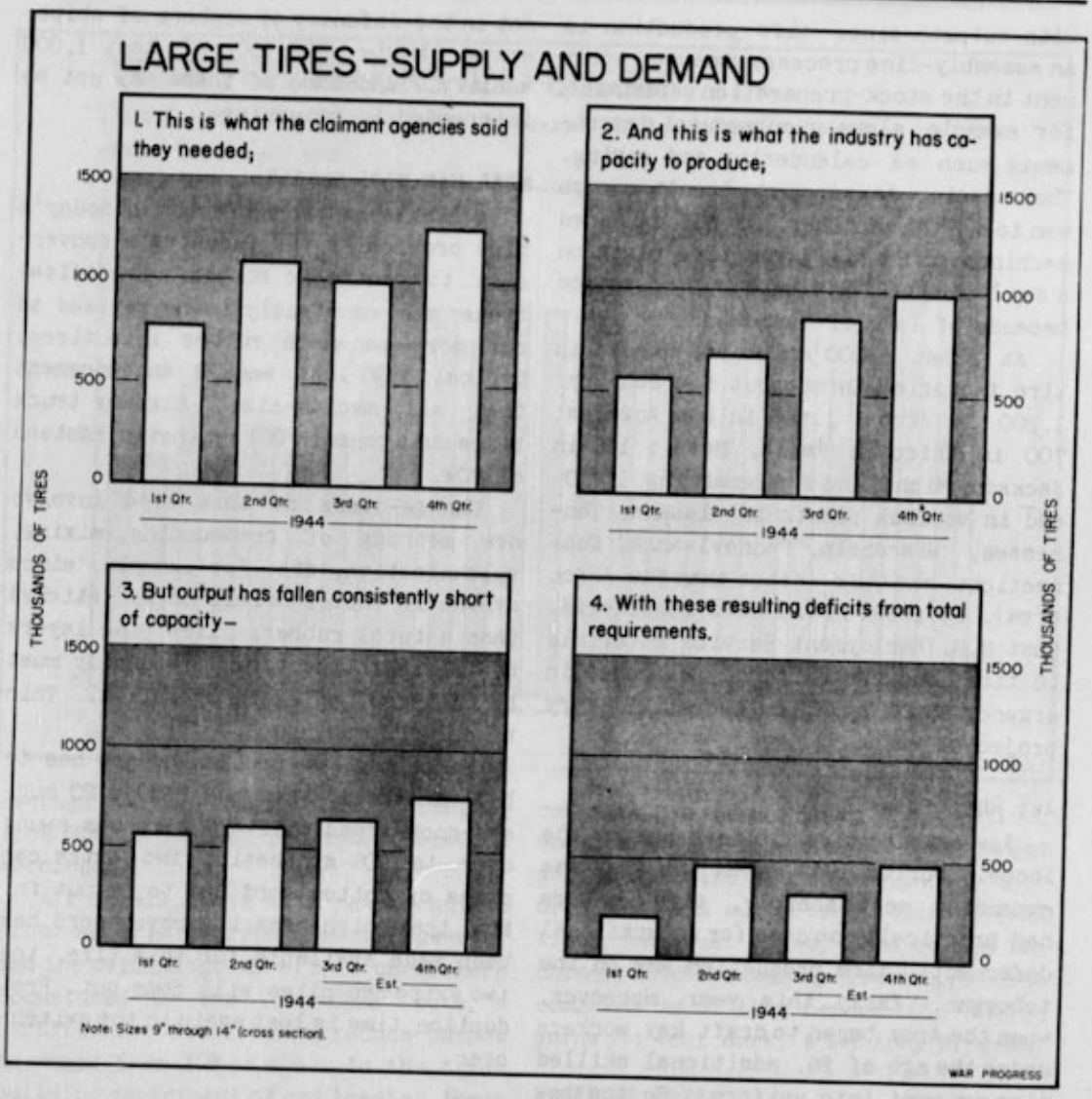
IT'S AN IDEA

A few weeks ago, CIO's United Rubber Workers of America suggested that local labor unions prevail upon individual workers to discontinue production ceilings and even set aside seniority provisions so as to get experienced men to shift from lighter jobs to heavy-duty tires—this for a temporary period only, until the emergency is over. Since then, representatives of the War Production Board's Office of Labor Production and Office of Manpower Requirements have been visiting every tire plant putting the proposal up to management as well as the workers. And that's a ticklish job.

Union leaders—understandably—want indisputable proof that unusual output

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now won't be followed by rate-cutting later on. Moreover, the worker who has earned the right to a day job through seniority almost invariably wants a bonus if he transfers to the night shift, where experienced workers are needed, especially as lead men. (The bonus question is now pending before the War Labor Board.) And the man who has worked himself up to a preferred job on airplane de-icers, say, doesn't relish a return to building heavy-duty tires, particularly since his earnings are likely to be lower. Management, in turn, hesitates to make up the wage difference; it's convinced that the entire department would immediately pressure for a compensatory increase in pay.

However, self-imposed ceilings and seniority practices aren't the only reasons for machines not operating. Plants have had to skimp on maintenance for about two years, so that breakdowns are now more frequent at the same time that repair men are scarce. Also, abnormal absenteeism can easily raise hob

with output; since tire production is an assembly-line process, unmanned equipment in the stock-preparation department, for example, slows up subsequent departments such as calendering and curing. Then again, there just aren't enough men to run the machines. Of 685 unmanned machines in a big Akron tire plant on a day last month, 25% were out of action because of lack of manpower.

At least 5,000 males are needed in tire factories throughout the country: 1,200 in Akron; 1,500 in Los Angeles; 700 in Chicopee Falls, Mass.; 180 in Jackson, Mich.; and the remaining 1,400-odd in various plants in Alabama, Tennessee, Wisconsin, Pennsylvania, Connecticut, and Ohio (other than the Akron area). So great is the need considered, that U.S. Employment Service referrals to tire jobs are currently exceeded in urgency only by a few secret military projects.

ANY MUSCLED MALE

Few skilled tire builders are on the loose. During 1942, when the Army was expanding most sharply, tire workers had practically no case for occupational deferment. Tire production was on the toboggan. Early this year, moreover, when the Army began to draft key workers under the age of 26, additional skilled tire men went into uniform. So the industry will snap up almost any strong—and willing—male; at least he can be put on jobs calling for lower skills and thus pave the way for upgrading other workers.

Early last month, the Army and Navy agreed to furlough experienced tire builders during the production emergency, and so far about 1,000 names have been submitted. But not all of these are eligible. The agreement limits furloughs to those who are over 30 years old, still in the United States, and not in the infantry or members of ships crews. Maybe 300-400 of that 1,000 qualify. And some of these may not be interested in returning.

MORE MAN-MADE RUBBER

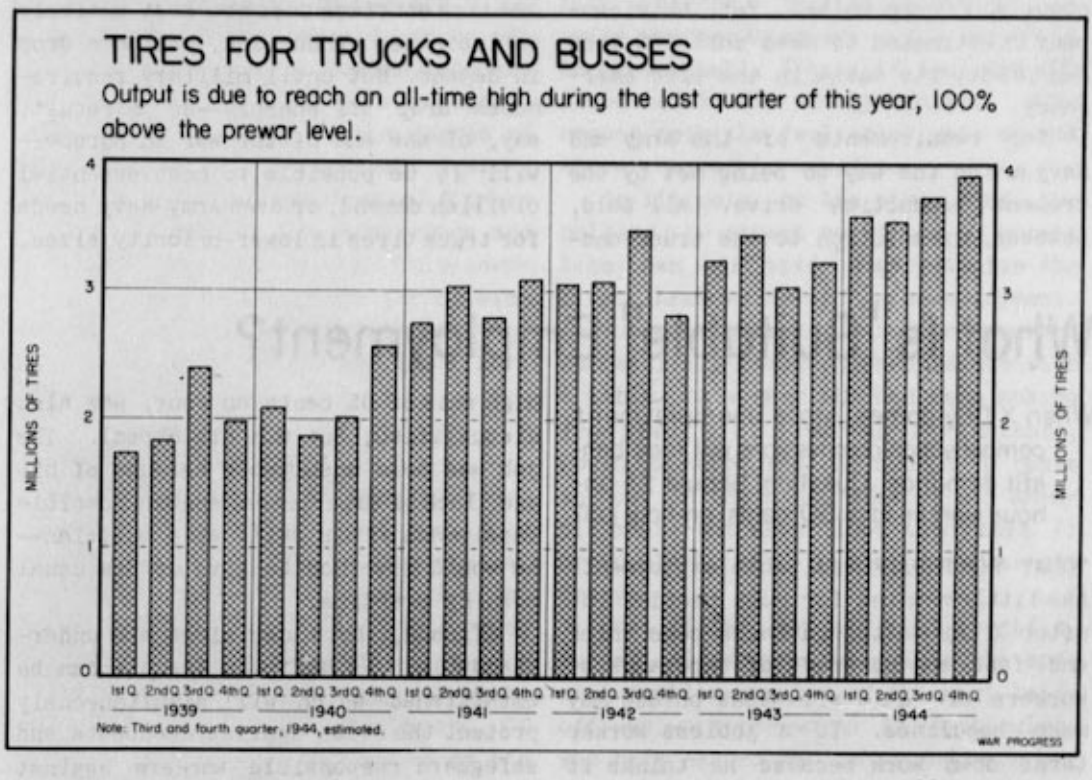
A little-mentioned factor in today's tire problem is the industry's conversion to synthetic rubber. Specifications are constantly being revised to put more man-made rubber into tires. Typical was last week's announcement that all medium-sized highway truck tires must contain 90% synthetic instead of 70%.

Change-overs of this kind involve new methods of compounding, mixing, vulcanization, etc. For example, since synthetic rubber is less tacky (sticky) than natural rubber, plies (the layers of fabric in the tire) frequently must be cemented, an extra operation. This takes more man-hours.

Sometimes, a particular job has to be redesigned. When the 7.50 x 20 mud-and-snow-tread military tire was swung over to 90% synthetic, two extra cap plies of cotton cord had to be put in. Now that high-tenacity rayon cord has been made available for this tire, the two extra cap plies will come out. Production time is lost again in the switch-over.

PAST AVERAGE PAY

Tied in with this factor of conversion is a wage problem based on paying "past average." Every change-over means a new time study for all jobs affected and results in a new piece rate. It used to take approximately 30 days to retime a job; but now, largely because of the shortage of time-study men, tire companies may let this period drag on for months. In the meantime, "incentives" are dropped; workers are guaranteed their average past earnings. (This



average varies among plants, ranging from 90% to 100% of previous piecework earnings.)

All in all, what with new technical problems arising from the change-over and the psychological effect on workers accustomed to the incentive rate, a particular conversion may reduce output anywhere from 30% to 60%. In the tire-building department of one leading Akron firm recently, a shift on "past average" turned out only 25 truck tires, as against 46 on the former "incentive" basis. In some plants, as many as one-third of the jobs are off-standard, or on "past average."

Even that doesn't complete the count of production difficulties. No sooner is a quarterly production directive released than it is followed by revisions, cancellations, and reinstatements. Military needs are apt to change at any time and the services can't always forecast when or how. As an illustration, one company had more than 300 such changes during the third quarter, with one tire ordered in and out of production several times in a week. Also, some of the machinery used for making cotton tire cords competes with that needed for making yarns for tent duck, a top Army program.

WHERE TO CUT?

Furthermore, a tough choice is involved when it comes to weighing the possibility of cutting down on other items made by rubber companies so as to make more workers available to tire production. One big producer in Akron employs approximately 14,000 persons, about 6,000 of them working on products other than tires: oxygen cylinders, 105mm. shell containers, rocket launchers, flotation gear (life rafts, vests, etc.), and airplane seats, wheels, brakes and fuel cells. Of these 6,000 persons,

about 4,000 are males. Yet, this company is estimated to need some 500 more men to meet its quota in the tire emergency.

Top requirements of the Army and Navy are on the way to being met by the present production drive. All told, however, the solution to the truck-and-bus tire shortage does not rest entirely on increased production, but on a drop in demand. Not until military requirements drop off sharply—as a result, say, of the end of the war in Europe—will it be possible to meet essential civilian demand, or even Army-Navy needs for truck tires in lower-priority sizes.

What Is "Suitable" Employment?

When X Day comes, state unemployment compensation commissions will face benefit demands. Question: Should $1-an-hour worker take 50-cents-an-hour job?

TODAY THE PHRASE "suitable employment" has little meaning for most people. But after X Day—after cutbacks come thick and fast and hundreds of thousands of workers are laid off—that phrase may make headlines. If a jobless worker turns down work because he thinks it isn't "suitable," he can be denied unemployment compensation. So the question is, just what is suitable? Would a job at 40 cents an hour in a laundry be suitable for a worker who has earned $1.00 an hour in an aircraft plant?

Such questions are tough and subject to various interpretations, depending on the state, as two recent decisions suggest:

An Arkansas carpenter, who for four months had had only odd jobs, refused work as a trailer-body builder because it paid only 65 cents to 77 cents an hour, compared with the union rate of $1.25 for carpenters. He was disqualified from receiving unemployment benefits on the ground that the job offered paid the prevailing rate for similar work in the locality and that he had no definite prospect of work in his trade.

A 61-year-old Illinois musician who refused to investigate an offer of work as a shipping clerk, at the relatively high rate of 95 cents an hour, was also disqualified, but won his appeal. The job was held unsuitable because of his age, lack of experience, and the possible impairment of his skill as a musician—he would have had to give up his usual morning practice.

Offhand, both decisions are understandable. No definite formula can be established which will simultaneously protect the state against deadbeats and safeguard responsible workers against the downgrading of their skills and the loss of their economic status. That perhaps explains why practices vary so widely from state to state. Although the Social Security Board may offer recommendations, each state sets up its own laws and standards. Under Illinois practice, for example, the Arkansas carpenter would not be required to accept a job paying so much less than his previous standard.

WHERE ALL STATES MEET

All state laws agree to this extent: a job cannot be considered suitable if it (1) is vacant because of a strike, lockout, or labor dispute, (2) offers less than prevailing wage rates for similar work in the locality, or (3) requires a worker to join a company union or to resign from or refrain from joining any bona fide labor organization. In practice, all states presumably would also agree in not requiring a member of

the Woman's Christian Temperance Union to accept a job as barmaid, or an accountant to become a common laborer. Most state laws specify that consideration should be given to the degree of risk involved to the worker's health, safety, and morals; his physical fitness and prior training; his experience and prior earnings; the length of his unemployment and his prospects for obtaining work in his customary occupation; and the distance of the available work from his residence.

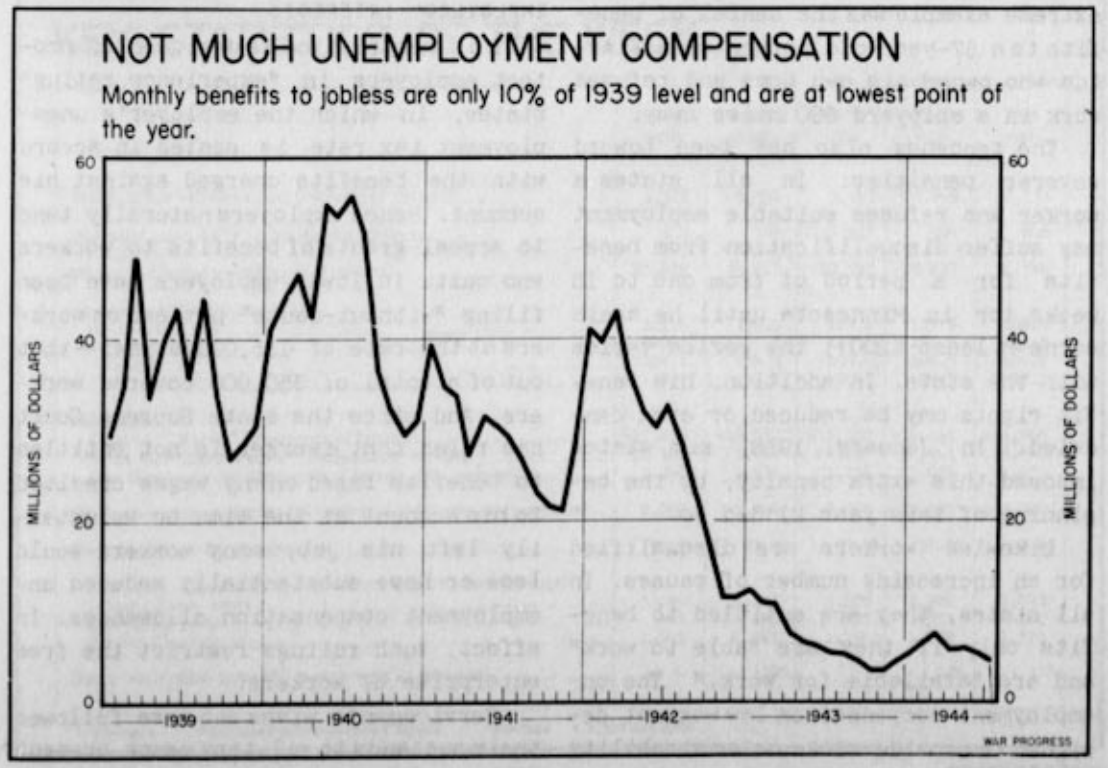
WHAT'S A SUITABLE WAGE?

Both in law and in practice, however, these criteria are variously qualified or supplemented by the various states. And there is wide diversity in the interpretation of the most likely cause of dispute—suitable wages.

Six state laws do not consider prior earnings in defining suitable work. Of these, four use the benefit rate as the main standard. Thus Wisconsin may require a worker to accept a job for which he is reasonably fitted if the rate offered equals his weekly benefit. Minnesota sets the "suitable" rate at 25% above the weekly benefit.

In Illinois, on the other hand, the policy is to expect no worker to accept less than his prior wage rate for the first three weeks of his unemployment. In subsequent weeks, suitable rates are successively reduced in accordance with a table. A worker who had been making from $1.01 to $1.10 an hour, for instance, would be expected to accept 70 cents an hour in the ninth week of his unemployment—but never less than this if prospects for work in his trade haven't changed.

Most states are not that specific. But all alike are running into the special problem created by the war: laid-off war workers—women in particular, who have earned 80 cents and more per



hour—are likely to be offered much lower wages in civilian industry. The case of Evansville, Ind., is representative. Most of the jobs available for women there pay only 38 cents or 40 cents an hour. When the local agency declared these suitable, appeals began to stream in. Some of the women protested that with such wages they couldn't afford to hire a maid to take care of their homes and children, as they had been doing while working in war plants. This raises the question of to what extent, if any, a worker's personal or domestic responsibilities should be taken into account in defining "suitable employment."

TOUGHENING UP

The wartime tendency has been to give less consideration to individual needs or preferences. With manpower generally short, courts and referees have frowned upon any unemployment, and consequently compensation for it. An extreme example was the denial of benefits to a 67-year-old carpenter in Florida who owned his own home and refused work in a shipyard 600 miles away.

The tendency also has been toward severer penalties. In all states a worker who refuses suitable employment may suffer disqualification from benefits for a period of from one to 15 weeks (or in Minnesota until he again earns at least $200); the period varies with the state. In addition, his benefit rights may be reduced or even canceled. In January, 1938, six states imposed this extra penalty; by the beginning of this year 21 did so.

Likewise workers are disqualified for an increasing number of causes. In all states, they are entitled to benefits only if they are "able to work" and are "available for work." The unemployment compensation law was not designed to provide sickness or disability benefits. But during the war "availability" has come to be defined narrowly.

The night shift is a case in point. A Connecticut court disqualified a working mother on the ground that her refusal to work on the night shift was a "fatal impairment of her availability." She argued that she had to care for her children. Delaware took the opposite position.

Another common reason for disqualification is quitting a job without "good cause." In 19 states "good cause" must arise from the nature of the work; it must be attributable to the employer. Thus benefits have been denied to a cigar salesman who, after quitting to take a job in an arsenal, was rejected by the arsenal doctor and was then unable to get his old job back. It was ruled that his action in leaving the cigar company even for war work was "purely a voluntary one" and not attributable to the employer.

EMPLOYERS' INTERESTS

This restriction is designed to protect employers in "experience rating" states, in which the employer's unemployment tax rate is scaled in accord with the benefits charged against his account. Hence employers naturally tend to appeal grants of benefits to workers who quit. In Iowa, employers have been filing "without-cause" notices on workers at the rate of 135,000 a year—that out of a total of 350,000 covered workers. And since the state Supreme Court has ruled that a worker is not entitled to benefits based on any wages credited to his account at the time he voluntarily left his job, many workers would lose or have substantially reduced unemployment compensation allowances. In effect, such rulings restrict the free enterprise of workers.

Servicemen's wives who have followed their husbands to military camps present

a problem too. In 19 states these women would automatically be ineligible for benefits: they've not left their jobs for good cause. Seven other states disqualify workers who quit because of marriage. Still other states have ruled that following a husband is justifiable cause for quitting. But the wives are still liable to disqualification on other grounds. Some states have ruled that workers who move to areas of limited job opportunities (such as camps) and cannot find jobs are ineligible for benefits, on the theory that they are no longer available for work.

Migrant workers in general are apt to be penalized by the tendency in a number of states to define availability as at the place of a worker's prior employment. The Alabama Supreme Court, for example, disqualified a woman who left her job to join her husband in another town because she had voluntarily placed distance between herself and available work; and this doctrine has since been incorporated in Alabama law. Similarly Colorado and West Virginia have added amendments providing that employment should not be considered unsuitable because the worker has chosen to leave the locality where it is offered.

BUT AFTER X DAY...

Altogether, many restrictive rulings are attributable to wartime emergencies. The problem has been not to find suitable jobs but to fill them; courts and appeal boards have deliberately subordinated individual needs or preferences to the national interest. After X Day, when "overemployment" gives way to unemployment again, they may revert to a more liberal interpretation of social security laws. But restrictions that have been written into state laws may not be so easy to liberalize. Unless states modify their wartime rules prompt-

KEY STATISTICS OF THE WEEK

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War Program – Checks paid (millions of dollars)	1,712	1,571	1,927	1,899	1,731
War bond sales – E, F, G, (millions of dollars)	178	164	215	396	208
Money in circulation (millions of dollars)	23,432	23,221	22,910	20,823	18,740
Wholesale prices (1926=100)					
All commodities	103.6'	103.5	103.6	103.4	102.8
Farm products	122.0'	121.8	122.5	123.2	123.3
Foods	104.1	104.0	104.6	104.5	104.7
All other	98.7'	98.7	98.7	98.3	97.3
Petroleum:					
Total U.S. stocks* (thousands of barrels)	417,474	416,378'	411,357	414,667	421,068
Total East Coast stocks* (thousands of barrels)	71,189	71,010	66,895	54,961	58,048
East Coast receipts (thousands of barrels, daily average)	1,990	1,673	1,754	1,628	1,635
Bituminous coal production (thousands of short tons, daily average)	2,002	1,992	2,065	2,095	2,022
Steel operations (% of capacity)	95.5%	97.1%	97.0%	97.5%	99.4%
Freight cars unloaded for export, excluding grain (daily average)					
Atlantic Coast ports	3,099	3,172	2,800	2,928	2,843
Gulf Coast ports	331	398	378	377	360
Pacific Coast ports	1,843	1,747	1,796	1,272	1,370
Department store sales (% change from a year ago)	n.a.	+18%	+5%	+2%	+1%

'Preliminary *Excludes military-owned stocks 'Revised n.a. Not Available

ly, many laid-off workers may have to depend pretty much on their savings.

Returning veterans too have a stake in "suitable employment." Under the G.I. Bill of Rights, soldiers are entitled to readjustment allowances while looking for jobs, and the states are responsible for administration. Presumably, veterans will try to capitalize on the skills they've acquired in the Army or Navy; a former day laborer who has become a mechanic will not want to go back to day laboring if he can get a job in a manufacturing plant or a garage. Nevertheless the kind of job a veteran will be expected to take will depend on the state he happens to live in, and on how that particular state interprets "suitable employment."

When ASP Meets X Day

Army supply requirements to be cut 50% for 12 months following Germany's surrender. Pressure to be off urgent programs, with possible exception of airborne radar.

WHEN X DAY comes, Army supply requirements will be cut in half. A special supply program for the 12-month period following the surrender of Germany (Period I) sets required production at $10,700,000,000, as compared to $21,500,000,000 for 1944. Requirements for 1945 at present are scheduled at $19,600,000,000.

Of all the programs now listed as critical, only airborne radar—which still would be scheduled to increase 26%—may remain critical. However, compared with present schedules for 1945, airborne radar is cut 5%. Moreover, with ground radar and airborne radio requirements reduced sharply, production pressure may be eased considerably.

General-purpose bomb requirements will also go up over this year's level. But the rise—13%—compares with the 64% gain now planned for 1945; requirements ought to be well within bounds of materials, facilities, and manpower.

Requirements for other now-critical programs—big guns, big-gun ammunition, heavy-heavy trucks, tanks, and tractors—would decline sharply and the programs would automatically drop from the critical list. The cut in tanks is especially sharp—96%. Though the program for mortars and rocket launchers would drop 36%, it would still be higher than planned for 1945. Here's how the required production of selected ASP items after X Day compares with 1944 requirements:

	1944	Period I	% Change
	(millions)		
Total.....	$21,500	$10,700	-50%
Guns, fire control.....	1,312	356	-73
Heavy artil...	202	26	-87
Small arms....	587	182	-69
Ammunition.....	4,871	2,424	-50
Heavy artil...	376	91	-76
Mortar shells, rockets.....	326	249	-24
Small arms amm.....	619	330	-47
Aerial bombs...	1,359	991	-27
GP bombs.....	290	327	+13
Combat vehicles	1,405	79	-94
Tanks.....	1,086	47	-96
Motor carriages for SP guns...	276	11	-96
Automotive veh.	2,231	652	-71
Heavy-heavies.	532	151	-72
Tractors.....	476	276	-42
Comm. & elec. equipment.....	3,160	1,678	-47
Airborne radio	441	162	-63
Airborne radar	541	682	+26

International aid requirements are estimated at nearly $1,500,000,000—a

reduction of 60% from 1944. They constitute 14% of total required munitions production. Heaviest demands will be for ammunition and combat and motor vehicles. International aid would take 37% of the total truck production, 26% of small arms.

August Aircraft Audit

Weight was off 7%, numbers 4%, but most high-urgency models came through. Superfortress made record, though below schedule; Invader now in quantity production.

A NEW SUPERBOMBER made its debut, the A-26 Invader really got into quantity production, and acceptances of the P-51 Mustang reached the highest level ever attained by a fighter in any one month. Those were the high lights of last month's airplane performance.

Schedule was missed by 7% on the airframe weight basis, and numbers were 4% shy—7,939 as against 8,228. But the only notable deficits were in the B-29 Superfortress and the C-46 Commando.

In all, 94 Superfortresses were accepted, the largest number in any one month since their debut in July, 1943; but this was 27 planes short of schedule. As in July, the Bell plant at Atlanta was responsible for the drop; though the 11 accepted contrasted with July's one, 40 were scheduled. There is a reason for the lag.

Early this year Bell, Atlanta, had a substantial number of planes in process which the Army wanted in a hurry. So workers were shifted from parts to assembly operations during February, March, April, and May. Since May, planes have been held up for lack of "bits and pieces," such as pipe, tubing, and wire. Later, workers had to be shifted from the assembly line to the modification line. Finally, the B-29 is a highly complex ship to build and production control at Atlanta hasn't been up to expectations. A new plant manager is now being selected and the plant may begin to roll in another three months.

As for the Commando, the 114 accepted were 14% below schedule. Of this total, 101 came from Curtiss, Buffalo, which was 16% short of the plan. It has been a long, tough grind for this plant (WP-July8'44,p7)—and it's still grinding; more design changes are in the works as soon as the assembly line can absorb them.

Fighters made the best all-around showing among major plane groups. One factor here was a record turnout of 402 P-38 Lightnings at Lockheed, Burbank, 35 planes ahead of July and two above schedule. Another was the P-51 Mustang's 6%-above-schedule showing; the August total of 700 compared with 569 in July, when acceptance rules at North American, Inglewood, were changed (WP-Aug5'44,p11). The complete list follows:

	August Acceptances as % of	
	July	W-11
All military planes.	99%	93%
Army procured....	98	93
Navy procured....	103	91
Combat planes.....	100	93
Superbombers.....	128	78
Forts & Liberators	92	91
Patrol bombers....	120	67
Medium bombers....	93	100
Light bombers.....	115	98
Fighters (incl. naval reconn.)...	105	101
Transports.....	92	94
Trainers.....	83	86
Communications....	100	102

Two experimental models of the B-32 superbomber, just christened the Dominator, came through at Consolidated Vultee, San Diego. But the two production models scheduled for acceptance at

SELECTED MONTHLY STATISTICS

Income Payments - Production - Inventories - Sales

	Latest Month*	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Same Month 1939	Same Month 1937
INCOME PAYMENTS - TOTAL (million dollars)	12,892	13,499'	12,300	12,426	11,846	5,806	6,177
Salaries and wages	9,166	9,201'	9,075	8,889	8,399	3,667	3,841
Comm., distr., and serv. industries	7,031	6,979'	6,887	6,812	6,678	3,099	3,322
Government	2,135	2,222	2,188	2,077	1,721	424	393
Military	1,265	1,234	1,206	1,115	890	36	36
Nonmilitary	870	988	982	962	831	388	257
Work relief wages	0	0	0	0	0	144	126
Other income payments†	3,726	4,298'	3,225	3,537	3,447	2,139	2,336
Income payments annual rate (adjusted for seasonal, billion dollars)	156.1	156.3'	155.1	152.1	143.4	70.4	74.4
FOOD PRODUCTION							
Dairy products (million pounds)							
Butter, creamery	154.6'	177.9'	174.5	104.1	180.9	182.2	171.7
Cheese	107.3'	122.6'	94.8	62.2	107.1	77.3	70.5
Evaporated milk	358.0'	412.5	417.5	194.5	331.6	226.6	205.8
Meats - total (incl. lard, million pounds)	1,554'	1,754	1,836	2,189	1,690	1,033	771
Beef and veal	496.9'	556.2	566.6	630.7	485.4	445.8	421.3
Lamb and mutton	71.6'	69.0	68.3	81.5	78.1	53.1	52.4
Pork, incl. lard	906.8'	1,128.6	1,200.9	1,476.5	1,126.0	534.3	297.0
Lard	188.9'	231.9	240.8	265.9	200.1	93.6	42.2
Poultry and eggs							
Eggs (millions)	4,631'	5,437	6,704	4,434	4,532	3,307	3,305
Poultry (receipts of 5 principal markets, million pounds)	42.1	39.2	29.0	30.7	24.2	27.8	20.8
INVENTORIES - TOTAL (million dollars)	27,145	27,368	27,510	27,538	27,293	18,160	N. A.
Manufacturers	17,199	17,229	17,268	17,305	17,391	9,747	|
Wholesalers	4,043	4,088	4,146	4,052	3,828	3,457	|
Retailers	5,903	6,051	6,096	5,681	6,074	4,956	N. A.
RETAIL STORE SALES - TOTAL (million dollars)	5,464	5,593	5,721	4,928	5,231	3,349	3,588
Durable goods stores	838	863	873	678	811	868	1,029
Nondurable goods stores	4,626	4,730	4,848	4,250	4,420	2,481	2,559

*Entire Series, July. 'Revised. †Social Security benefits, direct and other relief, dividends and interest, entrepreneurial income. 'Preliminary. N. A. Not available.

the Ft. Worth plant were still being worked on. The Dominator is a sister ship of the Superfortress, was designed from the same Army performance specifications.

The 1,217 Forts and Liberators accepted compared with a schedule of 1,338. Consolidated Vultee, San Diego, was responsible for almost all of the deficit. For most of August, San Diego was still feeling the effects of a change in acceptance procedure (WP-Aug5'44, p10). However, the PB4Y—a Navy version of the PB4Y patrol Liberator—has been given an overriding preference, which may cut into September Liberator output at this plant. Meanwhile, supply is running ahead of B-24 requirements.

With wing-spar difficulties finally cleared up, the A-26 Invader hit a new monthly high at 70 planes, one above schedule and 44 more than in July. The A-26 faces major design changes this month; for one thing, the cockpit canopy must be raised to improve the pilot's vision. But both Douglas plants assembling this plane—at Long Beach and Tulsa—think they can take them in stride.

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War Production Board

Fractional Motors After V-E Day

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WAR PROGRESS

Prepared in the War Production Board

J. A. Krug, Chairman

War Progress is a confidential report designed to provide a coordinated and continuing picture of the overall war program for the various war agencies. To this end, it presents, analyzes, and interprets basic statistical and economic information, and from time to time examines the pros and cons of controversial questions.

Although War Progress is an official publication of the War Production Board, statements in it are not to be construed as expressing official attitudes of the Board as a whole, or even of individual members. Conclusions, whenever reached, should be considered editorial conclusions.

War Progress is prepared in the Bureau of Planning and Statistics (Thomas C. Blaisdell, Director) by the Reports Division (Joseph A. Livingston, Director).

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Fractional Motors Come V-E Day

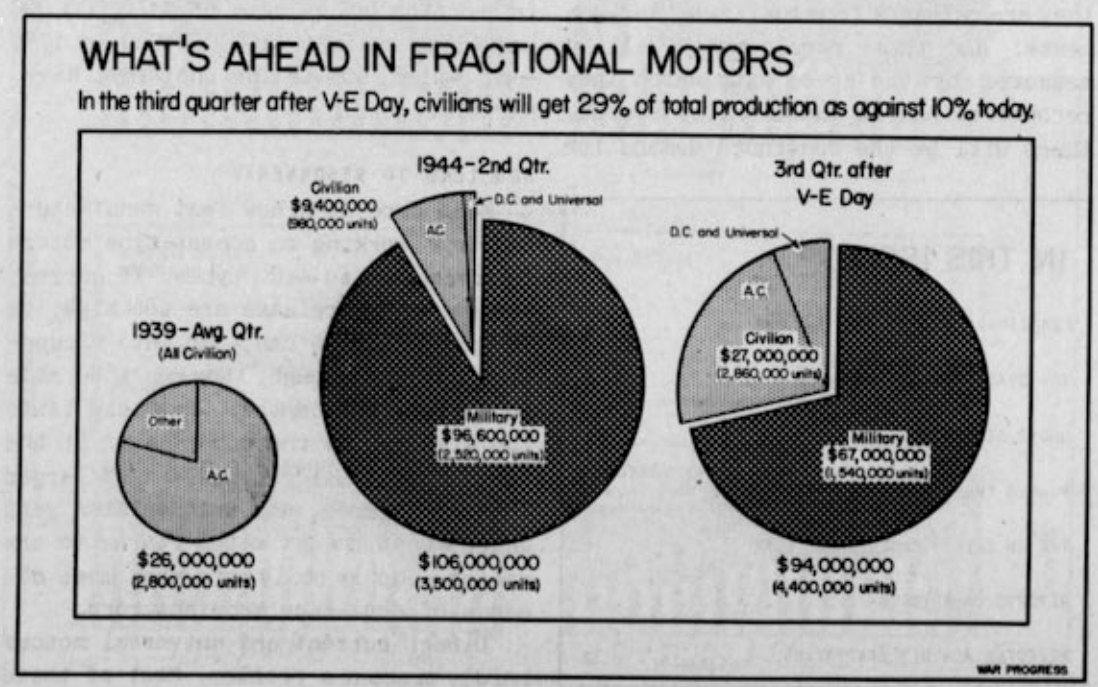
Production of A.C. civilian types ought to rise to reconversion occasion after Germany falls. Plant capacity today is far greater than it was in 1939.

JUST AS IT IS TODAY, so will it be after V-E Day in fractional horsepower motors. Military demands will continue to be met—universal (A.C.-D.C.) and D.C. fractionals will be in good supply. But A.C. civilian types will probably be tight and could conceivably slow up reconversion.

Present civilian consumption of alternating current fractional motors runs to somewhat over 800,000 units per quarter. They're needed for farm equipment, pumps, milking machines, fans, blowers, replacements for refrigerators and washing machines, and other essential civilian needs. In the third quarter after V-E Day, estimates are that 2,100,000 will be available—as a result of reconversion of facilities to civilian production, addition of new facilities, increased labor. Yet it still is touch and go whether that 160% increase in civilian supply will be sufficient to meet civilian demands.

LOOKING AT REFRIGERATORS

It all depends on how fast the consumers' durable goods industry reconverts. The War Production Board's Consumers Durable Goods Division estimates that nine months after V-E Day refrigerator manufacturers will be turning out refrigerators at the comparatively high level of 475,000 per quarter—equal to the 1939 rate, but considerably be-



low 1941. If the paper work, getting together of components, and tooling up take less than the six months now figured, this rate would probably be low, and estimated fractional horsepower motor requirements would go up accordingly. If, on the other hand, it takes longer for the industry to get into mass production, for one reason or another, then demand for fractionals would be easier than figured.

WASHING MACHINES

In washing machines, similarly, estimates are provisional. It is figured that 500,000 washers per quarter could be produced within nine months after Germany is defeated. Slow reconversion would make this figure too high, fast reconversion too low—with corresponding pressure on fractionals. And so it goes right down the line. There will also be demands from producers of stokers, oil burners, evaporative coolers, and miscellaneous appliances who will be getting into production as soon as they are released from munitions assignments; and their requirements will be measured by the speed with which they reconvert. And in addition, of course, there will be the continued demand for milking machines, pumps, etc.—today's essential civilian needs.

Obviously, then, the demand for A.C. fractionals is contingent. It depends on how quickly refrigerator, stoker, oil burner, and other manufacturers tool up; on how readily they get components; how easily they get rid of bugs from the assembly line. But assuming fair success—fairly rapid reconversion—this is what quarterly civilian requirements might shape up to be nine months after V-E Day:

Washing machines	500,000
Refrigerators...	475,000
Current programs	800,000
Other.....	400,000
Total.....	2,175,000

In 1939, fractional horsepower production was at a level sufficient to meet these requirements; today it is more than four times as great—as a result of military demand. Current production of all types of fractional motors is running at a rate of $450,000,000 annually, against $100,000,000 in 1939 —of which 90% is for the Army, Navy, Maritime, etc.

HOW LONG TO RECONVERT?

Much depends on how fast manufacturers now working on combat-type motors can reconvert to A.C. types. If current estimates of release are too high, or if manufacturers can't get into production quickly enough, they won't be able to satisfy the demand. But this isn't too likely. On the other hand, if the cut in the munitions programs is larger than now figured, and reconversion gets under way as now estimated—three to six months—supply could more than meet demands of appliance manufacturers.

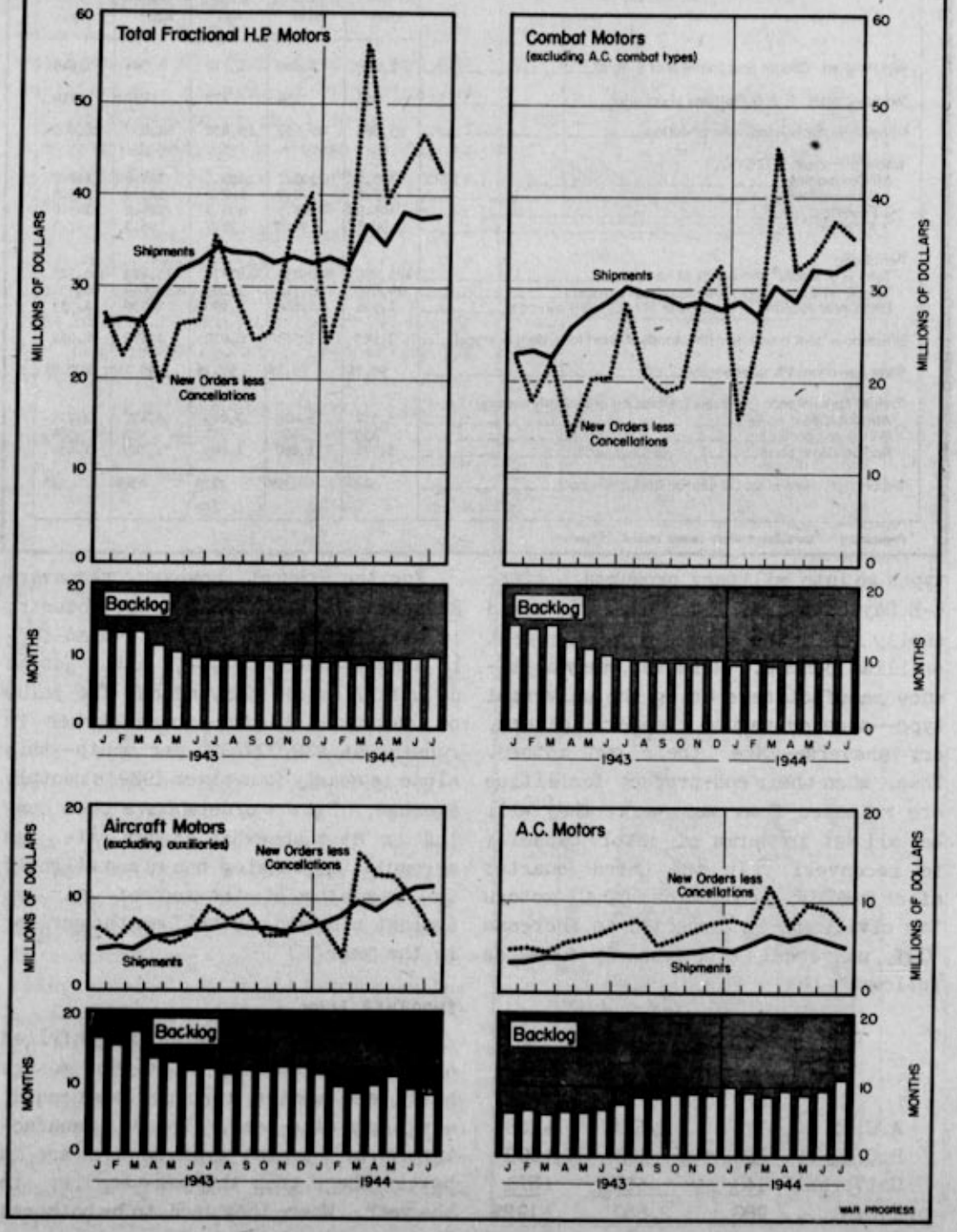
Direct current and universal motors hardly present a problem. Most of these

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PERSPECTIVE ON FRACTIONAL MOTORS

Shipments of combat types continue to rise, but backlog holds at high levels. A.C.'s remain tight.



KEY STATISTICS OF THE WEEK

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War Program - Checks paid (millions of dollars)	1,678	1,629	1,712	1,594	1,640
War bond sales - E, F, G, (millions of dollars)	260	152	178	239	712
Money in circulation (millions of dollars)	23,881	23,658	23,432	21,037	18,883
Wholesale prices (1926=100)					
All Commodities	103.8 p	103.7	103.6	103.6	103.0
Farm products	122.8	122.8	122.0	123.9	123.6
Foods	103.9 p	104.3	104.1	104.2	105.0
All other	98.8 p	98.8	98.7	98.3	97.5
Petroleum:					
Total U.S. stocks* (thousands of barrels)	421,295	420,235	416,378	413,122	420,129
Total East Coast stocks* (thousands of barrels)	74,677	73,712	71,189	55,844	60,751
East Coast receipts (thousands of barrels, daily average)	1,696	1,662	1,990	1,750	1,537
Bituminous coal production (thousands of short tons, daily average)	1,975	1,933 r	2,012	1,979	2,017
Steel operations (% of capacity)	95.6%	95.1%	95.1%	99.1%	100.8%
Freight cars unloaded for export, excluding grain (daily average)					
Atlantic Coast ports	3,577	3,425	3,099	3,457	2,719
Gulf Coast ports	459	462	331	452	384
Pacific Coast ports	1,778	1,898	1,843	1,365	1,454
Department store sales (% change from a year ago)	+12%	+9%	+15%	+32%	+2%

p Preliminary *Excludes military-owned stocks r Revised

types go into military products. After V-E Day cutbacks, manufacturers could easily fill the comparatively modest civilian demand. Moreover, many appliance manufacturers using the universal type—such as vacuum cleaners, mixers, dry shavers—make their own motors. Thus, when their end-product facilities are released from war work, they will be all set in terms of motor capacity to reconvert. In the third quarter after V-E Day, production of D.C. motors for civilians is expected to increase 300%, universal types nearly 400%, as follows:

	2nd Qtr. 1944	3rd Qtr. After V-E Day	% Change
	(000 units)		
A.C.	815	2,100	+158%
D.C.	25	100	+300
Universal.	140	660	+371
Total....	980	2,860	+192%

For the present, however, reconversion of the fractional-motor industry is still mainly in the let's-plan-for-it stage. There is still a big job to do in filling military needs. The value of shipments to the armed forces is running at $32,000,000 per month—this alone is nearly four times 1939's monthly average. But new orders have been coming in at a somewhat higher rate. As a result the backlog has risen slightly to 10 months at the end of July, as against nine and one-half months earlier in the year.

SMOOTHER FLOW

But despite this rise in unfilled orders, shipments of combat-type motors have been coming through as needed, with July at a peak. Indeed, manufacturers of combat-type motors are in better shape than they were earlier in the year. Where they used to be bothered

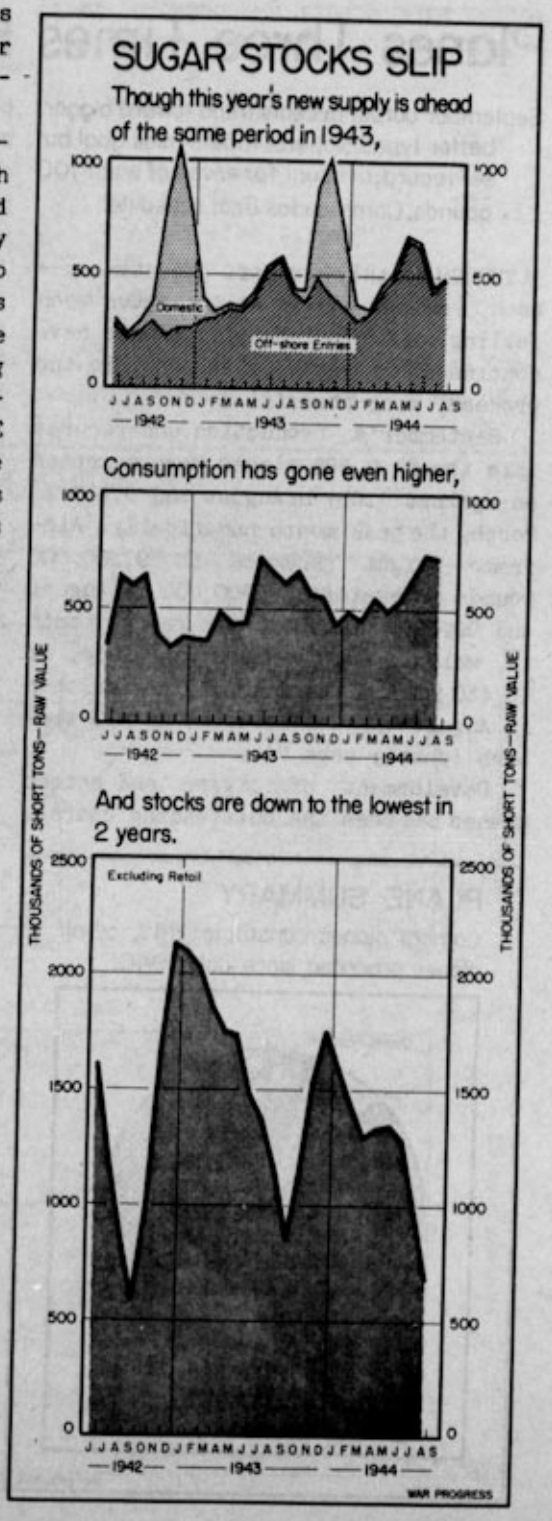
by sudden changes in specifications which upset the assembly lines (WP-Apr 29'44,p6), now these interruptions occur much less frequently.

The rise in orders is directly traceable to the B-29 Superfortress, which requires some 300 fractional motors and auxiliaries, as against approximately 100 for the Fort or the Liberator. To a lesser degree, the increase represents overordering by users in order to make sure of delivery. Present shipping schedules call for increases of aircraft-type fractionals, but after V-E Day shipments will drop—despite the rise in requirements for the B-29. Here's how the second quarter 1944 shipments of combat types compare with estimates in the third quarter after the end of the European war:

	2nd Qtr. 1944	3rd Qtr. After V-E Day	% Change
	(000 units)		
Aircraft types.	1,020	625	-39%
Signal Corps...	635	355	-44
Other.....	865	560	-35
Total military	2,520	1,540	-39%

To an extent, manufacturers have been held up by shortages of castings and labor. And despite large releases in labor in other munitions industries, motor manufacturers have not had much relief because of the special skills needed for the fractional-motor industry—armature winding, for instance. If castings and labor had been available, production could have been increased by perhaps as much as 20%.

Thus, the presumption is that fractional motors will not be a reconversion bottleneck unless appliance manufacturers get into large-scale production much more quickly, or the A.C. motor manufacturers much more slowly, than expected.



Planes Three Times Heavier Than in '40

September output accents trend toward bigger, better types. Superbombers miss goal but set record; account for seven of each 100 pounds. Commandos beat schedule.

ALTHOUGH monthly aircraft acceptances—both in number and in weight—have been falling off consistently, planes have continued to get heavier, and, in the process, more powerful.

September's production underscores this trend: 7,598 planes were accepted as against 7,937 in August and 9,117 in March, the peak month numerically. Airframe weight amounted to 79,300,000 pounds as against 79,700,000 in August and 90,000,000 in May, the record month in weight. But weight per plane, at 10,430 pounds, was about 4% greater than in August and just about at an all-time high (chart, page 7).

Development of bigger and better planes has been the outstanding characteristic of this country's aircraft program. A few months after the fall of France, the average weight per plane produced was only 3,020 pounds; year by year since then it has risen, as follows:

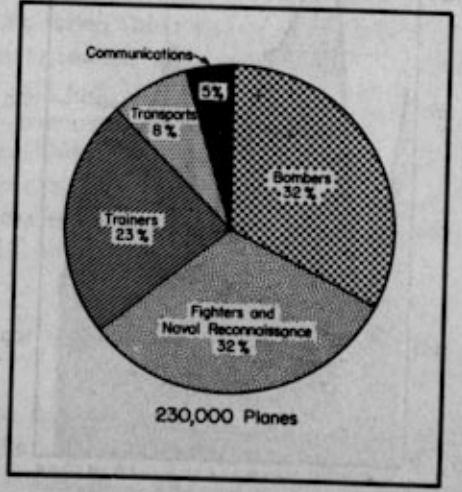
September	Pounds
1940.....	3,020
1941.....	4,220
1942.....	6,460
1943.....	8,100
1944.....	10,430

And by December of this year, weight per plane is due to rise still further—to 10,700 pounds.

Production today is concentrated in tactical types—bombers, fighters, naval reconnaissance, and transports—in contrast to when the program was expanding rapidly. In 1942, for example, 85 out of every 100 pounds of airframe weight accepted was in tactical planes and 15% in nontactical types: trainers, communications, and special purpose (chart, page 8). Last month, however, fully 98 out of every 100 pounds was in bombers, fighters, naval reconnaissance, and transports, only 2% in nontactical types. This reflects chiefly the reduction in pilot training programs and the continued emphasis on fighting planes.

PLANE SUMMARY

Combat planes constitute 64% of all planes produced since July, 1940.



SUPERBOMBERS SOAR

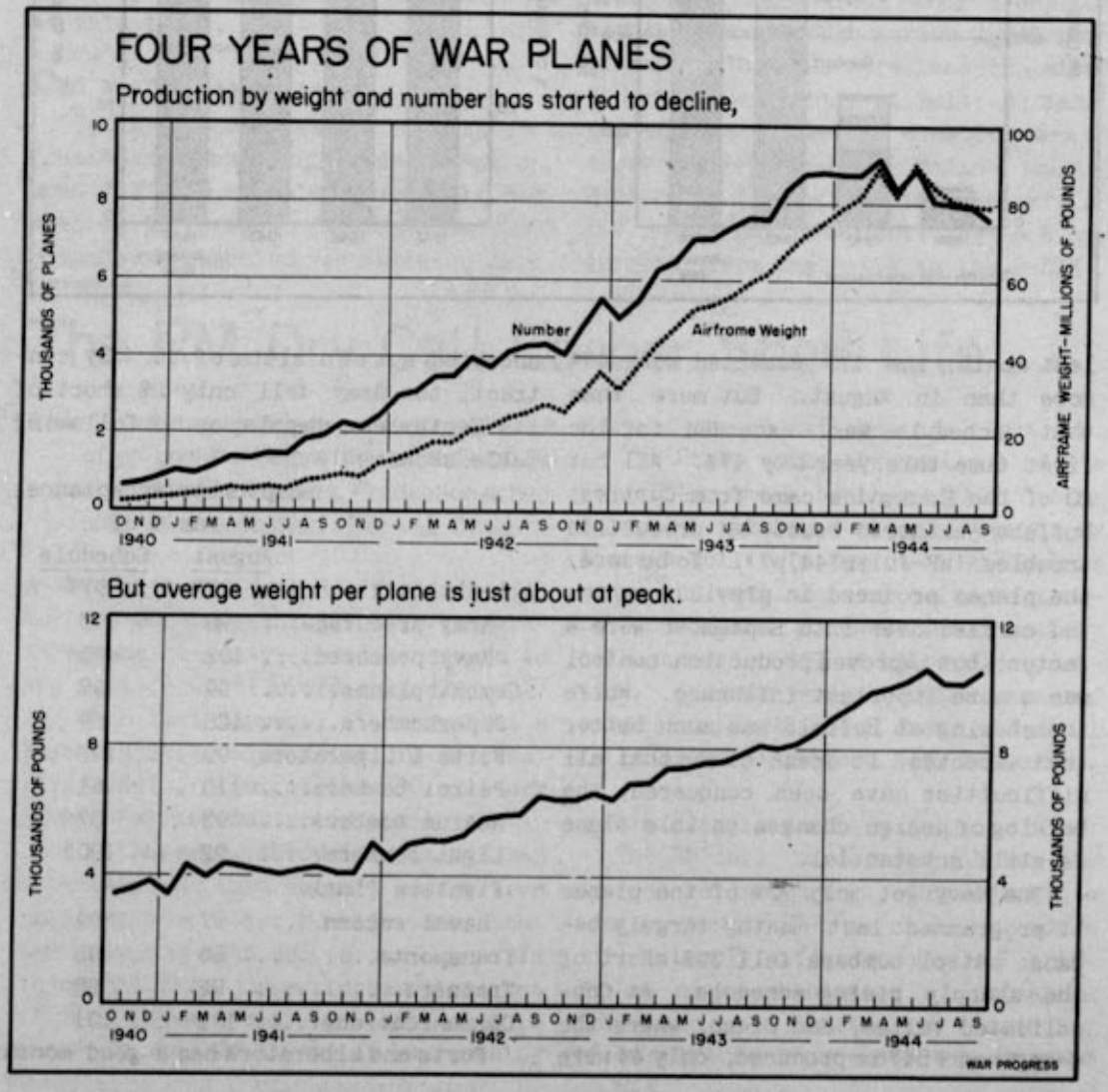
In this uptrend, the superbomber is increasingly important. Thus, last month a record number—123—were accepted, or 27 above August. These planes, at 49,000 pounds each, are twice the airframe weight of a Fortress or Liberator. And the superbomber last month accounted for seven out of every 100 pounds accepted; in December it is scheduled to account for 15 out of 100 pounds.

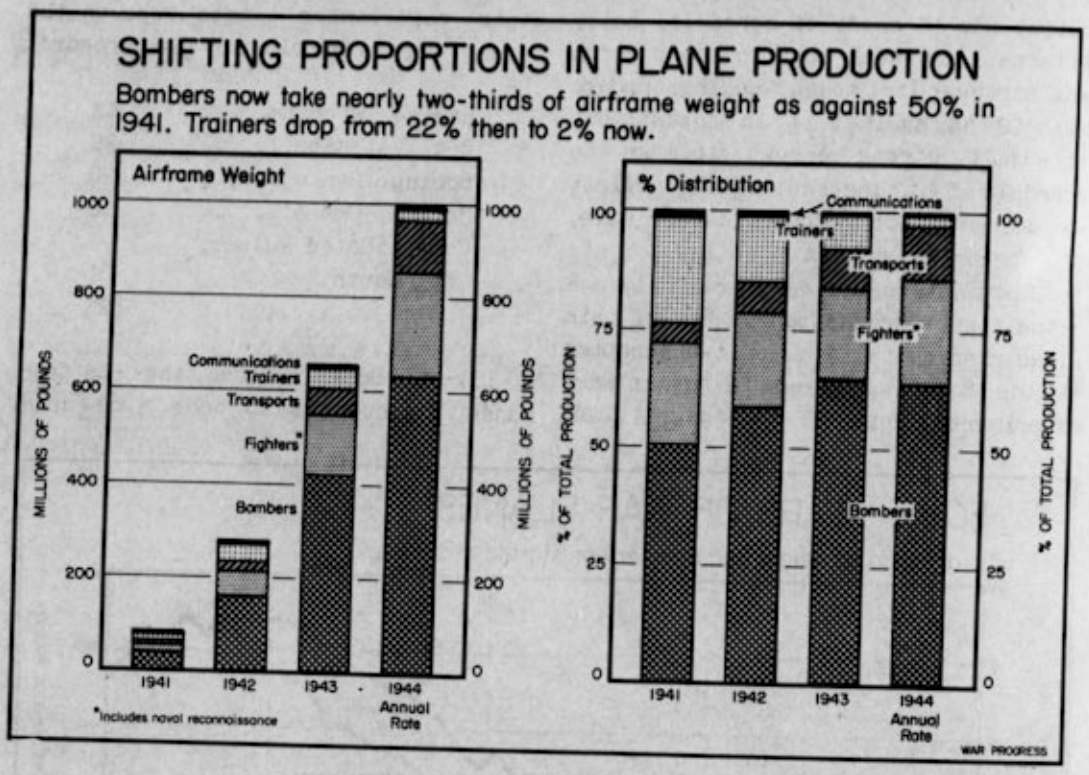
Nevertheless, September superbomber

output was 16 short of schedule. Bell, Atlanta, the weak spot in the program was stronger last month, coming through with 29 as against 11 in August; but it wasn't strong enough to make the schedule of 40. The rest of the deficit was accounted for by Consolidated Vultee, Ft. Worth, which was shooting for six B-32 Dominators and delivered only one —the first production model of this plane, incidentally; the two accepted at the San Diego plant in August were experimental jobs (WP-Sep9'44,p11). All other superbomber plants were on the target. Here's the plant-by-plant record:

Boeing, Wichita.....	63
Bell, Atlanta.....	29
Boeing, Renton.....	20
Martin, Omaha.....	10
Consolidated Vultee, Ft. Worth	1
Total.....	123

Like the Superfortress, the C-46 Commando transport also made a new high





last month; the 170 accepted were 49% more than in August. But more than that, schedule was exceeded for the first time this year—by 17%. All but 20 of the Commandos came from Curtiss, Buffalo—hitherto beset by production troubles (WP-July8'44,p7). To be sure, the planes produced in previous months and carried over into September were a factor; but improved production control was a more important influence. While the showing at Buffalo was much better than expected, it doesn't mean that all difficulties have been conquered; the backlog of design changes on this plane is still substantial.

The Navy got only 90% of the planes it programmed last month, largely because patrol bombers fell 39% short of the sharply rising schedule. At Consolidated Vultee, San Diego, where the 4-engined PB4Y is produced, only 44 were accepted out of a slate of 65. By contrast, the Army fell only 2% short of its September schedule, as the following table shows:

	September Acceptances as % of	
	August	Schedule
All military planes.	99%	97%
Army procured....	98	98
Navy procured....	102	90
Combat planes.....	99	97
Superbombers.....	128	89
Forts & Liberators	99	103
Patrol bombers....	110	61
Medium bombers....	93	87
Light bombers.....	92	100
Fighters (incl. naval reconn.)...	97	99
Transports.....	98	95
Trainers.....	92	98
Communications.....	101	101

Forts and Liberators had a good month;

1,205 were accepted as against the schedule of 1,169. All plants did what was expected—or more—with Consolidated Vultee, San Diego, making a comeback; the 212 Liberators accepted there more than doubled the August total and ran 16% ahead of schedule—this in sharp contrast to the lag in PB4Ys. However, during July and August a revision of the acceptance rules on the Liberator at San Diego (WP-Aug5'44,p10) caused a backing up of planes at this plant. But now modifications are running more smoothly and this helped to swell last month's total.

A-20 BOSTON CASHES IN

The A-20 Boston cashed in its production checks at Douglas, Santa Monica, when 133 were accepted, virtually completing the program. More than 7,000 Bostons have been turned out since July, 1940; the plane has fought in nearly every combat theater, has become a great favorite with Russian and British as well as U.S. pilots. Its successor, the A-26 Invader, did nicely last month, the 90 accepted meeting schedule and making another new high. The increase came in spite of further design changes.

NAVY FIGHTERS DO WELL

All told, 1,191 Wildcats, Corsairs, and Hellcats were accepted, and Navy 1-engined fighters ran 4% ahead of schedule. But only 1,563 Army 1-engined fighters came through versus 1,641 programmed. This was more than explained by lags at two plants. At Bell, Buffalo, the 101 P-63 Airacobras accepted were 59 short; at North American, Dallas, the 213 P-51 Mustangs that came through were 38 shy. Here Dallas was shifting to a new version, from the P-51D to the P-51K.

The RM Dry Cell: Longer Shelf Life

Lasts four times as long as ordinary types which often give out before they reach South Pacific combat theaters. Production scheduled to increase even after V-E Day.

A VOYAGE to the South Pacific theater—perhaps 30 days through high temperatures and humidity—is often enough to sap the life out of an ordinary dry cell. And when that happens, it means that a Walkie-Talkie, mine detector, bazooka, field radio, or any of the 400 military items that use batteries won't work.

Now, however, the United States has a battery cell that doesn't suffer from shelf age; moreover, it withstands heat and humidity and has a service life three to five times longer than that of the conventional-type cell. It is known as the "RM." And it is reaching many of the combat theaters right now.

The RM is among the smallest of the so-called small battery cells, which range in size from a jelly bean to a Tootsie Roll. (A Walkie-Talkie uses as many as 72 small battery cells, a fountain-pen flashlight one). Small battery cells comprise 85% of all cell production. And next year, the RM is expected to account for 10 out of every 100 small cells used in Army and Navy batteries.

HOW IT DIFFERS

The RM cell is not new; it was developed before the war. In contrast to the conventional-type cell, it works on an entirely different chemical principle, using a solution of potassium hydroxide as an electrolyte (conductor of electricity) instead of ammonium

chloride. It has differences in construction, too, one of them being the use of a steel instead of a zinc shell. Why manufacturers didn't put it into production goes back to a dollars-and-cents reason: the conventional-type cell still held the competitive price edge, despite a shorter shelf and service life.

PROGRAM LAUNCHED

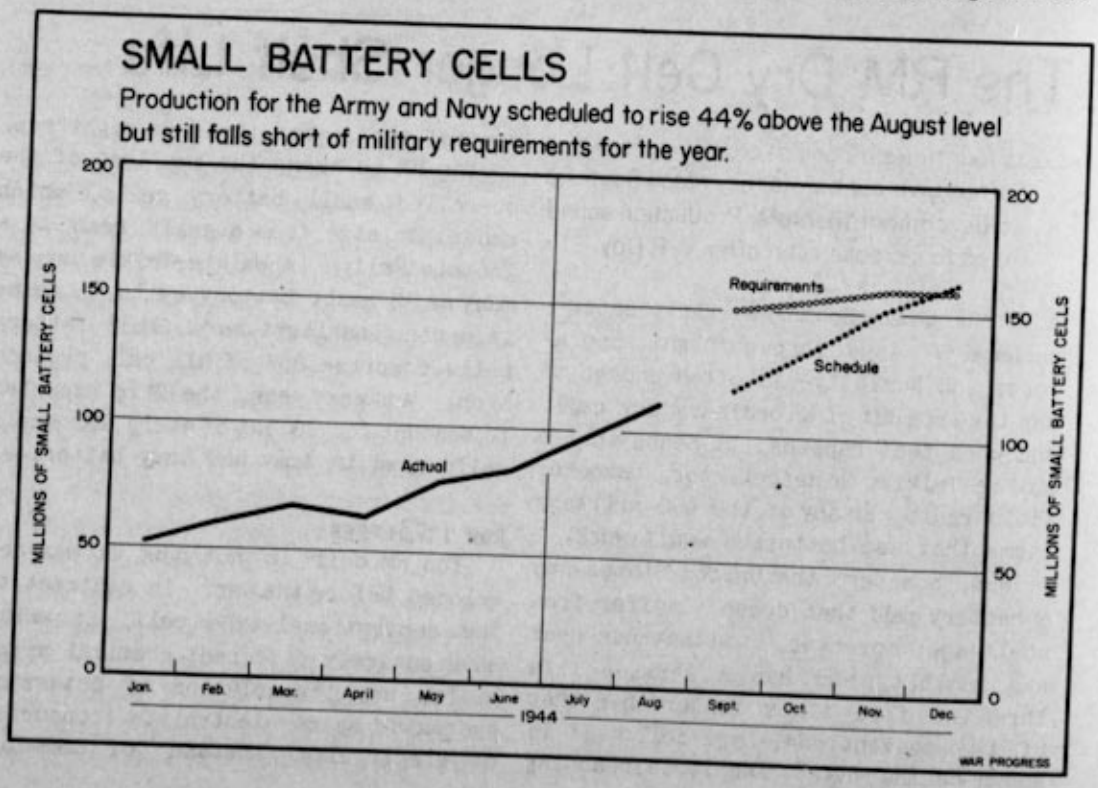
When the U.S. went to war, the RM cell was made available to the Army Signal Corps. Tests were conducted. But it was the South Pacific campaign that clinched the case; the RM withstood the long haul. In the middle of 1943, a facilities program for the RM cell was launched. Production got under way last month and a peak of 16,000,000 to 17,000,000 units monthly is expected by next February.

In 1939, about a dozen U.S. manufacturers turned out approximately 100,000,000 small battery cells. But in the year following Pearl Harbor, output more than doubled. It almost doubled again in 1943, and is now slated to quadruple on top of that; meanwhile the armed services have been taking an increasing share of total production:

	Production (millions)	% to Military
1942.....	250	60%
1943.....	400	75
1944*....	1,600	90

*Estimated; expected to include about 20,000,000 RM cells.

As shown by the chart below, production of small battery cells will continue to show a diminishing deficit



from stated military requirements until December. But next year, with new facilities still coming in, annual capacity for small battery cells will step up to approximately 2,000,000,000 units: 1,800,000,000 conventional-type cells and 200,000,000 RM cells. Unless military demand rises above currently stated figures, this should be enough to meet requirements.

But numbers alone do not tell the whole story of next year's small battery-cell capacity. Figuring the RM to last four times longer than the conventional-type cell, service life will equal 800,000,000 units. Thus, next year's power capacity is equivalent to 2,600,000,000 small battery cells, or more than 60% higher than this year's.

WHEN V-E DAY COMES

Here's a notable point, too. When the war in Europe ends, RM facilities will continue to run at full blast for the war in the Pacific; but about a third of remaining small battery-cell capacity (1,800,000,000 units) will be released. That will be enough to turn out more than five times the largest number of small battery cells ever used by the U.S. economy in a peacetime year. And provided manufacturers can hold on to their labor (a lot of workers are women and it's a two-shift industry today) small battery cells could be made available without restriction for civilian use in portable radios, hearing aids, meters, etc.

REPORTS ON REPORTS

Organic Chemicals

Although production of cyclic crudes (benzol, naphthalene, naphthenic acid, aromatic solvents) and intermediates (analine, anthraquinone, benzyl chloride, diphenylamine) has been maintained at or near peak levels, output has not been sufficient to meet demands because of increased military requirements, according to *Organic Chemicals* (confidential; pp. 16). And, until reconversion is well on its way, finished products—dyes, synthetic medicinals, synthetic flavors, and perfume materials, etc.—will be available for civilian use only in limited quantities.
(Department of Commerce, Bureau of Foreign and Domestic Commerce)

Consumer Views

Housewives continue to complain about quality deterioration and high prices, but are more concerned with the scarcity of certain commodities—especially clothing. *Housewives Report: C 37* (restricted; pp. 16) also points out that there has been a deluge of comments from correspondents, particularly nonhousewives, who have observed great increases in pleasure driving. To some, this is evidence that the black market must be doing a flourishing business.
(Office of War Information, Bureau of Special Services)

Manpower in Coal Mines

Mines which represented two-thirds of total employment in the bituminous coal industry in July, indicated they would need to increase their labor force 18% by the end of 1944, according to *Manpower Situation in Bituminous Coal Mining* (confidential; pp. 3). But despite a continued labor decline, 1944 output through August 19 amounted to 400,900,000 tons—1% above the production rate needed to meet requirements of 626,000,000 tons for the entire year. Therefore, it appears unnecessary to

SELECTED MONTHLY STATISTICS

Federal Finance – Income Payments – Food Production

	Latest Month*	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Same Month 1939	Same Month 1937
FEDERAL FINANCE (GENERAL FUND)							
Expenditures – Total (million dollars)	7,930 p	8,119 r	8,110	8,525	7,535	741	n.a.
War	6,998 p	7,571 r	7,201	7,726	6,952	116	
Nonwar	932 p	548	909	799	583	625	
Revenues – Total	3,926 p	2,568	2,163	6,573	5,447	676	
Income Taxes	3,174 p	1,552	1,247	5,911	4,765	329	
Other revenues	752 p	1,016	916	662	682	347	
War bond sales							
"E"	692	602	2,125	709	1,927	-	
"F" and "G"	591	499	1,687	576	1,400	-	
War bond redemptions	101	103	438	133	527	-	
"E"	278	272	220	262	145	-	
"F" and "G"	255	246	196	241	134	-	
Net debt (billion dollars)	23	26	24	21	11	-	n.a.
	194.4	192.1	186.6	168.1	140.2	38.7	34.0
INCOME PAYMENTS – TOTAL (million dollars)	12,661 p	12,888 r	13,499	12,114	11,681	5,483	5,897
Salaries and wages	9,238 p	9,152 r	9,201	9,026	8,460	3,710	3,862
Comm., distr., and serv. industries	7,087 p	7,017 r	6,979	6,943	6,719	3,289	3,477
Government	2,151 p	2,135 r	2,222	2,083	1,741	421	385
Military	1,277 p	1,265 r	1,234	1,119	925	38	33
Nonmilitary	874 p	870 r	988	964	816	383	252
Other income payments†	3,423 p	3,736 r	4,298	3,088	3,221	1,773	2,035
Income payments annual rate (adjusted for seasonal, billion dollars)	157.6	156.0 r	156.3	155.2	144.5	71.7	73.9
FOOD PRODUCTION							
Dairy products (million pounds)							
Butter, creamery	130.2	153.7	177.9	105.8	151.9	167.0	147.1
Cheese	n.a.	107.3	122.6	63.1	94.4	69.6	61.3
Evaporated milk	312.0	358.0	412.5	211.2	275.5	190.9	162.5
Meats – Total (incl. lard, million pounds)	1,572	1,554	1,754	2,021	1,572	1,037	792
Beef and veal	601.9	496.9	556.2	585.0	552.6	469.5	459.7
Lamb and mutton	75.5	71.6	69.0	64.2	89.5	56.6	57.6
Pork, incl. lard	791.9	906.8	1,128.6	1,372.2	929.8	510.7	274.5
Lard	153.2	188.9	231.9	259.1	165.4	90.7	56.0
Poultry and eggs							
Eggs (millions)	4,010	4,631	5,437	5,346	3,863	2,857	2,868
Poultry (receipts of 5 principal markets, million pounds)	38.7	42.1	39.2	23.0	29.7	25.8	20.9

*Federal Finance, September; all other, August. p Preliminary. r Revised. n.a. Not available. † Work relief, direct and other relief, Social Security benefits, Dividends and interest, entrepreneurial income.

recruit so many additional workers; employment stabilization should be sufficient.
(War Manpower Commission, Analysis Division)

Plastics

A critical shortage of materials, particularly naphthalene, phthalic anhydride, and phthalate plasticizers, which are needed for other industrial uses, continues to limit production of plastics. *Plastics Materials* (confidential; pp. 18) reveals further, that butyl alcohol, already tight because of military demands for noncoating use, is now even tighter and none was allocated in August for protective coatings.
(Department of Commerce, Bureau of Foreigh and Domestic Commerce)

[This record is an attempt to select from the many documents coming to the attention of WAR PROGRESS those studies which would be of most interest to readers. The list is by no means comprehensive, and no attempt has been made to evaluate reports for accuracy. Whether reports are available depends on the policy of each individual agency.]

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6.7

War Production Board

Critical Programs Still Critical
Cutbacks Casts Their Shadows

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WAR PROGRESS

Prepared in the War Production Board

J. A. Krug, Chairman

War Progress is a confidential report designed to provide a coordinated and continuing picture of the overall war program for the various war agencies. To this end, it presents, analyzes, and interprets basic statistical and economic information, and from time to time examines the pros and cons of controversial questions.

Although War Progress is an official publication of the War Production Board, statements in it are not to be construed as expressing official attitudes of the Board as a whole, or even of individual members. Conclusions, whenever reached, should be considered editorial conclusions.

War Progress is prepared in the Bureau of Planning and Statistics (Thomas C. Blaisdell, Director) by the Reports Division (Joseph A. Livingston, Director).

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Critical Programs Are Still Critical

Though gains as high as 91% (combat loaders) were made in September, in most cases '44 requirement levels were missed. Big ammunition, superbombers, etc., made highs.

CRITICAL WAR production programs picked up last month where August left off. Plus signs again prevailed despite the Labor Day week end; however, gains in most instances fell short of the level required to meet 1944 goals and—unless cutbacks intervene—carryovers into 1945 are inevitable.

In some industries—dry-cell batteries, for example--the holiday brought a few shutdowns; in others, such as truck and bus tires, absenteeism rose abnormally. A highlight of the month was the beginning of the seasonal upswing in the foundry and forge industries. Here, early reports suggest further moderate gains in output. In contrast to August, when these plants actually lost workers, preliminary indications are that some labor was picked up from farms and cut-back programs.

PROGRESS REPORT

As in the previous month, output of several critical items—superbombers, A-26 Invaders, combat loaders, big-gun ammunition—pushed into new high ground in September.

In the case of ASF heavy artillery ammunition, however, some of the most urgent individual types failed to come up to expectations—despite an overall monthly gain of 13%. As an example, though production of the 155mm. howitzer HE shell was up 40%, it missed the September forecast by 10%. Another weak spot was the medium tank mounting the 76mm. gun. Deliveries of 632 were about 20% below August and 18% short of the forecast; here the trouble was a shortage of new tracks. Also, an August strike was felt in September deliveries of light-heavy trucks.

Nevertheless, in most items September was again a month of improvement.

To make the 1944 goal in superbombers, for example, monthly output over the rest of the year must average some 60% over September; in August, an average monthly stepup of 100% was required.

THE 80% QUESTION

Similarly in the fast-rising combat loader program (cargo and transport attack vessels), where monthly deliveries virtually doubled—from 14 to 27 vessels. A lot of work on ships yet undelivered has been done (chart, page 4), but it's a question whether a speedup of 80% in deliveries over the September rate can be attained. Indeed, in seven out of eight selected critical programs, the rate of stepup required—with only three months to go—will take a lot of doing:

	% Stepup Required Based on Output for	
	Aug.	Sept.
Airborne radar, ASF	55%	50%
A-26 Invader	95	65
Combat loaders (deliveries)	220	80
G.P. & frag. bombs	30	40
Heavy field art., ASF	10	15
Heavy field art. ammunition, ASF	45	35
Heavy-heavy trucks, ASF	90	100
Superbombers	100	60

Definite steps have been taken to spur superbomber output. Bell, Atlanta, which has missed schedule on the B-29 Superfortress since June, was placed under a new plant manager last month; but it will be a few months before Bell really begins to roll. The new B-32 Dominator at Consolidated Vultee, Ft. Worth, shapes up as another limiting influence in this program. Right now, the B-32's tail surface design is unacceptable to the Army Air Forces; until it is, Consolidated won't be permitted to tool up for quantity production.

CANOPY COMPLICATIONS

Although the 2-engined A-26 Invader light bomber came through nicely last month, only 11 of the 90 planes accepted were in the new "C" model. This is the version that the Army Air Forces really want; but it incorporates several design changes as compared with the "B" model. One of the most important involves raising the cockpit canopy to allow better pilot vision.

In some critical items, the need is so great that stated requirements are no real index of what the services actually want; programs have been reduced again and again to bring them more in line with feasibility. Yet the reduced schedules are frequently missed. So while monthly gains may look good, in relation to schedules they're frequently not good enough.

TRUCK TROUBLES

As of September 1, for instance, the month's goal on heavy-heavy trucks for the Army Service Forces was reduced from $49,000,000 to $44,000,000. September output ran to $40,000,000 (preliminary), a monthly gain of 8%. But to meet even the lowered schedule the gain should have been 19%, and to meet the higher one, 32%. Largely because of the shortage of castings—a matter of insufficient manpower in the forge shops and foundries—heavy-heavy truck schedules have been reduced repeatedly and the current requirement for 1944 is unlikely to be met (WP-Sep30'44,p11).

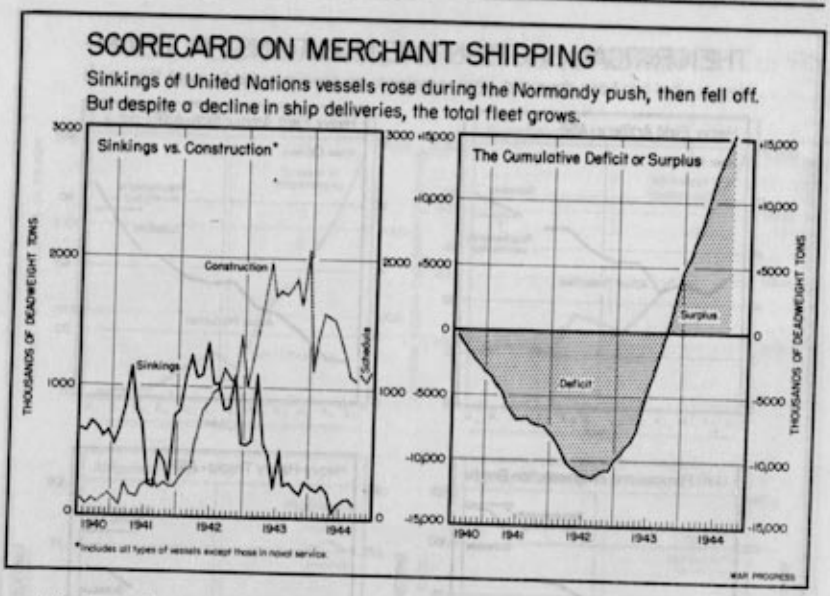
It's the same story in the three critical types of communication wire. Thus, at 116,000 miles, W-110B field-wire output in September was 9% ahead of August; but the revised first-of-the-month forecast was missed by 8%. In W-143 long-range field wire, September production of 8,350 miles was 39% higher than in August; however, this was 17% short of the month's forecast. Output of assault wire rose 20% over August to 32,000 miles, but missed the September goal by 11%.

91% NOT ENOUGH

Combat loaders are another illustration. A few months ago, the September goal in cargo and transport attack vessels was lowered from $151,000,000 to $133,000,000. Deliveries last month totaled $126,000,000, a gain of 91% over August. But even that sharp increase fell 5% short of the lowered goal.

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A feature last month was the showing in large truck and bus tires, used on highway freight carriers, big intercity busses, off-the-highway vehicles, and the Army's heavy-heavy trucks (WP-Sep9'44,p1). Early in August, when weekly output of these tires ran to 50,400 units, the industry was called on to boost production by 30% "as fast as possible." That gain in rate of output was achieved last month: in the closing week, 65,800 "large" tires were produced, 31% better than the early-August rate. All told, September output of large truck and bus tires was up 11% to 276,000 units, a new high.

EMERGENCY MEASURES

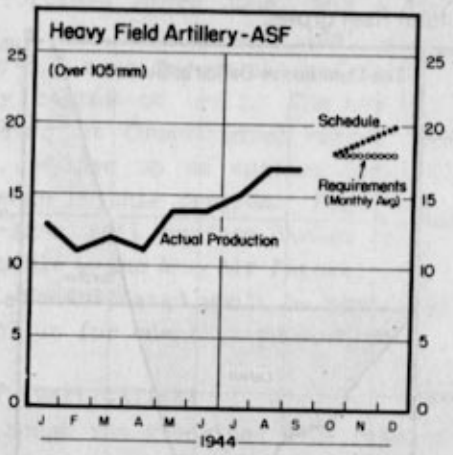
Tire factories added an estimated 1,600 workers to their rolls in September. About 900 were channeled into tire work by referrals from local U.S. Employment Service offices, another 250 were furloughed from the Army and Navy, and perhaps 450 were "borrowed" from other industries under a special arrangement to help beat the tire emergency. In this case, unions have agreed to suspend certain seniority rules for a 90-day period. For instance, if a man can be spared from an ordnance plant, say, and he transfers to tire building, he is not required to join the local union; nor does he lose his seniority in the one he leaves. At U.S. Rubber's Fisk plant in Chicopee Falls, Mass., workers were "borrowed" last month from machinery, textile, ordnance, and paper-products plants in the vicinity.

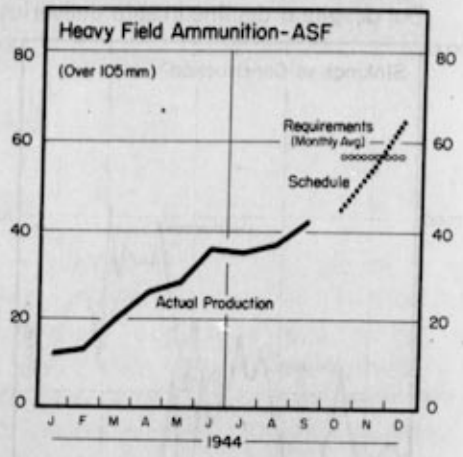
"MUST" ON MANPOWER

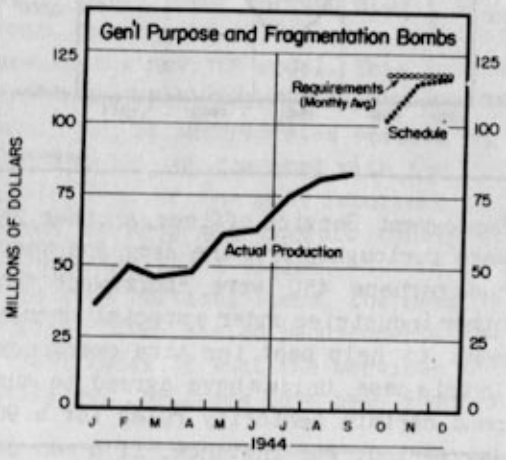
During August, the "must" total on manpower for tire factories stood at 5,000. Since then the figure has been

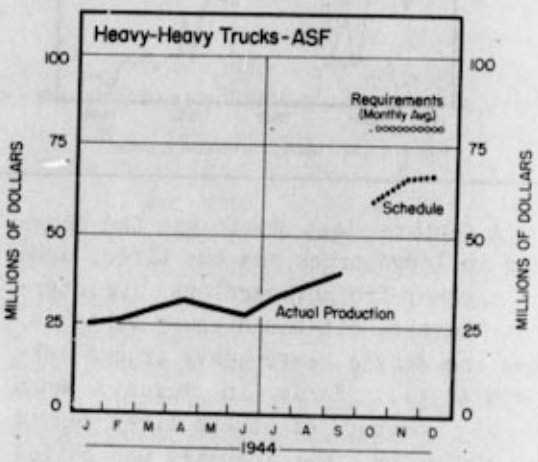
THE CRITICAL SPOTS IN THE MUNITIONS PROGRAM—

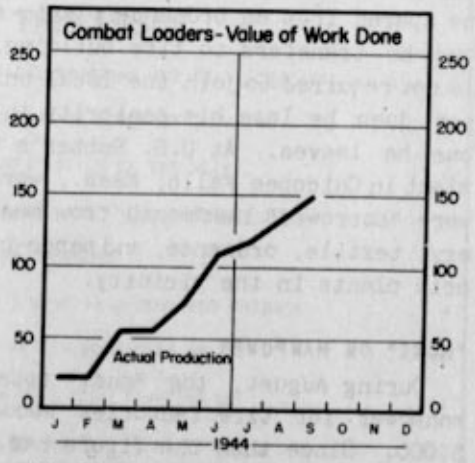
Here is what has been done and what remains to be done in order to meet this year's

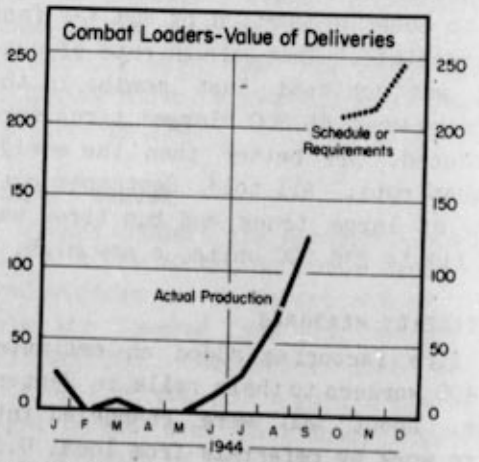










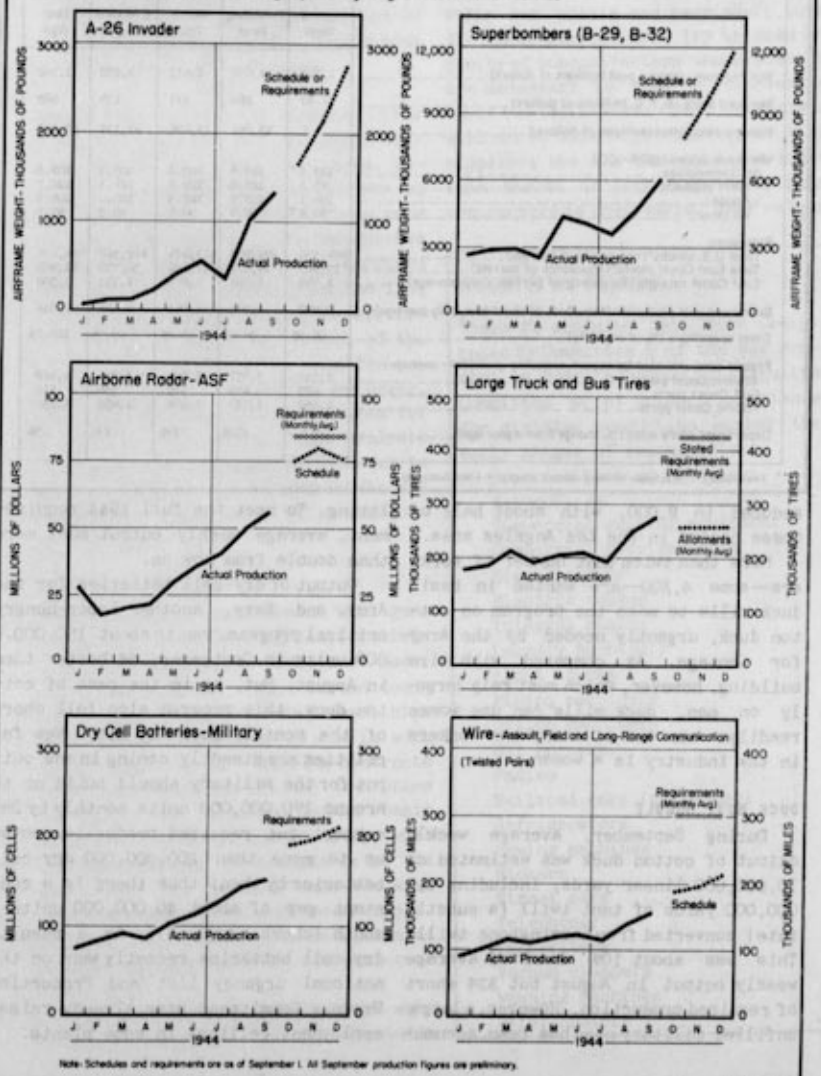


Note: Schedules and requirements are as of September 1. All September production figures are preliminary.

WAR PROGRESS

-PAST PERFORMANCE, FUTURE REQUIREMENTS

needs in these current high-priority tight munitions items.



Note: Schedules and requirements are as of September 1. All September production figures are preliminary.

WAR PROGRESS

KEY STATISTICS OF THE WEEK

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War Program - Checks paid (millions of dollars)	1,729	1,678	1,613	1,838	1,762
War bond sales - E, F, G, (millions of dollars)	87	260	117	155	662
Money in circulation (millions of dollars)	N.A.	23,881	23,495	21,191	18,978
Wholesale prices (1926=100)					
All Commodities	103.9 P	103.8	103.6	103.7	102.8
Farm products	123.3	122.8	122.2	124.1	122.7
Foods	104.1	103.9	103.9	105.0	104.9
All other	98.9 P	98.8	98.8	98.5	97.5
Petroleum:					
Total U.S. stocks*(thousands of barrels)	424,556	421,295	417,474	412,388	424,058
Total East Coast stocks*(thousands of barrels)	75,363	74,677	72,666	56,770	61,483
East Coast receipts (thousands of barrels, daily average)	1,740	1,696	1,679	1,733	1,508
Bituminous coal production (thousands of short tons, daily average)	2,008	1,975	1,940	2,086	2,016
Steel operations (% of capacity)	96.9%	95.6%	93.8%	99.5%	100.8%
Freight cars unloaded for export, excluding grain (daily average)					
Atlantic Coast ports	3,310	3,577	2,902	3,201	2,462
Gulf Coast ports	483	459	372	336	330
Pacific Coast ports	1,650	1,778	1,884	1,450	1,290
Department store sales (% change from a year ago)	N.A.	+12%	+14%	+23%	-5%

P Preliminary *Excludes military-owned stocks N.A. Not Available

reduced to 2,000, with about half of these needed in the Los Angeles area.

More than twice that number of workers—some 4,300—are wanted in basic duck mills to make the program on cotton duck, urgently needed by the Army for tentage. As compared with tire building, however, which must rely largely on men, duck mills can use women readily; one out of every two workers in the industry is a woman.

DUCK MUST DOUBLE

During September, average weekly output of cotton duck was estimated at 10,000,000 linear yards, including 1,000,000 yards of tent twill (a substitute) converted from herringbone twill. This was about 10% ahead of average weekly output in August but 33% short of required production. However, a large unfilled military need has been accumulating. To meet the full 1944 requirement, average weekly output must more than double from now on.

Output of dry-cell batteries for the Army and Navy, another labor-hungry critical program, ran to about 150,000,000 units in September, 5% better than in August. But, as in the case of cotton duck, this program also fell short of the monthly goal—by 21%. New facilities are steadily coming in and output for the military should build up to around 170,000,000 units monthly by December; but required production moves up to more than 200,000,000 dry-cell batteries by then; thus there is a constant gap of about 40,000,000 units a month (chart, page 5). As a result, dry-cell batteries recently went on the national urgency list and Production Urgency Committees have already raised employment ceilings in some plants.

Cutbacks Cast Their Shadows

Chance for reconversion of most industries will come with V-E Day cancellation of contracts. But planning is in order to ease transition, avoid bottlenecks.

WHEN V-E DAY comes, the cutbacks in war production will be wide and deep; well over 100,000 government contracts, involving more than $20,000,000,000 of production, will be canceled. These cuts in prime contracts will free productive capacity in virtually every American industry and will extend down the line into components and basic raw materials.

The very breadth and depth of the coming cuts assure elbow room for reconversion of most industries and areas. Yet such freedom cannot be taken for granted. Some planning, some analysis of cutback consequences is in order to ease the transition and accelerate reemployment, both industrially and geographically.

GOING INTO REVERSE

To be sure, reconversion will generally follow the line of least resistance through established business modes and trade channels. Just as the country worked itself up to the present high shelf of war production, so will it work itself down from it. When war contracts were originally let, it was the prime contractor who decided, on the basis of his knowledge of the industry, what companies should be brought in at the sub level. And his subs made the same decisions about their sources of supply. The reversal of this process will also be controlled by private business considerations.

Some manufacturers will cut out subs and keep production in their own plants; other manufacturers will try to free their own plants and keep their subs. All manufacturers will try to free capacity of subcontractors whose products are necessary to them in reconverting their own facilities. They, themselves, will not be able to get started if their suppliers are all tied up. And a certain amount of jockeying among prime contractors is inevitable. They're bound

FIRSTS IN PEACE

These 23 products have been designated by Committee B of the War Production Board's Production Executive Committee as of primary importance for civilian production during the early stages of reconversion:

- Air-conditioning equipment
- Automobiles
- Commercial cooking equipment
- Commercial refrigerators
- Electric fans
- Electric ranges
- Integral busses
- Laundry machinery
- Light trucks
- Mining machinery
- Office machinery
- Oil burners
- Radios
- Railroad cars (passenger)
- Refrigerators
- Sewing machines
- Stokers
- Street cars
- Telephones
- Typewriters
- Vacuum cleaners
- Washing machines
- Water heaters

to try to free early their own plants and those of their chief peacetime suppliers.

SOME OF EVERYTHING

What is certain about this process is that virtually every kind of peacetime productive capacity will be freed in some degree. And many of the facilities most important from a reconversion standpoint will be freed at the subcontracting level. Half the washing-machine industry, for instance, is under subcontract to the aircraft industry alone, and facilities are bound to be released on V-E Day. Here is a list of other important civilian products, with estimates (necessarily very rough) of the proportion of war work of each industry under subcontract:

Product	Approximate % of War Work as Subcontractor
Air-conditioning equip.	30%
Laundry machinery.....	80
Mining machinery.....	90
Oil burners.....	65
Refrigerators.....	30
Sewing machines.....	85
Stokers.....	75
Textile machinery.....	80
Washing machines.....	65
Water heaters.....	50

The cutback of a single prime can free a great variety of civilian plants. The projected cutback of the C-46 Commando transport plane at Curtiss, Buffalo, illustrates the point. Present plans are for a sharp cut in deliveries after V-E Day. Some 70,000 workers are involved in this program—in assembly, subassembly, parts, materials, supply—and some 2,000 different plants. Of the major subassembly plants likely to be affected by the Commando cutback, eight are specialized aircraft plants. But over half of the subassembly work is done by 27 converted plants with prewar capacity embracing 17 different civilian lines (table, page 9).

AID TO RECONVERSION

The prospective Commando cutback suggests some of the things that the War Production Board, the Army Air Forces, and other procurement agencies might do to assist reconversion. Presumably it would be desirable to keep the eight specialized plants in aircraft work—that's their regular business. As a corollary, that would free more of the facilities of the 27 plants that can produce peacetime goods. And among the 27 plants, planning might serve to free completely of Commando work those whose production is most important from a reconversion standpoint: the two auto stamping plants, for instance, and the manufacturer of textile machinery.

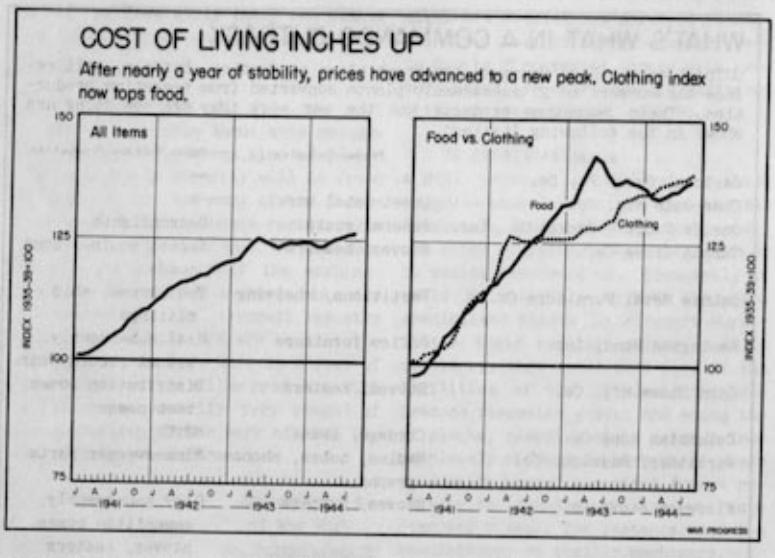
PLANNING FOR PRODUCTS

The breaking of possible bottlenecks of civilian production—such as auto stampings and textile machinery—will be one of the most important functions of reconversion planning. Listed on page 7 are the 23 civilian end products selected for special treatment, not only because they are needed for the civilian economy and are heavy employers of labor, but also because they are the types of products with many components that must be planned for in advance. Over a dozen of the items call for electrical motors. Currently being considered is a proposal of WPB's General Industrial Equipment Division that all companies normally engaged in manufacturing commercial-type alternating current motors be the first to be released from production of specialized military-type motors so that they can turn to

WHAT'S WHAT IN A COMMANDO CUTBACK

CUTBACK of the C-46 Commando transport plane at Curtiss, Buffalo, will reduce the war work in 27 subassembly plants converted from peacetime production. Their peacetime products and the war work they are now doing are shown in the following listing:

Plant	*Prewar Industry*	*Other Wartime Production*
Carlson, Oscar F., Co.	N.A.	—
Char-Gale Mfg. Co.	Sheet-metal work	—
Oneida Vault & Casket Co., Inc.	Funeral equip.	Searchlights
Tappan Stove Co.	Stoves, heaters	Signal equip., bomb noses
DeLuxe Metal Furniture Co.	Partitions, shelving	Tool boxes, ship fittings
Remington Rand, Inc.	Office furniture	P-47 subassembly, visual record equip.
Odin Stove Mfg. Co.	Stoves, heaters	Distribution boxes, bomb noses
Columbian Rope Co.	Cordage, twine	SB2C
Wurlitzer, Rudolph, Co.	Radios, tubes, phonographs	Mine-sweeper parts
Florence Stove Co.	Stoves, heaters	P-47 subassembly, ammunition boxes, stoves, heaters
Woodall Industries, Inc.	Converted paper prod.	FG, F4U, SB2C
Globe-Wernicke Co.	Office furniture	Wood office equip., ship furniture
Benson Mfg. Co.	Aluminumware	Propeller spinners
Morrison Steel Products, Inc.	Auto stampings	Sheet-metal stampings
Motors Metal Mfg. Co.	Auto stampings	Ordnance
Twin Coach Co.	Motor vehicles	Service busses
Jensen Machinery Co.	Food prod. mach.	FG, F4U, dairy mach.
General Bronze Corp.	Fabricated structural steel	SB2C, torpedoes, guns, hoists
Hardwicke Stove Co.	Stoves, heaters	Bombs, stoves
International Harvester Co.	Agricultural mach.	Agricultural mach.
Niagara Sprayer & Chemical Co.	Chemical Mfr.	Fungicides, insecticides
Proctor & Schwartz, Inc.	Textile mach.	Rubber and tire cord mach.
Meteor Motor Car Co.	Motor vehicles	Wood cargo bodies
Estate Stove Co.	Stoves, heaters	Powder cans, mines
Ritter Co., Inc.	Dental equip.	Compasses, dental & medical equip.
Trayer Products, Inc.	Machine shop prod.	Army ordnance
Enterprise Aluminum Co.	Aluminumware	Mess trays, meat cans



the manufacture of A.C. motors needed by refrigerator, washing machine, and other manufacturers (WP-Oct7'44,p1).

Thus the product-by-product study of the reconversion picture leads necessarily into a plant-by-plant study. It may not be possible to free any chosen plant making a particular component or product. But WPB Industry Divisions, knowing the plant-by-plant composition of each industry, can point out those plants which are of most urgent importance in reconversion, both from the standpoint of primary and component producers. By analyzing the proposed military cutbacks, the Industry Division might be able to point out how a small military cut would make possible a relatively large increase in civilian production.

The factors governing plant choice are numerous, varied, and mixed. Thus in an area where the geographic impact of V-E Day might produce serious unemployment—in Detroit, for instance, where sharp cuts in aircraft, tanks, guns, and ammunitions will run simultaneously—it might be considered advisable to keep some war plants in production so as to minimize the immediate unemployment impact. Yet in doing so it might be difficult to avoid hampering the reconversion of the auto industry, on which the area will largely depend for peacetime employment (WP-Aug5'44,p1). And that, too, has to be taken into account.

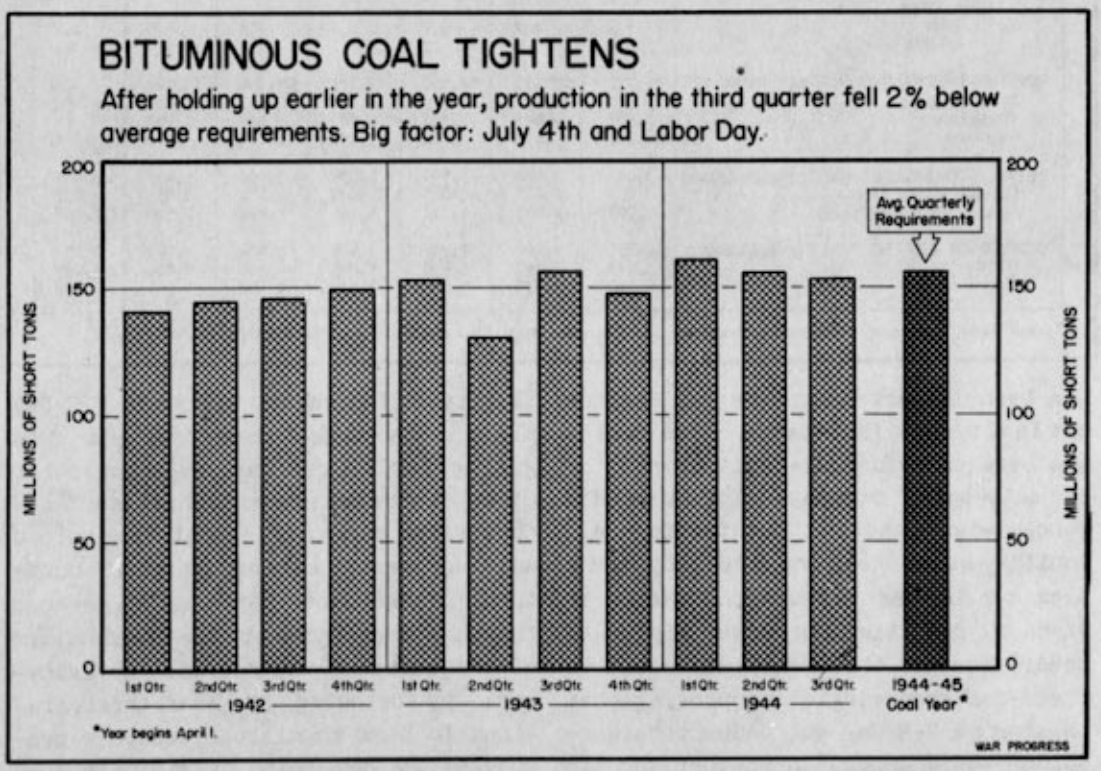
PATTERN FOR PRODUCTION

The efficacy of cutback planning will depend in large measure upon the availability of clear-cut, plant-by-plant V-E Day programs from the Army, Navy, Maritime Commission, and other procurement agencies. By combining the plant-

by-plant cutbacks of the Army, Navy, Maritime Commission, and Air Forces, the War Production Board can bring the pieces together into an overall pattern for the United States. By examining that pattern, certain regional and industrial anomalies are bound to show up; and certain obvious corrections of these anomalies will suggest themselves when all parties concerned are brought face to face with them. This procedure is followed, for example, in dividing up materials and components when claimant agencies come together in the Program Adjustment Committee. There all the facts are laid down and the necesity for making adjustments becomes clear.

An integrating group on V-E cutbacks, comprising representatives of the Army, Navy, Maritime Commission, and WPB, has been set up to minimize such consequences as this: a particular area being cut too sharply or a particular industry being bottlenecked because a key manufacturer of components is tied up. Such adjustments, it goes without saying, will have to be made well before V-E Day. Once V-E Day comes, the die is cast; final notices of cutbacks go out all along the line and the pattern for reconversion is established.

In this attempt to clear the way for reconversion, military considerations, of course, will govern. Recently, there



On an overall basis, bituminous coal requirements for the 1944-45 coal year (April to April) will just about be met. Production from April through September ran to 310,000,000 tons. If production picks up from its recent slump, output will come to 300,000,000 tons for the next six months, or 16,000,000 tons short of requirements. The deficit will have to come out of the stockpile. Problems will be distribution, substitution of lower grades of coal.

SELECTED MONTHLY STATISTICS

Labor Force–Turnover–Inventories–Sales–Consumer Expenditures

	Latest Month *	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Same Month 1939	Same Month 1937
LABOR FORCE-TOTAL (millions)	53.03	54.01	55.00	51.36	53.9	n.a.	n.a.
Employment	52.25	53.17	54.00	50.49	52.9		
Male	34.19	35.14	35.41	34.01	35.2		
Female	18.06	18.03	18.59	16.48	17.7		
Unemployment	.78	.84	1.00	.87	1.0		
Male	.40	.43	.48	.47	.5		
Female	.38	.41	.52	.40	.5	n.a.	n.a.
LABOR TURNOVER IN MFG. INDUSTRIES (rate per hundred employees)							
All manufacturing							
Accessions	6.2 P	6.3 R	7.6	5.5	7.6	5.1	3.4
Separations-Total	7.8 P	6.6 R	7.1	6.5	8.2	3.0	4.0
Quits	6.2 P	5.0 R	5.4	4.6	6.3	.8	1.2
Military	.3 P	.3	.4	.5	.7	n.a.	n.a.
Aircraft							
Quits	6.1 P	4.8 R	5.3	3.9	5.7	1.5	1.2
Military	.5 P	.6	.9	.6	.8	n.a.	n.a.
Shipbuilding							
Quits	6.9 P	5.9 R	6.7	5.5	7.8	.8	1.7
Military	.5 P	.6	.7	.7	1.0	n.a.	n.a.
INVENTORIES-TOTAL (million dollars)	27,473	27,155	27,368	27,733	27,898	18,243	n.a.
Manufacturers	17,278	17,215	17,229	17,666	17,577	9,824	
Wholesalers	3,987	4,043	4,088	4,089	3,877	3,447	
Retailers	6,208	5,897	6,051	5,978	6,444	4,972	n.a.
RETAIL STORE SALES-TOTAL (million dollars)	5,643	5,452	5,593	4,832	5,230	3,423	3,493
Durable goods stores	835	835	863	672	818	853	971
Nondurable goods stores	4,808	4,617	4,730	4,160	4,412	2,570	2,522
CONSUMER EXPENDITURES (million dollars)	7,807	7,886	7,990	7,402	7,454	4,905	5,151
Goods	5,245	5,348	5,458	4,863	4,996	3,004	3,279
Services	2,562	2,538	2,532	2,539	2,458	1,901	1,872

*Labor Force, September; Consumer Expenditures, July; all other, August. n.a. Not available. P Preliminary. R Revised.

has been discussed in the PEC Staff a cut in aircraft fuel tanks. The choice was between a funeral-vault company or an auto-body company. The Army Air Forces wished to cut out the funeral-vault plant and keep the auto-body plant tied up in war production, partly in stand-by condition in case of future need. Whether this auto plant could be freed for reconversion—supposing that this were a V-E Day cut under consideration—would depend on whether the Air Forces felt the vault company could do the job.

In effect, reconversion planning has to operate within the range of flexibility afforded by military V-E Day plans. Obviously, some proposed cuts will offer no options. But in other cases, there will be alternatives. Reconversion planning cannot control in any fundamental way the nation's industrial change-over from war to peace; that is predetermined by the broad nature of the cutbacks themselves. Nevertheless, by bringing civilian considerations to bear on military cutback proposals, it can help to minimize some area dislocations and to expedite the transition of critical industries and plants during the massive transformation that V-E Day will usher in.

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Wanted: V-E Day Storage Space

Field Wire on the Offensive

W-12: Pruning for the Pacific

X4735
X4675
X867

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Number 214 October 21, 1944

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WAR PROGRESS

Prepared in the War Production Board

J. A. Krug, Chairman

War Progress is a confidential report designed to provide a coordinated and continuing picture of the overall war program for the various war agencies. To this end, it presents, analyzes, and interprets basic statistical and economic information, and from time to time examines the pros and cons of controversial questions.

Although War Progress is an official publication of the War Production Board, statements in it are not to be construed as expressing official attitudes of the Board as a whole, or even of individual members. Conclusions, whenever reached, should be considered editorial conclusions.

War Progress is prepared in the Bureau of Planning and Statistics (Thomas C. Blaisdell, Jr., Director) by the Reports Division (Joseph A. Livingston, Director).

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NUMBER 214 WAR PROGRESS OCTOBER 21, 1944

Wanted: V-E Day Storage Space

Present facilities will not meet warehousing needs when plants are cleared for reconversion. But central marts, prefabricated shelters are planned.

PICTURE a shell manufacturing plant where war work has suddenly stopped. Out of the plant, dragged on skids by tractors, are coming huge machines weighing many tons—the specialized forging hammers, drawing tables, furnaces, conveyors no longer needed for artillery shells. They are government property. They have been rustproofed ("sludged") and otherwise protected in accordance with government specifications. Each one bears the identifying tag of the Reconstruction Finance Corporation's Defense Plant Corporation.

They go only as far as the parking lot or an adjacent field. Here they are arranged in narrow, parallel lines and covered with tarpaulins. From an adjacent railway siding the workers (regular employees of the plant) now bring prefabricated parts of buildings: columns, plates, trusses, corrugated panels and roofing. Within a short time the machinery is covered by rows of steel buildings, 100 feet long by 20 feet wide. The workers are back in the plant, preparing to make automobile crankshafts. When prospective buyers come to look over the government machinery, the side or end panels of the steel shelters can be slipped off. When the machinery is gone, the shelters can be taken apart for use elsewhere.

This is a V-E Day picture. It illustrates the kind of thinking that is being done now in government to solve in advance one of V-E Day's most difficult problems—the problem of storage space. A 30%-40% cut in the war work of around 70,000 manufacturing plants in the United States will bring the opportunity for large-scale reconversion. And with the opportunity will come the obligation to get into peacetime production as quickly as possible: to employ the 3,000,000-4,000,000 workers who will have lost their jobs, to avoid an industrial slump by setting civilian trade channels flowing with a minimum of delay. But termination of war contracts will leave a great many of these plants temporarily paralyzed by the presence of war goods and equipment.

RAPID REMOVAL

This clogging of facilities is recognized by industry and government alike as being a serious reconversion obstacle (WP-Sep30'44,p1). In the language of the Contract Settlement Act of 1944, "it is the policy of the Government, upon the termination of any war contract, to assure the expeditious removal from the plant of the war contractor of the termination inventory not to be retained or sold by the war contractor."

To implement this policy, the Director of War Mobilization has instructed the Surplus War Property Administration to allocate specific storage space to the various procurement agencies—Army, Navy, Maritime, etc.—so that they, in turn, may assign space in advance to the companies with whom they will be terminating contracts. To tackle this job, SWPA has set up a Space Control Commit-

tee, with members representing the Army, Navy, Maritime Commission, War Production Board, Treasury Procurement, Federal Works Agency, and the Reconstruction Finance Corporation. Under this committee are nine regional committees working throughout the nation to locate the storage space that will be needed on V-E Day and thereafter.

VARIOUS AND SUNDRY

Their task is complicated by the great variety of property they will have to deal with—by the diversity of size, value, marketability, and ownership. War contract inventory changes ownership three times: that which is not sold, retained, or scrapped by the contractor is purchased by the Army or other government procurement agency terminating the contract; that which is not sold, retained, or scrapped by this "owner" agency is declared surplus and turned over to the disposal agency (RFC in the case of most industrial property) for sale in the open market. It ranges in size from 16-inch gun barrels to cotter pins; and the range in marketability is as great—from specialized items that can only be scrapped or retained in case of another war (like the gun) to standard items that can be easily sold (like the cotter pin). The specialized machine tools and manufacturing equipment that will be moved out of war plants is mostly government owned (under title of RFC's Defense Plant Corporation), and thus will not change title until it is sold. As for the quantity of this material, the Space Control Committees now estimate their V-E Day warehouse requirements at 32,708,000 square feet. This is 750 acres, or the area of 700 college football fields. It is more space than can now be found.

NO PLACE TO GO

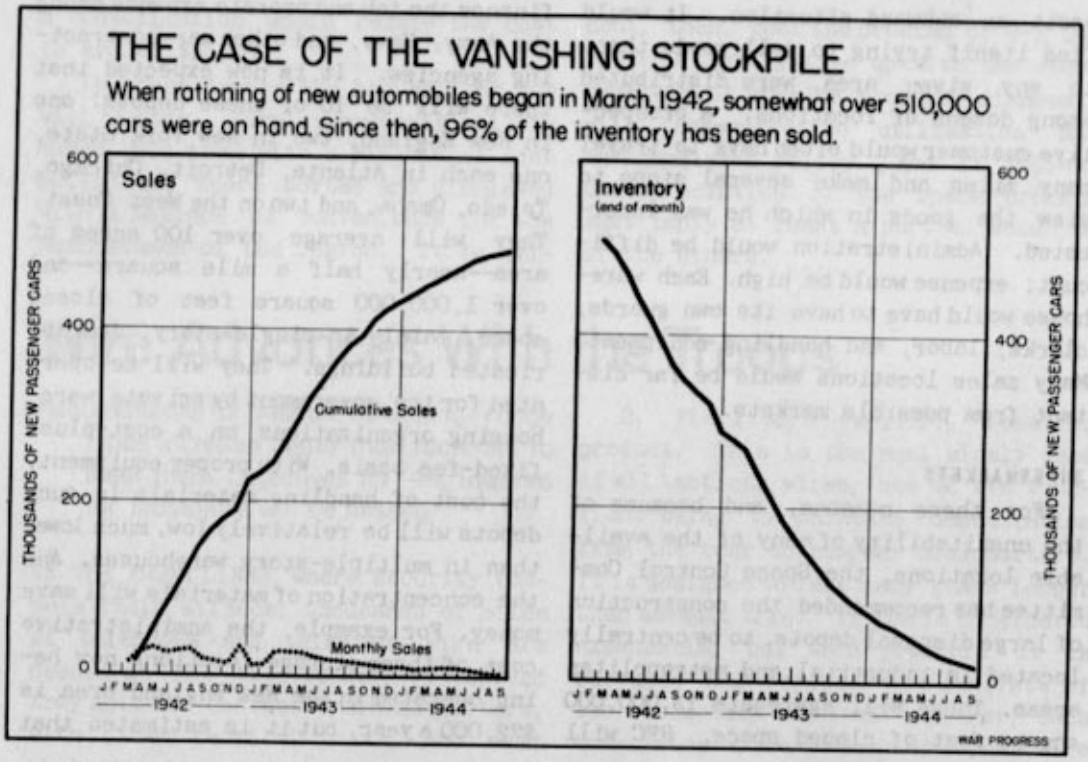
Very little commercial warehouse space will be available. Already overburdened, these private facilities will be hard put to it, after V-E Day, to do the job they are set up to do: handling the vital flow of moving goods throughout the country. As for government-owned space, it is possible that the nationwide total of unused buildings after V-E Day—camps, depots, war plants, etc. —would be large enough. But much of this space is unsuitable. Floors are not strong enough, ceilings not high enough, doorways not wide enough; or the necessary handling equipment is not available. And most of it is located at a distance from industrial centers. The rail and truck lines of the country would be swamped by the job, and most of the surplus property itself would be moving in the wrong direction—away from possible markets.

EXPENSIVE SHIFTS

This kind of lost motion must be cut to a minimum, especially in the case of the huge machine tools and equipment that are to be sold. A drill press or a stamping machine, weighing many tons, costs hundreds of dollars to move even for short distances and requires the services of experienced handlers and

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specialized equipment. And yet many war plants—far from suitable government storage facilities—must be cleared of such equipment before they can convert to peacetime production.

Faced with this situation, DPC decided to bring the warehouses to the machines rather than take the machines to the warehouses. A production shift in a General Electric radar plant in East Syracuse, N.Y., gave them their opportunity to try the experiment. With the excess machinery out of the plant, they invited six different construction companies to build over it temporary structures of a type that could be prefabricated, quickly set up, and easily moved from place to place. The results were then inspected by the interested government agencies: Army, Navy, WPB, etc. It was found that the cost of the structures—around 75¢ per square foot of area covered—was in this instance only about half of what it would have cost to move the machinery to the nearest suitable storage depot. Upon sale or other final disposition of the machinery, the steel shelters, if not needed elsewhere, will have a high salvage value (they can be divided, for instance, to make small garages). The best designs have now been chosen and contracts already let for 600 of these buildings. It is expected that at least 5,000 will be used.

TOO MUCH TRAVEL

Most war contract property—the contractors' inventories of parts, components, and supplies—will be easier to move than this machinery: but it still will not be desirable to move it indiscriminately to any available government storage space. Most of these locations are of limited size, 100,000 square feet or less. The disposing agency would in-

herit an awkward situation. It would find itself trying to sell goods that, in any given area, were distributed among dozens of locations. A prospective customer would often have to travel many miles and make several stops to view the goods in which he was interested. Administration would be difficult; expense would be high. Each warehouse would have to have its own guards, clerks, labor, and handling equipment. Many sales locations would be far distant from possible markets.

SUPERMARKETS

For these reasons, and because of the unsuitability of many of the available locations, the Space Control Committee has recommended the construction of large disposal depots, to be centrally located in industrial and metropolitan areas. These will aggregate 13,000,000 square feet of closed space. RFC will finance the job and prorate expense among the Army, Navy, and other war contracting agencies. It is now expected that there will be 10 of these depots: one in New England, two in New York State, one each in Atlanta, Detroit, Chicago, Toledo, Omaha, and two on the West Coast. They will average over 100 acres of area—nearly half a mile square—and over 1,000,000 square feet of closed space, mainly in single-story, prefabricated buildings. They will be operated for the government by private warehousing organizations on a cost-plus-fixed-fee basis. With proper equipment, the cost of handling materials in such depots will be relatively low, much lower than in multiple-story warehouses. And the concentration of materials will save money. For example, the administrative cost of three storage locations now being operated in the New England area is $72,000 a year, but it is estimated that

KEY STATISTICS OF THE WEEK

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War Program - Checks paid (millions of dollars)	1,563	1,729	1,568	1,912	1,600
War bond sales - E, F, G, (millions of dollars)	143	87	156	170	470
Money in circulation (millions of dollars)	24,157	24,099	23,558	21,295	19,019
Wholesale prices (1926=100)					
All Commodities	103.8 p	103.9	103.6	103.8	102.9
Farm products	122.7	123.3	122.1	124.5	122.8
Foods	103.8 p	104.1	103.8	105.0	104.7
All other	98.9 p	98.9	98.8	98.5	97.5
Petroleum:					
Total U.S. stocks* (thousands of barrels)	426,088	424,556	418,518	410,489	422,569
Total East Coast stocks* (thousands of barrels)	77,220	75,363	73,570	56,732	62,791
East Coast receipts (thousands of barrels, daily average)	1,827	1,740	1,663	1,735	1,558
Bituminous coal production (thousands of short tons, daily average)	1,937	2,013	2,009	2,003	2,008
Steel operations (% of capacity)	97.0%	96.9%	99.3%	98.7%	102.2%
Freight cars unloaded for export, excluding grain (daily average)					
Atlantic Coast ports	3,082	3,310	3,070	2,866	2,505
Gulf Coast ports	421	483	457	334	347
Pacific Coast ports	1,795	1,650	1,967	1,600	1,284
Department store sales (% change from a year ago)	+16%	+16%	+9%	-11%	+9%

p Preliminary *Excludes military-owned stocks

a consolidation would reduce the cost to around $35,000.

In these depots the big selling job will be done. Surplus property will be moved into them with a minimum of lost motion and there sorted and displayed with a maximum of convenience for the businessmen of the region. It is evident, then, that the problem of V-E Day space is tightly tied up with the other problems of surplus property disposal, with transportation utilization and merchandising policy. And it follows that a solution of the space problem must imply at least a partial solution of the others.

Wire Advances With the Troops

Requirements for assault, field, long-range types increase faster than facilities to meet them. Objectives for '44, lowered for feasibility, will be missed.

IN THE FRONT LINES, where security compels radio silence, thousands of miles of telephone and telegraph wire are needed at one time to keep widespread Army units in contact with headquarters, with other tactical units, and with their supplies. As troops push on to new positions, new lines must be laid. (There is little time for salvage.) And the rapid advance of Allied forces in Europe boosted requirements to unanticipated levels. As a result, critical production shortages have developed in three types of Signal Corps wire:

1. Assault wire (W-130), an extremely light wire which is strapped on the backs of Signal Corpsmen in reels and carried to the most advanced posts. It lies exposed on the ground as the bearer crawls cautiously to within sight of the enemy to transmit information about the foe and often to direct artillery fire. Because it is intended only for temporary use it is considered expendable. It consists of six finely drawn strands of galvanized steel wire (to give it strength) and one of tinned copper, stranded together, insulated, and the conductors twisted together but not braided.

2. Field wire (W-110B), a heavier product. This is the most widely used of all tactical wires, one of its functions being to maintain communication from the rear to company headquarters. It is designed to last many times longer than assault wire. It too is considered expendable, but when possible it is salvaged and re-used. It consists of two conductors twisted together, each comprising three strands of copper wire and four of steel, insulated, covered, and weather-proofed.

3. Long-range communication wire (W-143), a much-heavier, all-copper wire designed for communication over distances greater than the range of W-110B, and used where other more permanent communication systems are not available.

CAN'T KEEP UP

Special facilities have been necessary for all three types. In the case of W-110B, facilities have more than tripled and production more than quintupled since Pearl Harbor. The W-143 long-range wire production became sizeable only this year. And military requirements for all three types have increased much more rapidly than it was possible to expand facilities to produce them. With three-fourths of the year gone, only 59% of requirements have been met for W-110B—by far the largest program—and only a little more

than a fourth of the needs for W-143:

	Deliveries Through Sept. (miles)	% of Stated '44 Req.
W-110B...	824,100*	59%
W-130....	208,285	48
W-143....	37,800	26

*Including equivalent single-conductor wire for lend-lease.

Despite steadily rising production since the first of the year, unfilled theater requisitions have accumulated. Consequently the Army Signal Corps has been forced to lower its minimum objective to production feasibility. Yet output has been falling even below these reduced levels. Output of W-110B wire in September, though 60% higher than in January, missed the first-of-the-month goal by 8% (WP-Oct14'44,p1). Assault-wire deliveries in September, nearly double those of January, fell 11% short of the forecast. And long-range wire production, nearly six times greater than in January, was 17% shy of the forecast. Sharp increases over the September rate of deliveries are required to attain forecast production, and far steeper gains would be needed to meet stated requirements:

	September Deliveries (miles)	% Increase Needed To Meet Forecast	'44 Req.
W-110B...	116,125*	15%	66%
W-130....	31,800	41	135
W-143....	8,350	141	323

*Including equivalent single-conductor wire for lend-lease.

Because of the seriousness of the supply-demand position of these wires, their production was placed on the Production Urgency List for labor referrals about six weeks ago. This has improved the manpower situation, and most of the 24 wire and cable plants now turning out the wire are working three shifts a day, seven days a week.

BOTTLENECK OPERATIONS

Seven steps are involved in the manufacture of W-110B wire, and nearly all have been bottlenecks at one time or another. The first step is the production of the small copper and steel strands which comprise the conductors. The wires are then coated, stranded together, and covered with insulation. Next, cotton yarn is braided around the insulation. The insulated conductors are then dipped in a weather-proofing material and finally paired by twisting together. Production of the other two types is similar, except that W-130 doesn't require the braiding and weather-proofing processes.

The outstanding limitation in W-110B is the supply of galvanized carbon-steel wire. Facilities for making this fine wire are limited. More could be supplied, but it would have to be at the expense of other programs, particularly stranded steel wire rope, used for unloading supplies, and aircraft cable.

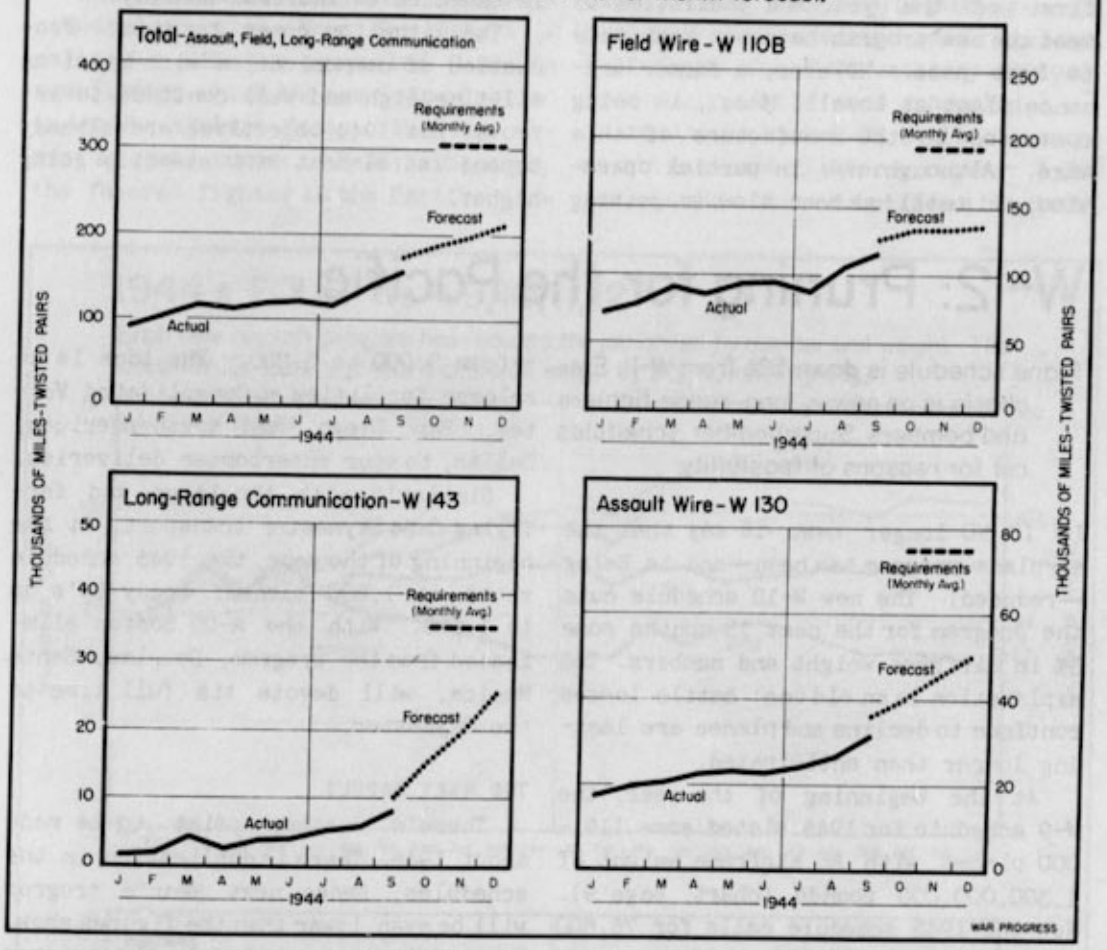
FEWER TWISTS

Stranding capacity at present limits assault-wire production. Stranding machines used by the steel industry and not ordinarily considered copper-wire mill facilities are employed for this purpose. And additional stranding facilities are being acquired and will be in operation before the end of the year. Furthermore, some relief has been obtained by changing specifications to reduce the number of twists per inch required in the strands.

The lack of rubber has made insulation a problem for all three types of

THE NERVES OF THE SIGNAL CORPS

Three key types of wire—but one story of shortage. Production rose sharply in September but missed even the lowered first-of-month forecast.



critical wire. Various compounds of synthetic rubber have been tried and some replaced as improved processes were developed. At the present time, Buna S is proving the most satisfactory for W-110B and W-143, but the mixing operation requires a longer time than formerly needed for crude rubber. Facilities have been enlarged to compensate for the longer milling time. Two types of plastic (polyethylene and polyvinyl chloride) insulation are also being used on W-130. Polyethylene is superior to materials previously tried, but the rate of extruding is also slower. More facilities likewise are being added here.

SPECIAL TREATMENT

Cotton yarn for braiding was a limitation for W-110B earlier this year. However, this situation has been eased by relaxing specifications to permit a more open braid, and by special treatment which has directed more yarn for wire and cable use. Some rayon is be-

ing used for cotton as a temporary expedient.

In the case of W-143, long-range wire, requirements have quadrupled since the first of the year and facilities to meet the new program have not been able to keep pace. However, a former ordnance plant at Lowell, Mass., is being converted to the manufacture of this wire. Although now in partial operation, this mill has been slow in getting into full-scale production due to difficulties in obtaining needed equipment. When it is finally completed next month, output of long-range communication wire is expected to increase sharply.

The situation comes to this. Production of communication wire is at an all-time high and will continue to improve. But 1944 objectives are already beyond attainment and steadily going higher.

W-12: Pruning for the Pacific

Plane schedule is down 5% from W-11. Emphasis is on newer, long-range fighters and bombers. Superbomber schedules cut for reasons of feasibility.

IT IS NO longer news to say that the airplane program has been—and is being—reduced. The new W-12 schedule cuts the program for the next 15 months some 5% in airframe weight and numbers. The explanation is an old one: battle losses continue to decline and planes are lasting longer than anticipated.

At the beginning of the year, the W-9 schedule for 1945 slated some 119,000 planes with an airframe weight of 1,300,000,000 pounds (chart, page 9). Now the 1945 schedule calls for 75,600 planes and 900,000,000 pounds—cuts of 36% and 31% respectively. Comparisons between then and now suggest that the program is gradually being adjusted to meet the requirements of the war in the Pacific.

LIBERATOR CUT 64%

Back in January, approximately 4,400 superbombers were scheduled for 1945; today the docket has gone up 12% to about 4,930, despite reductions in W-12 for feasibility reasons. At the same time, the B-24 Liberator has been slashed 64%—from 9,000 to 3,200. The idea is to release facilities at Consolidated Vultee, San Diego, and North American, Dallas, to spur superbomber deliveries.

Similarly with the large and far-flying C-54 Skymaster transport. At the beginning of the year, the 1945 schedule stood at 1,200 planes; today it's up to 1,379. With the A-20 Boston eliminated from the program, Douglas, Santa Monica, will devote its full time to the Skymaster.

TOO MANY MODELS

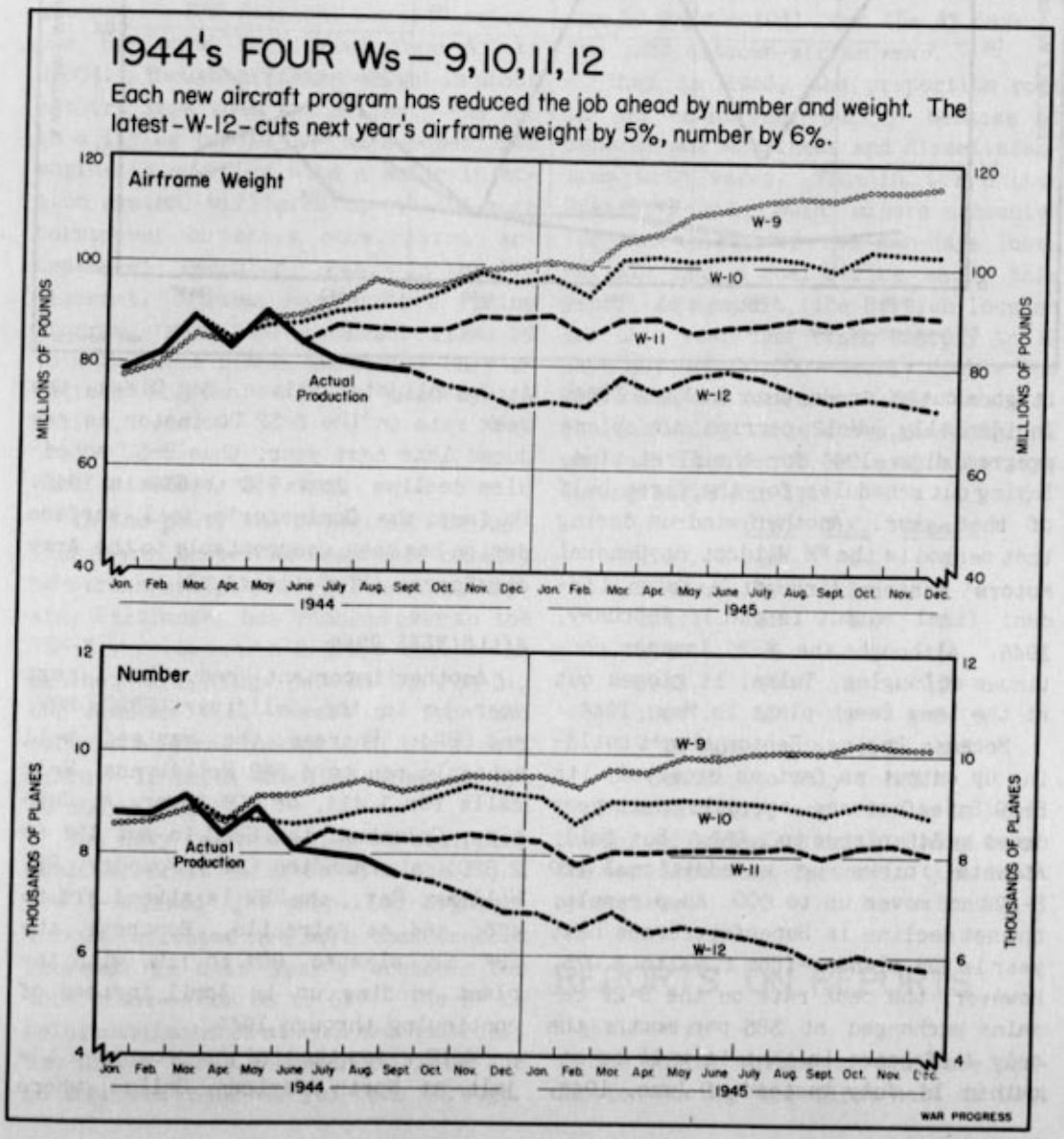
There's another point to be made about 1945. There is duplication in the schedules, hence next year's program will be even lower than the figures show. New models now carried in the program will eventually displace standard models or be dropped. Sooner or later, one or the other must go. Meanwhile, the decision must wait on flight testing.

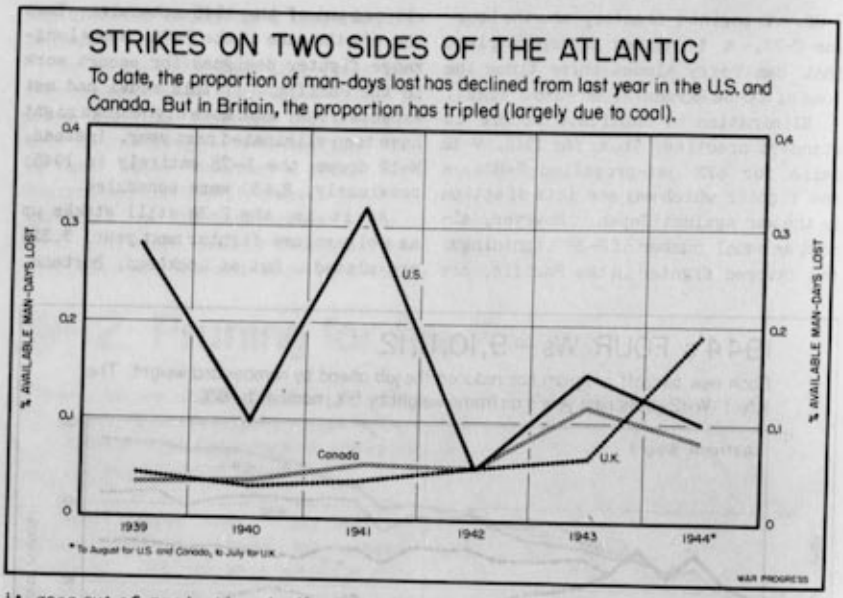
For example, the current schedule carries 3,015 P-47Ns, a faster-flying, longer-range version of the Thunderbolt. If performance lives up to promise, an equal number of other fighters—perhaps P-38 Lightnings and P-51 Mustangs—may be cut out of the program. Other new models which duplicate standard models include the North American

P-82, a 2-engined fighter, and the Douglas C-74, a 4-engined transport plane that can carry almost three times the load of a C-54 Skymaster (WP-Sep2'44,p1).

Elimination of duplicate models is standard practice. Thus, for 1945, W-12 calls for 622 jet-propelled P-80s, a new fighter which may see lots of action in the war against Japan. However, almost an equal number of P-38 Lightnings, the favored fighter in the Pacific, are clipped out of the 1945 schedule. Then there's the case of the P-75, a new long-range fighter designed for escort work in the Pacific. If this model had met expectations, even more Lightnings might have been eliminated next year. Instead, W-12 drops the P-75 entirely in 1945; previously, 2,550 were scheduled.

As it is, the P-38 still stacks up as a big-volume fighter next year; 3,329 are slated. But at Lockheed, Burbank,





it goes out of production in May, 1946. Incidentally, W-12 carries the plane program into 1946 for the first time, laying out schedules for the first half of that year. Another wind-up during that period is the FM Wildcat at General Motors' Eastern Aircraft Division, Linden: final output is due in February, 1946. Although the A-26 Invader continues at Douglas, Tulsa, it closes out at the Long Beach plant in May, 1946.

Because Boeing, Renton, isn't building up output as fast as expected, its B-29 Superfortress schedule next year drops by 345 planes to 1,935. But Bell, Atlanta, picks up an additional 120 B-29s and moves up to 600. As a result, the net decline in Superfortresses next year is 225 planes—from 4,300 to 4,075. However, the peak rate on the B-29 remains unchanged at 385 per month: the only difference is that it will be attained in July instead of June, 1945.

At Consolidated Vultee, San Diego, the peak rate on the B-32 Dominator is reduced late next year: thus B-32 schedules decline from 950 to 839 in 1945. So far, the Dominator's tail surface design has been unacceptable to the Army Air Forces (WP-Oct14'44,p2).

HELLDIVERS DOWN

Another important reduction next year is in the Helldiver (SB2C, SBW, and SBF). Whereas the revised W-11 schedule ran to 4,888 Helldivers, W-12 calls for 3,414, or 30% fewer. At Curtiss, Columbus, the SB2C is cut 15% to 2,820: at Canadian Car & Foundry, Ft. William, Ont., the SBW is sliced 51% to 475: and at Fairchild, Montreal, the SBF is slashed 80% to 119, with the plant winding up in April instead of continuing through 1945.

W-12 gives the trainer program a big jolt at North American, Dallas, where

the AT-6 Texan is reduced from 2,196 planes to 1,892 in 1945. The FG Corsair at Goodyear, Akron, is lowered 13% next year to 1,422 and leaves the program in December; but this top-notch Navy fighter continues in production at Chance Vought, Stratford. The F2G Corsair schedule is unchanged.

At Grumman, Bethpage, 19% fewer F6F Hellcats are scheduled next year—4,360 as against 5,400—and production ends in December. In its place Grumman has groomed the F8F Bearcat, the 1945 schedule for which is boosted from 609 to 1,804. Though airframe weight is about a third less than the Hellcat, the F8F is a flying bundle of horsepower; its engine is equipped with a water-injection system, will give up to 40% more horsepower on short runs. First acceptance: December, 1944. In the F7F Tigercat, Grumman has another rising program. Next year's schedule rises 5% to 875. This plane, the Navy's only 2-engined fighter, will be used by the Marine Corps.

FROM TRANSPORT TO PATROL

In the past, the 2-engined PBM Mariner patrol bomber has been used chiefly as a transport plane. But now that Martin, Baltimore, has changed over to the PBM-5 version with a 2,100hp engine (as against a 1,700hp job on the PBM-3), the Mariner will revert to type and serve as a patrol bomber with the fleet. Hence W-12 lifts the 1945 schedule 16% to 586 planes.

The Navy is interested in equipping small aircraft carriers with the FR, a new 1-engined jet-propelled fighter. This is reflected in a more than tenfold increase in next year's schedule for this plane—from 58 to 677. The FR is being manufactured at Ryan Aeronautical, San Diego; first acceptances were due in August but none has yet come through.

War Progress Note

A PLEDGE AND A LAW

THE HISTORY of American labor's "no-strike" pledge shows that it has done for this country what antistrike legislation did for Britain and Canada. For instance, 1942 strike statistics show that in each country the proportion of man-days lost was the same—five out of 10,000 potential working days. And the U.S. figures were far lower than the 32 days in 1941 and the 43 days in the 1937 sitdown-strike wave.

Then in 1943, the proportion rose in all countries, partly because of general war weariness and dissatisfaction with wages. Thus in the United States, John L. Lewis' miners accounted for two-thirds of the man-days lost. Britain had a coal strike early this year. As a result, the British loss so far this year has risen sharply to 19 days out of 10,000—nearly double the U.S. rate, and more than double Canada's. The following table shows the number of man-days lost per 10,000 available days during World War II:

	U.S.	U.K.	Canada
1939...	28	4	4
1940...	10	3	4
1941...	32	4	5
1942...	5	5	5
1943...	15	6	12
1944*..	10	19	8

*To August for U.S. and Canada; to July for U.K.

Interestingly, coal strikes in both the United States and Britain have been the most important factor in time lost by strikes.

REPORTS ON REPORTS

Tight Tools

The dollar volume of hardware production during the first half of 1944

SELECTED MONTHLY STATISTICS

Production–Employment–Transportation

	Latest Month*	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Same Month 1939	Same Month 1937
PRODUCTION INDEX - INDUSTRIAL (1935-39=100)†							
Total Manufactures	255 p	254 p	252	238	248	119	118
Durable	250 p	249 p	248	257	267	119	117
Nondurable	351 p	350	349	363	370	119	125
Minerals	171 p	169 p	167	171	184	120	111
	146 p	145 p	143	133	143	121	119
NONAGRIC. EMPLOYMENT - TOTAL (thousands)	38,559 p	38,740 p	38,714	38,681	39,678	31,445	*.*.
Manufacturing - Total	15,850 p	16,059 p	16,042	16,509	17,136	10,489	
Durable goods	9,352 p	9,527 p	9,595	10,004	10,250	4,542	
Nondurable goods	6,498 p	6,512 p	6,449	6,505	6,906	5,947	
Mining	828 p	834 p	855	852	880	885	
Trade	6,987 p	6,908 p	6,945	6,919	6,956	6,705	
Government (Federal, State, and Local)	3,547 p	3,869 p	3,830	3,871	3,868	4,097	
Other ††	8,547 p	9,090 p	9,064	8,530	8,858	9,273	*.*.
ESTIMATED NUMBER OF WAGE EARNERS (thous.)							
All Manufacturing	12,777 p	12,940 p	12,931	13,408	13,935	8,587	*.*.
Durable goods	7,543 p	7,688 p	7,734	8,122	8,319	3,719	*.*.
Nondurable goods	5,234 p	5,252 p	5,197	5,286	5,616	4,868	*.*.
TRANSPORTATION - COMMODITY AND PASSENGER (1935-39=100) †							
Commodity	251 p	227 p	231	219	226	110	108
Passenger	216	208	213	206	211	110	107
	288 p	288 p	288	260	275	108	108
PRODUCTION OF CLOTHING AND SHOES FOR CIVILIANS (1935-39=100)†							
Clothing and shoes combined	100 p	92	99	112	105	120	*.*.
Clothing	106 p	98 p	101	117	107	120	*.*.
Shoes	79 p	75	88	89	94	120	*.*.

*Production, Employment, September; all other, August †Unadjusted. pPreliminary. rRevised. *.*-Not Available.
†† Transportation, construction, finance, service and miscellaneous.

was 69% ahead of output for the same period in 1941, but sharp reductions are expected when V-E Day comes, according to *Hardware and Plumbing and Heating* (confidential: pp. 14). Continued heavy demands for mechanics' hand service tools (pliers, wrenches, ball peen hammers, screw drivers, etc.) and metal-cutting tools (broaches, reamers, chasers, dies, taps, twist drills, etc.) have kept civilian supplies tight. (Department of Commerce, Bureau of Foreign and Domestic Commerce)

Tax Plans

Three plans for postwar Federal taxation—the Committee for Economic Development Plan, Twin Cities Plan, and Ruml-Sonne Plan—are compared in *Current Comments* (confidential: pp. 20). Under the C.E.D. and Ruml-Sonne plans, the main source of revenue is derived from personal income taxes, with less importance placed on excises and the corporation tax. But the Twin Cities Plan, the only one which proposes a general sales tax in addition to the retention of all other excises, allows for a more substantial yield from corporation taxes and places less emphasis on individual income taxes.
(Federal Reserve System, Division of Research and Statistics)

[This record is an attempt to select from the many documents coming to the attention of WAR PROGRESS those studies which would be of most interest to readers. The list is by no means comprehensive, and no attempt has been made to evaluate reports for accuracy. Whether reports are available depends on the policy of each individual agency.]

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September—Month of Minuses
Where Will the War Worker Go?

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WAR PROGRESS

Prepared in the War Production Board

J. A. Krug, Chairman

War Progress is a confidential report designed to provide a coordinated and continuing picture of the overall war program for the various war agencies. To this end, it presents, analyzes, and interprets basic statistical and economic information, and from time to time examines the pros and cons of controversial questions.

Although War Progress is an official publication of the War Production Board, statements in it are not to be construed as expressing official attitudes of the Board as a whole, or even of individual members. Conclusions, whenever reached, should be considered editorial conclusions.

War Progress is prepared in the Bureau of Planning and Statistics (Thomas C. Blaisdell, Jr., Director) by the Reports Division (Joseph A. Livingston, Director).

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September—More Downs Than Ups

All major munitions groups miss schedule. Output—$5,345,000,000—is 4% below goal, shade under monthly average of the year. Production peak probably past.

MUNITIONS PRODUCTION dipped in September, continuing the up-and-down standstill which has characterized 1944. Output, at $5,345,000,000, was only a shade below the monthly average for the year, but missed the first-of-the-month goal by 4%. Moreover, had it not been for a $250,000,000 reduction in the September schedule since August 1, production would have fallen short by 8%.

This further leveling off now makes it highly probable that the peak of $5,600,000,000 reached last December will stand as the high mark of munitions production during the war. Though November production, as of September 1, is scheduled at an all-time high of $5,750,000,000, anticipated cuts in aircraft and Army Service Forces programs plus continued failures to meet schedule suggest that this level will not be attained.

Here's an indication of the degree to which schedules have recently been reduced:

	Schedule as of		
	Aug. 1	Sept. 1	Change
	(in millions)		
October....	$5,893	$5,675	-$218
November...	5,936	5,753	-183
December...	5,887	5,744	-143

This reduction has cut the 1944 munitions program to $66,500,000,000, as compared to $72,000,000,000 at the beginning of the year. Except for a slight rise in May, the paring process has been continuous since January. Aircraft cuts have been the major factor: from $23,500,000,000 at the beginning of the year, the aircraft program has been reduced monthly, and as of September 1 stood at $19,400,000,000, with still further cuts in prospect.

The second largest reduction has been in ships—$1,400,000,000—down from $15,600,000,000 in January to $14,200,000,000. Ammunition and combat and motor vehicle programs were cut back sharply in January and increased again in the next three months. Little change was made in guns and fire control.

ITS FIRST CUTBACKS

Communication and electronics, a steadily rising program throughout the war, has experienced its first real cutbacks—all since August 1. Between January and March, the program rose from $4,400,000,000 to $4,800,000,000 and remained at that level until September 1 when it was reduced to $4,600,000,000. Navy radar was cut back $62,000,000, but a substantial part of the reduction was added to the 1945 program. A $37,000,000 cut in batteries was an adjustment for failure to meet schedule during the first eight months. Vacuum tubes were cut $47,000,000. Ground and vehicular radio was reduced $73,000,000 and all of this is reflected in scheduled production for the last quarter of this year. Airborne radio is down slightly.

The critical airborne radar program for ASF has been reduced by $14,000,000 for the final quarter. This means a lowering of monthly production goals by 7%. This, together with a 25% increase in output in September, whittles

down the margin between production rate and schedules to a point where it now (for the first time) seems possible to meet stated requirements.

HARD TO MAKE

On the other hand, tactical communication-wire requirements have been boosted, as of September 1, from $74,600,000 to $83,200,000. And even the lower objective was hard to attain (WP-Oct21'44,p5) despite sharply increased output in September.

The 1944 ship program was reduced $258,000,000 between August 1 and September 1, and that of 1945 increased by $129,000,000. The most important boost for 1945 took place in dry-cargo vessels. Standard cargoes and the AKAs, the combat-loaders being converted by the Navy from Maritime types, dominate the decrease for this year. (Though they have been given priority over all ship programs, including maintenance and repairs, the Navy in September converted only 24 APAs and AKAs against a goal of 30.) There was also a cut of $37,000,000 in LCIs (Landing Craft-Infantry); 100 were canceled out of the program.

In the ASF guns and fire control program, the 4.5-inch MIO (three-tube AC) rocket launcher was cut in August from 167,100 units to 76,000 units—a reduction of $21,000,000.

Two important changes took place in ASF ammunition during August: the 75mm. through 105mm. antiaircraft ammunition group was increased $29,000,000, or 22%, and land mines and grenades were reduced by $39,000,000.

Sharp cutbacks in standard heavy bombers and fighters and aircraft engines during August lowered the aircraft program by $331,000,000, or 2%. These cutbacks mark a continuation of the process of bringing aircraft schedules in line with lowered requirements.

ONLY INCREASES

September reflects the decline in the munitions program. Ammunition and ships were the only categories to gain over August. More than that, not a single major category made schedule. There are a number of reasons for this. In the first place, the Labor Day week end shortened the month to 25 work days. There was also a reduction of some 100,000 munitions workers during the month. Furthermore, there was probably a psychological letdown due (1) to the initial success of Allied troops after the Normandy push-through, and (2) the cumulative effect of program cutbacks which have led many workers to think that there was no longer any need to strain, despite attempts to counter such a reaction through recruitment drives for workers for critical programs. This last has been a problem since the cutbacks began in the fall of 1943.

Despite the decline in aircraft production, September output on a dollar-value basis was greater than the average monthly rate needed to meet schedules for the remainder of the year under the new W-12 program (WP-Oct21'44,p8). Back in January, the program called for production of nearly $2,000,000,000 in September, but successive cutbacks reduced the first-of-the-month schedule to $1,620,000,000. And required monthly pro-

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duction for the last quarter averages less than $1,500,000,000.

Aircraft

For the first time, both plants turning out engines for superbombers ran ahead of schedule. Wright, Paterson, delivered 561 against a goal of 550; Dodge, Chicago, delivered 809 against a schedule of 800. The result at Dodge was nothing new. Starting with an initial output of 15 superbomber engines in January, this plant has topped schedule consistently.

PRODUCTION PROGRESS — Preliminary

Value delivered or put in place—millions of dollars

	Sept. Preliminary	Aug. Actual	% Change	Sept. Schedule*	% Deviation Sept. Prelim. vs. Schedule
MUNITIONS AND WAR CONSTRUCTION	$5,564	$5,642	-1%	$5,765	-3%
TOTAL MUNITIONS	5,345	5,404	-1	5,546	-4
Aircraft	1,539	1,616	-5	1,620	-5
Total airframes, engines, propellers	1,218	1,275	-4	1,280	-5
Airplane spare parts	303	325	-6	319	-5
Other aircraft and equipment (excl. commun.)	18	18	0	21	-14
Ships (incl. maintenance)	1,155	1,145	+1	1,186	-3
Navy	529	540	-2	605	-12
Combatant	185	196	-6	201	-8
Landing vessels	212	214	-1	218	-3
Other	132	130	+2	134	-28
Maritime	395	378	+4	359	+10
Cargo and supply	260	251	+4	231	+13
Other	135	127	+6	128	+5
Army Vessels	60	57	+5	55	+9
Ship Maintenance and Repair	169	170	-1	169	†
Guns and Fire Control	250	274	-9	281	-11
Small arms (under 20mm.)	47	49	-4	47	0
Artillery, mortars, rocket launchers—ASF	61	60	+2	60	+2
Fire control and searchlights (excl. Radar)	48	57	-16	60	-20
Naval guns and other	94	108	-13	114	-18
Ammunition	606	589	+3	615	-1
Small arms (under 20mm.)	45	43	+5	46	-2
Artillery ammunition, mortar shells, rockets-ASF	138	133	+3	133	+3
Aerial bombs—ASF	133	128	+4	136	-2
Naval ammunition and other	240	235	+2	250	-4
Combat and Motor Vehicles	458	458	-4	479	-9
Combat vehicles	142	155	-7	166	-14
Motor carriages for SP guns	25	28	-11	24	+4
Automotive vehicles and tractors	265	272	-3	283	-6
Communication and Electronic Equipment	344	343	nil	362	-5
Radio	121	138	-12	132	-8
Radar	139	121	+15	146	-5
All other	84	84	0	84	0
Other Equipment and Supplies	1,015	979	+4	1,005	+1
WAR CONSTRUCTION (GOV'T. FINANCED)	219	238	-8	219	†

* As of September 1.
† Schedule used for preliminary.

September's superbomber engines will normally be used in planes to be produced in November, when the W-12 schedule calls for 168 superbombers: 158 B-29 Superfortresses and 10 B-32 Dominators. If schedules are met, that will take 1,008 engines (each plane requires six, including two spares) of September's 1,360 total. The 352 engines left over will help to make up a deficit earlier this year.

Despite the showing in engines for superbombers, production of all engines in September—$335,000,000 (preliminary)—missed schedule by 6% and fell 12% away from the all-time peak reached in August. In numbers, September engine output ran to 21,200 as compared with 24,100 in August.

Aircraft as a whole—airframes, propellers, spare parts, gliders, etc., as well as engines—also fell short of forecast and the preceding month. Total output of $1,539,000,000 was 5% below schedule and August. As brought out previously in WAR PROGRESS, total airframe weight dropped 400,000 pounds and 339 fewer planes were accepted, but weight per plane increased (WP-Oct7'44,p6).

Army Ordnance

For the first time in recent months, production of ground army munitions failed to show an increase; at $955,000,000, it remained at the August level. Combat and motor vehicles trailed August by 5% and the first-of-the-month schedule by 9%. Guns and fire control declined 3% but ran slightly ahead of schedule. Only ammunition went up; it rose 6% and was on the mark.

Revised figures show that all heavy field artillery met or exceeded first-of-the-month goals. Indeed, the September rate was sufficient to meet requirements for the remainder of the year. In the case of the 155mm. howitzer, output rose 12% and topped schedule by 4%. Spare cannon for the 155mm. howitzer declined 11% and fell short of the goal. Spares for the other big guns came through about as scheduled.

Output of heavy artillery ammunition was up 14% and beat schedule by 5%. Here an increase of 38% is needed over the September rate to meet requirements. However, the 155mm. howitzer HE shell, though it increased 40% over August, failed to meet the rapidly rising schedule by 10%.

Fragmentation bombs fell 2% short of the first-of-the-month schedule, and 250-pound and 500-pound general-purpose bombs missed by wide margins. Output of fragmentation and GP bombs is still 40% below the rate needed to meet requirements. Aerial bombs as a whole were up 4%, but 2% short of the first-of-the-month goal.

NOT ENOUGH

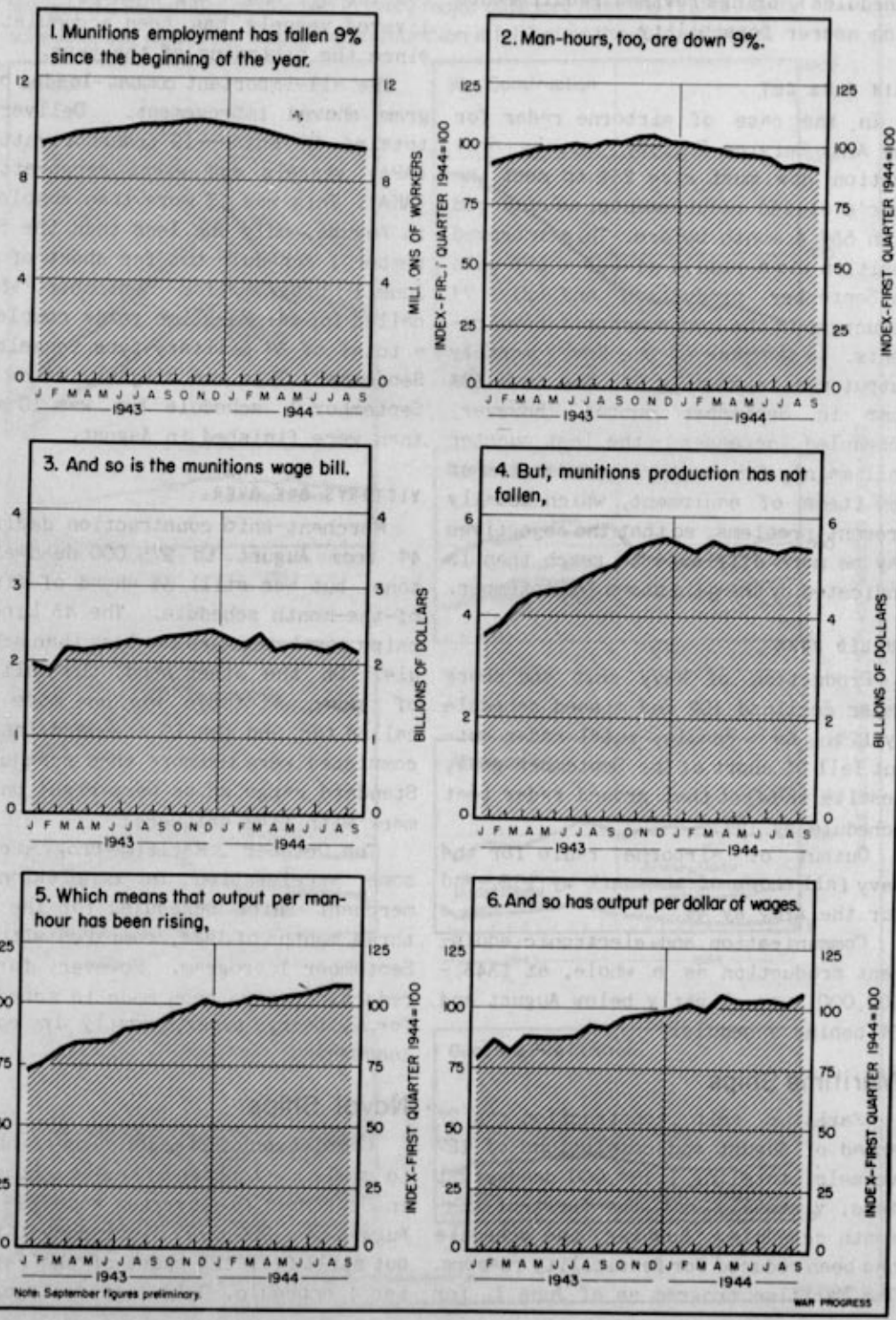
Deliveries of heavy-heavy trucks increased nearly 400 to 4,850, but failed by 560 to meet the sharply lowered first-of-the-month schedule. Production must double to meet requirements. Light-heavy trucks (2½ tons) also fell far short of their mark; 17,700 were delivered, as against 20,520 in August and a goal of 21,600.

Of the medium tanks, only the M4 carrying the 75mm. gun ran ahead of schedule. The M4 mounting the 105mm. howitzer was five short of the goal of 250, but deliveries of the M4 mounting the 76mm. gun dropped sharply to 632, and fell 142 shy of the schedule.

Signal Equipment

Output of critical airborne radar equipment, which has been climbing rapidly in recent months, rose another 25% in September and was virtually on schedule. This, coupled with a reduction in

DOLLARS AND CENTS IN WAR PRODUCTION



the 1944 program as of September 1 (due primarily to the cutback in aircraft schedules), brings revised requirements much nearer feasibility.

GAIN PLUS CUT

In the case of airborne radar for the Army Service Forces, monthly production now must rise 23% to meet the year's stated requirements, as compared with 55% a month before. This improved position was a result of (1) a 15% gain in September production and (2) a 7% reduction in the last quarter's requirements. In the case of the Navy, monthly output must rise only 8%, due to a 38% jump in September output. However, scheduled increases in the last quarter call mainly for boosts in production of new items of equipment, which usually present problems, so that the objectives may be more difficult to reach than is indicated by the gain shown in September.

PULLED DOWN

Production of Navy ship and shore radar declined 10% and missed schedule by 22%. As a result, total radar output fell 5% short of the September goal, despite the fact that ground radar beat schedule by 17%.

Output of airborne radio for the Navy fell short of the mark by 16%, and for the Army by 4%.

Communication and electronic equipment production as a whole, at $343,000,000, was slightly below August and 5% behind schedule.

Maritime Ships

Maritime ship construction ran 2% ahead of August and completions of 127 vessels, totaling 1,187,000 deadweight tons, virtually met the first-of-the-month schedule. However, the schedule had been reduced for feasibility reasons. The Maritime program as of June 1, for example, called for nearly 244,000 more deadweight tons in September than were completed. And a big backlog of undelivered vessels has been accumulating since the beginning of the year.

The all-important combat-loader program showed improvement. Deliveries totaled 27 ships—19 transport-attack (APA) vessels and eight cargo-attack (AKA). This was 13 more than completed in August, only one less than the September 1 schedule but far short of the June 1 program for September, which called for 44. Maritime yards completed a total of 38 military-type vessels in September. This was slightly below the September 1 schedule but was 10 more than were finished in August.

VICTORYS ONE OVER

Merchant-ship construction declined 4% from August to 975,000 deadweight tons, but was still 3% ahead of first-of-the-month schedule. The 43 Liberty ships completed were two less than schedule. On the other hand, the delivery of seven Victorys was one more than called for, and the 19 standard tankers completed were two more than scheduled. Standard cargo ships were right on the mark with five delivered.

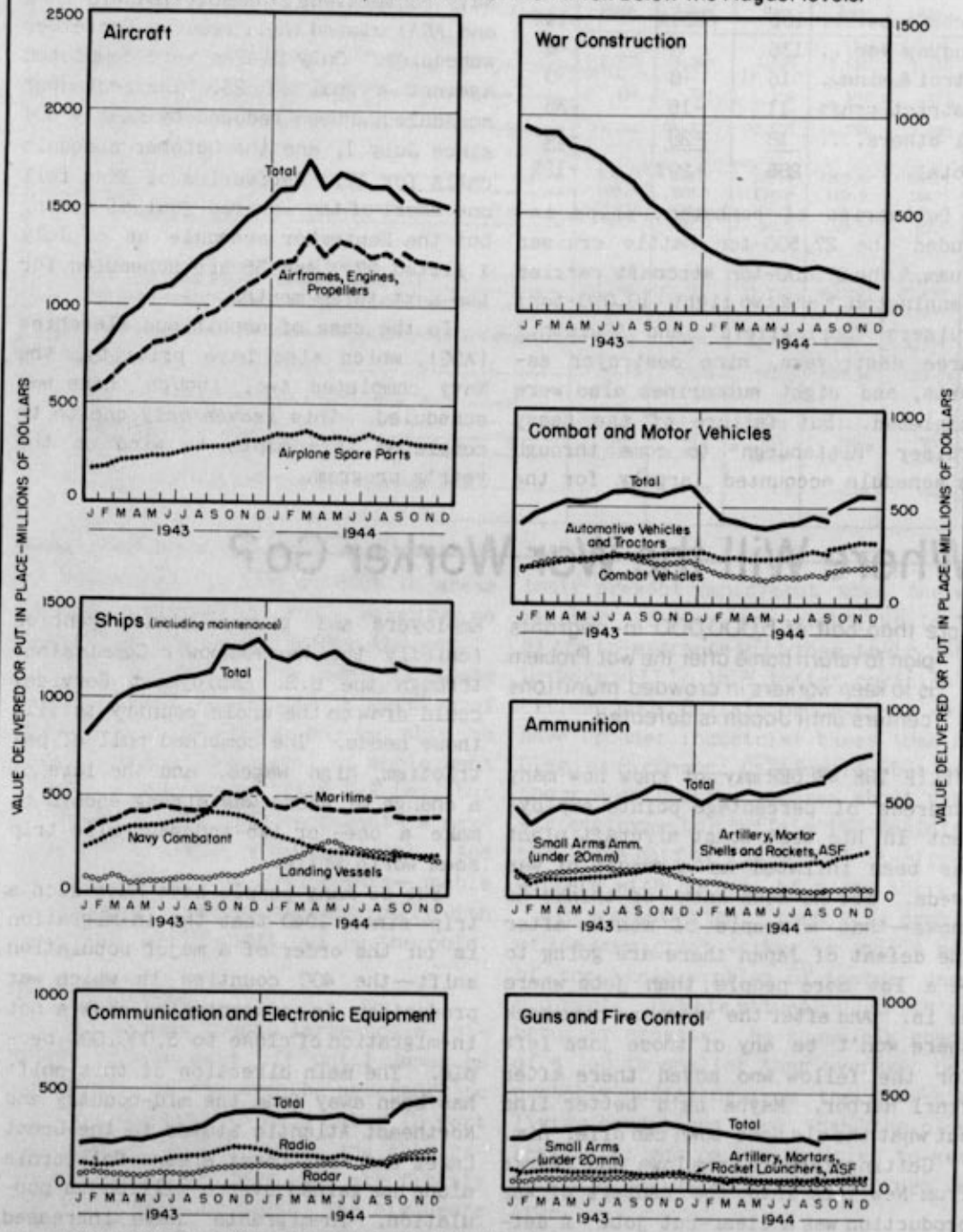
The October 1 Maritime program shows some acceleration in completions of merchant ships scheduled for the last three months of 1944, compared with the September 1 program. However, further reductions have been made in schedules for military types, mostly in combat loaders.

Naval Ships

Completion of 24 major vessels helped to swell the tonnage of Navy-built ships in September. Deliveries rose 29% over August to 286,000 displacement tons, but still fell 12% short of the September 1 schedule. Only major category to

MUNITIONS PRODUCTION FAILS TO RISE

Not only did September production in every major category miss the first-of-month schedule, but except for ships and ammunition it fell below the August levels.



Note: Actual through August, September preliminary. September I schedule thereafter.

WAR PROGRESS

meet schedule was patrol and mine craft:

	September Deliveries (000 tons)	% Deviation From Aug.	Sched.
Combatants....	105	+239%	-14%
Landing ves...	136	0	-8
Patrol & mine..	16	-6	0
District craft	11	-15	-35
All others....	18	-28	-14
Total.....	286	+29%	-12%

Deliveries of combatant ships included the 27,500-ton battle cruiser "Guam," the 27,100-ton aircraft carrier "Bennington," and two light (10,000-ton) cruisers "Springfield" and "Duluth." Three destroyers, nine destroyer escorts, and eight submarines also were completed. Fut failure of the heavy cruiser "Pittsburgh" to come through on schedule accounted largely for the lag in the combatant ship deliveries.

Despite the fact that they have been given priority over all other ship programs, even maintenance and repairs, Navy conversions of combat-loaders (APA and AKA) missed their reduced September schedules. Only 18 APAs were completed against a goal of 23. The September schedule had been reduced by nearly 60% since July 1, and the October schedule calls for 40. Deliveries of AKAs fell one short of the lowered goal of seven, but the September schedule as of July 1 listed 27. And 35 are scheduled for the next three months.

In the case of amphibious flagships (AGC), which also have priority, the Navy completed two, though none was scheduled. This leaves only one to be completed this month to wind up the year's program.

Where Will the War Worker Go?

More than half of 5,000,000 in-migrants plan to return home after the war. Problem is to keep workers in crowded munitions centers until Japan is defeated.

WILLIE THE WELDER may not know how many hundreds of percentage points employment in his West Coast aircraft plant has been inflated as a result of war needs. But he does know—or thinks he knows—that a couple of months after the defeat of Japan there are going to be a lot more people than jobs where he is. And after the veterans come back there won't be any of those jobs left for the fellow who moved there after Pearl Harbor. Maybe he'd better find out what the old home town can offer him.

Getting farmers from Iowa and clerks from New York into the centers of war production was a clear-cut job. A definite number of workers was needed in a definite place at a definite time. Employers and governmental agencies (chiefly the War Manpower Commission, through the U.S. Employment Service) could draw on the whole country to fill those needs. The combined pull of patriotism, high wages, and the lure of a change of scene was strong enough to make a one- or two-thousand-mile trip seem worth while.

But so many people have made such a trip since 1940 that the in-migration is on the order of a major population shift—the 400 counties in which war production is concentrated show a net in-migration of close to 5,000,000 people. The main direction of this shift has been away from the mid-country and Northeast Atlantic states to the Great Lakes and West Coast areas—California alone has gained over a million in population. In-migrants have increased the labor force anywhere from 5% or 10% in large industrial cities like Detroit

KEY STATISTICS OF THE WEEK

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War Program - Checks paid (millions of dollars)	1,778	1,563	1,689	1,630	1,616
War bond sales - E,F,G, (millions of dollars)	152	143	152	157	137
Money in circulation (millions of dollars)	24,216	24,157	23,658	21,334	19,090
Wholesale prices (1926=100)					
All Commodities	105.8 p	105.8	105.7	105.6	102.9
Farm products	122.8 p	122.7	122.8	122.9	122.7
Foods	105.9	105.8	104.5	104.4	104.8
All other	98.9 p	98.9	98.9	98.5	97.5
Petroleum:					
Total U.S. stocks* (thousands of barrels)	427,552	426,066	417,876	411,718	421,488
Total East Coast stocks* (thousands of barrels)	77,622	77,220	73,712	56,759	65,458
East Coast receipts (thousands of barrels, daily average)	1,568	1,827	1,662	1,700	1,540
Bituminous coal production (thousands of short tons, daily average)	1,979	1,957	1,933	1,958	1,954
Steel operations (% of capacity)	96.3%	97.0%	99.1%	99.5%	100.7%
Freight cars unloaded for export, excluding grain (daily average)					
Atlantic Coast ports	2,667	3,082	3,425	3,115	2,423
Gulf Coast ports	389	421	462	316	420
Pacific Coast ports	1,868	1,795	1,898	1,690	1,288
Department store sales (% change from a year ago)	+8%	+16%	+9%	-11%	+12%

p Preliminary *Excludes military-owned stocks

or Buffalo up to 300% or 400% in areas like Mineral County, Nev., which had no industrial existence before the war.

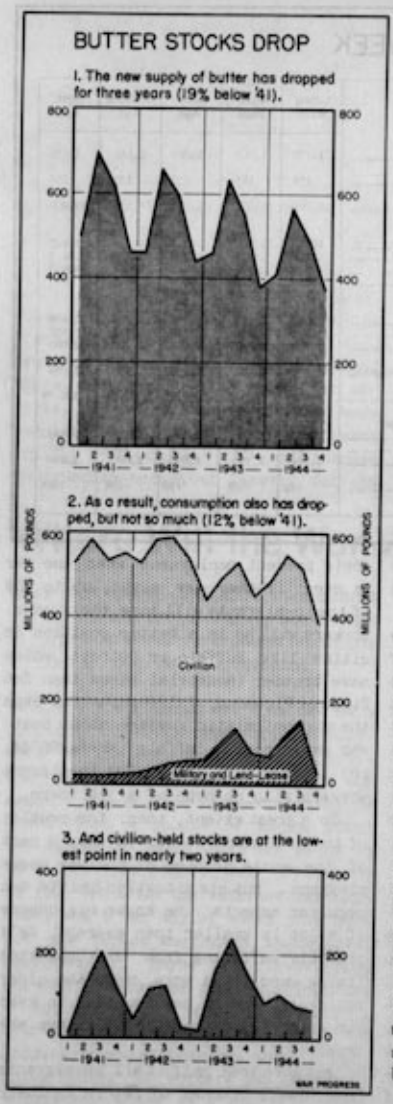
When cutbacks come, most of these regions will accumulate a surplus of manpower. Some areas may be able to better their 1940 level of employment within a year or so after V-E Day, but in other places 1940 represents a maximum rather than a minimum goal. And on this basis, the in-migrants—unable to compete in seniority, especially with veterans—will be left out in the cold.

ONLY POSTPONED

On the West Coast, large-scale cutbacks may be held off until Japan is defeated. It may even be necessary to put on campaigns to hold labor in port facilities, lumber camps, and ship repair yards. But when the axe finally falls, it will cut deep. The big users of manpower—airplane plants and shipyards—talk in terms of 10% or 15% of their present employment when the war is over: if they are right, up to 90% of the in-migrants will lose their jobs. Workers will be in a better position in cities like Buffalo or Detroit, which have broader industrial bases than San Diego or Richmond, California—but even the most optimistic guesses about postwar employment in Buffalo (WP-Aug26'44, p8) leave half of its 30,000 in-migrant workers with no hope of a job there.

To a great extent, then, the problem of the in-migrant worker is only a part of the whole problem of postwar unemployment. But his situation has its own peculiar aspects: He knows his chance of a job is smaller than average; he's probably suffering from the congested living conditions more than the older residents; and he has few ties to keep him in a region where these things are true.

And more than half of all in-migrants have always planned to return to their



former homes and occupations after the war. Surveys made in eight major defense areas over the country indicate that an average of 60% have no intention of staying where they are even if jobs are available—the percentage is around 65% in Cleveland, Buffalo, and Philadelphia; around 50% in Detroit and most cities in California.

In other words, over half of the 5,000,000 in-migrants intend to move; others will ultimately be forced out of their jobs after demobilization. The next question is: Where and what are they going to move to? Many of them are reconciled to going back to the submarginal farms and submarginal jobs they had before the war. Some will hang on where they are until their savings and their chances for a job reach the vanishing point. But others are packing up and leaving right now.

PROPOSED PANACEAS

As far back as the middle of last year, legislative committees in both the Senate and the House discussed the need of demobilization benefits for the war worker—to curtail out-migration while it could still cause manpower difficulties in war production and to aid in the removal of workers from overcrowded areas. These benefits—which, in addition to unemployment compensation, would include retraining and reemployment services and relocation allowances—were designed to keep manpower sufficiently mobile to meet all wartime needs, and then to assure each worker that at the end of the war he would be returned to his former home if he couldn't get permanent employment in his new site.

But is war production actually suffering—or likely to suffer—from out-migration? Ever since the war in Europe showed signs of being won, there have been scare headlines on the alarming

rate of out-migration from Baltimore, Detroit, and West Coast areas—but munitions programs in these same areas do not seem to be seriously affected by this particular cause. For one thing, productivity per worker has been constantly stepped up for the past three of four years, so remaining workers turn out more. For another, many of the out-migrants represent less efficient or less skilled workers who have been laid off or separated. Some support for this is to be found in reports from San Francisco and Los Angeles that most of those leaving war plants are going back to farms or into service industries.

PULL AND COUNTERPULL

After V-E Day, out-migration—to areas in which peacetime production is moving ahead rapidly—might become large enough to interfere with war production schedules. That is one theory. But there is a counterpull. Many workers may want to get away to a job with good peacetime prospects; at the same time, when layoffs become general, a job will be a job. It seems likely that the period between V-E Day and full reconversion will see a shift from a seller's to a buyer's market for labor—the worker may have good reasons for leaving his war job, but in most cases he will have immediate bread-and-butter reasons for staying. And as an example of what will happen again and again in the months to come, Chicago reports that many workers have been returning to the war jobs they quit when news of the European war was more optimistic.

It seems likely, then, that the balances among munitions requirements, cutbacks, and out-migration will—generally speaking—take care of themselves until the end of the war. Some workers will settle themselves in peacetime occupations, and others will provide a mobile labor force to meet the stresses and strains that will be created in various regions until Japan is defeated.

Six months ago, a strong case might have been made for bonuses to hold migrants on the job for the duration. The argument was that shipyards and aircraft plants were losing workers so fast that special inducements had to be offered: so much extra pay for each month of service, or a guarantee of moving expenses after the Japanese war. That was when out-migration was mounting and seemed to threaten war production schedules.

Today, however, though out-migration continues heavy, it has not assumed a magnitude that endangers schedules—in West Coast airframe plants and shipyards, for example, voluntary quits have declined 17% in the past year. And though during the early reconversion period some pulls toward civilian-goods centers will be exerted, the fact remains that when the cutbacks come a duration war job will have attractions all its own.

FOR IMMEDIATE ACTION

Thus, the main force has gone out of the argument for special demobilization benefits to migrant workers as a necessary war measure. However, that does not minify in shape, form, or substance the basic problem of postwar relocation—in terms of (1) the worker and (2) the communities in which the stranded workers stay.

And, like many other postwar problems, this one calls out for immediate handling—in this case, for its effect on in-migrants' morale. There is already some evidence to indicate that the fear of cutbacks—leading to conscious or unconscious stretching out of work—may harm war production just as directly as though thousands of key workers had quit their jobs.

SELECTED MONTHLY STATISTICS

Employment–Labor Disputes–Hours and Earnings

	Latest Month* P	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Same Month 1939	Same Month 1937
FEDERAL CIVILIAN EMPLOYMENT (thousands)	3,432	3,442	3,424	3,305	3,235	N.A.	N.A.
War agencies	2,549	2,554	2,547	2,453	2,370		
War department	1,579	1,582	1,573	1,517	1,471		
Navy department	751	752	754	719	678		
Other	219	220	220	217	221		
Nonwar agencies	883	888	877	852	865	N.A.	N.A.
LABOR DISPUTES							
Number of strikes in progress	445	550	530	390	267	373	656
Workers involved (thousands)	205	225	180	125	72	104	160
Number of strikes beginning during month	390	485	470	360	237	197	361
Workers involved (thousands)	185	190	145	115	67	37	89
Man-days idle (thousands)	660	935	680	415	210	892	1,450
AVERAGE WEEKLY EARNINGS (dollars)							
All manufacturing industries	45.85	45.43	46.27	45.29	43.52	23.77	24.75
Durable goods	51.79	51.07	52.17	51.37	49.61	26.63	27.99
Nondurable goods	37.16	37.04	37.35	36.37	34.55	21.77	21.90
Bituminous coal mining	52.28	47.20	52.27	52.99	46.15	24.61	23.58
Metalliferous mining	44.96	45.46	45.12	44.04	45.31	27.47	31.62
AVERAGE HOURLY EARNINGS (cents)							
All manufacturing industries	101.6	101.8	101.8	100.3	96.5	62.4	63.8
Durable goods	111.1	111.7	111.3	110.0	106.0	68.8	69.1
Nondurable goods	86.4	86.2	86.2	84.1	81.1	57.6	58.7
Bituminous coal mining	118.9	119.9	118.5	117.8	115.0	89.0	89.4
Metalliferous mining	100.3	101.0	100.9	99.2	98.3	70.1	71.1
AVERAGE HOURS PER WEEK							
All manufacturing industries	45.1	44.6	45.5	45.3	45.1	38.1	38.8
Durable goods	46.6	45.7	46.9	46.7	46.8	38.7	40.5
Nondurable goods	43.0	43.0	43.4	43.2	42.6	37.8	37.3
Bituminous coal mining	44.1	39.5	44.1	45.2	40.3	27.4	27.5
Metalliferous mining	44.8	42.9	44.6	44.3	46.0	39.5	44.5

*Employment, Labor Disputes, September; Hours and Earnings, August. P Preliminary. N.A. Not Available.

REPORTS ON REPORTS

New-Old Markets

After V-E Day, a large volume of military orders for industrial finishes probably will be canceled, according to *The Paint and Varnish Industry* (confidential; pp. 16). Until production of civilians' durable goods—autos, refrigerators, etc.—starts again, manufacture of specialized coatings will be curtailed. (Department of Commerce, Bureau of Foreign and Domestic Commerce)

Autos After V-E Day

The first automobiles will roll off assembly lines anywhere from two to eight months after V-E Day, according to executives in the automotive industry. But estimates in various publications for reconversion of the industry as a whole range from less than three to more than nine months. *How Soon Can the Automobile Industry Reconvert?* (unclassified; pp. 7) concludes that six months would be a good guess. (Bureau of Planning and Statistics, Reports Division)

[This record is an attempt to select from the many documents coming to the attention of WAR PROGRESS those studies which would be of most interest to readers. The list is by no means comprehensive, and no attempt has been made to evaluate reports for accuracy. Whether reports are available depends on the policy of each individual agency.]

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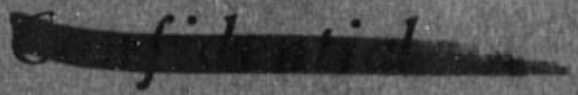
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Spot Fills in the Gaps
Navy Programs Mature
WX-5 for a One-Front War

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November 4, 1944

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WAR PROGRESS

Prepared in the War Production Board

J. A. Krug, Chairman

War Progress is a confidential report designed to provide a coordinated and continuing picture of the overall war program for the various war agencies. To this end, it presents, analyzes, and interprets basic statistical and economic information, and from time to time examines the pros and cons of controversial questions.

Although War Progress is an official publication of the War Production Board, statements in it are not to be construed as expressing official attitudes of the Board as a whole, or even of individual members. Conclusions, whenever reached, should be considered editorial conclusions.

War Progress is prepared in the Bureau of Program and Statistics (Thomas C. Blaisdell, Jr., Director) by the Reports Division (Joseph A. Livingston, Director).

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Spot Fills in the Production Gaps

But spot authorization plan is only a percentage point in the economy. Is slack-gatherer—takes up labor, materials, and facilities not utilizable in war work.

IN AN ECONOMY of nearly $200,000,000,000 a year, of which munitions production alone amounts to $65,000,000,000, the spot authorization plan is an atom. To date, it extends to only 1,331 plants throughout the country; authorized manufacture of peacetime goods amounts to only $247,605,000, less than 0.3% of the total value of manufacture.

However, the story of "spot" is not one of quantity, but of development. Spot is catching on. It could—if war program cutbacks continue—mount up to several percentage points in the national economy.

NEW AND UNFAMILIAR

On September 15, a month after its introduction, the War Production Board had acted on only 61 applications and approved only 31. The job was a brand new one for the 113 WPB field offices handling the applications (WP-Aug19'44, p1); the forms were new; the procedures were new. The manpower officials working with WPB were extremely cautious about releasing workers for nonwar production. The unfamiliar job of processing applications—with its manpower facilities and materials reviews—took considerably longer than the current average of around 20 days.

But most important in holding down approvals was the fact that no prime steel could be spared for the program (WP-Aug26'44,p1). Manufacturers were expected to make use of materials in idle and excess inventories, and the processing of applications included the job of checking the availability of such stocks. With all these handicaps, approval of applications averaged only around five a day for the first six weeks of the program.

ON THE SPOT PROGRAM

HPPE are the 10 largest groups of products which are now under spot authorization, as of October 24:

- Beds, cots, springs, etc.
- Aluminumware, household
- Vacuum cleaners
- Farm machinery
- Kitchen & household utensils
- Plumbing & heating (incl.stoves)
- Metal furniture—household & office
- Electric appliances
- Auto parts & maintenance equip.
- Refrigeration & air-conditioning equip.

FIRST 100,000

But in the following week—September 27 to October 3—exactly as many applications were processed (220) as in the whole program previously. Chief reason was the allocation to spot of 100,000 tons of prime carbon steel (an amount which has since been doubled). Processing of applications accelerated rapidly (chart, page 3) and currently over 50 are acted on per day. Over $6,000,000 of production is authorized per day, nearly 1,000 tons of steel. By now,

half of the valid applications received have been acted on, and with the speed of processing at its present level or higher this ratio will be improved.

Spot was designed as a stopgap—some have called it a spotgap. It was to fill in during the period before V-E Day, when cutbacks in some military programs and changes in others released materials, facilities, and workers for the manufacture of civilian-type products. But spot differs from the emergency production of essential civilian items programmed by the Office of Civilian Requirements in that the products obtained are not the major objective.

AIDS SMALL PLANTS

Of the 18,888 workers now engaged in production authorized under spot, 13,917 would otherwise be out of production. Of the 1,331 idle or partially idle plants which the spot program has put to work, the majority are small in size. Average employment is 83 workers; the number in each plant working under spot authorization averages 14. Plants employing less than 50 workers have received 72% of the authorizations numerically, 56% of the steel allocated, and 45% of the dollar value of production schedules. Many of these are plants adaptable to only one kind of war work; others are small manufacturing establishments that have never been fitted into war production, and several of these have been "out for the duration." Thus spot helps to see that the small manufacturer is not lost in the reconversion shuffle.

DEFROSTING MATERIALS

Many of the idle materials put to work under "spot" have been doing nothing more useful than take up space. Although the program has received a tremendous impetus from the allocation of prime materials, much of the production makes use of idle and excess inventories no longer needed for war. A safety-pin manufacturer, for instance, applies for permission to re-enter the civilian market making use of his stocks of brass which were frozen by the government at the beginning of the war.

Another manufacturer applies for permission to make inner-spring mattresses. He has been producing these for destroyer escort vessels, but now his war contract has been canceled. If he can make mattresses for civilians, he can use outsized spring units left over from his war work, instead of filing a contract termination claim for them; but he must get into production immediately if he is to sell these mattresses; at a later date, because of the outsized springs, "no dealer would consider mixing them into his stock."

RETURN OF THE INNER-SPRING

As it happens, the inner-spring mattress is the product for which the greatest number of authorizations have been given—over 300 in all. Mattresses can be made in hundreds of small establishments whose facilities are not now utilizable in war work. The government is just as ready to authorize french-fried potato cutters or fishing tackle. To be placed on the authorized list, a

IN THIS ISSUE:

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product must fulfill only one requirement: that its manufacture will not interfere, directly or indirectly, with war production. For this reason most of the products listed are simple and do not demand a variety of materials or components.

Over 70% of authorizations are for items in the consumers' durable-goods category—kitchen utensils, office supplies, furniture, etc. On the list of the 10 most active products and product-groups, page 1, certain exceptions to this rule may be observed, notably farm machinery and air-conditioning equipment. National need for products has sometimes influenced field offices in granting authorizations. And a concession has been made to product essentiality in the preparation of a preferred list of "utility" products from OCR, for the production of which a manufacturer will be given an AA-5 priority rating for obtaining materials he may require outside the controlled materials allotted to him.

MANPOWER TEST

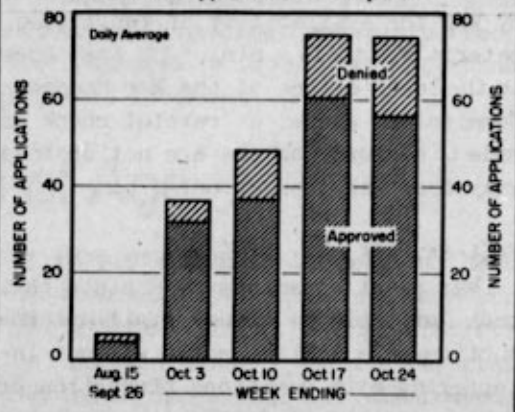
In the main, however, manpower utilization, not product essentiality, is the important test applied to spot applications. The would-be manufacturer of musical powder boxes for ladies' dressing tables who feels that "music in any form is a good morale builder in these times" finds the government interested only in his further statement that the boxes can be spun out of aluminum "by an old gentleman who has a small shop in his home." About 90% of the applications denied are turned down because of manpower. As materials and facilities become freer in future months, spot officials believe that the manpower test will become virtually the only one applied to applications.

A form giving full manpower informa-

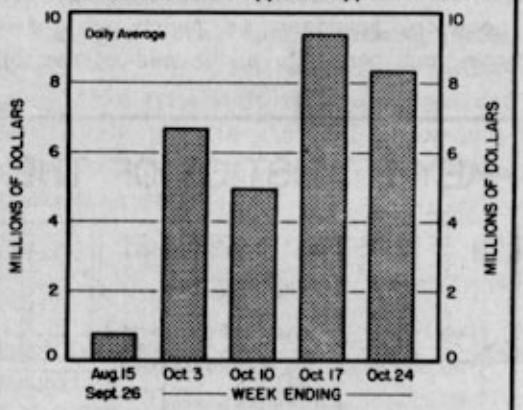
SPOTGAP IN U.S. ECONOMY

Slow to start, quick pick up, then a leveling off. That's spot authorization.

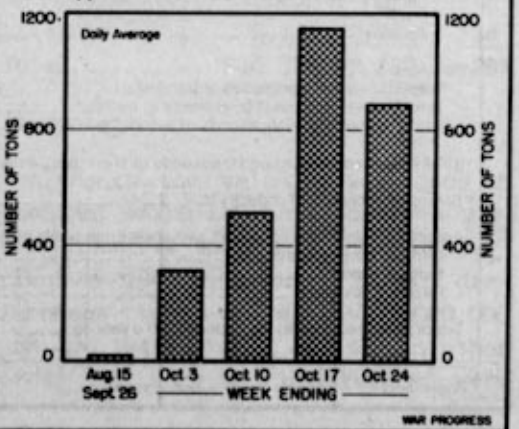
Here are the applications acted upon:



Here is the value of approved applications:



And here is the steel allotted for approved applications:



tion must accompany a manufacturer's application for spot authorization—specifying, among other things, "reduction anticipated in number of employees in plant if application were denied." When the application has been checked by WPB for availability of facilities, materials, tools, etc., it then goes to the local office of the War Manpower Commission where a careful check is made to see that workers are not drained away from war production.

FILL-IN WORK

War plant operators often state that they are able to resume civilian production on a limited scale without interfering with munitions production or making additional demands in the labor market. An aluminum manufacturer, for instance, proposes to punch out a few pots and pans in an unused corner of his plant, using workers who, from time to time, are not fully occupied with war work. Sometimes such an application is justified on the grounds that the work will hold together an efficient team of workers pending receipt of new war contracts. No single answer can be devised for this type of request; each demands separate study. Many such requests have been granted, but manufacturers who are over their PUC employment ceilings or behind in their war production schedules are sure to have their applications denied.

FEW HASTY NOES

Better than four out of five applications are now granted, resulting in the authorization of schedules covering a year's production, the allotment of steel, aluminum, or copper, if necessary, and the granting of priority ratings

KEY STATISTICS OF THE WEEK

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War Program—Checks paid (millions of dollars)	1,717	1,778	1,678	1,710	1,536
War bond sales—E, F, G, (millions of dollars)	231	132	260	245	194
Money in circulation (millions of dollars)	24,409	24,216	23,881	21,596	19,354
Wholesale prices (1926=100)					
All Commodities	103.9 p	103.8	103.8	103.7	102.8
Farm products	125.3 p	122.8	122.8	123.1	122.2
Foods	104.1	103.9	103.9	104.7	105.0
All other	98.8 p	98.9	98.8	98.5	97.5
Petroleum:					
Total U.S. stocks* (thousands of barrels)	426,836	427,552	420,235	410,660	424,503
Total East Coast stocks* (thousands of barrels)	78,358	77,622	74,677	56,439	64,366
East Coast receipts (thousands of barrels, daily average)	1,930	1,568	1,696	1,794	1,588
Bituminous coal production (thousands of short tons, daily average)	1,967	1,979	1,975	2,042	1,888
Steel operations (% of capacity)	94.9%	96.3%	95.6%	100.0%	100.6%
Freight cars unloaded for export, excluding grain (daily average)					
Atlantic Coast ports	2,929	2,667	3,577	3,150	2,417
Gulf Coast ports	529	529	459	357	405
Pacific Coast ports	1,893	1,868	1,778	1,686	1,259
Department store sales (% change from a year ago)	+11%	+8%	+12%	+18%	+11%

p Preliminary * Excludes military-owned stocks

for other materials, if products are on the "utility" list. When an application is denied, it is followed up by the Smaller War Plants Corporation, and sometimes by the appropriate WPB division, for a recheck of the reasons why approval was not granted. Thus hasty and arbitrary denials are cut to a minimum.

The effects of spot, on the national economy in general and on war production in particular, are closely followed in Washington by WPB's Controller Division, where weekly reports on spot approvals from field offices are tabulated to show the overall shape of the program —products scheduled, materials used, labor employed, and size and location of plants involved.

Navy Programs Come of Age

Planned '45 production decline of 23% reflects maturity in schedules for landing craft, DEs, subs, etc. But maintenance and repair bill rises 13%, may go higher.

BECAUSE THE NAVY has a long-term job to do in the Pacific, V-E Day doesn't figure in its schedules. However, plans for 1945 indicate a 23% decline in production from the September annual rate of $16,000,000,000 to $12,400,000,000. The September rate is somewhat below production schedules for 1944, at $16,600,000,000. The drop reflects the maturing of some of the Navy's programs. The winding up of the landing-craft program alone accounts for $1,300,000,000, or one-third of the decline in schedules.

NO ANSWERS YET

The Navy's program for 1945 is not entirely spelled out. For example, the radar and radio contracts now let extend only into the middle of next year. As a result, the communication and electronic program may be boosted by nearly $500,000,000 from the current 1945 schedule of $872,000,000. Similarly, the maintenance and repair bill might be raised an additional $100,000,000 or $200,000,000 from the $1,620,000,000 estimated for next year. On the other hand, during recent months some programs have been reduced in accordance with newer expectations. There is a possibility that certain vessels in the Material Planning Program may be eliminated. This cut could run as high as $500,000,000 for 1945.

Thus the overall decline from September levels may be a few percentage points up or down from what is now scheduled. Here's how the Navy's 1945 major programs compare with the September annual production rate:

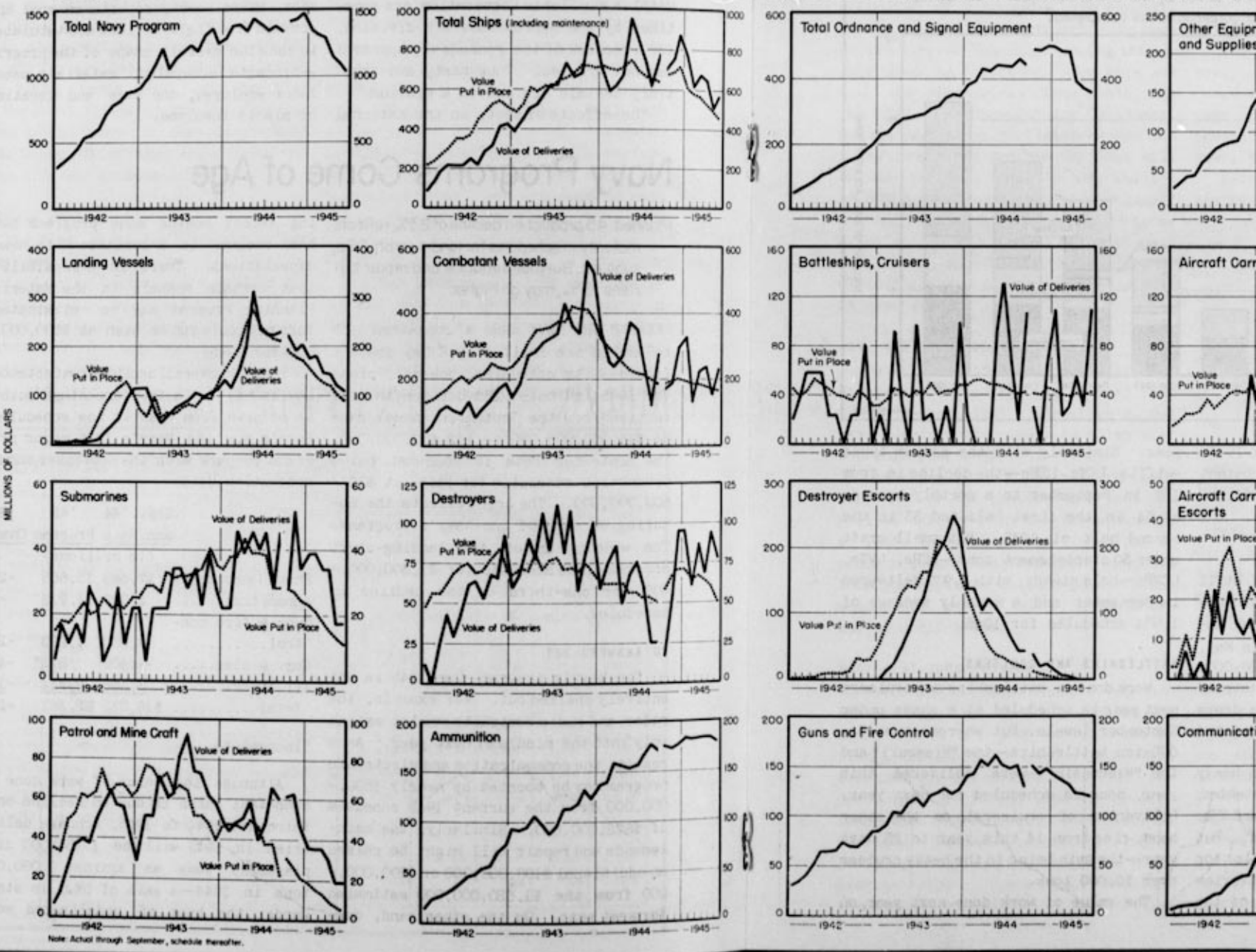
	Sept. '44 Ann. Rate	'45 Program	% Change
	(in millions)		
Ships (work done)	$7,668	$5,665	-26%
Ammunition.....	2,040	1,913	-6
Guns & fire control.....	1,560	1,203	-23
Com. & elec.....	1,608	872*	-46
All other.....	3,156	2,714	-14
Total.....	$16,032	$12,367	-23%

*Incomplete

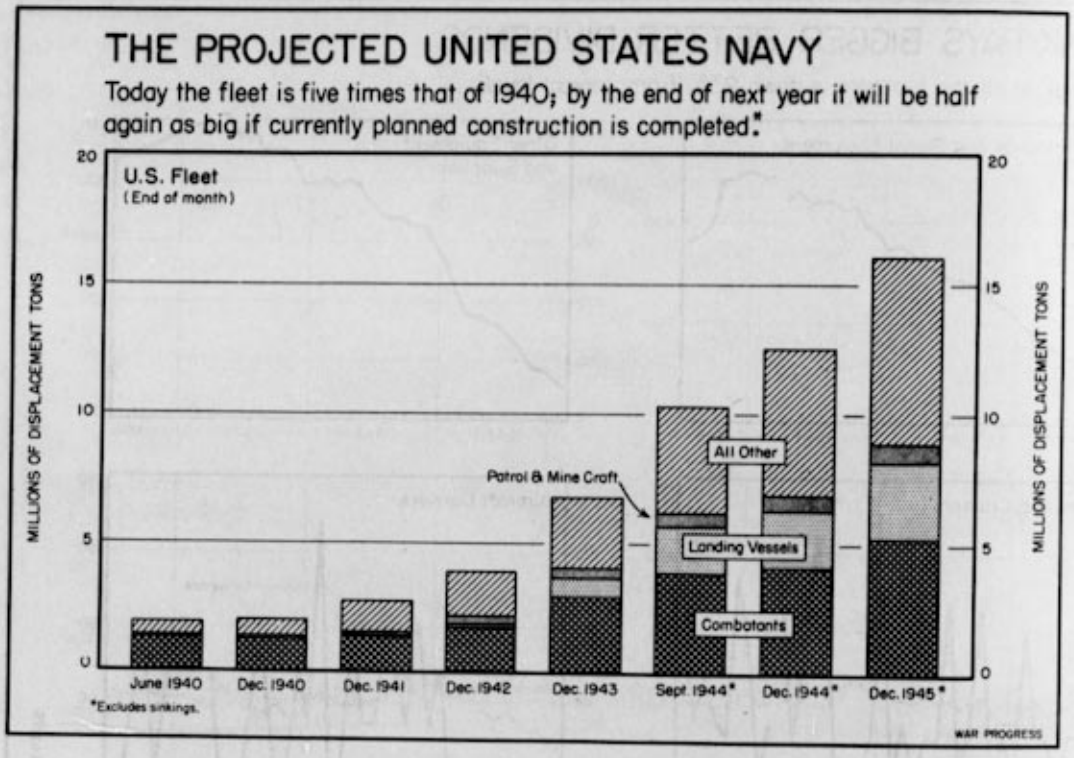
Although the value of work done on combatant ships is due to decline one-third from 1944 to 1945, tonnage deliveries in 1945 will be 1,130,000 displacement tons as against 1,080,000 tons in 1944—a gain of 5%. In other words, the bank of undelivered work

THOUGH THE NAVY'S PROGRAM DECLINES NEXT YEAR, THE WORK BANK PAYS BIGGER, BETTER DIVIDENDS

Value put in place on combatant ships in 1945 will fall below 1944 levels, but deliveries will exceed this year's total. In all, the program is down 23% from current levels.



Note: Actual through September, schedule thereafter.



done in 1944 will pay dividends in 1945. And by the end of 1945 the Navy combatant fleet is estimated to rise to 5,000,000 displacement tons (chart, above).

DUE FOR DROP

At present, landing craft is still a major naval program. Though production is down sharply from the peak annual rate of $3,300,000,000 in May, 1944, it still is high at $2,500,000,000, or 40% of the September ship construction total. But next year the rate drops to $1,200,000,000, or only 31% of the total.

The decline is concentrated in heavy and medium landing craft. In September, 47 ships over 750 displacement tons (LSTs, LSDs, and LSVs) were delivered. But next year's monthly average calls for 13—with nearly all of the deliveries concentrated in the first half of the year. Similarly with the medium types —LCILs, LCTs, LSMs—the decline is from 157 in September to a monthly average of 54 in the first half and 33 in the second half of 1945. But small craft under 50 displacement tons—LCPs, LVTs, LCVPs—hold steady, with 1,937 delivered in September and a monthly average of 1,974 scheduled for 1945.

BATTLESHIPS AND CRUISERS

Work done on battleships and cruisers next year is scheduled at a shade under September levels. But whereas two 45,000-ton battleships—the "Missouri" and the "Wisconsin"—were delivered this year, none is scheduled for next year. Deliveries of cruisers, on the other hand, rise from 14 this year to 25 next year—the gain being in the heavy cruiser over 10,000 tons.

The value of work done next year on

aircraft carriers is slated to rise 16% over September rates; but deliveries, because of work done this year, are scheduled to rise even more sharply. To date in 1944, five carriers have been delivered—the "Randolph" coming through last month as scheduled. Two more are due, the "Shangri-La" this month, and the "Bon Homme Richard" for Christmas. But for next year, 12 flat-tops are due to be completed. And two of these will be the heaviest carriers ever built—45,000 displacement tons—the "Midway" and the "Coral Sea." The keels for these giant carriers—as heavy as the biggest battleship—were laid in the last quarter of 1943 and are due in the second half of next year.

MORE DESTROYER DELIVERIES

On a value-of-work-done basis, destroyers decline slightly in 1945 from the September, 1944, annual rate, but next year's deliveries of 94 ships will top this year's 81.

Destroyer escorts, however, virtually drop out of the picture—the last one will be delivered in the first quarter of 1945. Similarly, the value put in place on submarines drops more than 50% from the September annual rate. On the same basis, patrol and mine craft are due to decline 65%.

BABY FLAT-TOPS HEAVIER

Aircraft carrier escorts—of much heavier type than formerly—are on the books for a 66% gain in value put in place. Sixteen ships of the 12,000-ton class are due for delivery in 1945. Indeed, these baby flat-tops are heavier than the Independence class aircraft carriers. Whereas the present program is being built by the Navy, the early program came largely under Maritime Commission supervision. The Maritime Commission delivered 50 of these ships—weighing 6,700 tons each—to the Navy between July, 1943, and July, 1944.

BIG REPAIR BILL

The growth of the Navy's fleet, however, puts a bigger burden on maintenance and repair. Thus the repair bill goes up from $1,440,000,000 (September annual rate) to $1,620,000,000 next year, and may go even higher.

Here's how the picture for next year shapes up on a value-put-in-place basis:

	Sept.'44 Ann.Rate	'45 Sched.	% Change
	(in millions)		
Landing vessels..	$2,532	$1,246	-51%
Battleships, cruisers.....	504	496	-2
Aircraft carriers	444	518	+17
Destroyers.....	600	585	-3
Submarines.....	336	147	-56
DEs.....	192	4	-98
Aircraft carrier escorts.....	96	159	+66
Transports.....	240	121	-50
Patrol & mine craft.....	204	71	-65
Cargo & supply...	228	93	-59
Aux. & other.....	780	603	-23
Maintenance & repair.....	1,440	1,622	+13

Naval guns and fire control follow much the same pattern as ships—down in nearly every type. Antiaircraft and dual-purpose guns decline 25% from the September rate. Naval surface-fire guns, too, are down 25%. Similarly with fire control and searchlights, off 27%.

SOME UP, SOME DOWN

But ammunition presents a somewhat different pattern. Although total naval ammunition declines 6%, heavy antiaircraft ammunition for the 5-inch gun is

due for a 17% gain over the September rate of output. Similarly, naval surface-fire ammunition rises 12%. Ammunition for the 40mm. gun rises 13%. The big decline is in torpedoes, depth charges, and mines, from a September rate of $372,000,000 to $160,000,000 next year—down 57%.

Next year's schedules for communication and electronic equipment are hardly a gauge of Navy needs. They merely represent what has already been contracted for. As a result, the 46% decline from the September annual rate is undoubtedly too big. More likely estimates are that the signal equipment program will decline about 15%.

Thus, while next year's Navy schedules are not quite complete, it is reasonable to assume a decline of 20% to 25% from September levels on a value-put-in-place basis. Whether this will be more or less depends to a great extent on how the war goes in the Pacific.

WX-5 for a One-Front War

Plane schedule for year after V-E Day cuts weight 14%, numbers 15% from present '45 plan. Army models drop, Navy's rise. Fort and Liberator requirements down about 50%.

MORE THAN a year ago, the Army Air Forces began to study plane requirements for a one-front war. That resulted in the WX-1 schedule, a tentative production program for the year after V-E Day (Period I).

This was necessarily a rough, tentative job; changes were not spelled out by model and plant, nor were they translated into terms of labor and components. Since then there have been other WX schedules, each more complete than the preceding one. And now the AAF has issued WX-5, the most realistic of the lot.

HOW IT'S FIGURED

No V-E Day planning schedules have been submitted by the Navy's Bureau of Aeronautics, since the Navy program is designed chiefly for Pacific operations and undergoes no radical shift after victory in Europe. But by assuming V-E Day to fall at the end of the year and by combining WX-5 schedules for Army models with schedules for Navy models in the current W-12 program, it is possible to put the plane program in post-V-E Day perspective.

On that basis, output in Period I comes to approximately 778,000,000 pounds (three-fourths of it in Army models) and 64,500 planes. These represent cuts of 14% in weight and 15% in numbers from presently scheduled production for 1945 (chart, page 11). Superbombers are unchanged at 232,000,000 pounds (4,929 planes) and will constitute almost one-third of total airframe weight in Period I. But Forts and Liberators are reduced 46% in airframe weight, to 78,000,000 pounds (3,278 planes) versus 143,500,000 pounds (6,006 planes) ex-V-E Day.

ARMY DROPS, NAVY RISES

As compared with current levels of output, reductions called for in Period I are greater still, running to 18% in airframe weight for all planes. The drop in Army models is 26%, but Navy planes actually rise 19%. Among major categories, superbombers score the biggest increase from present levels—222%. Here's a list of post-V-E Day changes in major categories figured from (1) the

W-12 program for 1945 and (2) the current annual rate of output:

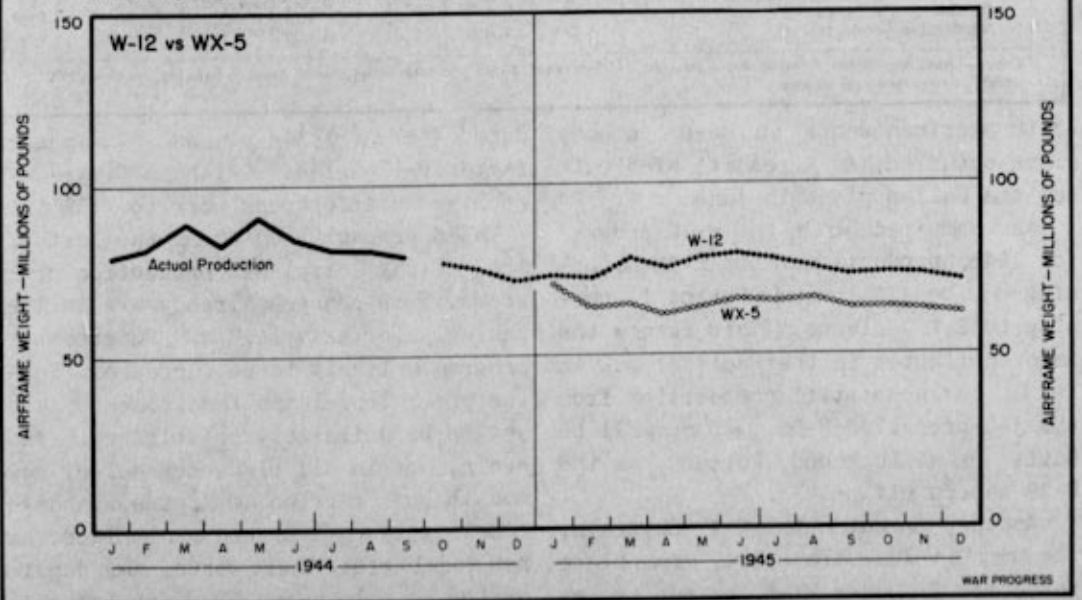
	% Change in Period I From	
	W-12 Prog. for '45	Current Ann. Rate
Total mil. airplanes	-14%	-18%
Army procured.....	-18	-26
Navy procured.....	nil	+19
Superbombers.....	nil	+222
Forts & Liberators.	-46	-77
Other bombers.....	-5	+13
Fighters (incl. naval reconn.)....	-14	-29
Transports.....	-17	-13
Trainers.....	-55	-85
Communications.....	nil	+20

Although the A-26 is to be used chiefly in the Far East, output in Period I is reduced 14%, from 4,609 planes to 3,948. Most A-26 squadrons should be equipped by the middle of 1945, hence requirements shift to a replacement basis. It is noteworthy that this cut is concentrated at the Douglas plant in Long Beach, an area where labor is scarce and re-employment prospects are favorable; the Tulsa plant carries on unchanged.

The 42% cut in the P-51 Mustang fighter—from 7,386 to 4,282—is divided between North American's plants at (1) Inglewood, a crowded labor area, and (2) Dallas, where labor is relatively easy. By concentrating production at Dallas, it would have been possible to release labor in Los Angeles and utilize the working force at Dallas. However, a difficulty is that Inglewood will be making the P-51H next year, a faster and longer-range version of the P-51K at Dallas; a change-over at Dallas would involve some shifting of tools. Also,

THE SHAPE OF PLANES TO COME

V-E Day plane program for 1945 would lop off 14% from present W-12 schedule, and 18% from current rate of production.



SELECTED MONTHLY STATISTICS

Cost of Living-Production-Income Payments-Inventories-Sales

	Latest Month* r	Preceding Month	2 Months Ago	Same Month			
				1943	1942	1941	1939
COST OF LIVING-ALL ITEMS (1935-1939=100)	126.5	126.4*	126.1	123.9	117.8	108.1	100.6
Foods	137.0	137.7	137.4	137.4	126.6	110.7	98.4
Other than foods	121.1	120.5*	120.2	116.6	113.1	106.7	101.6
FOOD PRODUCTION							
Dairy products (million pounds)							
Butter, creamery	112.8	130.5	153.7	126.5	137.4	146.4	135.8
Cheese	81.9	91.5	105.7	83.6	82.8	86.8	59.0
Evaporated milk	275.0	312.0	358.0	252.8	221.7	290.6	158.3
Meats-total (incl. lard, million pounds)	1,426	1,572	1,554	1,567	1,449	1,178	1,065
Beef and veal	690.2	704.5	575.8	688.4	641.5	580.5	495.9
Lamb and mutton	80.1	75.5	71.6	98.2	87.0	65.1	65.0
Pork, incl. lard	655.5	791.9	906.8	840.3	720.4	534.5	506.3
Lard	111.3	153.2	188.9	141.0	118.2	92.2	89.3
Poultry and Eggs							
Eggs (millions)	3,515	4,010	4,631	3,304	3,031	2,726	2,396
Poultry (receipts of 5 principal markets, million pounds)	46.8	38.7	42.1	42.6	45.7	35.2	30.1
INCOME PAYMENTS-TOTAL (million dollars)	13,659	12,605*	12,888	12,452	10,595	8,379	6,090
Salaries and wages	9,257	9,185*	9,152	8,614	7,148	5,425	3,860
Comm., distr., and serv., industries	6,994	7,054*	7,017	6,745	5,915	4,725	3,351
Government	2,263	2,131	2,135	1,871	1,230	698	509
Military	1,304	1,277	1,265	949	485	155	58
Nonmilitary	959	874	870	922	747	563	471
Other income payments†	4,402	3,420	3,736	3,838	3,445	2,956	2,232
Income payments annual rate (adjusted for seasonal, billion dollars)	156.0	157.6*	156.0	144.5	121.7	97.6	71.8
INVENTORIES-TOTAL (million dollars)	27,382	27,473	27,155	28,257	29,344	24,918	18,554
Manufacturers	17,156	17,278	17,215	17,719	17,459	14,252	9,829
Wholesalers	3,842	3,907	4,043	5,893	6,485	4,584	3,505
Retailers	6,384	6,288*	5,897	6,645	7,660	6,282	5,222
RETAIL STORE SALES-TOTAL (million dollars)	5,886	5,643	5,452	5,457	4,966	4,720	3,647
Durable goods stores	842	835	835	815	817	1,144	802
Nondurable goods stores	5,044	4,808	4,617	4,642	4,149	3,578	2,845

*Entire series, September. rPreliminary. rRevised. †Work relief, direct and other relief, Social Security benefits, dividends and interest, entrepreneurial income.

North American wants to keep its home plant occupied. As a result, WX-5 cuts out the Dallas plant in June.

As compared with the W-12 program for 1945, production of the P-38 Lightning will be 17% lower in Period I, running to 2,757 planes. This is now the favored fighter in the Pacific; but it is in for some stiff competition from the jet-propelled P-80, which will be built up at Lockheed, Burbank, as the P-38 tapers off.

Another big cut in the C-47 Skytrain, the Army's volume transport, takes place in Period I. Under WX-5, output is reduced 44% to 1,394 planes. The manufacturer—Douglas, Oklahoma City—may receive Superfortress work to fill in.

WX-5 probably won't be the last of the V-E Day airplane production programs. Some changes already are in the making. For example, the superbomber program is likely to be increased. Furthermore, lend-lease requirements have yet to be definitely established. And again, as in all plane schedules, new models are carried with the standard models they are designed to displace; as new models prove their worth, such duplication is eliminated (WP-Oct21'44,p8).

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How Urgent Is "Urgent" Leather—Not Enough Give Planes Nearer Schedule, But...

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WAR PROGRESS

Prepared in the War Production Board

J. A. Krug, Chairman

War Progress is a confidential report designed to provide a coordinated and continuing picture of the overall war program for the various war agencies. To this end, it presents, analyzes, and interprets basic statistical and economic information, and from time to time examines the pros and cons of controversial questions.

Although War Progress is an official publication of the War Production Board, statements in it are not to be construed as expressing official attitudes of the Board as a whole, or even of individual members. Conclusions, whenever reached, should be considered editorial conclusions.

War Progress is prepared in the Bureau of Program and Statistics (Thomas C. Blaisdell, Jr., Director) by the Reports Division (Joseph A. Livingston, Director).

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What Have We Got to Get?

Production Urgency List is streamlined to include only dangerously laggard "must" items, newly important programs, secret projects. Purpose: To channel labor.

"WHAT HAVE we got to get?" This is the question—instead of "What would we like to get?"—which WPB's Production Executive Committee put to the Army, Navy, and other claimant agencies when it made up the new National Production Urgency List, issued October 16. Shortage of manpower in key production centers has forced the committee to discriminate among the many programs that previously were listed for preferential treatment in manpower referrals.

Only two kinds of programs remain on the list: (1) those which are so far behind schedule as actually to endanger military operations (relatively few in number because of the cushion maintained between production and requirements), and (2) programs of suddenly increased importance, the acceleration of which may be expected to shorten the war—new or newly effective weapons like the Superfortress, combat-loaded vessels, and rockets; or activities like the Navy's special secret projects and the Manhattan District Project.

THOUSANDS OF "URGENTS"

The old list covered a broader range of urgent programs. It contained hundreds of items in 37 main product categories, from aircraft to wire; and it automatically tagged as urgent all components of every one of these items. With such products as aircraft carriers, cruisers, tanks, trucks, and tractors on the list, the urgent components naturally ran into the thousands, and the war plants thus accorded the urgency status ran into the tens of thousands.

Such a list had its obvious drawbacks as a guide to the local Production Urgency Committees in their task of assigning the plant urgency ratings (WP-Sep23'44,p7). In many highly industrialized areas there was not enough labor to go around among the scores of "urgent" plants. In the Buffalo area, late in September, there were 41 such plants seriously behind schedule because of their need of 5,348 workers. Their production affected virtually every branch of the war effort, including such finished products as aircraft, radar, rockets, steel, and tires; and components of such products as tanks, warships, ammunition, gasoline, and rubber. The question in Buffalo was not how to find enough labor for all these products, because that was impossible; the question was how to decide which plants should get the workers at the expense of all the others.

WHICH COMES FIRST?

So the problem of these 41 plants was still a national problem, not a local one. And, while the local PUC, through its Army, Navy, and other military procurement members, could get glimpses of the national production picture, it did not have the overall view necessary to rate with confidence the relative urgency of all these "urgent" plants. Should chemicals for gasoline or rubber be favored at the expense of armor plate for cruisers or

tanks?... Which is more important, a radar set or a rocket?

A knowledge of military needs, alone, will not answer such questions. Future times and far-off places are involved. Perhaps the radar set is shortly to be out of production completely, superseded by a better one. Perhaps a steel plant is coming into production a thousand miles away which will soon take that item off the urgency lists forever. Perhaps some unimportant-looking product on the area's list, say jute centers for wire rope, was more important all the time from the national point of view than any of the ships, tanks, or planes that the PUC was worrying about.

AMONG THE MISSING

It is evident, then, that in areas like Buffalo, where the manpower supply does not come up to war needs, the PUCs required a more selective list of urgent war products. And this is precisely what PRC's new list amounts to. It sets forth those programs that must get the labor regardless of everything else. This list (page 3) has 12 fewer main product categories than its predecessor; missing, among other things, are gasoline, rayon, tractors, logging and lumbering, and steel plants. But the big reduction in the list results from the fact that components are no longer automatically included. Thus the item "tanks" in the old list brought into the urgent category all plants throughout the country making any sort of parts for tanks; whereas the new list hangs the urgent tag on just 12 plants. Half of Buffalo's behind-schedule "must" plants were removed from the top-urgency category by this new list.

CASE OF THE 40MM. GUN

Plants accorded the urgency status by the listing of a product are not necessarily those where final assembly is done; they are behind-schedule plants anywhere in the production chain, weak links whose failure may hold up the whole job. The Navy's 40mm. gun, for instance, is included in the list mainly because production of its power hoists is seriously behind schedule; and of the seven plants listed for this gun, four are electric companies.

Completing the National Production Urgency List is a list of plants, not classified under any of the separate product headings, whose production is critically important for a whole series of war programs. Right now, this list is made up mainly of chemicals manufacturers and construction projects.

REVISING THE "MUSTS"

Such a list of "must" programs, of course, has to be kept up to date; and the PRC subcommittee that compiled it will continue to revise the list periodically as needed, making recommendations to PRC as it sees fit for the dropping of programs from the list and for the addition of new programs submitted for inclusion by the Army, Navy, and other claimant agencies. It will

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THESE ARE THE "MUST" PROGRAMS

HERE is the new National Production Urgency List, effective October 16. Under 10 of the headings the urgency status is given to specified plants; under the others it is given to all plants making the listed products and components.

AIRPLANES	Army: B-29, B-32, A-26, P-38, P-47 M & N, P-51H, P-63, P-72, P-80, C-46 (R5C), C-54 (R5D), CG4A, CG15; Navy: PB4Y, RY3, PV2, P2V, PBM, TBM, TBY, P7P, P8F, F4U4, F2G, FR, SC (122 plants specified).
AMMUNITION	Naval high capacity (6-inch and above).
AMMUNITION	Production of ammunition for 105mm. howitzer, 155mm. gun, 155mm. howitzer, 8-inch gun, 8-inch howitzer, and 240mm. howitzer, including the following components: shell forgings, shell machining, fuses, boosters, propellant powder, filler (TNT or RDX), cartridge cases and primers; and loading into complete rounds.
BATTERIES, DRY CELL	Limited to 13 plants.
BOMBS	Production of general-purpose and fragmentation bombs over 23 lbs.; all chemical warfare service bombs except M-50A2 and M-47A2; 100-lb. practice bomb; 500-lb. clusters; and butterfly clusters; including the following components: bomb bodies, boosters, fins, filler (TNT or RDX), and fuses.
CANNON	Production of cannon, prime movers, carriages and cranes for 105mm. howitzer, 155mm. howitzer, 155mm. gun, 8-inch howitzer, and 240mm. howitzer.
DUCK	Army, shelter tent, numbered, and flat duck; tire fabric; tent twills; and cotton duck yarn.
FOUNDRIES AND FORGE SHOPS	Limited to 171 shops.
GUN	Limited to 7 plants for the Navy 40mm. gun.
GUN	Self-propelled M-36 (3 plants specified).
MANHATTAN DISTRICT PROJECT	
NAVAL ESTABLISHMENTS	Limited to 9 establishments for repair and maintenance of the Fleet.
NAVY SPECIAL SECRET PROJECTS	
RADAR	Ship, airborne, and air transportable radar, and critical components.
ROCKETS	Production of the following components, including the construction of facilities for the manufacture thereof: motors, bodies, nozzles, fuses, propellant, station distributors, and shipping containers; and the loading and assembly into complete rounds.
SHIPS	Construction or conversion of combat-loaded cargo vessels, combat-loaded troop transports, aircraft carriers, cruisers, and tankers (41 plants specified).
TANKS	Models M-24 and T-26 and remanufacturing program of M-4 series (12 plants specified).
TIRES AND TUBES	Construction of facilities for and production of aircraft, combat, and heavy-duty truck and bus tires and tubes, including molds.
TRUCKS	Heavy trucks and components thereof (55 plants specified).
WIRE AND WIRE ROPE	Wire rope and components thereof, and the steel components of field and assault wire (67 plants specified).

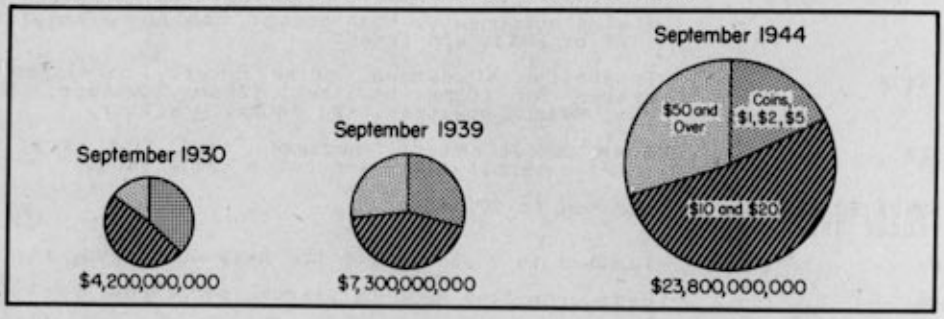
also exercise a review function over the operations of the local PUCs, hearing appeals of plant ratings and regularly postauditing them in critical labor areas.

LOCAL DECISION

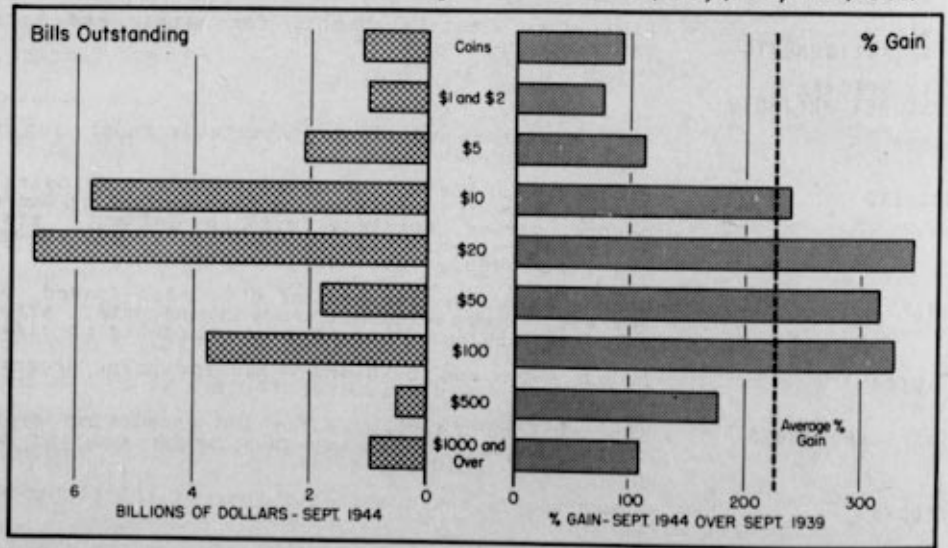
Basically, the job of saying which war plants shall get the workers belongs to the PUCs. They are on the scene of action; they know the situation. Their War Manpower representatives know the local labor supply, their WPB representatives know the local manufacturing facilities, and their military representatives know what local war production must be obtained. Together with the Manpower Priorities Committees, they are equipped to rate the plants and the local civilian services as to the relative urgency of their labor requirements. The function of the Washington committee, with its list of national "must" items, is to supplement and assist their efforts.

THE CRACKLE OF THE BIGGER BILLS

Money in circulation has more than tripled since September 1939.



And the major increase since the war began has been in the $20s, $50s, and $100s.



WAR PROGRESS

Too Little Stretch to Leather

Military footgear takes big share of largest hide supply in history, and overall shoe output is below prewar. Prospect is that '45 will be another two-pair year.

CURRENT SUPPLIES of leather in the raw are running beyond prewar average. Month by month, domestic output of hides is becoming the largest in history. Current production plus imports will reach 23,300,000 cattle hides and 15,600,000 calf and kip skins—some 12% above 1936-40. And with the exception of goat and kid (down 10%), receipts of other hides and skins are near prewar levels.

LESS OUT OF MORE

The more hides and skins, the more leather. And normally, more leather means more shoes. But the factories which averaged 360,000,000 rationed-type shoes during 1936-40 are now using more leather to build fewer pairs:

	Pairs (millions)
Military production.....	46.5*
Govt. export agencies.....	38.0
U.S. territories.....	3.5
Military-use civilian types	7.5
Available for civilians....	222.5
Total.....	318.0

*31,000,000, first eight months 1944.

Leather doesn't go so far as it used to—at least where much of it is put in military footgear. The shoes customarily worn by women and children—the great bulk of current rationed sales—require about one and one-half square feet of upper leather per pair. Men's heavy oxfords take about two and one-half. But seven square feet of leather go into a pair of combat boots; the Army service shoe takes four square feet of upper leather. Though the military program calls for 46,500,000 pairs of boots and shoes, plus belts and other equipment, the actual leather used is equivalent to about 135,000,000 civilian pairs.

Add to this number the 271,000,000 rationed-type shoes scheduled for 1944 and, in terms of leather, current shoe production—at the equivalent of 406,000,000 pairs—is well above prewar levels.

NOT A THREE-PAIR YEAR

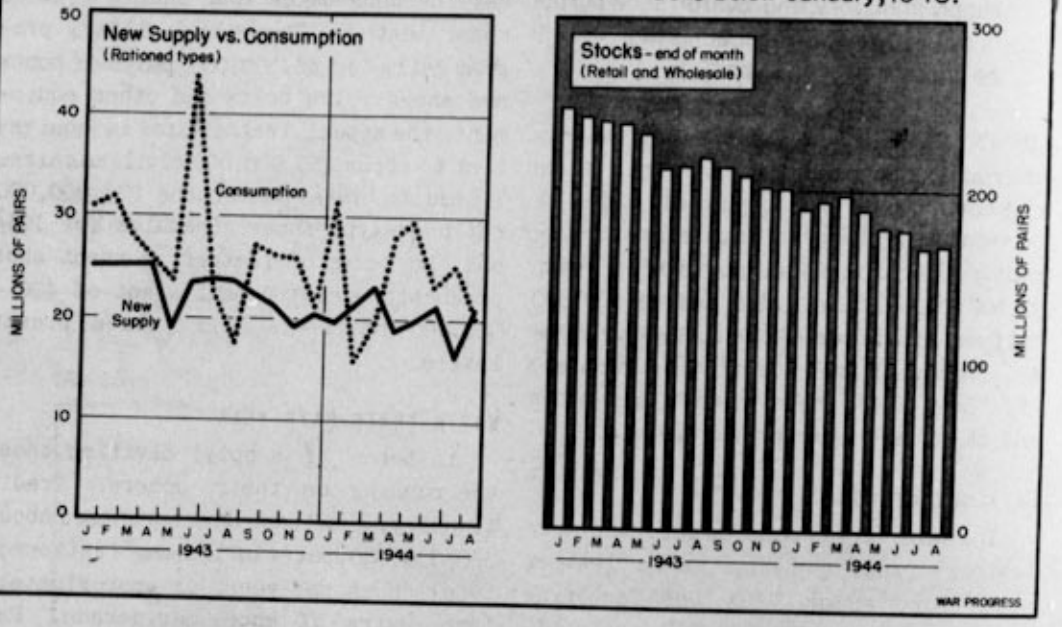
In terms of supply, civilian shoes are running on their uppers. Traditionally, Americans have purchased about 360,000,000 pairs of leather (rationed-type) shoes per year, or approximately three pairs of shoes per person. Rationing lowered 1943 civilian buying to 320,000,000; excluding use of the November ration stamp, it will cut 1944 purchases to 300,000,000. Production available to civilians, however, is considerably lower—less than 490,000,000 pairs for the two years. As a result, by the end of 1944 manufacturers, wholesalers, and retailers will have suffered a two-year inventory depletion of perhaps 130,000,000 pairs.

TIGHT SPOTS

Present rationed-shoe inventories amount to about 165,000,000 pairs. Many shoe stores are short on sizes and lines as a consequence. The situation is especially bad in shoes for infants and small children and in D and E widths of adult footwear. Consumer inventories have also been reduced. Before rationing took effect early in 1943, many men

CIVILIAN SHOE SUPPLY – A TIGHT FIT

Though demand for rationed-type shoes has been held down, consumption has eaten into stocks, which are near the wartime low – 33% below January, 1943.



and women bought heavily. So the country went into the rationing period well-shod and well-stocked. By now, however, half that reserve has gone to remedy the deficit in civilian production.

As 1945 prospects shape up today, the production needed for civilians totals approximately 350,000,000 pairs. Lean inventories call for rebuilding, and the nation cannot travel on less than two ration stamps per year:

	Essential Civ. Prod. '45* (million pairs)
For ration currency.....	264.0
Releases from rationing.	32.0
Institutions & employers	4.0
Total.....	300.0
For inventory.....	50.0
Grand total.....	350.0

*1944 estimates.

With no change in either current allocations to government export agencies or the number of civilian shoes drawn by service men, an overall production of some 400,000,000 rationed-type pairs will be needed for 1945, or an increase of 130,000,000 over 1944 manufacture. (Assuming ration currency at two pairs per capita.) If shoe inventories are left at the unsatisfactory current levels, the required increase is 80,000,000 pairs.

NO HELP FOR IT

At best, the outlook for civilian shoe production is not promising. No help can come from leather inventories, for hide and skin stocks fell to their lowest workable levels during 1943, a year earlier than shoe inventories.

No major assistance can be expected from increased domestic hide production.

Despite the largest cattle and calf population in history (82,000,000 head on January 1, 1944), domestic slaughter in 1945 will do well to better the 1944 record yield of approximately 34,000,000 hides and skins. (This 42% proportion of slaughter to cattle and calf population is the average proportion maintained during 1936-40.)

IMPORTS OFF

Moreover, U.S. cattle-hide imports are dropping rapidly to the prewar average of 2,000,000 (partly because of international allocation). Goat and kid skins, 99% of which normally are imported, now are running some 5,000,000 below the 41,000,000 prewar average, with no immediate improvement indicated. Furthermore, requests from foreign relief and rehabilitation agencies, together with direct demands made on the world surplus by liberated nations, are bound to increase during the coming year.

If military needs for leather are sharply reduced, then an approach to the 350,000,000 civilian requirement is possible. But it will not be smooth going. Manpower could conceivably be a problem. Tanneries have lost workers, in part because tanning output was restricted during 1943. Stresses and strains will continue in shoe factories. But, except in the tanneries, labor shortages are not likely to produce serious difficulties. The military victories which will free the necessary leather also will gradually release essential factory workers.

On the leather and shoe front, only one thing appears certain. Shoe rationing seems destined to continue for some time after V-E Day.

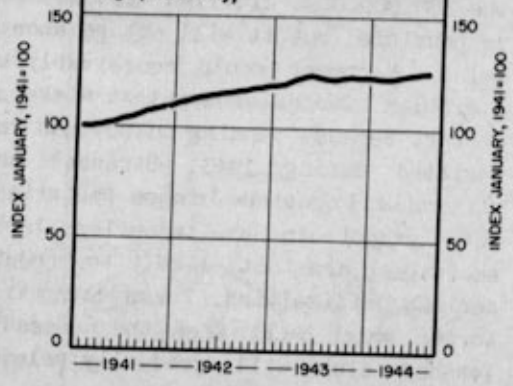
KEY STATISTICS OF THE WEEK

	Latest Week	Previous Week	Month Ago	Same Week 1943	Same Week 1942	Same Week 1939
War Program—checks paid (millions of dollars)	1,822	1,727	1,729	1,796	1,982	—
War bond sales—E,F,G (millions of dollars)	142	251	87	152	271	—
Money in circulation (millions of dollars)	24,674	24,409	24,099	19,354	14,312	7,352
Wholesale prices (1926=100)						
All commodities	104.0r	103.9	103.8	103.0	99.7	79.3
Farm products	124.1r	123.3	123.3	122.8	109.8	67.5
Foods	104.4	104.1	104.1	105.7	102.9	72.3
All other	98.8r	98.8	98.9	97.5	95.7	84.4
Petroleum (1000 barrels)						
Total U.S. stocks*	429,703	426,856	424,556	426,723	416,610	418,224
Total East Coast stocks*	78,249	78,358	75,363	65,511	63,537	—
East Coast receipts**	1,873	1,950	1,740	1,543	1,081	—
Bituminous coal production (1000 short tons)**	2,035	1,967	2,013	1,647	1,972	1,785
Steel operations (% of capacity)	96.3%	94.9%	96.9%	100%	99.6%	92.5%
Freight cars unloaded for exports, excl. grain**						
Atlantic Coast ports	2,606	2,529	3,510	2,648	1,222	—
Gulf Coast ports	367	389	483	414	356	—
Pacific Coast ports	1,968	1,895	1,650	1,217	961	—
Department store sales (1935-39=100)†	214	207	195	202	182	127

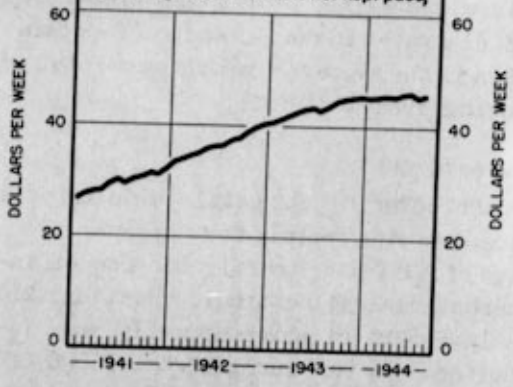
rPreliminary *Excludes military-owned stocks **Daily average †Unadjusted

THE COST OF LIVING DOLLAR—80 CENTS

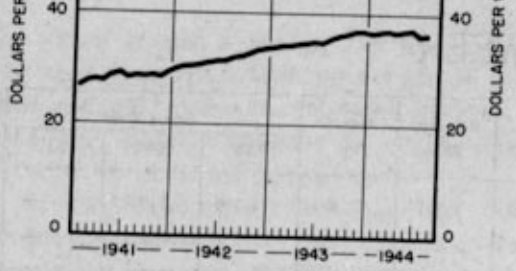
1. Because living costs have been inching up recently,



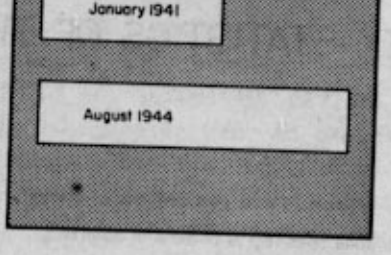
2. And average weekly wages in manufacturing industries have not kept pace,



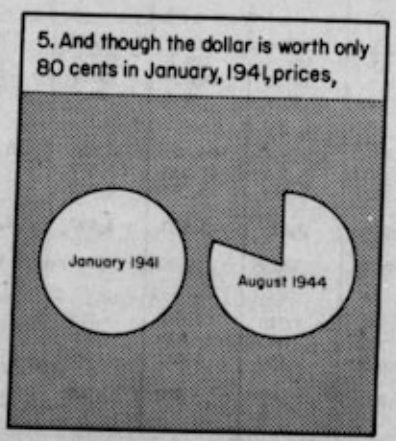
3. The "real" wage dollar has dropped slightly since June.



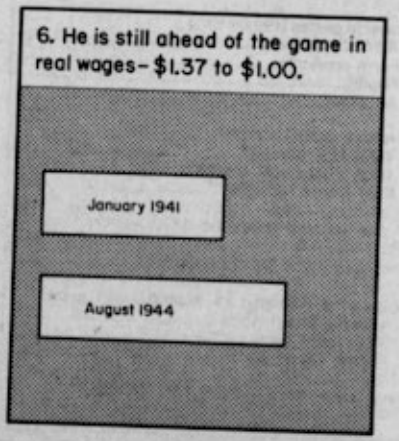
4. But today's factory worker gets $1.72 for every dollar in January, 1941,



5. And though the dollar is worth only 80 cents in January, 1941, prices,



6. He is still ahead of the game in real wages—$1.37 to $1.00.



WAR PROGRESS

Planes—Better But Not Enough

October output is best since May, though 2% short of W-12 in weight. Deficit is concentrated in few plants making the urgent Superforts, Invaders, etc.

AIRPLANE OUTPUT last month made the best showing since May: 7,429 planes were accepted, with an airframe weight of 75,363,000 pounds (preliminary)—this being only 2% short of the new W-12 program (WP-Oct21'44, p8). As in the last four months, most of the deficit was concentrated in a handful of plants; but those plants are working on some of the program's most urgent models.

SUPERBOMBER SNAGS

Three superbomber plants, for example, accounted for three-fourths of the month's deficit from schedule. At Consolidated Vultee, Ft. Worth, six B-32 Dominators were slated but the plant drew a blank in acceptances. Until the tail structure is redesigned (WP-Oct14 '44, p2), the B-32 isn't even suitable for training purposes; that's likely to throw the plant three or four months behind schedule. Bell, Atlanta, missed its mark on the B-29 Superfortress for the fifth month in a row, turning out 27 versus a schedule of 40. The new management is still ironing out wrinkles in the production control system and it is expected to take a few more months before the job is in hand. Boeing, Renton, Wash., failed to make schedule for the first time this year, turning out only 12 Superfortresses out of a schedule of 20. It's taking longer than anticipated to retrain workers; yet the schedule at Renton steps up sharply from now to a peak of 200 a month after June, 1945.

On the other side of the superbomber picture, the Martin plant at Omaha was on the target with 16 Superfortresses. And Boeing, Wichita—pioneer builder of this ship—actually ran four B-29s ahead of its docket of 66. Wichita has been on or ahead of schedule since April and may be in for a bigger slice of the Superfortress program.

A HIGH BUT A MISS

All told, superbomber acceptances last month came to 125 planes, all of them B-29s. This was two over September and a new high for the program; but schedule was missed by 23 planes: 17 Superfortresses and six Dominators.

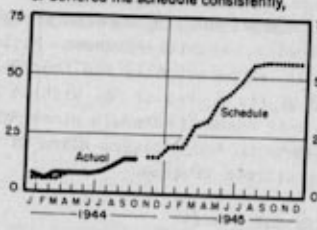
Now that the 2-engined A-26 Invader bomber has been flying combat missions, design changes are coming in fast. From here on, the big job at Douglas' Long Beach and Tulsa plants is to feed the most important of these into the production line, at the same time keeping the model up to its steep schedule. Despite a new high of 109 Invaders last month, schedule was missed by five planes. More important, only a small number of these planes incorporated the raised cockpit canopy, a "must" modification; other versions of the A-26 fail to give maximum sideward visibility in combat formation. This month's schedule calls for 147 Invaders.

EQUIPMENT TROUBLE

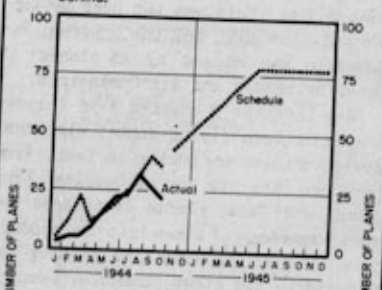
With the exception of the C-54 Skymaster, which missed the mark by 28% (37 planes as against 51), all medium and heavy transports were on or ahead of schedule. The holdup was at one plant—Douglas, Chicago. Here, the 36 Skymasters called for were produced; but radio equipment from the Signal Corps failed to come through on time;

LOG OF C-54 SKYMASTER

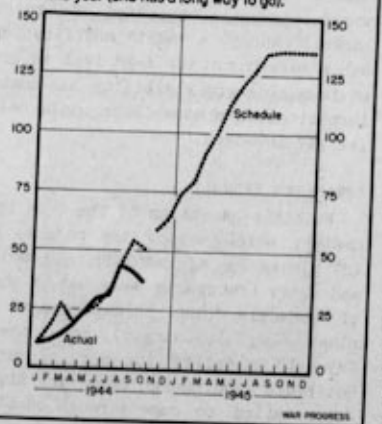
The Douglas, Santa Monica, plant has met or bettered the schedule consistently,



But the Douglas, Chicago, plant has lagged behind.



As a result, total production has missed the first-of-month schedule six times so far this year (and has a long way to go).



as a result, only 22 were accepted.

Patrol bombers ran 29% ahead of the previous month in airframe weight, but made the poorest showing against schedule of all major groups for the second month in a row; the goal was missed by 32%. W-12 called for a steep climb last month—almost double the 130 planes turned out in September. But there is no blinking the fact that the program was hit hard at Lockheed, Burbank, where only 11 PV-2 Harpoons were accepted out of a program of 78. Production was close to schedule; but wings from the Goodyear plant at Litchfield Park, Ariz., failed to come through. A new management has been speeding up wing output at Goodyear and this plant should be on the beam by the end of the year. In contrast to patrol bombers, fighters made the best showing among major groups (airframe weight basis):

	October Acceptances as % of	
	Sept.	W-12
All military planes.	95%	98%
Army procured....	93	100
Navy procured....	106	92
Combat planes.....	94	98
Superbombers.....	102	85
Forts & Liberators.	85	103
Patrol bombers....	128	68
Medium bombers....	100	102
Light bombers.....	93	103
Fighters (incl. naval reconn.)...	101	102
Transports.....	100	97
Trainers.....	92	100
Communications....	102	95

Forts and Liberators, a declining program, didn't decline as fast as scheduled and the 1,024 accepted were 31 more than called for. Fighters were another program that spilled over the W-12 schedule; although 3,202 were slated, output ran 103 planes higher. Except for new and

SELECTED MONTHLY STATISTICS

Labor Force–Federal Finance–Labor Turnover

	Latest Month*,P	Preceding Month	2 Months Ago	Same Month			
				1943	1942	1941	1939
LABOR FORCE-TOTAL (millions)	52.93	53.03	54.01	53.1	54.6	54.0	n.a.
.Employment	52.21	52.25	53.17	52.2	53.2	50.6	
Male	34.20	34.19	35.14	34.8	37.9	37.6	
Female	18.01	18.06	18.03	17.4	15.3	13.0	
Unemployment	.72	.78	.84	.9	1.4	3.4	
Male	.39	.40	.43	.5	.9	2.3	
Female	.33	.38	.41	.4	.5	1.1	n.a.
FEDERAL FINANCE (GENERAL FUND)							
Expenditures-Total (million dollars)	8,024	7,930	8,119	7,456	5,937	2,083	721
War	7,479	6,998	7,571	6,989	5,481	1,537	124
Nonwar	545	932	548	467	456	546	597
Revenues-Total	2,001	5,926	2,568	2,030	607	445	279
Income Taxes	1,240	5,174	1,552	1,303	206	68	38
Other revenues	761	752	1,016	727	401	377	241
War bond sales	695	692	602	1,708	935	271	n.a.
"E"	599	591	499	1,340	665	123	n.a.
"F" and "G"	96	101	103	368	270	148	n.a.
War bond redemptions	395	277	272	138	32	24	n.a.
"E"	373	255	246	125	28	2	n.a.
"F" and "G"	22	22	26	13	4	22	n.a.
Net debt (billion dollars)	200.3	194.4	192.1	145.8	88.0	50.9	42.2
LABOR TURNOVER IN MFG. INDUSTRIES (rate per hundred employees)							
All manufacturing							
Accessions	6.2	6.3R	6.3	7.2	8.7	4.9	5.9
Separations-Total	7.7	7.9R	6.6	7.0	7.9	4.1	2.9
Quits	6.1	6.4R	5.0	5.2	4.7	2.1	.9
Military	.2	.3	.3	.6	1.7	.2	n.a.
Aircraft							
Quits	6.2	6.3R	4.8	4.9	4.4	2.7	1.0
Military	.5	.5	.6	.7	2.8	.2	n.a.
Shipbuilding							
Quits	6.8	6.8R	5.6	6.2	5.4	2.7	1.0
Military	.4	.5	.6	1.0	2.6	.2	n.a.

*Labor Force, Federal Finance, October; Labor Turnover, September. PPreliminary. RRevised. n.a. Not available.

experimental types, such as the F7F Tigercat and the jet-propelled P-80, all models came through in smart style. For example, the P-38 Lightning was on schedule at 364; the F4U (FG) Corsair was 3% ahead at 401; and the F6F Hellcat was 5% ahead at 550. Indeed, the month's turnout of 763 P-51 Mustangs was a new high for any single fighter plane.

The Navy has revised carrier complements to include more torpedo bombers, thus underlining the importance of the new TBY Seawolf at Consolidated Vultee, Allentown, Pa. However, none of the 10 TBYs scheduled this month came through, although a few experimental models got into the air. On the other hand, General Motors' Eastern Aircraft Division at Trenton turned out a record number of TBM Avengers—340, or 10% ahead of schedule.

Another urgent Navy model is the SC Seahawk, a reconnaissance plane being made at Curtiss, Columbus. October acceptances came to 21, the highest for a single month since the Seahawk's debut last April; but the schedule called for 35. The Navy originally pinned its reconnaissance hopes on the SO3C Seamew. However, that particular plane didn't come up to expectations. Meanwhile,

the OS2U Kingfisher—a model that went out of production in November, 1942—is serving as " the eyes of the Fleet."

The RB-1 Conestoga stainless-steel transport bowed out of the program last month on schedule with three planes. Since the initial acceptance last March, 17 Conestogas have been built by Budd, Philadelphia. The RB-1 was originally intended to replace the C-47 Skytrain for Navy transport operations and 800 were on contract. However, results failed to justify this program. The plant is now being shifted to ordnance.

War Progress Note

BIG MONEY

FOR EVERY DOLLAR in circulation in September, 1939, there are more than three today. And the boost in medium-large bills ($10 to $100) is even greater—more than four times as much. Correspondingly, very small and very large bills scored gains too, but not so great.

This leads to the question, "Why?" Nobody has the full answer. Some say that because of black market dealings, operators are using cash instead of checks. And that would mean big bills. Others say that hoarding is keeping big bills out of Federal Reserve vaults. Still others say that because of widespread migration, higher incomes, and tax evasion, people are carrying bigger bills. Whatever the reasons, the facts are that denominations from $10 to $100 now constitute 76% of all money in circulation as against 62% in September, 1939—and the $20 is the most important of all in value.

REPORTS ON REPORTS

More Soap

During the first half of 1944, consumption of fats and oils in edible products (shortening, oleomargarine, etc.) dropped 1% below the last half of 1943, according to *Fats and Oils* (confidential; pp. 23). But consumption of inedible products (soap, paint and varnish, etc.) rose 10%—most of the increase going to the manufacture of soap. And during the year ending June 30, 1945, soap production will need 2,400,000,000 pounds of fats and oils —25% more than the quantity consumed in the past fiscal year.
(Department of Commerce, Bureau of Foreign and Domestic Commerce)

Fertilizers

Manpower and Production in the Fertilizer Industry (unclassified; pp. 3) reports that supplies for the fertilizer industry will be limited because of increased military requirements for nitrogen and sulphuric acid. But the War Food Administration expects consumption to rise; the delivery goal between July and December, 1944, is about 30% ahead of deliveries for the same period last year.
(War Manpower Commission, Reports and Analysis Service)

Price Control

Two-thirds of the people they have interviewed favor or expect continuation of price control after the war, OWI correspondents report in *Attitudes and Expectations on Prices, Wages, Inflation Control, etc. in the Transition Period C:40* (restricted; pp. 41). Only one editor believes that immediate abolition of price control is expected after the war. Labor leaders report finding no opposition to its continuance. And of the businessmen questioned, fewer than half were opposed.
(Office of War Information, Bureau of Special Services)

[This record is an attempt to select from the many documents coming to the attention of WAR PROGRESS those studies which would be of most interest to readers. The list is by no means comprehensive, and no attempt has been made to evaluate reports for accuracy. Whether reports are available depends on the policy of each individual agency.]

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WAR PROGRESS

Prepared in the War Production Board

J. A. Krug, Chairman

War Progress is a confidential report designed to provide a coordinated and continuing picture of the overall war program for the various war agencies. To this end, it presents, analyzes, and interprets basic statistical and economic information, and from time to time examines the pros and cons of controversial questions.

Although War Progress is an official publication of the War Production Board, statements in it are not to be construed as expressing official attitudes of the Board as a whole, or even of individual members. Conclusions, whenever reached, should be considered editorial conclusions.

War Progress is prepared in the Bureau of Program and Statistics (Thomas C. Blaisdell, Jr., Director) by the Reports Division (Joseph A. Livingston, Director).

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NUMBER 218 WAR PROGRESS NOVEMBER 18, 1944

What and Why of Critical Programs

"Must" items score broad gains in October, continuing performance since push began in June. However, production is below immediate requirements on battlefields.

CRITICAL PROGRAMS continued to make progress last month. They were up 6% on an overall basis. New highs were recorded in heavy-heavy trucks, dry-cell batteries, Superfortresses, combat-loader completions, and general-purpose and fragmentation bombs.

Nevertheless, most critical programs continued to fall behind their requirements. In heavy-heavy trucks, for instance, deliveries of 6,753 units were 13% ahead of September, but schedule was missed by 18%. Airborne radar, estimated at around $111,000,000, was 7% better than September but 4% shy of schedule. And although output of large truck and bus tires was up slightly to 276,000 units, this was 35% short of stated requirements. On the other hand, heavy artillery ($16,700,000) was 1% ahead of the first-of-the-month forecast; W-130 assault wire (38,000 miles) 3% ahead; and the medium tank mounting the 105mm. howitzer (357 units) 9% ahead.

SPECIAL TROUBLE

In several cases, special factors cut down monthly increases and made it that much harder to make first-of-the-month goals. In airborne radar, it was the old story—design changes; another major shift to new equipment is under way and assembly lines have been slowed down. In large tires, the pattern of distribution was changed; more of the big types within the "large" group are wanted, and these take more man-hours.

Output of castings in critical foundries just about held its own; so far, the seasonal upturn in the industry has not been up to expectations. Key men are still being drafted; last month, for instance, the list of selectees included a general manager and a form-and-pattern maker.

MONTH OF PROGRESS

Still, there is no gainsaying the fact that October was a month of progress. Increases over September ranged from 1% for large truck and bus tires to 20% for total tanks:

	% Gain Sept.-Oct.
Large tires	1%
Superfortresses	2
Heavy artillery ammunition	3
Heavy artillery	4
Dry-cell batteries	6
Airborne radar	7
Communication wire	10
Light-heavy trucks	11
Cotton duck	13
Heavy-heavy trucks	13
GP & fragmentation bombs	16
Tanks	20

The showing reflects the accumulated energy going into these programs—materials, machinery, manpower, components, and organization. The big push in most of these programs began in June. Since then, gains as high as 66% in airborne radar, 53% in the Superfortress, 39% in cotton duck, and 35% in heavy-heavy trucks have been recorded, as the chart on page 3 indicates. One of the outstanding gains has been in Navy rockets; the October figure is not yet available, but the June-September increase was 133%.

On an overall basis, critical programs since June are up 47%.

Critical programs are not a new problem. Shortly after the fall of France, the United States had to build up machine-tool production and distribute tools to the right manufacturers at the right time. That was Critical Program Number 1. There has been a long list since: small-arms ammunition, General Sherman tanks, destroyer escorts, landing craft; synthetic rubber, high-octane gasoline, aluminum forgings and extrusions; steel plate, alloy steel, zinc, copper; Flying Fortresses, Lightnings, and so on. Most of them are now forgotten.

However, there is this difference between critical programs of today and critical programs of 1942. Then, the shortages were in relation to plans for equipping an Army and Navy almost entirely in training; today, shortages relate to immediate combat operations. Critical production is not going into pipelines or strategic reserves. It is going directly into battle. And when we don't deliver enough tanks or tents or high-capacity ammunition, it affects soldiers and sailors as well as plans.

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BENEATH THE SURFACE

THIS issue of WAR PROGRESS is devoted entirely to a discussion of critical war programs. It is based on a report to the War Production Board by Hiland G. Batcheller, chief of operations. That report in turn was an outgrowth of a series of meetings with representatives of the Army, Navy, Maritime Commission, and War Manpower Commission; the purpose of the meetings was to get at the facts and find out what could be done to lift production of critical items.

The staff of WAR PROGRESS and other personnel of the Bureau of Program and Statistics participated in the preparation of Mr. Batcheller's report.

In a war, critical programs are inevitable. When field commanders learn that a 105mm. howitzer or gun isn't enough to destroy fortifications, they demand 155s and 240s. When millions of tons of supplies are moved over rough terrain and rubber wears out faster than expected, tire requirements jump. When scientists develop new types of radar or high-altitude bombing devices, these must be translated into battlefield equipment with all possible speed. For the time being, requirements are unlimited.

A nation at war must always be changing—upgrading—its equipment: supplying heavy-heavy trucks instead of lighter ones; building combat loaders instead of ordinary cargo and transport ships; putting the pressure on Superfortresses and Invaders instead of Fortresses and Bostons. Out of such change, out of such upgrading, critical programs emerge.

For the program as a whole, however, the situation has changed. In 1942 and early 1943, there was too little of practically everything. Now we have

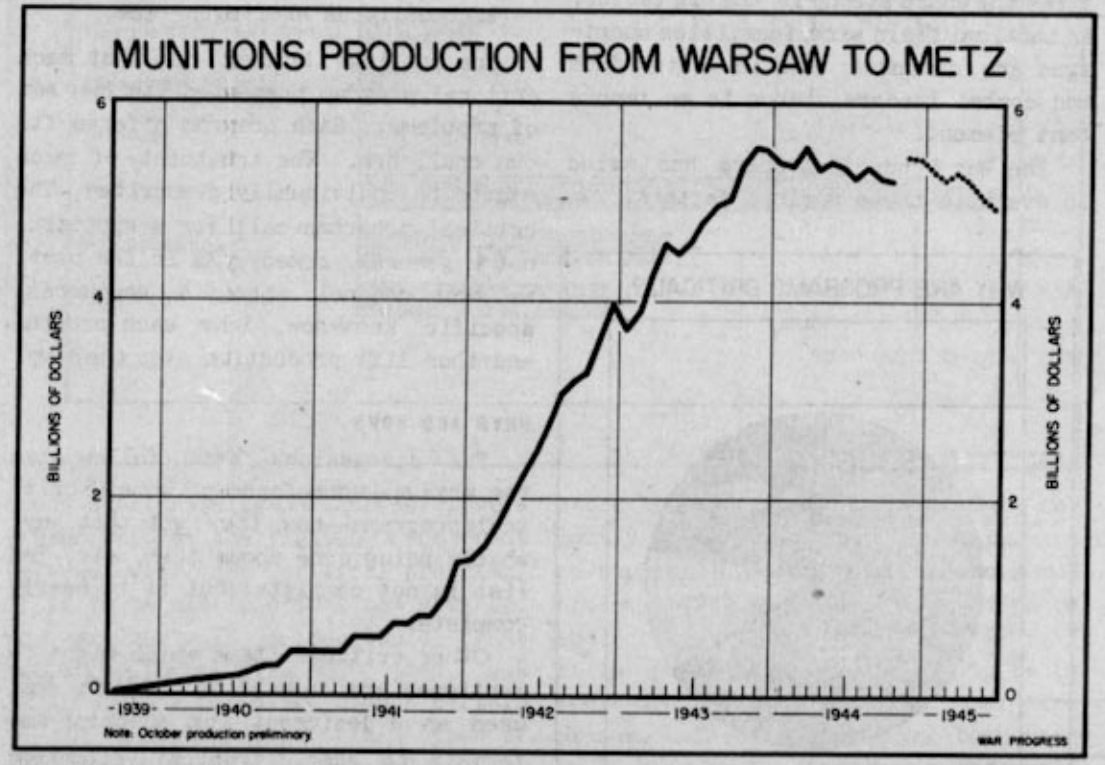
enough of many weapons; indeed, some items are being cut back. Also, in 1942 and early 1943 the entire program was accelerating rapidly; goals were high, and lags behind schedule were large; more items missed than made schedule. Not so now.

Today, about 60% of production is on or ahead of schedule; 40% is behind. However, of that 40%, a large part is in the critical programs—the programs in which the climb is especially steep, the programs in which no amount of production for the time being would be enough.

All told, critical programs today account for 28% of the entire munitions program. But there is a high degree of concentration: 48% of all ammunition is critical, 62% of all combat and motor vehicles. Here's the statistical story:

	% of Program That Is Critical
Combat & motor vehicles...	62%
Ammunition.....	48
Communication & electronics.....	36
Ships (incl. maintenance & repair).....	27
Aircraft.....	19
Guns.....	17
Other equipment & supplies	5
Total munitions.....	28%

To put it in dollars and cents, out of a programmed production of $5,400,-



According to preliminary figures, munitions production in October amounted to $5,230,000,000, slightly below the September level and 2% behind the first-of-month schedule. Production was the lowest for any month of the year. Moreover, this was the first time since the war program began that production failed to beat the mark in the same month of the previous year. (Munitions output in October, 1943, ran to $5,390,000,000.) But in previous years virtually all schedules pointed sharply upward; in 1944, many programs have been cut back.

000,000 a month in the last quarter, $1,500,000,000, including a dozen important programs, can be specifically classed as on the "critical list."

WHEN IT'S CRITICAL

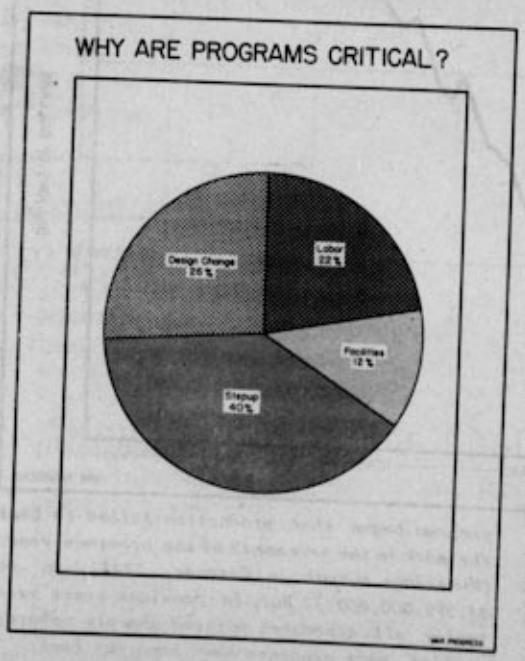
Now what is it that puts a program on the critical list? There are four decisive elements:

1. An upsurge in demand, or requirements.
2. New models or design changes.
3. Labor shortages.
4. Facilities shortages.

The factors—the causes of criticality—vary with each program. In airborne radar and tanks, design changes are significant; in large truck and bus tires the sharp stepup is the big factor; in tactical field wire, facilities shortages are dominant; and in cotton duck and combat loaders, labor is an important element.

The War Production Board has tried to evaluate these various factors. To what extent are labor shortages a cause of criticality? Design changes? Stepup? Facilities? A series of meetings with representatives of the Army, Navy, and War Manpower Commission helped to throw light on what part each factor plays in each program. Admittedly, the matter is judgmental. One person or organization would assign more weight to labor, another more to design changes, and so on. But there would be a wide area of agreement, and probably not much deviation from the following evaluations:

1. Sharp stepup in requirements—40%.
2. New models or design changes—26%.
3. Labor shortages in critical programs—22%.
4. Facilities shortages—12%.

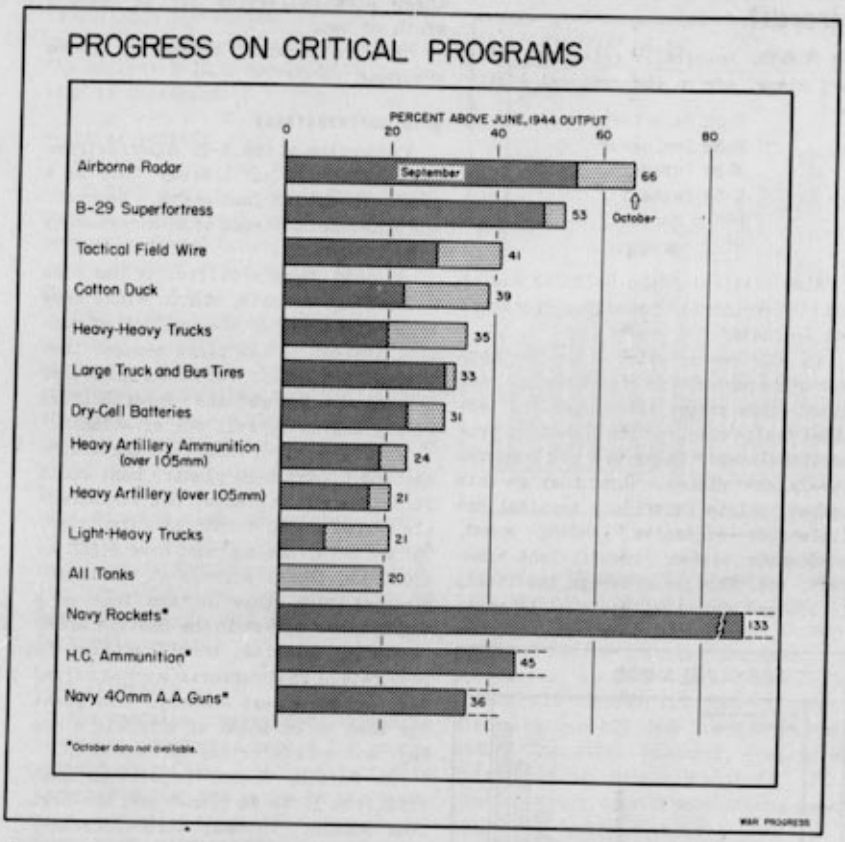


The meetings brought out that each critical program presented its own set of problems. Each program offered its own challenge. The treatment of each had to be individually prescribed. The critical programs call for a specific, not a general, remedy. As in the past, we must channel specific resources, specific know-how, into each program and thus lift production over the hump.

WHYS AND HOWS

The discussions that follow give the whys and wherefores of some 15 critical programs—how they got that way, what's being done about them, etc. The list is not complete. But it is nearly complete.

Other critical items which might be mentioned are wire rope; silica gel, used as a desiccant for shipping materials to damp, tropical climates; anhydrous hydrofluoric acid, basic chemical in freon and aviation gasoline; mechanical fuel hose, insect screen cloth. No list, however, could possibly be complete. Even when war production



drops substantially from current levels —even when we are fighting a one-front war—we will have critical programs. It is to be expected that new devices, new weapons will be developed; that the armed forces will want them. New tactics in the field are almost certain to put a premium on certain types of weapons. When that happens, the demand, for the time being, will be unlimited. The Japanese campaign may bring forth an entirely new set of musts.

Even now, looking ahead, it is possible to discern new trends. Only recently 60mm. and 81mm. mortars were re-emphasized, along with mortar ammunition. They have just been added to the critical list. The jet plane, if it is perfected, is certain to be in great demand; similarly with other airplanes. The Army and Navy both have their secret projects, any one of which may yield a critical item in the months to come. When we get over the hump of the critical programs we're working on, we'll have others.

Aircraft

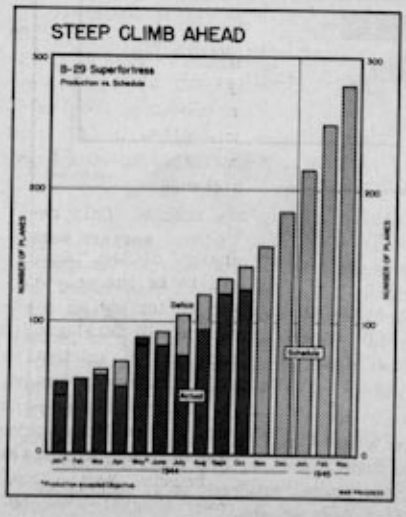
SIX PLANES, integrally related to military plans, are on the critical list:

B-29 Superfortress
B-32 Dominator
A-26 Invader
C-54 Skymaster
PBM-5 Mariner
PV-2 Harpoon

Also critical is the R-3350BA engine and its components for the Superfortress and Dominator.

In all cases except the Mariner, schedules continue to rise sharply. And in all cases except the Skymaster, tactical design changes have slowed up production lines. These are all comparatively new planes. Once they go into combat, pilots report any tactical deficiencies—excessive landing speed, inadequate vision, insufficient armament, etc. Changes in design inevitably follow and modifications must be made; these slow deliveries for at least a month or two.

Here is a brief summary of these programs:



B-29 SUPERFORTRESS

Production of the B-29 Superfortress has been built up sharply from 33 a year ago to 125 last month. However, the schedule continues to advance steeply (chart, left).

To date the main difficulty has been at the Bell, Atlanta, plant. Kinks have to be worked out of the production control system. A new plant manager took over in September, but it may be another few months before the Superfortress really begins to roll out of Atlanta.

Boeing, Renton, Wash., has the toughest job of any B-29 plant: Last month it delivered 12 planes, but its schedule calls for 200 a month by July, 1945. To do this, Boeing must have 3,500 or 4,000 additional workers at the beginning of 1945—this in the face of a tight labor market in the Seattle area.

Boeing, Wichita, should attain the peak rate of 75 Superforts a month called for beginning next January. The plant has been on or ahead of schedule since May, and schedules may be increased.

At Martin, Omaha, production must rise from 16 to 55 planes over the next four months. To make this increase, about 2,000 workers are needed immediately. Martin's wage scale is relatively low; the starting rate is 60 cents an hour. However, labor supply in Omaha should increase now that harvesting is over.

B-32 DOMINATOR

Only three B-32 Dominators (two of them experimental models) have been accepted, against 16 scheduled. The B-32 suffers from instability and will require more developmental work before it

is suitable for combat. At best, output will lag three to four months behind the current W-12 schedule until the design is perfected.

R-3350BA ENGINES

Tied in with the B-29 and B-32 is the R-3350BA engine, used in these superbombers. As a result of a magnificent production job at Dodge, Chicago, there is at present a cumulative surplus of 261 R-3350BA engines. Nevertheless, it's a critical program on at least three counts: (1) schedules are close to requirements and the proposed stepup in superbomber schedules may result in a shortage of spare engines; (2) several major design revisions are contemplated —the shift to direct fuel injection being the most important; (3) production must go up 2½ times by October, 1945.

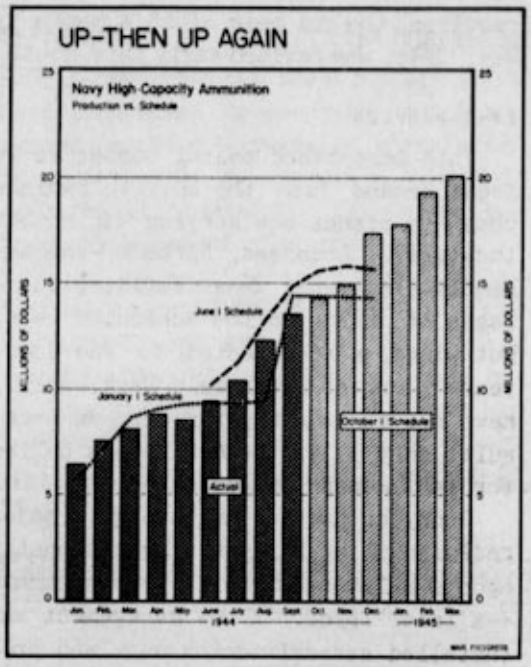
Wright, Lockland, is the question mark in the R-3350BA program. Deliveries from this plant are scheduled to begin in January, 1945, and to build up to 1,200 a month.

C-54 SKYMASTER

The 4-engined heavy C-54 Skymaster transport is urgently needed for transoceanic operations. It was initially accepted in 1942 and is now in the quantity-production stage, hence most "bugs" have been eliminated. However, the schedule climbs to 135 a month by September, 1945; last month's output ran to 37. One of the key plants is in Chicago, and labor recruitment may be difficult.

A-26 INVADER

Right now design changes are dogging the A-26 Invader, as first reports come in from combat theaters (WP-Nov11'44,p4). Changes are tricky and it may be two or three months before production lines are completely changed over. The problem here is to quadruple present production by next July—getting up from 109 planes per month to 435—in the face of expected tactical design changes.



Douglas, Long Beach, turned out 55 Invaders last month, five short of schedule; its monthly peak is 135 in May, 1945. The other producer, Douglas at Tulsa, was on schedule with 54. This plant is about a month behind Long Beach in making design changes.

PBM-5 MARINER

The latest version of the Mariner, the PBM-5, is said to be the only satisfactory flying boat for use as a patrol bomber since the old Catalina.

After four bad months, production really got going in October; Martin, Baltimore, turned out 48 planes—the peak rate. However, this reflected some acceptances of planes nearly completed in prior months. Because Martin complained of manpower shortages and because additional tools would have been

required, the old peak of 55 a month by May, 1945, was revised early this month.

PV-2 HARPOON

This land-based patrol bomber is in great demand from the Navy to replace obsolete planes now serving in combat theaters. Lockheed, Burbank—the assembly plant—has been building fuselages at close to the scheduled rate. But wings, subcontracted to the Goodyear plant at Litchfield Park, Ariz., have not been coming through. As a result, only 11 of the 78 Harpoons called for last month were accepted.

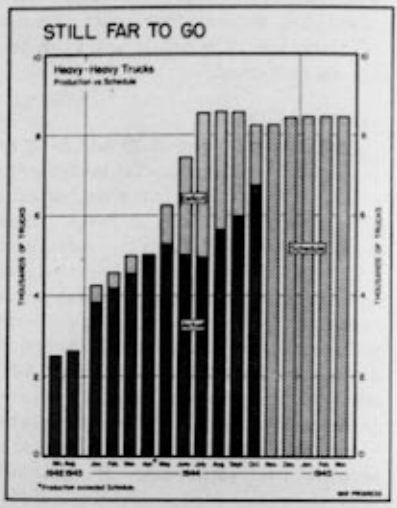
Goodyear had to go through a major redesign of the Harpoon wing six months ago; also, it has to build up—and train—a labor force. A new management was installed several months ago and production is now moving. By early next year, Goodyear should not only be meeting current requirements but making up its backlog as well.

Heavy-Heavy Trucks

HEAVY-HEAVY trucks (over 2½ tons carrying capacity) have been a production "must" for more than a year. Ever since the North African campaign, the Army has put on the pressure for vehicles that can carry big loads and take a pounding over tough roads. But when 1944 requirements were stepped up sharply in November, 1943, facilities of the automotive industry were otherwise engaged; they had been converted to planes, combat vehicles, artillery, machine guns, and other types of munitions.

Moreover, heavy-heavy trucks of the kind required had never been made to any appreciable extent in the United States. (We turn out more heavy-heavy trucks in a month today than we did of the roughly equivalent commercial jobs in a peacetime year.) Hence, when the heavy-heavy truck program emerged as a "must," it was to all intents a new program. To be sure, the experience and know-how of the automobile industry could be brought to bear quickly. But components manufacturers had to learn new techniques in mass building of heavier equipment: axles, transmissions, and so on. Further, facilities had to be expanded. With that background, the performance to date—though far short of military and civilian needs—cannot be written off (chart, above).

STILL FAR TO GO



The flow of supplies and components to the manufacturers of light-heavy trucks (2½ tons capacity) has been affected by the pressure to build up the deliveries of heavy-heavies. As a result, light-heavy truck deliveries have also fallen behind requirements.

Today the foundry industry is a bottleneck. It has been unable to expand production fast enough to supply the castings for a full complement of axles, transmissions, and engines. Indeed, the demand for spare equipment is often

so great that the services prefer to take parts and hold up the completion of vehicles.

Among components, heavy-duty axles have been the most critical. Many wartime heavy-heavies are four- and six-wheel drive affairs, use two and three heavy-duty axles versus one or two in peacetime. With requirements at 83,000 big trucks, this means many times the pescetime axle output. A new heavy-duty axle plant (Standard Steel Spring, Madison, Ill.) is scheduled to be in full-scale production within a month, and should help to relieve the pinch. Engines are next to axles on the critical list, then come transmissions.

Castings for all three of these components have an AA-1 rating. However, orders are placed by many manufacturers with several foundries for the same casting; the foundries have no way of determining what end product the casting is destined for: Will it wind up in a heavy-heavy truck, a farm tractor, a power shovel, a repair part for a washing machine?

HELP AT HAND

However, components manufacturers and builders of the trucks themselves can request directive treatment for getting needed castings. Although this procedure has been available for several months, it has not been used to any great extent. At the present time, the Army and WPB are taking steps to see that manufacturers make broader use of the directive treatment.

The WMC will continue to refer labor to the truck assembly plants, components manufacturers, and foundries. Recently, WPB turned over to WMC a plant-by-plant statement of requirements for 10,000 additional workers in 170 critical foundries. The foundry industry, incidentally, is a problem all its own.

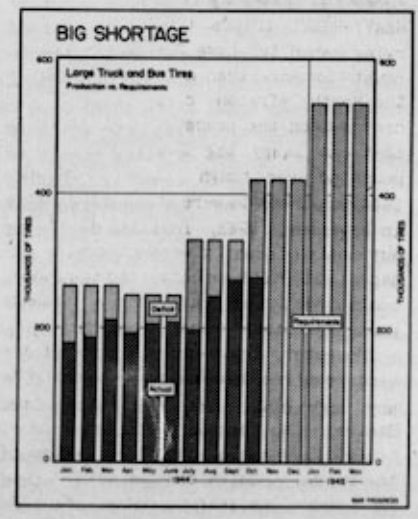
Tires

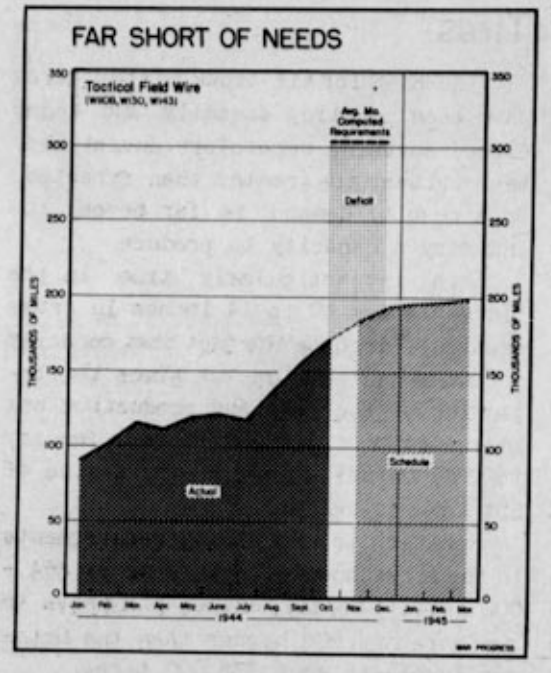
REQUIREMENTS for all truck and bus tires have been mounting steadily and today exceed anything heretofore envisioned. Wear and tear are greater than expected. As a result, demand is far beyond the industry's capacity to produce.

This is particularly true in the "large" sizes (9 to 14 inches in cross section)—despite the fact that capacity for these has gone up 70% since the beginning of the year and production has increased from 178,300 units in January to 276,000 units last month, a rise of 55% (chart, below).

However, to meet stated requirements in the first quarter next year (1,604,000 units), monthly output would have to run more than 90% higher than the October level—to some 535,000 tires.

Last August, 5,000 men were needed in tire factories throughout the country. To get them, labor referrals to tire manufacturers were given a priority





exceeded only by that for certain secret projects; in addition, the Army and Navy agreed to furlough certain experienced tire builders. Despite the fact that referrals and hires have been substantial, the net gain after separations (but including interdepartmental transfers) has been less than 3,000, leaving approximately 2,200 still short.

The immediate problem is to get more labor so as to use existing plants to the limit of their capacity. During 1942, when the Army was expanding most sharply, tire production was declining and tire building was not grounds for deferment. Besides, many workers went to the new war industries, such as aircraft, ordnance, shipbuilding. And since building of the big tires is hot, heavy, and generally disagreeable work, it's hard to get them back, despite the fact that wages are high.

A decision may soon be made to expand facilities further. Meanwhile, steps are being taken to allocate manufacturers' output so as to obtain optimum deliveries of "large" and other critical types of tires to the armed forces.

Foundries and Forges

THE foundry and forge industries cut across virtually the entire critical list; forgings and castings are used in combat loaders, artillery, ammunition, heavy-heavy trucks, aircraft, tanks, etc. The problem splits into two parts: (1) labor and (2) identification and distribution.

The wartime foundry and forge industries are concentrated around Chicago, Cleveland, Detroit, and the Milwaukee-Racine region—all labor areas in which munitions industries, paying high wages, compete for workers. Also, back in 1943 when the high-paying, glamorized war industries such as aircraft and shipbuilding were expanding sharply, forges and foundries came out second best in the race for manpower.

PAY QUESTION

Since that time, the War Labor Board has granted more than a thousand wage increases in individual cases and, with the cooperation of WPB, incentive pay systems have been installed wherever possible. Average weekly earnings in the foundry industry have gone up from 10% to 25% since the beginning of 1943; and at from $50 to $52 in August, 1944, they were not far from those in airframe assembly plants ($54.73). However, this is partly attributable to longer hours; also, the comparatively low starting wage for unskilled workers—averaging between 65 cents and 70 cents an hour—is still a restricting influence. Moreover, the very nature of foundry jobs is a deterrent, and turnover is a problem; recent experience shows that only about one out of every four new workers stays on the job three months or more.

On top of that, the armed forces drained workers and are still cutting into labor supply. Although workers in critical plants are supposed to have preferential treatment in Selective Service, local boards don't always follow instructions.

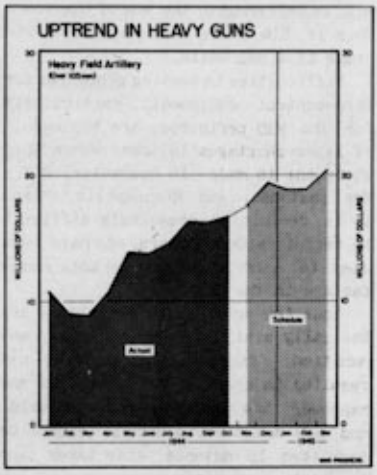
Right now, the War Production Board is trying to get a restatement of the essentiality of foundry and forge workers. Further, the Army and Navy are now working on a plan to furlough a selected number of men to the forge shops and foundries. And several thousand Jamaicans and Barbadians have been made available to the industry now that their farm work on the War Food Administration program has run out.

However, there are few takers. Housing is a problem; also, there is a negative feeling toward foreign workers in certain communities and labor unions.

Within the past few days, WPB's Steel Division has been given complete responsibility for the production and distribution of all ferrous forgings and castings. The Division believes there is adequate foundry production for the supply of top urgency programs and will institute whatever steps are necessary to assure distribution of present production accordingly; for example, proper identification of the most important projects at the foundry level (page 8). This should eliminate the principal bottleneck. As for the forging industry, by and large it is not now holding up important programs.

Heavy Artillery

THE BASIC PROBLEM in heavy ground artillery (4.5-inch gun through 240mm. howitzer) is facilities. As in ammunition, strategic requirements were sharply boosted in April as the result of our own battle experience and that of our allies. Schedules have had to be consistently reduced on grounds of feasibility when new facilities could not be brought into production fast enough. It takes from six to 18 months to develop machinery to manufacture heavy carriages, cannon, and recoil mechanisms.



The most important, and currently the most difficult, phase of the program is cannon—spare tubes and replacement recoil mechanisms for guns already in operation. Because of the tremendously increased rate of fire on the battlefronts, requirements for spare cannon jumped in June, 1944, from an actual delivery of only 323 units in all of 1943 to a scheduled 3,702 in 1944.

New facilities have been brought in to achieve these new objectives; but because it became apparent in the second quarter of 1944 that they would not be in production for six to eight months, the schedule was revised downward, until by October 1 the year's total schedule stood at 3,642 units. Present indications are that 3,646 spare cannon

will be delivered by the end of the year. This is 21% below computed strategic needs of 4,591 units.

Difficulties in meeting schedules for fire-control equipment, particularly for the M10 periscope, are the result of labor shortages in areas where this equipment is made—in Rochester, N.Y., for instance, and Minneapolis, Minn. It is becoming increasingly difficult to recruit women workers, who have been used to a large extent in this manufacture in the past.

Thus the problems in heavy guns are basically similar to those in heavy ammunition. Increase in schedules has resulted in shortage of facilities and manpower. New plants take time to build; and new manpower, since it cannot be recruited in advance, also takes time to obtain and train.

Artillery Ammunition

HEAVY artillery ammunition (over 105mm.) has been a critical program since last April, when Army requirements were increased sharply as the result of North African and Italian battle experience and of increased lend-lease demands from our allies.

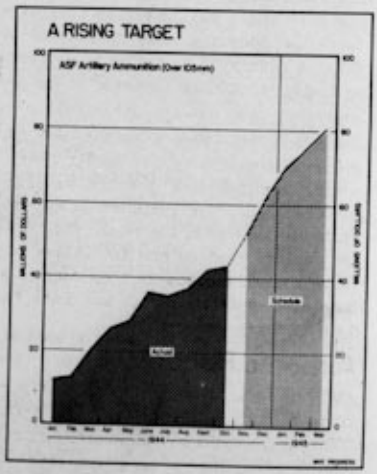
At that time, production was running at a rate of $27,000,000 a month. Today's schedules call for production of $80,000,000 in March, 1945, and more than $100,000,000 a month to be reached later next year. Already output has risen 67% since last April to $45,000,000; but it still has a long way to go (chart, right).

Most of the remaining increase must come from new facilities, scheduled to come into production in the fourth quarter of 1944 and first quarter of 1945. At present it does not appear that these new facilities are going to come into production fast enough to meet requirements.

Obtaining machine tools is the main difficulty. At the time the program was expanded, contractors concentrated their machine-tool orders in a few plants. These plants, in turn, concentrated their orders for components. The result was overburdening component manufacturers' capacity. The principal bottlenecks right now are hydraulic equipment, electrical controls, motors, and gears.

Getting the tools is only one phase of the problem. Putting them to work is another. Tooling up for shell production is a complicated precision job. The manufacture of a 155mm. shell by modern production methods requires more than 40 separate operations on 40 different machines, with two miles of conveyor systems between. And a production rate of over 1,500,000 a month is required for this shell.

Even experienced manufacturers can get into trouble on such a job. One of the country's major steel companies, with previous experience on smaller



shells, lagged badly getting into production on the 8-incher. Difficulties are certain to be experienced by companies with no shell experience—manufacturers of stoves, oil drilling supplies, construction machinery—which have been brought into the program. And to the time required for developing the production know-how must be added the time it will take to train new personnel who must be brought into the industry.

SHELL LOADING

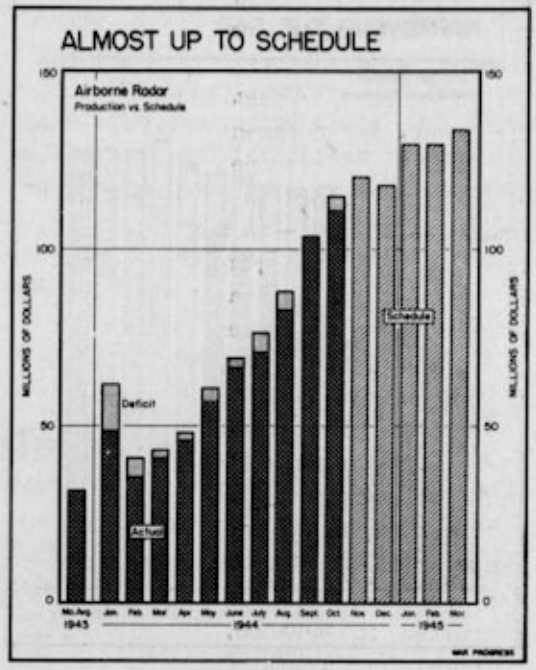
In the shell-loading plants and in the manufacture of powder and high explosives, the only major problem is manpower. Recruiting is difficult because of the remoteness of the plants from large cities, inadequacy of living and transportation facilities, the hazards of the work, and its obviously temporary nature. To date, in finding about 15,000 of the needed workers, the War Manpower Commission has kept up with demand, but the real pinch is yet to come.

BOMBS

Competition for this type of labor comes from the rapidly expanding bomb program, which also has the highest schedules in its history. High as they are, some of the bomb schedules are not adequate to meet official requirements; production of bodies for the general-purpose bombs, for instance, is not expected to come up to the need. The Army has decided that no new facilities are to be installed because they cannot be completed before April, too late for near-term operations.

Airborne Radar

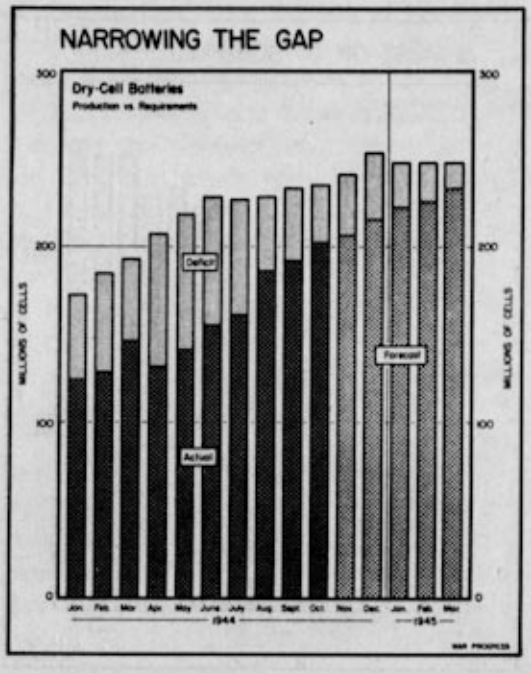
EARLY in 1943, the production of airborne radar amounted to about $20,000,000 a month; today output exceeds $100,000,000 and the program continues to rise, though not so sharply as formerly.



Yet airborne radar is far from a mature art; in fact, it is unlikely to come of age in this war. Design changes, new inventions, and new uses are constantly forcing readjustment in production lines and production schedules. But production has not been up to even the reduced programs (chart, above).

The job of the manufacturer has been to keep step with the scientist—an almost impossible task in a new industry. In ASF airborne radar, for example, one-quarter of the scheduled production in the last quarter is in items which barely got into production in September.

Any estimate of the progress of airborne radar output must take into account not only the month-to-month gains, but also the growing pains encountered in the improvement of equipment. And it is quite proper to say that the very factors which retard stepups in production—design changes, new models—are a cause for satisfaction, even though they derange production lines. The de-



sign changes and the new models actually improve the efficiency of our military machine. They save lives.

Consequently the requirements for airborne radar are more or less insatiable. As soon as a new model is developed, the idea is to install it not only in all airplanes coming off assembly lines, but also in planes on the fighting fronts. But capacity seldom can take such a big jump all at once.

Complicating this is the fact that the industry is working at peak capacity; facilities are jammed. Hence, whenever engineers develop a new model, some assembly line has to be stopped in order to produce the new device. The result is a setback in the output of that particular plant. In a few plants there are critical manpower shortages.

Current schedules taper off in 1945; nevertheless the art of radar will continue to develop. And as new items come in, the production job will continue to be difficult.

Dry-Cell Batteries

A RAPID INCREASE in military requirements has put dry-cell batteries on the critical list. Production has been increasing rapidly—it's up more than 50% since the beginning of the year—but further sharp stepups are necessary to fill combined military and civilian demand (chart, left). Civilian allotments have been cut to virtual subsistence levels.

New capacity is now coming into production—largely as the result of AA-1 ratings on facilities; labor has also been put on the urgency list. Otherwise there does not appear to be any particular or immediate remedial step to be taken.

Dry-cell batteries are a low-wage industry and some plants have been starved for labor. However, incentive wage systems have been installed. About 1,500 new workers will be needed as new facilities come in.

With the continuation of the present urgency rating on labor and continued pressure to maintain capacity operations, production ought to meet military operational needs by January.

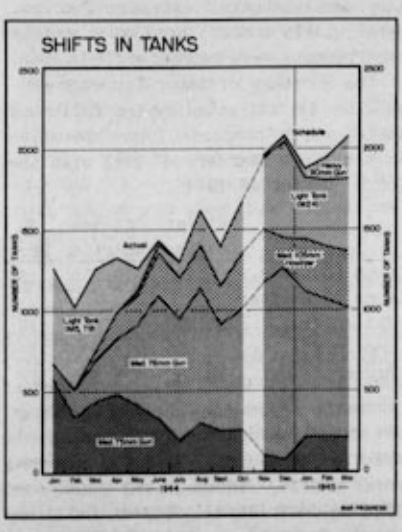
Communication Wire

TACTICAL communication-wire requirements have increased much more rapidly than it has been possible to expand facilities (chart, page 10). Despite steadily rising production, requisitions from active theaters have been so far out of line with production possibilities that the critical types of wire are now on a ration basis; each theater commander has been notified of the amount he can be furnished. As a result, the Army Signal Corps has found it necessary to set up a feasible requirement based on estimated production possibilities.

Three types of wire are critical:

1. Assault wire (W-130), made of size .0095 steel and copper wire stranded and insulated. Stranding facilities have been the major limiting factor. Additional stranding facilities have been added, and further relief could be obtained if all stranders operated around the clock.

2. Field wire (W-110B and WS-1/TS), the most widely used of all tactical wires. In addition to being stranded and insulated, it is cotton covered and weatherproofed. The chief production limitation is the supply of galvanized carbon-steel wire. Facilities for making this fine (.013) wire are limited. More could be supplied, but it would be at the expense of other programs, particularly stranded steel wire rope and aircraft cable. In accordance with the urgency of the various programs, 1,709 tons of this wire monthly have been set aside for the Signal Corps, but this is not sufficient to meet computed objectives.



3. Long-range communication wire (W-143), an all-copper wire designed for a talking distance five times that of W-110. The trouble here is that requirements have quadrupled since the first of the year and facilities to meet the new program have not been able to catch up. The overall problem here is the training of labor for the new plant at Lowell, Mass.

The lack of rubber has made insulation a problem for all three types of critical wire.

Tanks

TANKS have made a strong comeback in the Army Supply Program. Whereas production early this year had been pared down to about 1,200 per month, requirements have been increased, and by the end of this year nearly 2,000 a month are scheduled.

However, tanks are on the critical list not so much because of the stepup, but largely because of changes in basic design (chart, left).

The trend has been toward greater firepower and mobility. Early this year, medium tanks with the 75mm. gun were superseded by the 76mm. gun and the 105mm. howitzer. Also the M24 light tank was brought into the program. At the present time, the big deficit is in the M4A3 with a 76mm. gun. Last month it fell 203 behind a schedule of 553.

MAKING TRACKS

The deficit traces to two important design changes: (1) a new type of suspension and (2) a wider track—from 16 inches to 23 inches. Ultimately all medium tanks will roll on the wider track; it provides better balance and offers greater traction in both wet and dry terrain. Currently only the M4A3 and M4 with 105mm. howitzer are so equipped. The 105mm. howitzer gets first

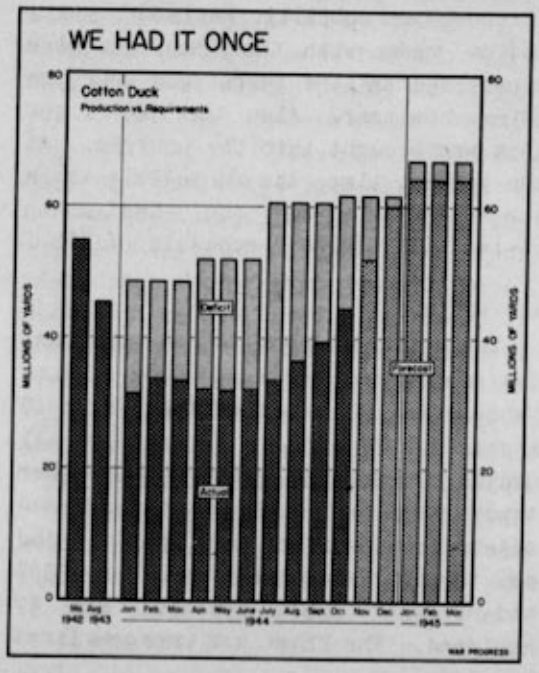
call on the wide tracks, the 76mm. gets the residue; hence the deficit tends to pile up in the 76mm.

The production job is to get sufficient manpower in foundries and to train the manpower in casting these new and wider tracks. To date, rejections have run high.

As a further factor, the Chrysler and Fisher tank arsenals are tooling up for the T26 heavy tank, deliveries of which are scheduled to start this month at 10 and accelerate rapidly to 600 a month by mid-1945 and more than 800 a month by the end of that year. This draws on components to fill the pipelines for these tanks without any corresponding rise in deliveries.

Other component difficulties—small armor castings, 90mm. turrets, differentials, front plates, and radio turret bustle—have also caused delays. Indeed, as production rises, it is possible that other components may become bottleneck items.

A plant-by-plant list of manpower requirements has been submitted to WMC. Further, WPB has arranged to schedule production of critical castings for tracks and armor.



Cotton Duck

COTTON DUCK for military tentage is critical because of the sudden, steep rise in requirements early this year—some 12 months after production had been cut back sharply from the peak in the winter of 1942-43.

Second-quarter production was 40% below requirements, but in the past few months output has increased substantially. By the beginning of next year, production will satisfy then-current requirements, but there does not seem to be any likelihood of making up the accumulated deficit, which represents a real shortage (chart, left). There are two major difficulties:

1. Procuring labor.
2. Reconverting to duck many of the looms which were shifted to other military and essential civilian fabrics, particularly work uniforms, when tentage requirements were reduced early in 1943.

The shortage of labor for duck production is indicated by the following table, which compares loom operation in the first quarter of 1943 with the third quarter of 1944:

	'43 1st Quarter	'44 3rd Quarter	% Drop
Looms in place..	22,100	19,200	13%
Looms by shifts:			
1st shift.....	20,300	17,600	14
2nd shift.....	18,600	14,500	22
3rd shift.....	13,500	5,100	62

In the first quarter of 1943, about 90% of the looms actually in production operated two shifts, and 65% operated three shifts. In the third quarter of 1944, by contrast, only 83% of the looms which were in production operated two shifts, only 29% operated three shifts.

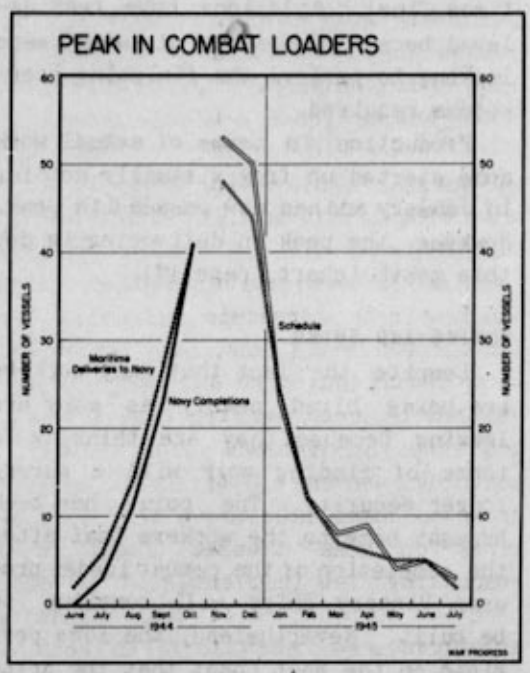
A substantial increase in production could be obtained if more workers were available for third-shift operations. This shift is unpopular, particularly among women employees, who constitute 50% of the working force. From 5,000 to 6,000 workers would help rebuild second- and third-shift operations, but recruitment is difficult, particularly since the wage level is comparatively low—50 cents an hour, as against 80 cents to $1 in aircraft and shipbuilding. The current rate of labor turnover is high.

If the production of high-tenacity rayon for tire cord can be speeded up, substantial additional quantities of cotton yarn can be diverted to duck. At present, 20% of tire cord yarn is being used for duck; it is proposed to increase this ratio to 30%.

PARTIAL CONVERSION

Technical difficulties make it virtually impossible to convert any considerable part of looms from such fabrics as drapery and upholstery. Consequently, it was decided to order partial conversion of looms from work clothing fabrics—particularly denims, drills, and twills—to the manufacture of tent twill. Similar conversions were also ordered of looms engaged on bag fabrics, such as coarse sheetings. These conversions are now in process and production of duck and duck substitutes has been rising rapidly, but still falls far short of needs.

It may be possible to reduce military requirements for tentage duck by using substitute types of construction, such as light metals. There is also some likelihood that requirements for numbered duck can be decreased by greater use of waterproof paper. Both of these possibilities are being explored. But the immediate task is to speed conversion and build up work rosters.



Combat Loaders

THE COMBAT LOADER PROGRAM of today is comparable to the landing craft program of late last year and early spring. It was an integral part of military plans; it was given top urgency by the Joint Chiefs of Staff; a stiff delivery deadline was set and production had to step up sharply to meet it.

Like landing craft, deliveries lagged in the early stages of the program, but then came through rapidly. History is repeating, but not quite on schedule. It looks as if the November 1 deadline for deliveries of "minimum" operational requirements (100 APAs and 35 AKAs) will be met about a month late.

Aside from the sharp stepup, the chief factor has been the manpower shortage. Most of the combat loader yards are on the Pacific Coast, where manpower was tight to begin with; further, it has proved to be especially difficult to obtain and hold skilled mechanics—steamfitters, electricians, etc. Some-

times final completions have been delayed because these skilled workers were lacking to perform the finishing operations required.

Production in terms of actual work done started up from virtually nothing in January and has now passed its peak. However, the peak in deliveries is due this month (chart, page 17).

COMING AND GOING

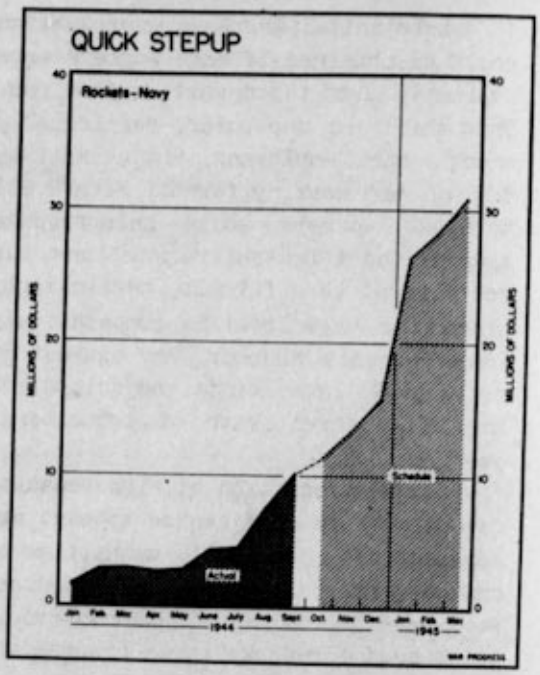
Despite the fact that many workers are being hired, nearly as many are leaving because they are thinking in terms of finding work with a surer, longer security. The point has been brought home to the workers that after the completion of the combat loader program Victory ships will continue to be built. Nevertheless, the idea persists on the West Coast that the critical production period is about over.

All told, the Maritime program for combat loaders, as set up in July, called for 243 ships, of which 213 were to be delivered to the Navy this year. But because of slippages, only 181 are now scheduled for delivery in 1944:

	Total '44-'45 Program	'44 Program July 1	'44 Program Nov. 1
Combat transports (APAs)...	161	155	135
Combat cargo ships (AKAs)...	82	58	46
Total.....	243	213	181

The Navy is now calling for 163 ships in its expedited program—158 combat loaders and five headquarters ships (AGCs); these AGCs have already been completed.

By the end of October, the Maritime Commission had delivered 90 combat loaders—41 coming through in October alone. Another 48 ships are scheduled for November. If these come through as planned, 138 ships will have been delivered to



the Navy by the December 1 delayed deadline. However, this does not mean 138 ships ready for service. Some of the vessels delivered by the Commission are on a bare-hull basis and require four or five months' work. In all cases, the Navy has some outfitting to do on the ships—guns, radio, and radar equipment, etc. must be installed—but frequently this work is done concurrently with the Maritime Commission so that some delivery dates of the Navy and Maritime coincide.

By the end of October, the Navy listed as completed 78 ships (not including the five headquarters ships) as against the 90 delivered by the Maritime Commission. However, the Navy hopes that enough ships will be completed in November to make the total of 135 ships.

To date, components, although in tight supply, have not been a major cause of delay. But now, with volume production and a large number of ships on the ways, components may hold up the program. Thus the task is double bar-

reled: (1) to get the necessary workers and hold them, and (2) to follow the components and spare parts through manufacturers' lines right into the ships.

Naval Ordnance

IN NAVAL ORDNANCE three programs are critical: (1) high-capacity ammunition, (2) rockets, (3) 40mm. antiaircraft guns; and the problem in all of them stems from the same cause: sudden and large increases in requirements.

Production of major caliber high-capacity ammunition for bombardment purposes—for use against shore fortifications and for softening up beaches—has more than doubled during the first nine months of 1944; but requirements have mounted even faster. Thus when output caught up with production schedules in June, the Navy raised the schedule (chart, page 7).

Now, projected production of HC ammunition shows a peak rate in 1945 which averages (for all sizes: 6-inch to 16-inch) 44% more than the October rate in 1944.

Production of projectiles is the limiting factor in the program, particularly because of machine-tool shortages. Other factors are insufficient trained manpower and shortages of components among new contractors, who have been, as a rule, one to three months late in making initial deliveries. Veteran contractors generally are running on schedule, which suggests that what the new contractors need is time—time for tooling up, getting the bugs out, channeling components, training workers. Furthermore, this program competes with Army ammunition for components and tools.

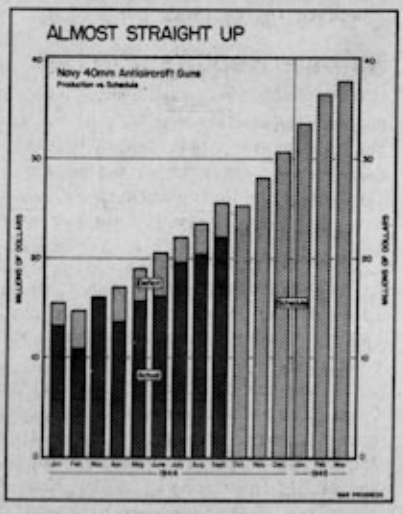
The story of naval rockets is much the same. Requirements have increased much faster than output. Current production is eight times that of the first quarter (chart, page 18).

But output must triple to meet third-quarter requirements in 1945. The Chief of Naval Operations has recently established the rocket program as second only to combat loaders among urgent Navy programs.

As with HC ammunition, tooling up of new plants is the limiting factor. Electric motors and electrical equipment, conveyors, compressors, hoists, and hydraulic equipment are needed. The Army heavy-artillery ammunition program competes with the rocket program for many of these machine tools.

Again, in the 40mm. antiaircraft gun program, requirements have increased so fast that production could not keep pace (chart, below). Here it is a case of supplementing the 20mm. antiaircraft guns.

Great difficulty has been encountered in components: power drives, steel castings, bearings, and many kinds of electrical parts. In June, the PEC approved the inclusion of 40mm. guns and related equipment among the critical programs, and by October the flow of parts was



KEY STATISTICS OF THE WEEK

	Latest Week	Previous Week	Month Ago	Same Week 1943	Same Week 1942	Same Week 1941
War Program—checks paid (millions of dollars)	1,594	1,822	1,563	1,957	1,254	543
War bond sales—E, F, G (millions of dollars)	152	142	143	188	96	58
Money in circulation (millions of dollars)	24,717	24,674	24,157	19,559	14,465	7,584
Wholesale prices (1926=100)						
All commodities	104.1[p]	104.0	103.8	102.8	99.7	91.7
Farm products	124.4[p]	124.0	122.7	122.1	110.7	89.6
Foods	104.9	104.4	103.8	105.5	103.0	88.8
All other	98.8[p]	98.8	98.9	97.5	96.1	95.1
Petroleum (1000 barrels)						
Total U.S. stocks*	427,713	429,703	426,068	425,925	454,682[e]	488,614[e]
Total East Coast stocks*	78,443	78,249	77,220	65,946	62,677[e]	98,110[e]
East Coast receipts**	1,703	1,873	1,827	1,558	1,113[e]	1,450[e]
Bituminous coal production (1000 short tons)**	1,992	2,025	1,957	499	1,905	1,900
Steel operations (% of capacity)	96.0%	96.3%	97.0%	98.2%	99.6%	96.6%
Freight cars unloaded for exports, excl. grain**						
Atlantic Coast ports	2,591	2,686	3,082	2,624	1,256	1,678
Gulf Coast ports	465	567	421	598	292	385
Pacific Coast ports	1,975	1,968	1,795	1,226	1,025	179
Department store sales (1935-39=100)[t]	230	214	221	211	182	159

[p]Preliminary *Excludes military-owned stocks **Daily average [t]Unadjusted [e]Estimated

increasing. But requirements for 1945 rise so rapidly that production schedules based upon feasibility do not catch up to them until late in the year.

Ships – Repairs, Parts

REQUIREMENTS for naval ship repair and maintenance are mounting along with the size of the fleet. With more vessels afloat, there is more rehabilitation work to be done. Furthermore, ships are coming in more frequently for overhaul. Still further, battle damage—now that heavy actions are taking place in the Pacific—adds to this critical problem. As a result, repair yards are crowded.

Because naval vessels can be spared only between operations, some are being returned to the fleet without all necessary repair and maintenance. Manpower shortages exist in the four naval establishments on the West Coast, i.e., Puget Sound Navy Yard, Mare Island Navy Yard, Hunter's Point Drydocks in San Francisco, and Terminal Island Drydocks in San Pedro, Calif.

Maintenance parts are short. Monthly deliveries of spare parts have been running at only about 80% of requirements. At times 20% of the landing craft in the Pacific have been laid up for want of parts. Deliveries of parts for diesel engines have been running $1,000,000 a month behind schedule; and this schedule is due to rise from a current average of $12,000,000 a month to $23,000,000 in 1945. Often the Navy would prefer crankshafts and bearings to finished engines in which they are components.

There are no stockpiles of these parts. As fast as they are now produced, they are distributed, on a piece-by-piece basis, to shipyards and to advanced bases all over the world.

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WAR PROGRESS

Prepared in the War Production Board

J. A. Krug, Chairman

War Progress is a confidential report designed to provide a coordinated and continuing picture of the overall war program for the various war agencies. To this end, it presents, analyzes, and interprets basic statistical and economic information, and from time to time examines the pros and cons of controversial questions.

Although War Progress is an official publication of the War Production Board, statements in it are not to be construed as expressing official attitudes of the Board as a whole, or even of individual members. Conclusions, whenever reached, should be considered editorial conclusions.

War Progress is prepared in the Bureau of Program and Statistics (Thomas C. Blaisdell, Jr., Director) by the Reports Division (Joseph A. Livingston, Director).

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October Production — Still on a Flat

Output, about the same as September, misses reduced schedule by 2%. Critical programs do better, but must improve greatly to meet battlefront needs.

FOR THE second consecutive month, total munitions failed to gain ground. October output, at $5,230,000,000 (preliminary) dropped nominally below September and missed the first-of-the-month schedule by 2%, as against a 4% miss in September. However, the October schedule has been lowered consistently. If schedules in many items had not been reduced, output could easily have been much higher. In May, the October schedule was $6,125,000,000; by July it had gone down to $5,960,000,000; by September, to $5,675,000,000. And since then, there has been an additional decline of $315,000,000.

Similarly, the schedule for the last quarter has been reduced $870,000,000 between September 1 and October 1. There are three main reasons:

1. Lower requirements for such programs as the Flying Fortress, the Liberator, ground radio, etc. Production is more than sufficient and schedules have been cut back. About 40% of the fourth-quarter reduction was of this nature. Requirements for small-arms ammunition, until recently in this group, have been boosted during the last month.

2. Inability to lift production to required levels for feasibility reasons. This applies mainly to the critical programs, such as heavy-heavy trucks, heavy field artillery, heavy artillery ammunition, the Superfortress, tactical field wire, etc., and accounts for 35% of the reduction.

3. In some items, not on the critical list, production has been lagging behind schedule and the deficits have been pushed forward into 1945, thus lowering scheduled production for 1944. Items in this group are airborne radio, destroyers, big landing craft, other ships and miscellaneous items. These account for 25% of the fourth-quarter reduction.

AMMUNITION'S CUT

The biggest dollar cut was in ammunition. Next came aircraft, continuing the trend of cutbacks which have occurred throughout the year. The smallest dollar decline was in the critical combat and motor vehicle group, as the following table shows:

	Monthly Av. 4th Qtr. as of Oct. 1	Change from Sept.	
	(millions)		(%)
Aircraft.....	$1,476	-$61	-4%
Ships.....	1,136	-19	-2
Guns & fire control.....	269	-18	-6
Ammunition.....	642	-76	-11
Combat & motor vehicles.....	540	-10	-2
Com. & elec. equipment.....	382	-60	-14
Other equipment & supplies.....	990	-45	-4
Total.....	$5,435	-$289	-5%

The important point about October production was that critical programs registered further improvements; they gained 6% over September (WP-Nov18'44, p1). Although some of the increases were comparatively small, the situation

improved all along the line and some of the gains were sizable: communication wire, 10%; heavy-heavy trucks and cotton duck, 13%; general-purpose and fragmentation bombs, 16%; tanks, 20%.

BATTLEFRONT RATIONING

However, the armed forces are still getting far less than they need of all the critical items, some of which have to be rationed to the troops because of the shortages—tactical field wire, for example. Output generally must improve much more than it did in October if needs are to be met. For example, a rise of 50% over the October rate is required for heavy artillery ammunition to meet the 1944 production goal; and the goal is below computed strategic requirements.

As was the case in September, not a single major program made even the reduced schedule last month. The biggest miss was in combat and motor vehicles —off 5%. Here schedules are rising sharply for heavy-heavy trucks and tanks. Although output showed marked improvement in each instance, production fell far short of requirements.

Aircraft was scheduled downward and production dropped 4% below September to a new low for the year. The deficit, however, was concentrated in the steeply rising, hard-to-make planes. Similarly, value put in place on ships declined, but by only 1%. On the other hand, communication and electronic equipment was up 7%, yet fell shy of the rising schedule.

Munitions employment declined another 100,000 last month. From the 10,365,000 peak last November, munitions work rolls are now down to 9,170,000—the lowest since 1942. Most of the decline is due to cutbacks. It is interesting to note that if the workers who were separated from their munitions jobs in October could be strategically distributed they would go far toward filling manpower needs in critical programs.

Aircraft

As scheduled, aircraft production hit its lowest point of the year last month, although the drop was somewhat more than forecast. As compared with September, W-12 called for a decline of about 2% in output of airframes, engines, propellers, gliders, spare parts, etc. At $1,470,000,000 (preliminary), however, the drop actually ran to 4%; and that was 3% short of the $1,512,000,000 scheduled.

PBM-5 COMES THROUGH

With the exception of the PBM-5 Mariner, which was up to expectations, the deficit from schedule—$42,000,000—was all accounted for by critical programs: the B-29 Superfortress, B-32 Dominator, A-26 Invader, C-54 Skymaster, PV-2 Harpoon, and R-3350BA engine (WP-Nov18'44, p6). These are practically all new models and it's a formidable job to overcome design changes, or sharp increases in requirements, or both.

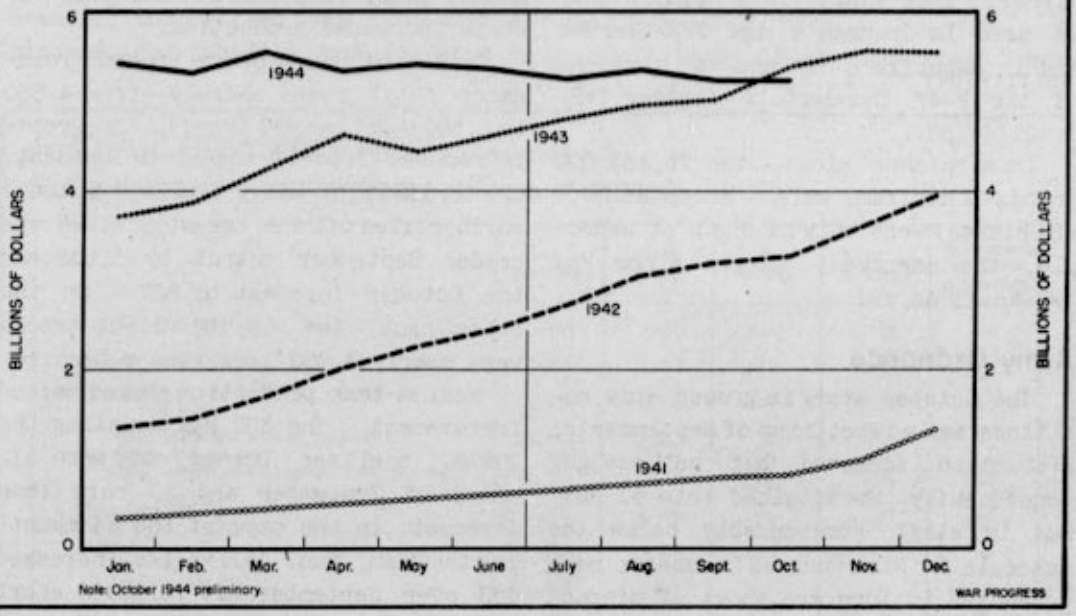
The failure of aircraft to meet schedule in recent months has been concen-

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CONTOURS OF MUNITIONS PRODUCTION

Until last month, output ran consistently ahead of the same month of the previous year; now the '44 curve slips under '43.



trated in comparatively few models, largely those with expanding schedules. Indeed, this has been the outstanding feature of the program since June. Most other planes—those in which schedules are stable or declining—have been on the target.

OVER AND UNDER

Continuing its outstanding performance, Dodge's Chicago plant turned out 957 superbomber (R-3350BA) engines last month, 57 more than scheduled. But this was more than offset by Wright, Paterson, which delivered only 529, or 71 less than expected. This plant exceeded schedule in September for the first time with delivery of 551 superbomber engines. Wright, Paterson, was strikebound for a few days this month and its goal may be missed again in November.

At $319,000,000, deliveries of all aircraft engines were 3% short of the new engine schedule (WE-12). Most of the deficiency was accounted for by Pratt & Whitney, East Hartford. Here, shipments of 1,485 units compared with a WE-12 goal of 1,550. However, the plant was right on the mark with 50 R-2800 2-stage C engines, a more powerful version of the Double Wasp, used in the Navy's new F4U-4 Corsair fighter plane.

Another off-schedule performance last month was at Packard, Detroit. It turned out only 1,950 V-1650 Merlin engines, 19% short of the scheduled 2,400. Merlin requirements—about half of which are exported for use primarily in the Lancaster and Mosquito—are now being reviewed. Thus, existing schedules may not be a true measure of production performance.

All other engine plants did well in October, with Pratt & Whitney, Kansas

City, turning in a banner month. Although its expanding schedule called for 350 R-2800 1-stage C engines, deliveries actually ran to 427, or 22% higher. This engine is a 2,100hp job, is used in Grumman's new F8F Bearcat and in Republic's "M" and "N" versions of the P-47 Thunderbolt fighter (WP-Oct21'44,p8).

In airplanes alone, the 75,363,000 pounds of airframe weight accepted (7,429 planes) were only 2% short of schedule, the narrowest margin since May (WP-Nov11'44,p9).

Army Ordnance

The October story in ground army munitions was a repetition of September's; production improved but not enough. Consequently, the attained rate of output is still considerably below the schedule for November and December; many schedules in turn are short of production goals for the year. And these goals are far short of the Army's computed requirements. Moreover, requirements for the first quarter of 1945 are even higher.

Production goals in key critical programs especially are well above October production. Thus, in heavy artillery ammunition, output during November and December must go up about 25% to meet the 1944 schedules and about 50% to meet the production goal. Similarly in heavy-heavy trucks and aerial bombs. In tanks, however, schedule and goal are about the same:

	% Stepup Req. in Nov. & Dec. to meet	
	Sched.	Prod. Goal
Heavy art. ammun...	25%	50%
Heavy-heavy trucks.	20	65
Tanks.....	20	20
Aerial bombs.....	12	30

All of the big guns met or exceeded first-of-the-month schedules except spare cannon for 155mm. howitzers, but ammunition for all of them, except the 155mm. guns, fell short of the mark despite increased production.

Output of heavy-heavy trucks (ordnance only) rose sharply--from 4,850 to 5,560--and ran 470 ahead of the greatly reduced first-of-the-month forecast. The 18,638 light-heavy trucks (2½ tons) which rolled off the assembly lines exceeded September output by 1,030 and the October forecast by 827. On the other hand, the 18,156 light trucks were nearly 3,000 less than scheduled.

Medium-tank production showed marked improvement. The 357 M4s mounting the 105mm. howitzer turned out were 112 ahead of September and 29 more than forecast. In the case of the M4 mounting the 76mm. gun, deliveries increased 100 over September but fell 190 short of the 924 goal for October. (Here it has been a case of concentrating on the 105mm. howitzer model at the expense of the 76mm. model.) The November schedule for the M4 mounting the 76mm. gun calls for 1,185.

Aerial-bomb output rose 4% but ran 1% behind forecast. Biggest deficits were in critical 250-pound general-purpose bombs, and 100-pound fragmentations.

Naval Ships

Naval ship deliveries were just about on schedule last month--243,000 displacement tons came through as against 250,000 scheduled. Completions of combatants included the 27,000-ton aircraft carrier "Randolph," the 14,000-ton cruiser "Pittsburgh," two destroyers, seven DEs, and five submarines--all told, 62,000 tons. September deliveries of combatants were much higher

—105,000 tons; that total was swelled by three cruisers.

As scheduled, landing vessels dropped below the September level of production; however, the decline was not so much as planned, and schedule was exceeded by 2%. LSTs—the big tank carriers—accounted for nearly half the landing craft tonnage and for slightly more than one-fourth of total Navy deliveries last month.

Deliveries of district craft topped

PRODUCTION PROGRESS—Preliminary

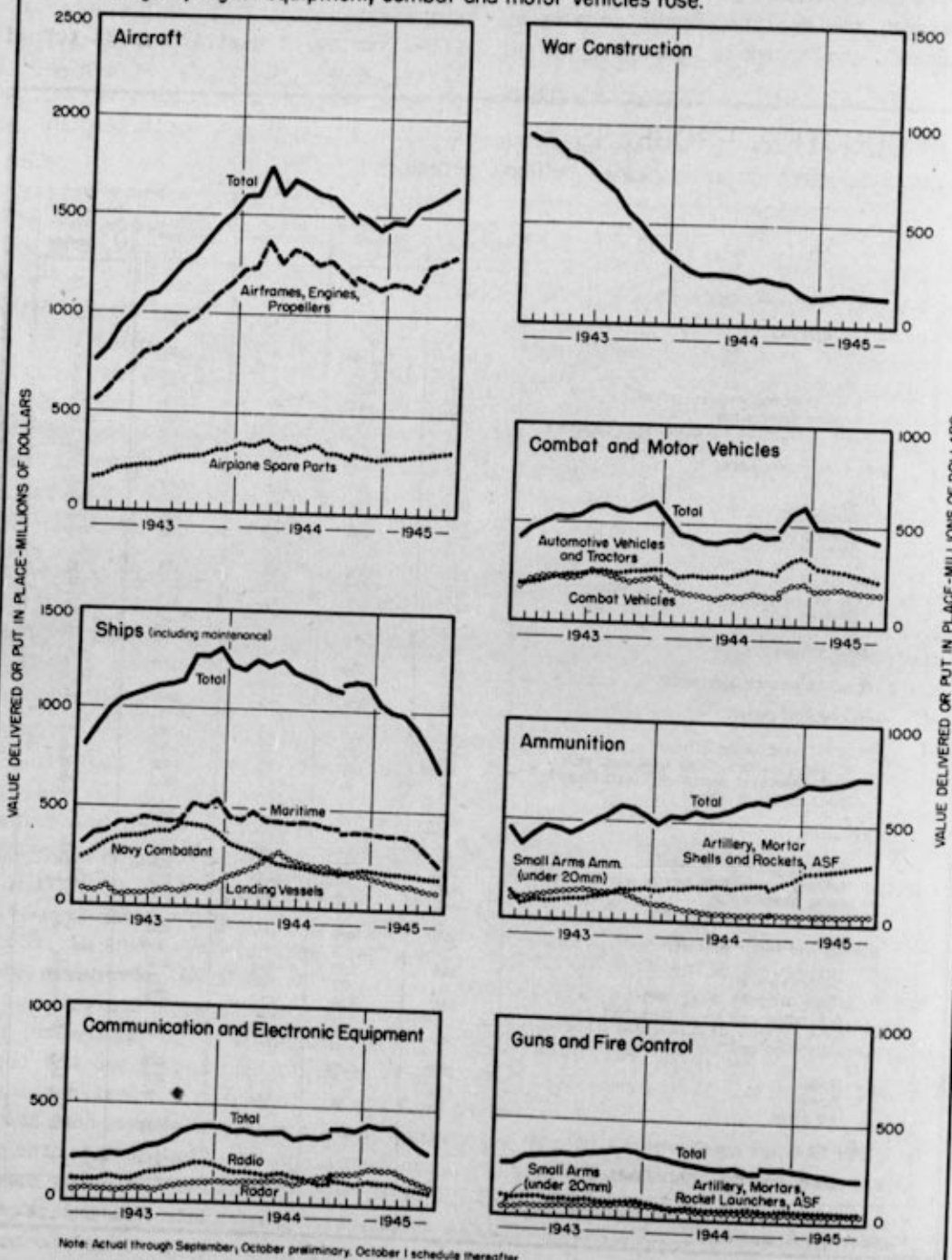
Value delivered or put in place—millions of dollars

	Oct. Preliminary	Sept. Actual	% Change	Oct. Schedule*	% Deviation Oct. Prelim vs. Schedule
MUNITIONS AND WAR CONSTRUCTION	5,444	5,469	nil	5,569	-2
TOTAL MUNITIONS	5,234	5,249	nil	5,359	-2
Aircraft	1,470	1,537	-4	1,512	-3
Total airframes, engines, propellers	1,167	1,216	-4	1,199	-3
Airplane spare parts	285	303	-6	293	-3
Other aircraft and equipment (excl. commun.)	18	18	0	20	-10
Ships (incl. maintenance)	1,096	1,109	-1	1,128	-3
Navy	518	520	nil	560	-8
Combatant	189	181	+4	188	+1
Landing vessels	188	211	-11	190	-1
Other	141	128	+10	182	-23
Maritime	351	360	-3	341	+3
Cargo and supply	230	238	-3	228	+1
Other	121	122	-1	113	+7
Army Vessels	58	60	-3	58	0
Ship Maintenance and Repair	169	169	0	169	†
Guns and Fire Control	259	251	+3	269	-4
Small arms (under 20 mm.)	48	47	+2	47	+2
Artillery, mortars, rocket launchers—ASF	58	61	-5	57	+2
Fire control and searchlights (excl. Radar)	58	49	+18	62	-6
Naval guns and other	95	94	+1	103	-8
Ammunition	605	599	+1	610	-1
Small arms (under 20 mm.)	46	45	+2	48	-4
Artillery ammunition, mortar shells, rockets-ASF	185	188	-2	178	+4
Aerial bombs—ASF	133	128	+4	134	-1
Naval ammunition and other	241	238	+1	250	-4
Combat and Motor Vehicles	445	426	+4	468	-5
Combat vehicles	149	135	+10	162	-8
Motor carriages for SP guns	29	27	+7	26	+12
Automotive vehicles and tractors	260	259	nil	273	-5
Communication and Electronic Equipment	369	344	+7	383	-4
Radio	122	119	+3	128	-5
Radar	151	139	+9	157	-4
All other	96	86	+12	98	-2
Other Equipment and Supplies	990	983	+1	989	nil
WAR CONSTRUCTION (GOV'T. FINANCED)	210	220	-5	210	†

* As of September 1 for construction; as of October 1 for all others.
† Schedule used for preliminary.

UPS AND DOWNS IN MUNITIONS PRODUCTION

As in September, all major groups missed the first-of-month schedule in October. But guns, signal equipment, combat and motor vehicles rose.



Note: Actual through September; October preliminary. October 1 schedule thereafter.

WAR PROGRESS

September by 18%, but ran 32% behind schedule. Auxiliary and other vessels scored a gain of 11%, but failed to meet schedule; in the past, this group has run consistently behind schedule:

	Oct. Deliv. (000 tons)	% Deviation from Sept.	Sched.
Combatants....	62	-41%	-2%
Landing ves ...	132	-3	+2
Patrol & mine..	16	0	0
District craft	13	+18	-32
Aux. & other..	20	+11	-13
Total.....	243	-15%	-3%

The Navy completed 41 combat loaders —35 APAs and six AKAs; these ships had previously been delivered by the Maritime Commission. Although this was a big rise over September completions of 23 ships—six AKAs and 17 APAs—deliveries were five below schedule. The peak of deliveries (as in the case of Maritime) is set for this month when a total of 53 ships are scheduled. After that, completions drop sharply. The end of the program is now scheduled for the middle of 1945.

Maritime Ships

The Maritime Commission came through with its biggest month of the year both in numbers and value. Dollarwise, production ran 6% ahead of the first-of-the-month schedule. Deliveries amounted to 168 ships totaling $438,000,000, as against 127 ships valued at $383,000,000 in September and 162 ships at $415,000,000 in May, the previous 1944 peak. However, the all-time peak was in December, 1943, when deliveries amounted to $518,000,000, of which Liberty ships constituted more than two-fifths.

The important increase was in combat loader deliveries to the Navy—32 APAs and nine AKAs; these accounted for 45% of the value of deliveries. In September, Maritime turned over 19 APAs and eight AKAs. Despite this big rise, however, deliveries have been running behind Navy needs. Thus, in the June program, 140 ships were scheduled for delivery by the end of October; actually 90 came through. In other words, the program is about one month behind.

SHOW OF STRENGTH

Liberty ships, though a declining program, came in strong—51 delivered as against the 48 scheduled and the 43 completed in September. They accounted for 22% of the dollar total.

Victory ship deliveries held at the September level of seven—one ahead of forecast. Yards originally scheduled to deliver Victory ships are concentrating on combat loaders which have top priority, even above maintenance and repair.

Delivery of 18 tankers missed the stepped-up October forecast by one; however, this was one ahead of earlier schedules. The Navy, because of its speedy advance in the Pacific, has been calling for tankers to be delivered ahead of schedule wherever possible.

Signal Equipment

Output of communication and electronic equipment, at $369,000,000 (preliminary), was up 7% over September, but fell 4% short of schedule.

The critical airborne radar program, which had registered sharp gains of 22% in August and 25% in September, rose only 8% in October and missed the first-of-the-month goal by 3%. Design changes, new inventions, and new uses have brought another major readjustment in the program, with a resultant slowing down in production momentum. The impact of the new equipment is expected to have a

flattening effect upon output for the remainder of the year. In fact, the production schedule, which has been rising sharply, declines in December for feasibility reasons.

Ground-radar production hit a two-year low of $5,000,000—a steep drop from the peak of $42,000,000 last March. This decrease has nearly offset the rise in airborne radar for the A.S.F.

Output of radio equipment rose 3%, was 5% shy of schedule. However, airborne-radio production for the Army Service Forces was up 12% and only 3% short of schedule.

Production of critical communication wire increased 10% and was 2% under the schedule based on feasibility. Output is still running far below unreachable requirements (WP-Oct21'44,p5).

Who Gets U. S. Planes, Tanks, Guns?

More than $15,000,000,000 of munitions have gone to Allies since Pearl Harbor. Every fifth plane, every third combat vehicle, 38% of artillery are exported.

OF EVERY five planes produced since Pearl Harbor, this country has kept four for her own armed forces, sent one to Soviet Russia, Britain, or another United Nation. Though ratios for other individual items vary widely, what happened to planes tells how the U.S. shared her total munitions production.

Some $15,000,000,000 of ships, planes, guns, ammunition, tanks, and other military vehicles have gone to the Allies from January 1, 1942, through August, 1944. Lend-lease shipments, bulk of these exports, took 17% of the U.S. munitions output. Cash purchases by Allies have declined sharply in volume and percentage of U.S. production since this country entered the war—from 20% in 1941 to 5% in 1942, to less than 1% in the last two years. This year, only in the heavy-heavy truck category do direct Allied purchases represent any sizable share of production—15%. This is due primarily to on-the-barrelhead sales to Canada.

Export share of combat and motor vehicles has been considerably larger than any other class of munitions, ships the smallest. Ordnance exports have fallen sharply from last year and, in proportion to production, are slightly lower for this year than ships. Ammunition, reversing this trend, takes a larger percentage of production than in 1943. Although in dollar value lend-lease munitions shipments have been increasing year after year, production has been going up even faster, and consequently the proportion has been declining. This explains why the 1944 share of total munitions exports, at 17%, is slightly below the two previous years:

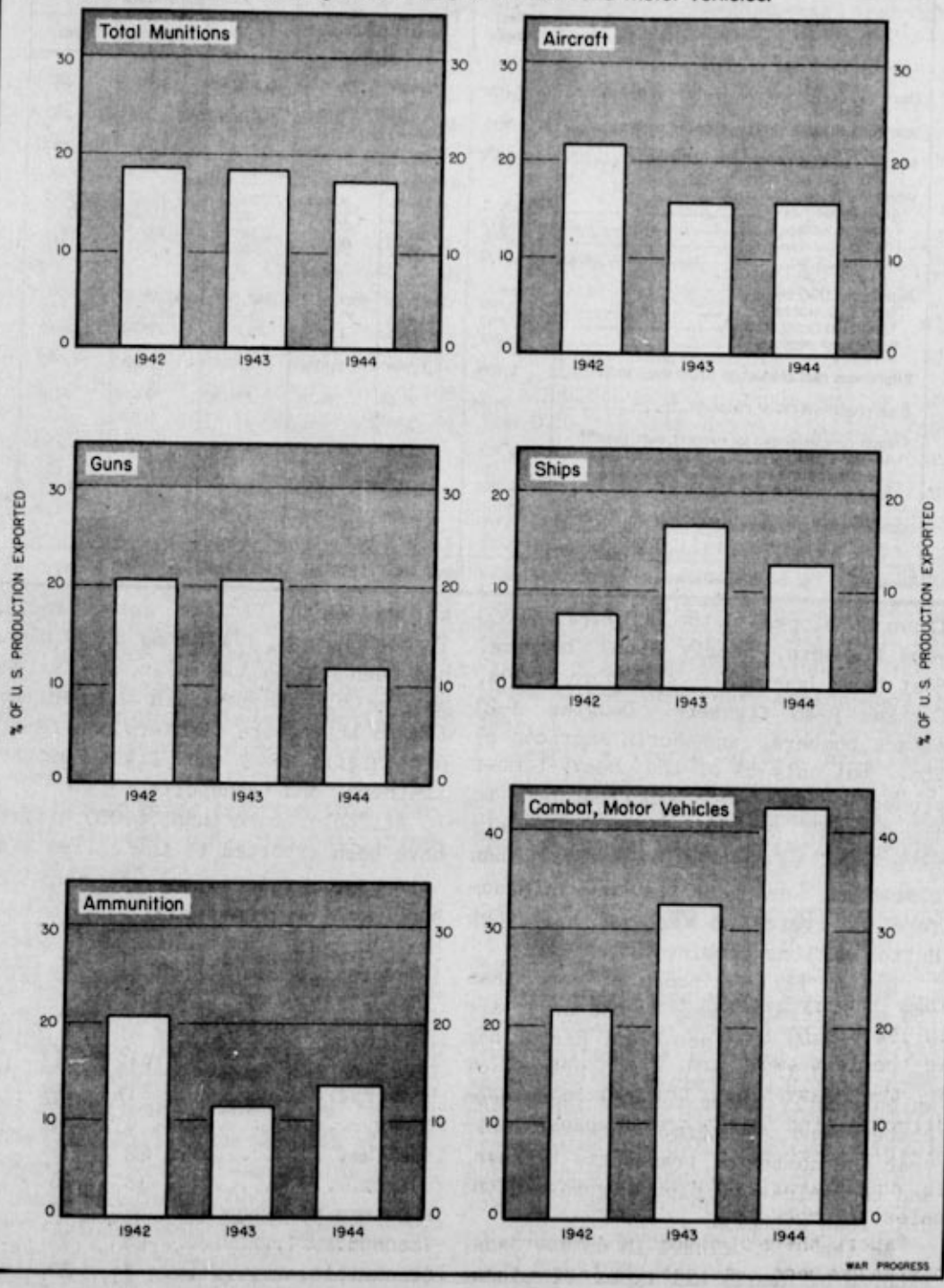
Exports	% of U.S. Output 1942	1943	1944
Total munitions**....	19%	18%	17%
Planes*.....	23	16	18
Ships**.....	8	16	13
Guns**.....	20	20	12
Ammunition**.....	21	11	14
Combat & motor veh.*	34	32	42

*By number. **By value.

In 1942, about one in every four planes was sent to the Allies. Last year this ratio dropped to one in six, rose this year to about one in five. Export emphasis has been on combat types —medium and light bombers and fighters. For example, of more than 11,000 planes

TO OUR ALLIES: 17% OF U.S. OUTPUT...

As against 18% in 1943 (when munitions production was lower than this year). Range is from 12% of guns to 43% of combat and motor vehicles.



KEY STATISTICS OF THE WEEK

	Latest Week	Previous Week	Month Ago	Same Week 1943	Same Week 1942	Same Week 1941
War Program - checks paid (millions of dollars)	1,659	1,594	1,778	1,731	1,420	327
War bond sales - E, F, G (millions of dollars)	235	152	132	163	166	45
Money in circulation (millions of dollars)	24,845	24,717	24,216	19,726	14,648	10,567
Wholesale prices (1926=100)						
All commodities	104.1	104.1	103.8	102.6	100.1	92.3
Farm products	124.5	124.4	122.8	121.2	110.9	90.7
Foods	104.9	104.9	103.9	105.6	103.3	89.6
All other	98.9	98.8	98.9	97.5	96.1	95.6
Petroleum (000 barrels)						
Total U.S. stocks*	426,886	427,715	427,912	426,723	455,005	489,506 f
Total East Coast stocks*	77,295	78,445	77,622	67,146	61,815	90,309
East Coast receipts**	1,722	1,703	1,568	1,704	1,140	n.a.
Bituminous coal production (000 short tons)**	1,958	1,992	1,979	1,910	2,020	2,083
Steel operations (% of capacity)	99.4f	96.0f	96.3f	97.0f	98.7f	97.0f
Freight cars unloaded for exports, excl. grain**						
Atlantic Coast ports	2,665	2,591	2,667	2,859	1,190	1,446
Gulf Coast ports	514	465	529	477	516	407
Pacific Coast ports	2,025	1,973	1,868	1,313	944	177
Department store sales (1935-39=100)†	n.a.	250	209	225	182	159

†Preliminary *Excludes military-owned stocks **Daily average ‡Unadjusted fEstimated n.a.Not Available

flown or shipped to the U.S.S.R., 7,300 were fighters, nearly 3,500 bombers. Most have been Bell Airacobra P-39s, Curtiss P-40 fighters, Douglas A-20 attack bombers, and North American B-25s. But only 5% of the heavy-bomber production has been exported, none to the Soviet. This year more big bombers have gone to the South Pacific than elsewhere. Last year the United Kingdom received twice as many as all other United Nations combined.

Though Britain produced more than 75% of aircraft used by the Royal Air Force, the U.S. since Pearl Harbor has sent the U.K. nearly 9,000 planes, of which nearly three-fourths have been bombers and fighters. However, this year the number of transport, trainer, and communication planes going to the U.K. rose steeply.

As the U.S. closed in on the Japs, exports of nearly all types of planes to the South Pacific rose steadily. Through August, 1944, some 5,300 planes had been sent to Australia, New Zealand, and the China-Burma-India theater. More than a third were fighters, the remainder chiefly heavy and light bombers, trainers, and transports.

All told, more than 36,000 aircraft have been exported to the Allies since this country entered the war, plus thousands sold or lend-leased prior to Pearl Harbor. Here's how plane exports compare in percentage of U.S. production by types:

Exports	% of U.S. Output 1942	1943	1944
Bombers	31%	16%	15%
Heavy	5	4	6
Medium	22	19	24
Light	33	25	22
Fighters & reconn.	38	23	16
Transports	23	10	18
Communication	3	10	17

Of more than 2,200,000 tanks, trucks, and other war vehicles produced in this country, approximately 775,000 have gone to the Allies. By far the largest share —315,000—has been sent to the Soviet; about half that number to the Pacific, with the U.K. share less than 100,000.

Within the combat and motor vehicle classification, exports varied widely. In light and medium trucks, the Allies took a little more than a fifth of U.S. production. Heavy-heavy truck exports, though taking only a little more than two-fifths of wartime output as a whole, this year accounted for 48%. Nearly a fourth of big-truck shipments has been to the U.K., and about a fifth to the Pacific. Less than 1,000 have gone to Russia.

WHERE THE TANKS GO

Approximately 30,000 tanks—47% of U.S. production—have been sent to the Allies. This year, however, nearly three of four tanks are being exported. U.K. is taking more than half of the output of light tanks and 38% of the medium tanks. Tank shipments to the Soviet and Pacific theaters have declined sharply.

Similarly, only a fifth of U.S. tractor output is being exported this year, chiefly to the U.K., against three-fourths in 1942.

More than 160,000 other military vehicles—armored cars, scout cars, personnel carriers, etc.—went to Russia; exports total 400,000, or about two-thirds of U.S. output.

On the other hand, the $2,640,000,000 worth of naval and merchant ships and small craft leased to the Allies (mostly to the British) is less than 14% of U.S. shipyard deliveries. Leased ships exceed 500 cargo vessels of 1,000 gross tons or over; include nearly 1,300 merchant and auxiliary craft under 1,000 gross tons, and over 1,400 naval vessels of all types. The latter are chiefly landing craft, PT boats, and other small craft, but include a few combat types, such as aircraft carrier escorts and corvettes. Under the Lend-Lease Appropriation Acts, these ships, leased for the duration of the war, remain U.S. property. Here's how they compare with U.S. production by type:

	% of U.S. Output		
Leased	1942	1943	1944
Combatant.....	4%	1%	1%
Naval auxiliary & small craft.....	9	72	43
Merchant.....	10	12	10

Since the Soviet depends heavily upon the U.S. for its light artillery, 62% of our output was exported last year, and 58% is going abroad to the Allies this year. British demand is primarily for medium artillery, the U.K. taking 41% of 1944 production. Of big guns (over 105mm.) only 8% is being exported, chiefly to the British. All told, 38% of U.S. artillery production is going to the Allies this year, against 53% in 1943.

Nearly a fourth of U.S. artillery-shell production has gone to the United Nations—chiefly light shells for the British—but this year's rate is only 19%.

REPORTS ON REPORTS

Shipbuilding

High separation rates and lower accession rates are the most serious problems confronting shipyard production, according to *Estimated Labor Requirements for the Shipbuilding Industry* (restricted; pp. 67). Employment in all shipyards must rise 3.5% over the August level by the end of the year in order to insure scheduled delivery of all naval and cargo vessels. But during the first six months of next year, employ-

SELECTED MONTHLY STATISTICS

Employment—Hours and Earnings

	Latest Month* P	Preceding Month	2 Months Ago	Same Month 1943	1942	1941	1939
NONAGRIC. EMPLOYMENT—TOTAL (thousands)	38,481	38,593	38,741	39,718	39,900	37,439	31,700
Manufacturing - Total	15,724	15,873	16,020	17,194	15,956	13,847	10,780
Durable goods	9,261	9,369	9,513	10,366	9,047	7,200	4,829
Nondurable goods	6,463	6,504	6,507	6,828	6,909	6,647	5,951
Mining	813	826	834	873	959	1,013	931
Trade	7,172	6,996	6,918	7,076	7,296	7,612	6,769
Government (Federal, State, and Local)	5,934	5,946	5,869	5,847	5,554	4,634	4,122
Other †	8,838	8,952	9,100	8,728	10,135	10,333	9,098
NUMBER OF WAGE EARNERS (thousands)							
All manufacturing	12,812	12,942 R	12,924	13,935	13,079	11,571	8,587
Durable	7,580	7,690	7,726	8,319	7,313	5,933	3,719
Nondurable	5,232	5,252 R	5,198	5,616	5,766	5,638	4,868
AVERAGE WEEKLY EARNINGS (dollars)							
All manufacturing industries	46.25	45.86 R	45.43	44.39	37.80	30.67	23.93
Durable goods	52.18	51.82 R	51.07	51.01	44.45	35.28	26.83
Nondurable goods	37.67	37.15 R	37.04	34.73	29.53	25.90	21.64
Bituminous coal mining	50.95	52.22 R	47.20	45.96	35.64	32.75	25.51
Metalliferous mining	44.75	44.99 R	43.46	44.76	39.16	34.04	27.60
AVERAGE HOURLY EARNINGS (cents)							
All manufacturing industries	103.1	101.6	101.8	99.3	89.2	74.8	62.8
Durable goods	113.1	111.1	111.7	109.7	99.7	83.2	69.7
Nondurable goods	87.6	86.5 R	86.2	82.3	74.3	65.4	57.4
Bituminous coal mining	121.6	119.0 R	119.9	116.8	106.5	103.4	89.6
Metalliferous mining	101.6	100.3	101.0	99.5	90.6	82.1	70.1
AVERAGE HOURS PER WEEK							
All manufacturing industries	44.9	45.2 R	44.6	44.7	42.4	41.0	38.1
Durable goods	46.1	46.7 R	45.7	46.5	44.6	42.4	38.5
Nondurable goods	43.0	43.0	43.0	42.2	39.7	39.6	37.7
Bituminous coal mining	42.0	44.0 R	39.5	39.4	33.5	31.5	28.5
Metalliferous mining	43.9	44.7 R	42.9	44.8	43.2	41.6	39.6

*Nonagricultural Employment, October; all other, September. P Preliminary. † Transportation, construction, finance, service and miscellaneous. R Revised.

ment will drop rapidly if current schedules are maintained.
(Department of Labor, Bureau of Labor Statistics)

The Tobacco Trade

Tobacco (confidential; pp. 25) reports that production of all types will rise 24% over last year's output, but civilian cigarette supplies will continue to be tight. Because of labor shortages, much of the leaf has begun to spoil before processing. Further, the volume of July leaf-tobacco imports dropped 40% below the previous month, while exports soared 51%.
(Department of Commerce, Bureau of Foreign and Domestic Commerce)

Woman's Angle

Housewives Report: C 41 (restricted; pp. 11) indicates that today less emphasis is being placed on price and quality. Instead, correspondents report more concern over scarcities of certain commodities, especially sugar, butter, meat, and clothing. Once again housewives request more complete rationing of meat as a means of insuring better distribution.
(Office of War Information, Bureau of Special Services)

[This record is an attempt to select from the many documents coming to the attention of WAR PROGRESS those studies which would be of most interest to readers. The list is by no means comprehensive, and no attempt has been made to evaluate reports for accuracy. Whether reports are available depends on the policy of each individual agency.]

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WAR PROGRESS

C. F.
War Production Board

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Behind the Boost in Small-Arms Ammunition—From Cradle to Sky With the Superbomber

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WAR PROGRESS

Prepared in the War Production Board

J. A. Krug, Chairman

War Progress is a confidential report designed to provide a coordinated and continuing picture of the overall war program for the various war agencies. To this end, it presents, analyzes, and interprets basic statistical and economic information, and from time to time examines the pros and cons of controversial questions.

Although War Progress is an official publication of the War Production Board, statements in it are not to be construed as expressing official attitudes of the Board as a whole, or even of individual members. Conclusions, whenever reached, should be considered editorial conclusions.

War Progress is prepared in the Bureau of Program and Statistics (Thomas C. Blaisdell, Jr., Director) by the Reports Division (Joseph A. Livingston, Director).

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Behind the Boost in Small Ammunition

Raising output 60% by mid-1945 means bringing standby facilities into operation, finding 60,000 workers. Program may compete with big shells for brass, powder.

SMALL-ARMS AMMUNITION—an easy program all this year—is again on the upsurge. The Army Service Forces is proposing to raise the current rate of production **from about $46,000,000 a month to at least $75,000,000 by next summer.**

The increase in rate of output is not a complete surprise. When the small-arms ammunition program was first reduced sharply late in 1943 and then again early in 1944, some boost in production was contemplated on a when-as-and-if basis—when, as, and if the two-front war continued into 1945. Toward that end, capacity had been kept in reserve.

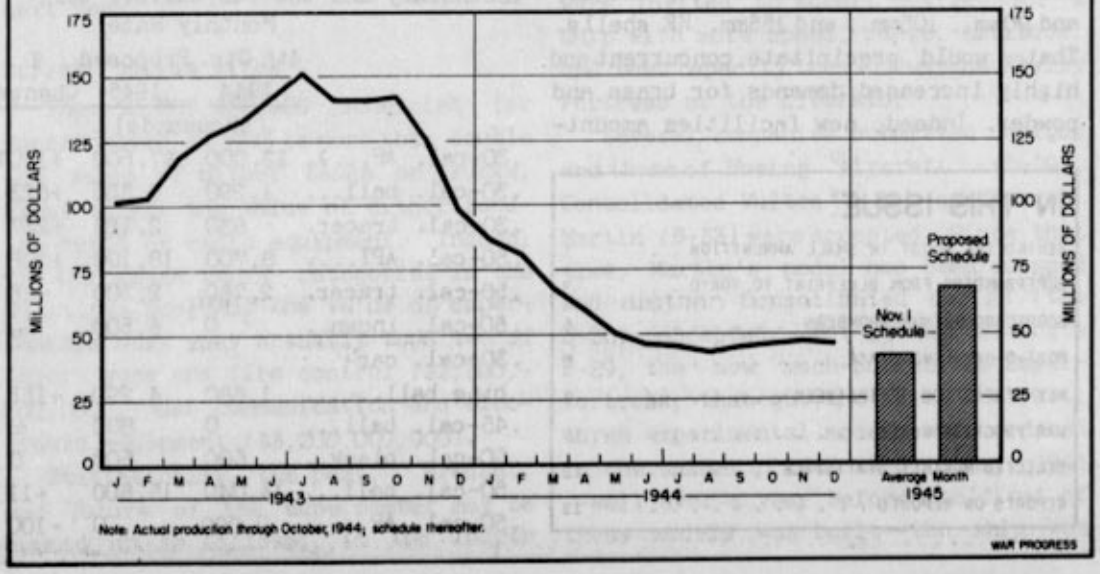
Now, with huge quantities of ammunition being shot up on all fronts, the great stockpiles which had been built up have been drawn down. So increased production has been ordered.

Production, even at this greatly increased level, will still be well under the peak reached by the middle of 1943, and by itself would be feasible —although the quick rate of expansion under consideration will be difficult to achieve.

Some increase in production can be expected almost immediately—as unutilized capacity in operating plants is brought in. However, some machinery has been completely dismantled and stored in grease, and the plants themselves are being used for storage and for manufacture and repair of other munitions. Hence a period of make-ready is neces-

SMALL-ARMS AMMUNITION SHIFT

What it means in terms of (a) current production, (b) future schedules.



sary. Getting machines back into operation and finding labor to operate them are the immediate tasks. This will mean putting the program on the Production Urgency List for labor referrals.

Officials believe that as many as 30,000 workers can be added by March and that many more by June, boosting the total to 115,600. Another recruitment drive will be necessary to get women back into the plants. Then it will take a couple of months more to finish training the workers and to iron out production bugs.

An additional 50,000,000 pounds of brass strip a month would be needed to meet the expanded program. This is not expected to be any problem unless the artillery ammunition program is also expanded.

Production of lead for the bullets would have to be stepped up some 3,000 tons per month. Lead is not a critical metal, though its supply and demand position is not what it was a year ago, and some curtailment of civilian uses may become necessary.

Competition is the main problem. The ASF is considering another sharp rise in output of artillery ammunition, particularly 60mm. and 81mm. mortar shells, and 90mm., 105mm., and 155mm. HE shells. That would precipitate concurrent and highly increased demands for brass and powder. Indeed, new facilities amounting to $600,000,000 would have to be constructed. These would require many more thousands of workers to build and operate them, thus increasing the pinch on manpower.

Should the Army decide to expand both programs, some revision in the projected small-arms ammunition program may be necessary for feasibility reasons. It is a matter of determining which program is the most urgent, or the extent to which both can be increased.

BULLET BOOSTS

As late as November 1, small-arms ammunition schedules for 1945 were slated to rise only 6% over the monthly rate for the last quarter of this year. Under the proposed revision, there are sharp increases in five types of bullets: the .30-caliber armor-piercing, the .30-caliber ball, the .30-caliber tracer, the carbine .30-caliber ball, and the .50-caliber armor-piercing incendiary. One type—the .50-caliber tracer—is cut back, and the .50-caliber armor-piercing goes out. Two cartridges, which aren't in current production and hadn't been planned for 1945, are returned to the program. These are the .50-caliber incendiary and the .45-caliber ball:

	Monthly Rate 4th Qtr. 1944	Proposed 1945	% Change
	(thousands)		
.30-cal. AP.....	$3,000	$7,500	+150%
.30-cal. ball...	1,290	9,330	+623
.30-cal. tracer.	630	2,120	+237
.50-cal. API....	8,700	18,100	+108
.50-cal. tracer.	2,760	2,300	-16
.50-cal. incen..	0	6,500	∞
.30-cal. carbine ball.....	1,680	4,290	+155
.45-cal. ball...	0	800	∞
.50-cal. blank..	600	600	0
.50-cal. ball...	14,040	15,600	+11
.50-cal. AP.....	9,000	0	-100

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Canada, which also has some standby facilities, will be able to give considerable help with the expanded program. Some assistance may also come from ammunition plants in liberated areas of France. U.S. procurement has been based on the assumption that this country would supply all of the French troops with bullets and shells. It was assumed that French plants would not be in a position to give any help. Now, it has been learned that they can. However, no inventory has yet been taken of the types or the volume they can produce. There is also the problem of mining and transporting coal to operate the plants.

Superbombers From Blueprint to Tokyo

Now in quantity production (1,000 delivered) and proving itself, the big bomber constitutes 12% of this year's aircraft, 28% of fourth-quarter '45 program.

IN DECEMBER, 1942, the Army Air Forces received three experimental models of the B-29 superbomber from Boeing, Seattle. It was a Christmas present whose value is only now becoming apparent.

Last month, the thousandth superbomber was delivered to the AAF: and this week it completed its 20th combat mission with a third assault on Tokyo (map, page 5). But the combat missions are only beginning, for the superbomber stacks up as the most important single item in the entire munitions program next year.

SUPERS' DOLLAR VALUE

The $3,700,000,000 scheduled for superbombers in 1945 is more than double the value of either tanks or trucks, about triple the value of either landing craft or radio equipment. Indeed, of the seven major categories in the munitions program, the value of superbombers next year actually tops two of them: guns and fire control ($2,300,000,000), and communication and electronic equipment ($3,200,000,000).

Statistically, the past, present, and future of the superbomber may be summed up as follows: In the fourth quarter a year ago the superbomber accounted for about 2% of the total value of aircraft; this year it will account for 12%; and next year it will run to 28% of the fourth-quarter total, or $1,450,000,000 out of $5,150,000,000. Aircraft, in turn, is accounting for about a third of all munitions.

IN 1940, A DRAWING

The story of the superbomber goes back to the early months of 1940, before the AAF knew precisely when, where, whom, or how it would fight—before the Flying Fortress was in quantity production, before the first experimental model of the Liberator was accepted. Builders of long-range bombing planes were invited to submit designs for a ship with more speed, range, altitude, and bomb capacity than either the Flying Fortress or the Liberator.

Several companies submitted designs and those of Boeing Aircraft (B-29), Consolidated Vultee (B-32), and Glenn L. Martin (B-33) were accepted. Since that time, Martin's model has been dropped and another Consolidated design (the B-36) accepted. But it was Boeing's B-29, the now much-publicized Superfortress, that got the first contract; three experimental models were ordered in the summer of 1940. And in May, 1941—well over a year before the first of these models was built—the ship was

ordered into quantity production. It was a radical step; it was a gamble. But the AAF took that gamble on two counts: (1) it was working against time; (2) it was convinced that the Boeing design was sound.

Hundreds of contractors and subcontractors were lined up for the job of producing and assembling upwards of 40,000 different parts.

SUBS GET GOING

Eight companies—Fisher, Goodyear, Hudson, DeSoto, Cessna, Libbey-Owens-Ford, Briggs Manufacturing, and Murray Corporation—undertook to produce major subassemblies such as wings, ailerons, elevators, rudders, fins, bomb doors, gun turrets, landing gear, nacelles, and plastic noses.

Frigidaire at Dayton, O., built an addition to produce the 4-bladed hydraulic dural 24F60 Hamilton propeller.

The facilities of eight General Electric plants were brought in to make the fire-control system.

Wright Aeronautical at Paterson, N.J., was expanded to turn out the 18-cylinder, 2,200hp R-3350BA engine; construction of the mammoth Dodge engine plant at Chicago ($180,000,000 and 5,800,000 square feet) was started; and, later on, tooling up for even more engines was begun at Wright's Lockland, O., plant.

PLANTS ARE STARTED

Construction of three new assembly plants, large enough to handle the 49,000 pounds of airframe—twice that of a Flying Fortress, got under way, and plans were made to convert a fourth (Martin, Omaha).

Boeing, Wichita, was the first such plant. Its initial superbomber—the first of some 700 B-29s already turned out at that plant—was accepted in July, 1943. By November, 1943, Bell's Atlanta plant was in the acceptance column. A month later, the Martin plant at Omaha joined the show. And early this year, Boeing's Renton plant—slated for the biggest production job of them all—began to come through (table, page 6).

B-29 vs. B-19

The Superfortress is not the biggest bomber ever built; Douglas' 4-engined B-19, accepted late in 1941, is a fourth again as big in airframe weight. But the B-19 was not suitable for combat; it was underpowered, was used chiefly as a flying laboratory for the development of other long-range heavy bombers. The Superfortress—with less weight and more horsepower—was the next step. It had the right combination of size and performance to fly higher, farther, faster, and carry a bigger bomb load than any other bombing plane in the world.

When the Superfortress climbs to its service ceiling of some 35,000 feet, enemy ground forces see it only as a silver speck trailing white vapor across the sky.

FASTER, FARTHER

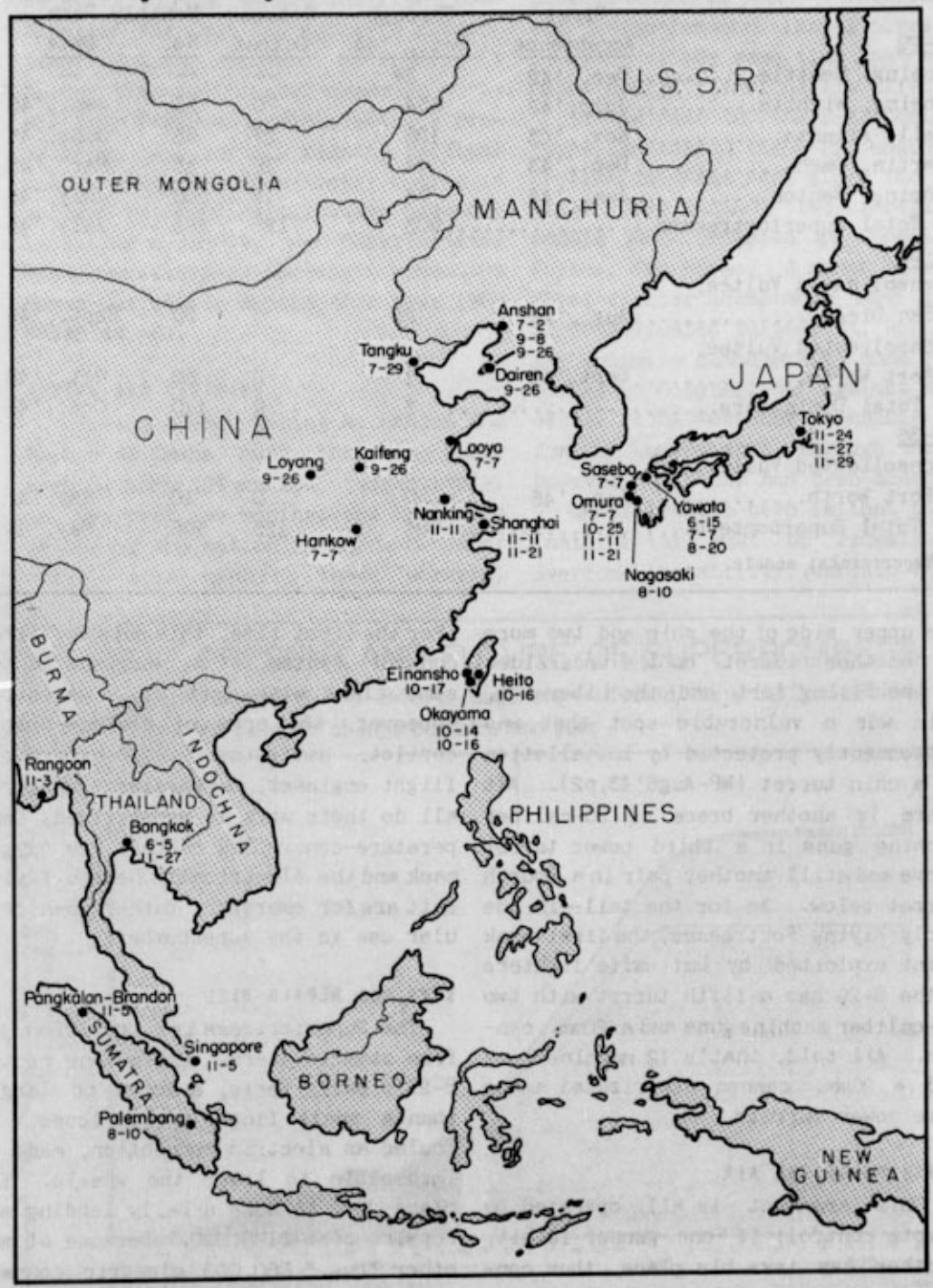
As against the 3,000-mile range of the Flying Fortress, the B-29 can execute missions twice as far and carry about double the weight of bombs (20,000 pounds versus 9,600 pounds) at a top speed of approximately 350 miles an hour, 35% better than the Flying Fort.

The B-29 has been designed to fight its way to and from the target without escort. Much of its armor and armament were developed as a direct result of battle experience. As crews reported weak spots in the Flying Fort and the Liberator, changes were made in these planes, then taken over as an integral part of superbomber design.

Up forward, there are four 50-caliber machine guns in a power turret on

THE B-29 SUPERFORTRESS OVER JAPAN

Here is the log of bombings since the first raid on Bangkok on June 5, 1944.



SCORECARD ON SUPERBOMBERS

B-29	Date of First Acceptance	Acceptances Through Oct., '44	October Output	Monthly Peak No.	Monthly Peak Date
Boeing, Seattle	Dec., '42	3*	—	—	—
Boeing, Wichita	July, '43	654	70	75	Jan., '45
Bell, Atlanta	Nov., '43	128	27	55	June, '45
Martin, Omaha	Dec., '43	44	16	55	Mar., '45
Boeing, Renton	Jan., '44	74	12	200	July, '45
Total Superfortresses		903	125	385	July, '45
B-32					
Consolidated Vultee, San Diego	Aug., '44	2*	0	50	Sept., '45
Consolidated Vultee, Fort Worth	Sept., '44	1	0	60	Oct., '45
Total Dominators		3	0	110	Oct., '45
B-36					
Consolidated Vultee, Fort Worth	Aug., '45	0	0	10	May, '46
Total Superbombers		906	125	505	May, '46

*Experimental models.

the upper side of the ship and two more in another turret on the underside. In the Flying Fort and the Liberator, this was a vulnerable spot that was subsequently protected by installation of a chin turret (WP-Aug6'43,p2). Aft there is another brace of 50-caliber machine guns in a third power turret above and still another pair in a fourth turret below. As for the tail—in the early Flying Fortresses, the first weak point exploited by Luftwaffe fighters—the B-29 has a fifth turret with two 50-caliber machine guns and a 20mm. cannon. All told, that's 12 machine guns and a 20mm. cannon distributed among five power turrets.

WARSHIPS OF THE AIR

This armament is all operated by remote control; if one gunner is hit, another can take his place, thus continuing the fire of all the ship's guns. (For the first time, this puts the fire-control system of a warplane in the same class with that of a warship.) Moreover, the crew of eleven—pilot, copilot, navigator, radio operator, flight engineer, bombardier, gunners—all do their work in pressurized, temperature-controlled cabins. The oxygen mask and the electrically heated flying suit are for emergency rather than regular use in the superbomber.

$175,000 REPAIR BILL

The Superfortress is a precision job from stem to stern. During one of the B-29's early tests, a screw no larger than a small finger worked loose. It fouled an electric connection, made it impossible to lower the wheels. The plane had to make a belly landing and repairs cost $175,000. Because of another "bug," 580,000 electric connections had to be resoldered.

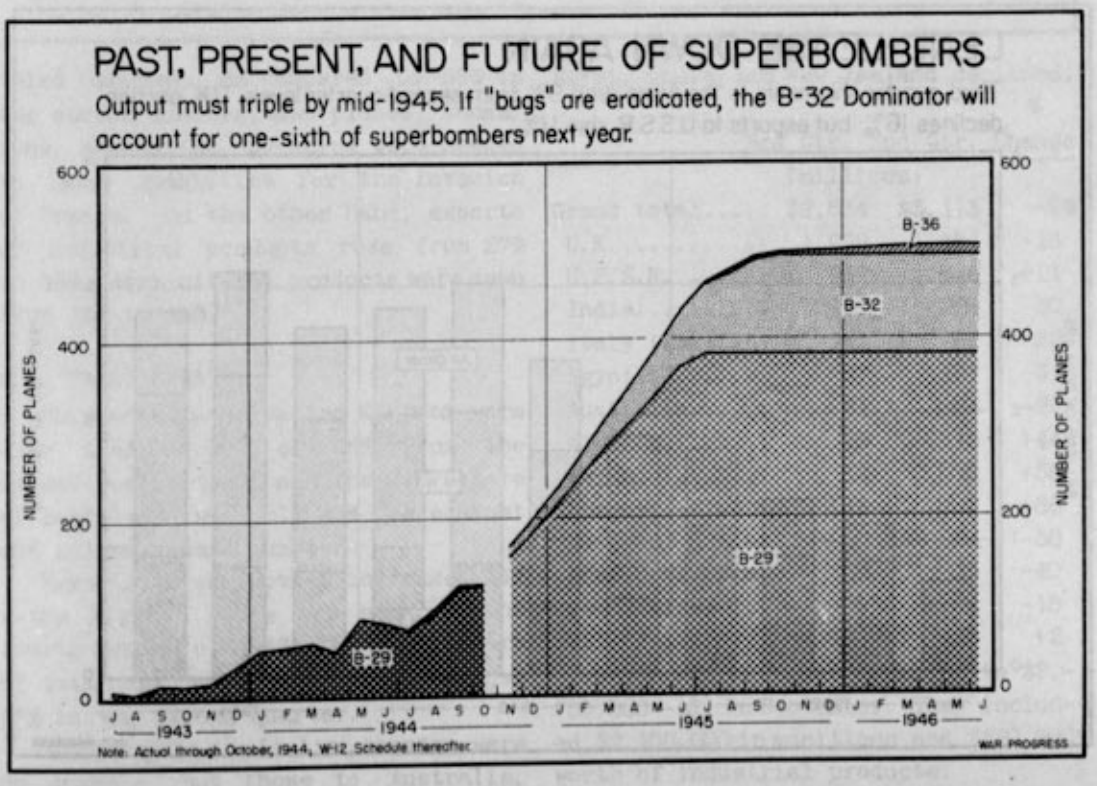
The Superfortress is now in quantity production, but its manufacturing problems are far from ended. Bell, Atlanta, is still trying to hit the right combination for fast and accurate production; Boeing, Renton, is finding it harder than anticipated to retrain workers from Fortress to Superfortress production; and for all plants, tactical design changes are constantly coming in and must be made directly on the assembly line. As a result, the Superfortress has missed first-of-the-month schedules seven out of ten months this year (WP-Nov18'44,p6).

RISING AND REVISING

Looking ahead, Boeing at Renton and Martin at Omaha must increase their working force 10% and 20%, respectively, in the next few months; and Renton is in one of the nation's tightest labor areas. After getting these workers, training them will be a job in itself. What's more, the superbomber engine is a potential choke point for all plants; present output is close to requirements, but production must rise 2½ times within a year at the same time that several major design revisions are effected.

In the case of the B-32 Dominator, companion ship of the B-29, engineering problems have hit hard since the beginning. Last August, two experimental models were accepted at Consolidated Vultee, San Diego. A month later, the first regular acceptance came through at Consolidated Vultee, Ft. Worth, but the schedule stood at six; none was accepted in October, as against a slate of 10. (The November schedule called for 14 Dominators; through the 29th, however, only one had been accepted.)

Chief trouble here is that the Dominator's tail must be redesigned to overcome instability; and each redesign



seems to bring on other engineering difficulties. Until these are licked, tooling up for quantity production won't be realized.

As for the third and largest superbomber currently in the program—Consolidated Vultee's 6-engined B-36—it's still in the experimental stage; first acceptance is approximately a year off.

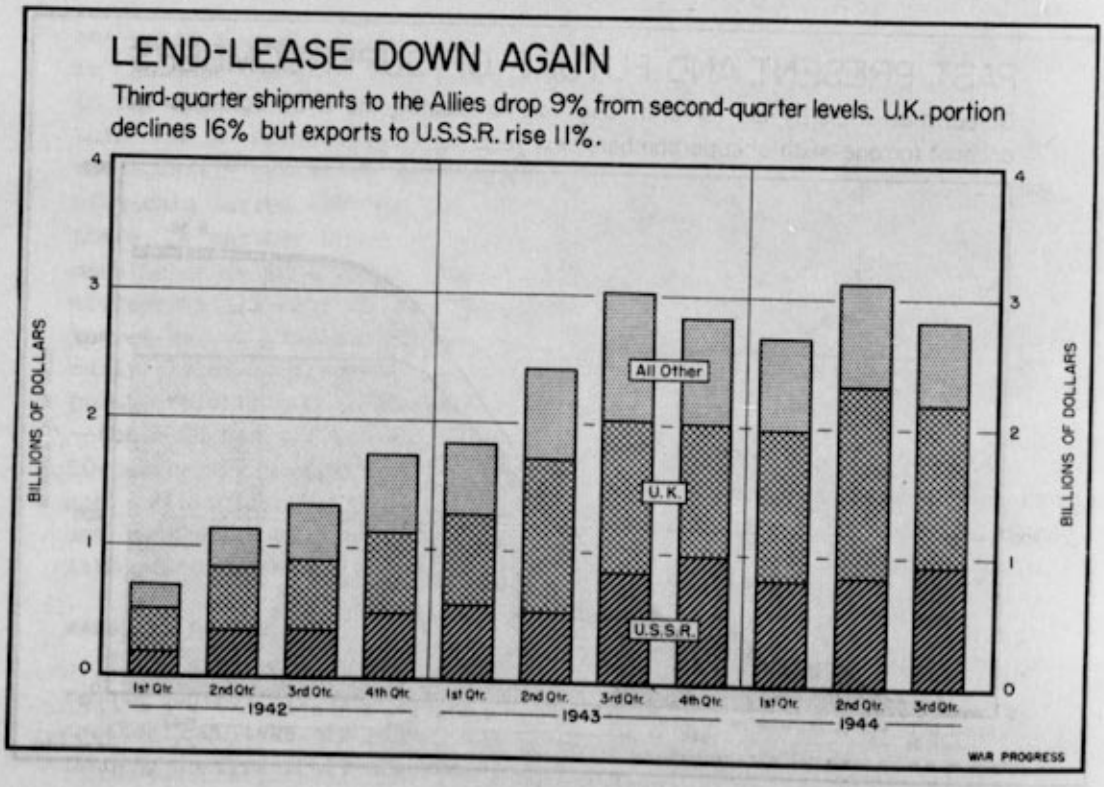
However, as superbomber schedules now stand, monthly output of 125 in October must more than double by February, then almost double again to reach the currently scheduled peak of 505 Superfortresses, Dominators, and B-36s in May, 1946 (chart, page 7). To attain that peak, the Superfortress, alone, must get up to 385 planes a month, or three-quarters of the superbomber total. And if the Dominator doesn't come through, the Superfortress—or some other ship—may be needed to fill in the strategic production gap.

Post-D-Day Lend-Lease

Shipments are down 9% from second quarter's invasion high, but top first quarter by 6%. Munitions, food drop; industrial products rise. U.K. share down 16%.

THIRD-QUARTER lend-lease shipments, at $2,834,000,000, were down 9% from the second quarter, when preparations for D Day sent exports to an all-time high of $3,113,000,000. However, the third-quarter total was still 6% higher than the first quarter. And shipments of lend-lease goods to the Allies this year will exceed the $10,000,000,000 figure for last year. Shipments for the first nine months of 1944 amount to $8,630,000,000. This is a quarterly rate of $2,880,000,000, as against $2,500,000,000 a quarter in 1943.

Munitions shipments accounted for only 52% of the lend-lease total in the



KEY STATISTICS OF THE WEEK

	Latest Week	Previous Week	Month Ago	Same Week		
				1943	1942	1941
War Program-checks paid (millions of dollars)	1,838	1,659	1,717	1,392	1,139	352
War bond sales-E,F,G (millions of dollars)	235	235	231	189	182	48
Money in circulation (millions of dollars)	24,997	24,881	24,409	19,940	14,848	10,717
Wholesale prices (1926=100)						
All commodities	104.1[P]	104.1	103.9	102.6	100.1	92.2
Farm products	124.1[P]	124.5	123.5	121.2	110.8	90.3
Foods	105.0	104.9	104.1	105.8	103.6	89.5
All other	98.9[P]	98.9	98.8	97.5	96.1	93.6
Petroleum (000 barrels)						
Total U.S. stocks*	425,627	426,886	426,836	428,791	450,566	489,988 [E]
Total East Coast stocks*	75,700	77,293	78,358	67,525	60,954	98,508
East Coast receipts**	1,690	1,722	1,930	1,704	1,068	N.A.
Bituminous coal production (000 short tons)**	2,030	1,945	1,967	2,117	1,964	1,732
Steel operations (% of capacity)	96.3%	95.4%	94.9%	99.1%	98.3%	95.9%
Freight cars unloaded for exports, excl. grain**						
Atlantic Coast ports	2,688	2,665	2,929	2,579	924	1,570
Gulf Coast ports	512	514	529	366	239	460
Pacific Coast ports	1,938	2,025	1,895	1,216	962	193
Department store sales (1935-39=100)[†]	N.A.	251	207	201	176	176

[P]Preliminary *Excludes military-owned stocks **Daily average [†]Unadjusted [E]Estimated N.A. Not Available

third quarter, as compared to 58% in the second quarter, when planes, tanks, guns, ammunition, and ships were needed in large quantities for the invasion of France. On the other hand, exports of industrial products rose from 27% to 33%; agricultural products were down from 16% to 15%.

U.K. TAKES LESS

Shipments to the United Kingdom were down $243,000,000, or 16%, from the second-quarter peak, and the U.K. share of lend-lease was only 43%, as against 48% in the second quarter.

Exports to the Soviet increased 11%—the highest since the peak in the fourth quarter of 1943. The Soviet share of total shipments was 33%, as against 27% in the second quarter.

Shipments to the Italian theater were up sharply, but those to Australia, Egypt, India, and New Zealand declined:

	3rd Qtr.	2nd Qtr.	% Change
	(millions)		
Grand total	$2,834	$3,113	-9%
U.K.	1,238	1,481	-16
U.S.S.R.	939	846	+11
India	159	228	-30
Italy (British)	141	87	+62
Egypt	87	177	-51
Australia	61	84	-27
Algeria	23	16	+44
China	14	9	+56
Brazil	13	7	+86
Union of S.A.	10	24	-58
French Morocco	9	15	-40
New Zealand	9	11	-18
All others	131	128	+2

Shipments to France amounted to $2,700,000—all in September. They included $2,100,000 in munitions and $620,000 worth of industrial products.

War Progress Notes

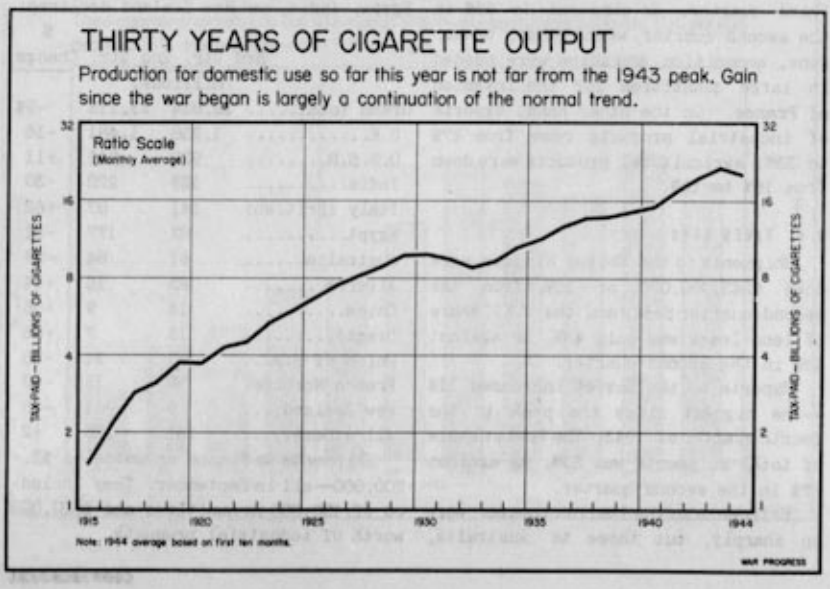
NO CLUE TO THE QUEUES

PRODUCTION is no clue to the current queues before cigarette counters. Output of cigarettes in 1944 will run to nearly 330,000,000,000—an all-time high—20,000,000,000 more than in 1943 and 140,000,000,000, or 75%, more than in 1940. True, the armed forces are receiving slightly more than one-fourth of this year's production. Yet the number of cigarettes remaining in this country is not far below peak output.

Through October, according to tax-paid withdrawals, 200,000,000,000 cigarettes were produced for civilians and the armed forces in this country, as against 210,000,000,000 in the first 10 months of 1943, or 5% fewer. The recent trend has been slightly downward: October output was 2% below the average month in 1944, but 31% ahead of the average month in 1940.

Cigarette dealers ought to be getting more than 90% of their 1943 supply. But in many cases they aren't. Somewhere in the pipeline between the manufacturer and the ultimate consumer, cigarettes are being delayed, diverted from normal channels, or distributed badly. Thus certain areas located around Army camps which have subsequently moved are getting more than their needs. In addition, domestic Army post exchanges—which receive some 10% of the tax-paid supply—have been getting approximately their normal needs. This means that the decline in production has largely been absorbed by the civilian population. Furthermore, some evidence of black markets exists. And because of the close balance between supply and demand, minor disruptions cause major local difficulties.

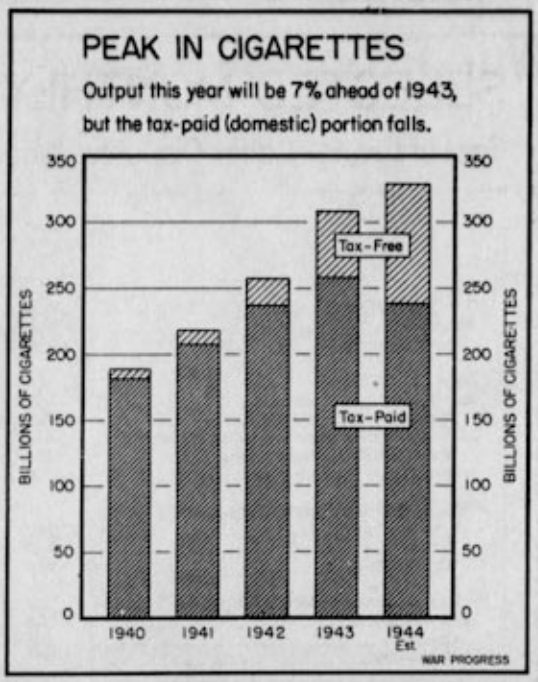
In the Washington area, for example, dealers are estimated to be getting only 78% of last year's receipts. In



terms of specific brands, the picture is far worse. Thus one large chain reports that it is getting only 50% of last year's receipts of Camels and 56% of Philip Morrises. That means consumers are being forced to change brands, which tends to increase panic buying.

Cigarette smoking has probably increased somewhat because of the war, but more important is the normal increase—youngsters coming of smoking age, more women smoking, etc. A glance at the chart on page 10 shows that the rate of increase during the war has been only slightly higher than the peacetime rate of growth. The only years to show a decline were 1931 and 1932, the depression years; in those years, sale of "roll-your-own" smoking tobacco increased sharply, as it has in the past month.

Parenthetically, although shipments to the armed forces abroad will be up from 51,100,000,000 last year to 91,800,000,000 this year, the number of men abroad increased in about the same proportion. In other words, there has been no increase per soldier or sailor.



TURNOVER TROUBLE

HENRY KAISER recently dramatized the problem faced by his shipyards on the Pacific Coast. He reported that his Richmond, Calif., shipyard lost 26,000 workers from August through October.

However, this loss was 99% made up by rehires. Moreover, it was a little less than the average rate of separation there since January, 1943, which has run to 13.5% of the workers per month—equivalent to a complete replacement of the labor force every seven and one-half months.

Hence the problem appears to be the old, familiar one of high labor turnover. The West Coast, with its preponderence of new industry, has suffered a labor turnover 20% above that of the nation as a whole, but in all parts of the country where labor has been drawn from a distance the same difficulty has been faced. After recouping their transportation expenses, workers find other employment in their new surroundings, seeking higher wages, better conditions, or work more in line with their previous skills. And in some cases—though there is no tangible evidence of this—they may quit to find permanent peacetime jobs. Thus a single plant with a large labor demand will often serve as an importer of labor for the entire area. Indeed, Kaiser has taken the lead as an importer.

Though the Kaiser statement points up the problems, it does not indicate a new trend. There has been no appreciable increase in the volume of labor turnover during recent months. As in the past, the "flight" of workers from shipyards and other war jobs appears to be away from the war jobs that they do not like, away from rigorous and unfamiliar work in areas where inadequate housing, transportation and other public facilities make life a burden.

SELECTED MONTHLY STATISTICS

Cost of Living - Labor Disputes - Wage Earners - Production - Transportation

	Latest Month*	Preceding Month	2 Months Ago	Same Month 1943	1942	1941	1939
COST OF LIVING-ALL ITEMS (1935-39=100) †	126.4	126.5	126.4	124.4	119.0	109.3	100.3
Foods	136.4	137.0	137.7	138.2	129.6	111.6	97.6
Other than foods	121.2	121.1	120.6	117.0	113.3	108.2	101.7
LABOR DISPUTES							
Number of strikes in progress	490	445	550	320	269	664	356
Workers involved (thousands)	225	205	225	264	67	348	140
Number of strikes beginning during month	440	390	485	287	207	432	205
Workers involved (thousands)	220	185	190	121	62	198	107
Man-days idle (thousands)	690	660	935	1,012	244	1,985	1,508
NUMBER OF WAGE EARNERS (thousands)							
All manufacturing	12,660	12,802 r	12,942	13,965	13,166	11,616	8,854
Durable	7,460	7,570 r	7,690	8,389	7,464	6,035	3,967
Nondurable	5,200	5,232	5,252	5,576	5,702	5,581	4,887
PRODUCTION INDEX-INDUSTRIAL (1935-39=100) †							
Total manufactures	232	234 r	235	249	218	176	127
Durable	248	250	251	269	233	185	127
Nondurable	343	345 r	349	375	312	221	133
Minerals	171	173 r	171	183	168	152	121
	145	146	147	140	134	139	128
PRODUCTION OF CLOTHING AND SHOES FOR CIVILIANS (1935-39=100) †							
Clothing and shoes combined	99	102 r	95	103	105	131	116
Clothing	101	106 r	98	105	107	130	117
Shoes	91	84 r	84	94	96	127	114
TRANSPORTATION-COMMODITY AND PASSENGER (1935-39=100) †	223	231 r	226	226	204	159	137
Commodity	212	215 r	207	213	194	164	127
Passenger	260	286 r	287	269	207	132	108

* Cost of Living, Labor Disputes, Wage Earners, Production Index, October; all other, September. r Preliminary. r Revised. † Unadjusted.

REPORTS ON REPORTS

Paper Production

Requirements for paper and paper products reached a wartime high in October, are expected to increase in November. And production for the first nine months of 1944 has been slightly above the comparable period in 1943. *Pulp and Paper: November* (unclassified; pp. 32) states that maintenance of the current level of production depends on manpower, trucks, tires, and the flow of materials. (Department of Commerce, Bureau of Foreign and Domestic Commerce)

Not for House Cleaning

Vacuum cleaner companies reached a peak in war activity during the third quarter of this year; shipments, which totaled $20,900,000, rose 5% over the previous quarter, according to *Operations of the Domestic Vacuum Cleaner Industry During the Third Quarter 1944* (confidential; pp. 2). Electric motors and related control equipment were the chief products manufactured—most of them for use in aircraft—but ammunition made up more than one-fifth of third-quarter production. (War Production Board, Bureau of Program and Statistics)

[This record is an attempt to select from the many documents coming to the attention of WAR PROGRESS those studies which would be of most interest to readers. The list is by no means comprehensive, and no attempt has been made to evaluate reports for accuracy. Whether reports are available depends on the policy of each individual agency.]

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C. F.
War Production Board

Time Turns Back in Service Industries

Big Ammunition on Top of Small

The Explosive Rise in H_2SO_4

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December 9, 1944

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WAR PROGRESS

Prepared in the War Production Board

J. A. Krug, Chairman

War Progress is a confidential report designed to provide a coordinated and continuing picture of the overall war program for the various war agencies. To this end, it presents, analyzes, and interprets basic statistical and economic information, and from time to time examines the pros and cons of controversial questions.

Although War Progress is an official publication of the War Production Board, statements in it are not to be construed as expressing official attitudes of the Board as a whole, or even of individual members. Conclusions, whenever reached, should be considered editorial conclusions.

War Progress is prepared in the Bureau of Program and Statistics (Thomas C. Blaisdell, Jr., Director) by the Reports Division (Joseph A. Livingston, Director).

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Time Turns Back in Service Industries

Employment, virtually unchanged since 1940, is back to 1870 level in relation to number of factory workers. Quality suffers as experienced help leave for war jobs.

BACK IN 1940, for every worker employed in a U.S. factory, there were two employed in the service industries—barbers, retailers, shipping clerks, bus drivers, radio repair mechanics, bank tellers, waitresses, servants.

But four years of war have set the clock back 70 years. Instead of one in the factory for two in trade, transportation, and the services, the ratio has changed to 1 to 1.3, or what it was in 1870 (chart, page 4). That was when mother cut dad's hair and did the laundry as a matter of course, when dry cleaners and grocery deliveries were rarities, when people stayed at home most of the time, had no telephones, and dad was the handy man around the house, and when the garage mechanic was a blacksmith.

TIME FLIES—BACKWARD

This backshift of 70 years in four is dramatic but unsurprising. Under the pressure of war demands, manufacturing has expanded and with it manufacturing employment. In 1940, some 10,000,000 persons worked in factories, today some 17,000,000. At the same time, employment in the service industries has remained virtually unchanged—21,000,000 persons in 1940 and 21,500,000 in 1944 (chart, page 5).

That explains why laundry service isn't what it used to be, why garages will take cars "on appointment only," why deliveries have been cut out. There are more workers requiring service—more men and more women in factories—than at any time in history; but the number of persons serving them has not increased proportionately. If the quality of service workers is taken into account, there has been a decrease, as we shall see later. The main point is that factory work pays well; that as war industries boomed they drew off workers from the service industries. The retail clerk became a welder, the bus driver an airplane mechanic, the electrician an employee in a radar plant.

ESSENTIALS IN WAR

War-essential services have suffered the least from this drain. Thus, transportation, communication, and utilities have gained close to 1,000,000 workers—or 25%. Wholesale and retail trade, on the other hand, has gained very little (250,000 workers, 3%), and personal, professional, and miscellaneous services scarcely at all (70,000 workers, less than 1%).

The strain—the shortage of service workers—is part and parcel of everyday life. For example, there are 30,000 fewer restaurants in the country than in 1939 to handle a business that has doubled during the same period. Families that formerly ate at home eat out, now that Mrs. Jones is working in a war plant. Many of the restaurants that have managed to stay in business run at only one-half to three-quarters of capacity, and they have little chance of obtaining additional help unless they are designated as "locally needed" by manpower authorities. Hotels are gen-

erally understaffed, many by as much as one-third.

Similarly with repair services. The number of expert refrigerator repairmen in the country has dropped from 20,000 to 6,000 while wartime demands for their services have risen sharply. Electric motors stand in rows on repair-shop shelves for want of someone who can overhaul or rewind them. WPB's Office of Civilian Requirements estimates that at least 40,000 repairmen could start work tomorrow on electrical apparatus alone—motors, refrigerators, radios, and miscellaneous appliances. Thousands of radio-trained veterans could step directly into radio repair shops.

There are some 600,000 fewer domestic servants in the country than in 1940, at a time when the demand for them is practically unlimited. Laundry workers were recently so severely needed on the West Coast that aircraft companies ran full-page advertisements in the newspapers urging them not to leave their jobs to go to work in war plants. In short, there is a huge unsatisfied demand for service workers.

WHAT'S AHEAD

But will this demand carry over into the post-V-E Day period when munitions manufacture is sharply cut? Will it play an important part in providing reemployment for discharged war workers and returning servicemen who might otherwise be jobless?

Two points stand out:

1. Service employment has been held down artificially by manpower controls and abnormal wage differentials, resulting in a huge service "deficit" throughout the country.

2. Service employment has not actually remained level in effectiveness but has fallen off qualitatively, and it would soon fall quantitatively as well if replacements were not obtained, because it includes a large proportion of workers not normally in the labor market who will drop out in the immediate postwar period.

GONE BUT NOT FORGOTTEN

The service deficit—the gap between demand and supply—is now so large that it seems unlikely to evaporate before the defeat of Japan, even with a considerable drop in manufacturing activity. People want improvement in all services; they want less waiting at the dry cleaner's and the dentist's, more comfortable traveling and shopping, cleaner laundry and cleaner streets, and someone to mow their lawns and deliver their groceries. And competition will operate to see that they get these things. As soon as one restaurant hires an extra counterman, or one store starts delivering groceries, all competing restaurants and stores will feel the need to follow suit. Their customers have been going without service, just as they have been going without goods; but they have not forgotten that they want it, and the defeat of Germany will have the psychological effect of intensifying this want.

Second, in actuality the effective worker force of the service industries has fallen sharply during the war years.

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SERVICE HELP WANTED EVERYWHERE

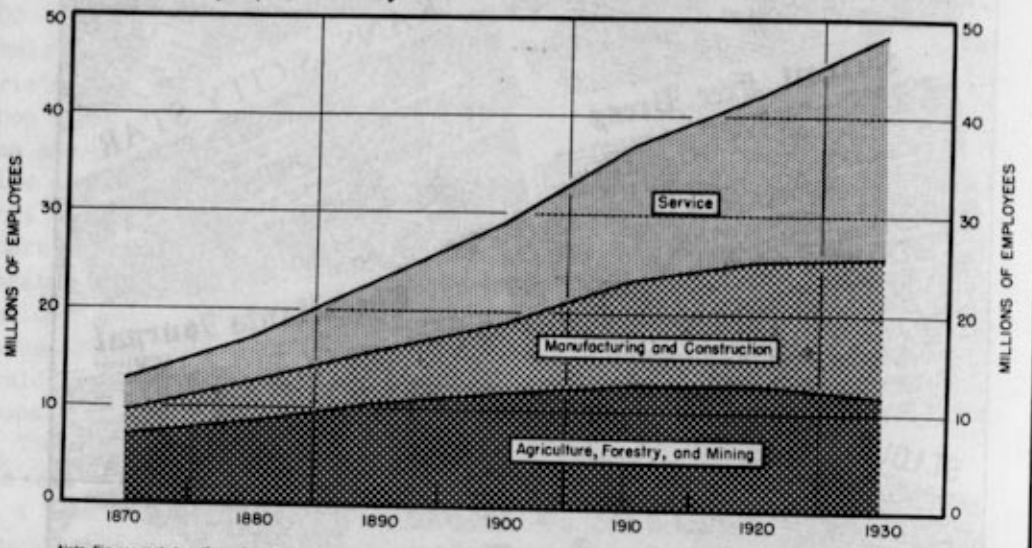
From coast to coast, the demand is for cooks, barbers, clerks, butchers, repairmen.



WAR PROGRESS

EMPLOYMENT THROUGH THE YEARS

Back in 1870, service industries comprised one-fourth of all employment. By 1930, the ratio had jumped to nearly half.



Note: Figures include self-employed persons; service workers include transportation and public utilities, finance, domestic employees, trade and miscellaneous services.

WAR PROGRESS

The statistical fact shown in the chart on page 5—that volume of employment has remained nearly level—is entirely misleading. Millions of workers have left the service industries to go into war work, manufacturing, and the armed forces. Generally speaking, these departing workers have been the strongest, the most competent, the best trained. Industry, as well as the Army, has selected workers for their physical qualifications. Women service workers "of medium stature and robust build" have been specified by manpower officials as particularly desirable welding trainees. And of course industry has made use of skills and aptitudes wherever they were available. The 14,000 missing refrigerator repairmen are symptomatic of what has happened to the service industries' supply of trained workers.

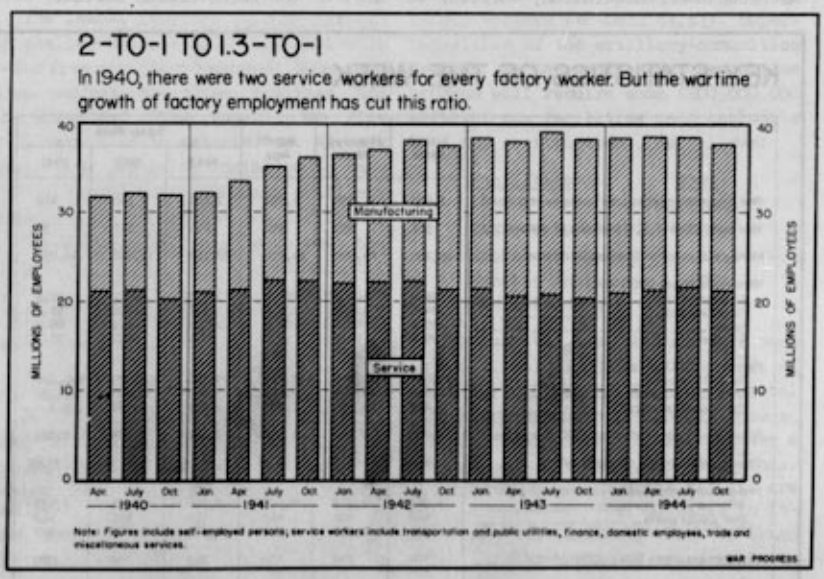
Not only are the millions of replacements recruited by the service industries generally inferior in strength, capability, and training to the departed personnel, but large proportions of them are part-time and emergency workers not normally in the labor force: the very young, the very old, the people holding jobs for the duration only, the "floaters," and the nearly unemployable. Restaurants and stores are hiring women of 65 and 70 years of age. Although statistics show hotel employment to be up 10% over 1940, officials of the American Hotel Association state that the hotel labor force today is not comparable in effectiveness to that of four years ago.

UPGRADING TO COME

As the war effort slackens, increasing numbers of these replacement workers will drop out, and many others will be forced out as soon as better types of

labor become available. If a returning veteran takes the factory job of a robust waitress who learned welding for the duration, she is apt to go back to work in the restaurant, where she, in turn, may displace an elderly lady who has been working there during her absence. The elderly lady may return to the household where she had been in domestic service, and there displace some temporary worker who will drop back into the ranks of the unemployed or unemployable. This filtering-down of workers through the service industries will be typical of the period when the war effort is slackening. All of the service industries, without exception, will tend to improve the quality of their labor forces after V-E Day, and thus even those that may not increase their volume of employment (transportation and retail trade, perhaps) will provide job opportunities for war workers and returning veterans.

As a matter of fact, a recent newspaper survey shows that service employers all over the country are genuinely worried about whether they are going to be able to get the additional help they need within the next year or so. Thus far, it appears that they are not benefiting much from the reduction of the manufacturing labor force. Between September, 1943, and September, 1944, manufacturing lost 1,000,000 men and 300,000 women, but during the same period the armed services took 1,900,000 men and 100,000 women. During this same period the service industries have made their only significant employment gain of the war years, 175,000 men and 825,000 women, but it is evident that only a small fraction of this gain can be attributed to the release of workers



from manufacturing. Most of it is the result of urgent recruiting among housewives, school children, and the unemployed.

WAGE DIFFERENTIAL

Compared to factory wages, now averaging $46.28 per week, service wages are low—$31.37 in cleaning and dyeing establishments, $27.20 in laundries, $24.00 for skilled telephone operators. Returning veterans have shown little inclination to go into the service field except as proprietors of small businesses. Of course, if V-E Day reduces wages in manufacturing plants by the elimination of overtime, incentive payments, etc., wages in service will become relatively more attractive, and the situation may ease somewhat. Many handicapped veterans will find their most suitable work in service. The American Hotel Association, striving to increase employment by 10%-15% has listed over 150 hotel jobs that handicapped veterans can fill.

All in all then, it seems likely that the service industries will cushion the employment drop when war production schedules fall off—say after the defeat of Germany.

RECONVERSION CUSHION

But it is impossible to go farther and predict the employment demand for service workers after the fall of Japan. That will depend upon the general level of employment and economic activity. Primarily there will be a snap-back to the 1940 relationship of two service workers to one in manufacturing. But whatever the immediate postwar conditions may be, the large potential labor demand of the service industries is certain to reduce the temporary unemployment of the reconversion period.

KEY STATISTICS OF THE WEEK

	Latest Week	Previous Week	Month Ago	Same Week 1943	Same Week 1942	Same Week 1941
War Program-checks paid (millions of dollars)	1,680	1,858	1,822	1,802	1,548	410
War bond sales-E, F, G (millions of dollars)	561	255	142	211	211	59
Money in circulation (millions of dollars)	25,107	24,997	24,674	20,155	14,986	10,834
Wholesale prices (1926=100)						
All commodities	104.2[P]	104.1	104.1	102.8	100.1	92.3
Farm products	124.6[P]	124.1	124.4	121.8	110.6	91.1
Foods	105.1	105.0	104.9	105.6	103.3	89.2
All other	99.0[P]	98.9	98.8	97.6	96.1	95.7
Petroleum (1000 barrels)						
Total U.S. stocks*	425,003	425,627	427,713	429,528	450,979	490,680[r]
Total East Coast stocks*	74,518	76,283	78,443	66,840	59,896	97,192
East Coast receipts**	1,878	1,690	1,705	1,412	1,165	N.A.
Bituminous coal production (1000 short tons)**	2,000	2,050	1,992	2,147	2,184	2,016
Steel operations (% of capacity)	96.0%	96.5%	96.0%	99.5%	98.5%	97.6%
Freight cars unloaded for exports, excl grain**						
Atlantic Coast ports	3,064	2,688	2,591	2,922	1,144	1,451
Gulf Coast ports	469	512	463	595	451	418
Pacific Coast ports	1,924	1,958	1,975	1,311	1,021	207
Department store sales (1935-39=100)[†]	304	256	250	269	250	225

[P] Preliminary *Excludes military-owned stocks [r] Estimated **Daily Average NA Not Available [†] Unadjusted

Another Big Ammunition Order

Increase in 17 types of shells for big weapons will amount to two-thirds of artillery ammunition program by September— a gain of 245% over present production.

ANOTHER INCREASE in artillery-ammunition output in 1945 is being planned by the Army Service Forces concurrently with the projected boost in small-arms ammunition. Back in March, the 1945 artillery-ammunition program called for $2,500,000,000. Then came the big boost in heavy-artillery ammunition, and by November 1 the program had jumped to $3,350,000,000. Now it is up to $3,700,000,000. At the peak rate—scheduled for late 1945—production will run at an annual rate of $4,400,000,000. Currently, production is at an annual rate of $2,200,000,000.

The latest increase is concentrated in shells—particularly high-explosive—for five artillery weapons: 60mm. and 81mm. mortars, the 105mm. howitzer, and the 90mm. and 155mm. guns. The rise will take time to materialize. Already facilities are being installed to take care of recent boosts in heavy artillery ammunition (over 105mm.). Now additional facilities will be required to meet the latest increases. It will take until May to complete them. Then production will take a spurt until September, thereafter leveling off (chart, page 8).

FIVE GUNS, 17 SHELLS

In all, 17 types of high-explosive, armor-piercing, illuminating, and smoke shells fired by the five guns are affected. Peak production of these shells had been scheduled at $165,000,000 in May, 1945—a rise of 144% over the current rate of output. The plan is to carry the schedule up to $233,600,000 in September—a gain of 245% over present production. Then they will constitute two-thirds of the artillery-ammunition program, as against one-third today.

Reasons for increased production are: (1) enormous quantities of all kinds of ammunition are being shot up on all fronts, (2) the war in Europe is lasting longer than previously anticipated, and (3) the war against Japan will require more than had been expected.

COMEBACK FOR STANDBYS

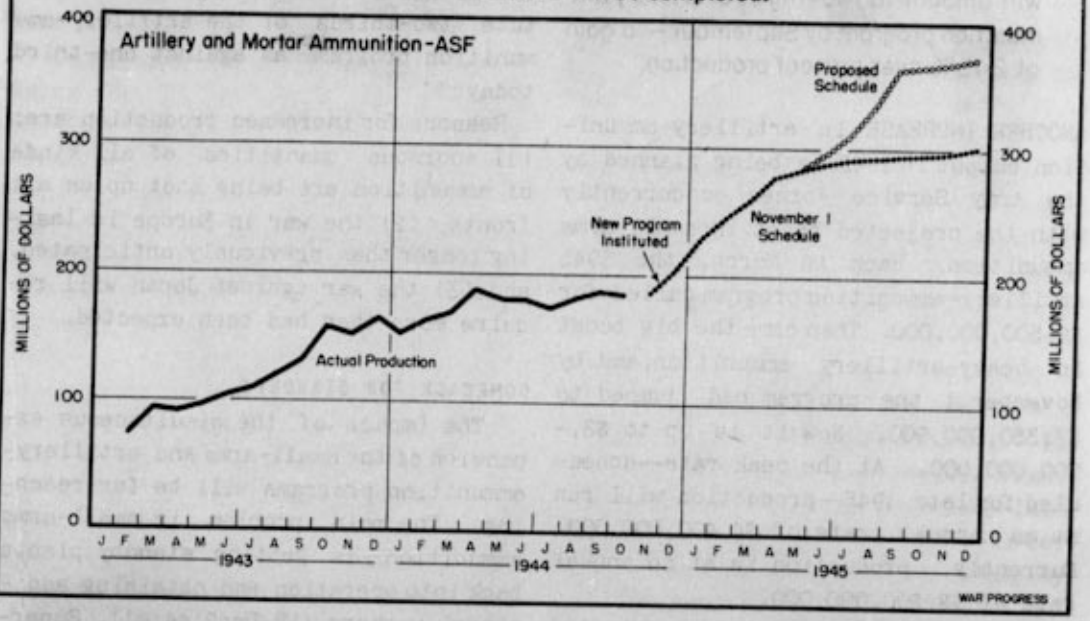
The impact of the simultaneous expansion of the small-arms and artillery-ammunition programs will be far-reaching. The main problem in small-arms ammunition is getting standby plants back into operation and obtaining additional workers (WP-Dec2'44,p1). Superimposition of the artillery-ammunition program on the small-arms ammunition program will require some $300,000,000 worth of new facilities (not including land and construction), as follows:

Facilities	Cost (millions)
TNT.....	$10
Smokeless powder	140
Machine tools...	135
Shell-loading...	4

Together the two programs will need an additional 1,000,000,000 pounds of brass strip a year. This boosts total 1945 requirements to 4,270,000,000 pounds. Existing brass-strip facilities have a capacity of only 4,808,000,000 pounds. Three means of making up the deficit are being considered: (1) cutbacks in industrial and building uses of brass strip, (2) conversion of brass mills to more strip, and (3) conversion of more

SEED CORN IN DECEMBER, SHELLS IN JUNE

Next year's artillery ammunition program has been raised 10%, but all the gain comes after May, 1945, when additional facilities will be completed.



steel-mill facilities to brass. About 15,000 additional workers, many of them skilled, will be needed to get the brass-strip mills up to capacity, and most of the mills are in tight labor areas.

Fuses and boosters for artillery shells require an additional 115,000,000 pounds of brass rod in 1945. Likewise, the stepped-up need for rotating bands boosts brass-tube requirements by 23,000,000 pounds. The expanded need for brass will, in turn, create a heavy demand for copper. Result: stepup in manpower requirements all along the line down to copper mines, smelters, and refineries.

MEN AND GEOGRAPHY

Moreover, enlarging smokeless-powder plant facilities presents a problem due to geography (WP-Aug5'44,p6). Many of the plants were purposely located away from heavily populated areas for safety and have to depend on rural localities for manpower. Incidentally, powder plants designed for small-arms ammunition and now diverted to other manufacture will be returned to their original use.

Machine tools are another problem. The companies slated to turn out the increased orders for 105mm. shells say that 2,270 machines costing $100,000,000 will be needed. Another $35,000,000 in tools will be required for shells of other sizes. The Defense Plant Corporation and the War Production Board's Tools Division are combing surplus stocks for suitable tools. This could mean a sizable reduction in prospective order boards.

Chemicals may be a bottleneck. Sulfuric acid, already tight (page 9), will be even tighter. It is needed in huge quantities for explosives. Likewise, facilities will have to be ex-

panded for increasing output of TNT.

Shell-loading facilities may also be enlarged. Plans are under consideration to declare some unused Army camps surplus in order that they can be turned over to the industry for conversion as shell-loading plants. Bag-loading facilities are adequate, but an additional 5,000 men will be required to operate the plants on a three-shift basis.

Shells for the 105mm. howitzer dominate the revised artillery ammunition program. As the table below shows, the current rate of production for these particular shells must rise from about $42,000,000 to nearly $140,000,000 and will account for 40% of the total for the group:

	Production		
	Oct. '44	Sept. '45	%
Shells	Actual	Proposed	Change
	(thousands)		
60mm. mortar	$6,400	$17,900	+180%
81mm. mortar	7,700	27,300	+255
105mm. how..	41,700	139,500	+235
90mm. gun...	7,400	36,500	+393
155mm. gun..	4,500	12,400	+176
Total.....	$67,700	$233,600	+245%
All art. ammun.....	$185,000	$364,000	+97%

The increase in artillery ammunition may mean that any schedules now worked out for small-arms ammunition are only preliminary. Adjustments might be necessary later when the impact of both programs has been fully determined.

The Explosive Rise for H_2SO_4

Record-breaking supply of sulfuric acid will not be enough to meet first-half '45 requirements; is now under allocation. Pinch is due to continued two-front war.

AS RECENTLY AS the fall of 1943, when industrial activity reached the highest point in U.S. history, there was enough sulfuric acid—the most widely used basic chemical—to go around. That was the year when total new supply ran to the equivalent of almost 9,100,000 tons of 100% sulfuric acid (H_2SO_4)—8,425,000 tons of virgin acid plus 650,000 tons of acid "recovered" for further use. So while basic materials such as steel, copper, lumber, aluminum, chlorine, formaldehyde, ammonia, and toluene had all been placed under one sort of control or another, sulfuric acid was still a free material.

This year, the new supply of sulfuric acid (virgin production plus recovered acid) is expected to reach a record-breaking total of approximately 10,400,000 tons, 15% more than in 1943. But requirements will total 11,300,000 tons, or 900,000 tons more than the industry is expected to deliver. And in the first half of 1945, even allowing for continued additions to productive capacity, requirements will run more than 400,000 tons ahead of estimated new supply. As a result, sulfuric acid has just been put under nationwide allocation and a new construction program started.

LESSON OF CASSINO

The pinch in sulfuric acid goes back to the battlefield. In the early months of the current year, when ammunition was a declining program, the expanding supply of sulfuric acid was being diverted to industrial applications, such as the manufacture of aviation gasoline, pigments, rayon, chemicals, steel, and fertilizer. Then came Cassino and Anzio. Requirements for heavy ammunition did an about-face. That called for more

high explosives and smokeless powder, which in turn called for more sulfuric acid. On top of that have come successive boosts in other types of ammunition—the latest taking form just this week (page 7). And as the two-front war continues, industrial requirements continue to increase (chart, page 11).

Aside from the overall shortage of capacity, existing facilities aren't equipped to turn out enough of the higher-strength acids to meet today's specialized requirements. In contrast to the manufacture of fertilizer, which can get along nicely with the equivalent of a 50% concentration of sulfuric acid, production of aviation gasoline requires a 95% grade; rayon, close to 100%; TNT, 103%; and so on.

The result is that some essential products have been turned out only at the expense of others. What happened last month in the case of a manufacturer in Charlestown, W. Va., is typical. He needed 500 tons of high-strength virgin acid to produce a specialized chemical; but his regular supplier—in northern Kentucky—had to send all his high-strength acid to a nearby ordnance plant for the production of military explosives.

AFTER TNT

However, as more high-strength virgin acids are used, more low-strength acids can be recovered for further use. In effect, this increases total supply. Once an ordnance plant makes a batch of TNT, say, the "spent" acid can be used in the manufacture of products such as alum, naphtha, lubricating oil, steel sheets, fertilizer, etc., which don't require high-strength acids. Fertilizer, incidentally, is the biggest user of spent acid. In turn, fertilizer is the biggest consumer of sulfuric acid, accounting for about a third of total output.

Last year, for every 100 tons of virgin acid produced, eight tons were recovered for further use; this year the proportion will rise to nine out of every 100 tons; and in the first six months of 1945, the ratio will be 10 out of every 100 tons.

Because the amount of recovered acid that may become available is unpredictable, one can never be too sure about future supply-demand statistics for sulfuric acid. Early this year, ordnance plants were expected to make available to superphosphate manufacturers 100,000 tons of spent acid per quarter. In the first two quarters, 200,000 tons of recovered acid came through as planned; but in the last two, total deliveries may come to only 30,000 tons.

TANK-CAR PROBLEM

Transportation is also a problem. Sulfuric acid has to be shipped in special tank cars and normally goes to consumers within a radius of 150 to 200 miles. But now longer hauls are often called for. A producer of virgin acid in New Jersey who customarily shipped his output to nearby fertilizer manufacturers may now be sending virgin acid to an ordnance plant 300 or 400 miles away. Or maybe a producing plant blows a boiler tube and must shut down for repairs; if deliveries to munitions makers are cut off as a result, it may be necessary to fill in the gap with shipments from another, though more distant, producer.

This calls for more tank cars per ton of shipment. And there are not enough sulfuric-acid cars to go around. Recently, lack of tank cars has made it necessary to delay certain deliveries of spent acid from ordnance plants to superphosphate producers. Worse, surplus acid in out-of-the-way places cannot always be moved to "must" consumers. The tank cars are more critical than the product they carry.

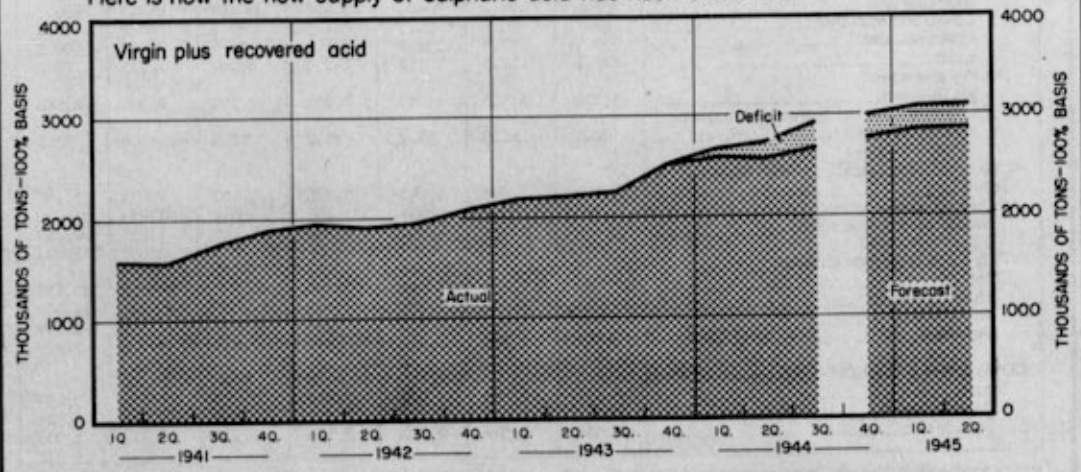
There are now about 3,900 tank cars in the "acid fleet." Of this total, 2,800 are available to private plants and 1,100 to Army ordnance plants. To meet requirements, however, the fleet must increase to 5,000 cars by next April (3,300 for private use and 1,700 for the Army). That comes to 1,100 additional cars in all.

Currently, the 600 additional tank cars required by the Army are being converted from petroleum-carrying to acid-carrying at two plants: General American Transportation, Sharon, Pa., and American Car& Foundry, Milton, Pa. But there is no longer any regular open capacity for converting the 500 cars needed by private producers of sulfuric acid.

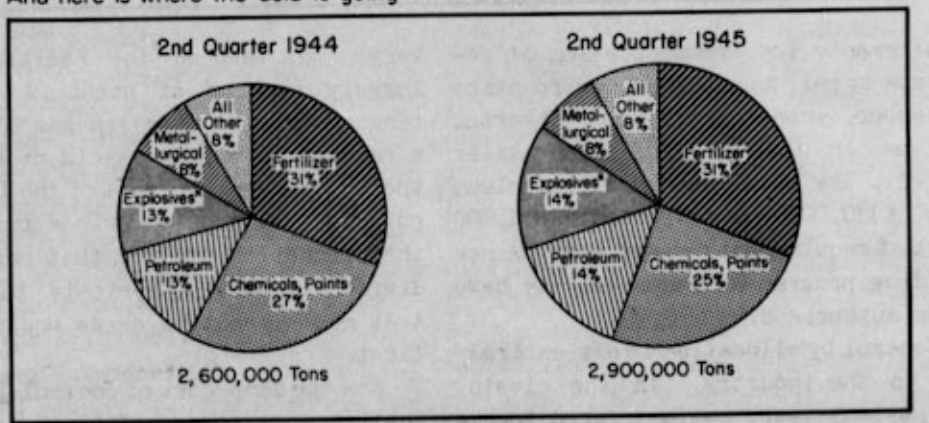
The War Production Board and the Office of Defense Transportation are now studying the possibility of having these cars converted in the private shops of big tank-car operators such as DuPont, Allied Chemical & Dye, and Standard Oil Company of New Jersey. The rub is, however, that the tank cars to be converted may not be forthcoming;

NOT ENOUGH H_2SO_4

Here is how the new supply of sulphuric acid has risen since 1941:



And here is where the acid is going:



*Includes Army Ordnance

WAR PROGRESS

SELECTED MONTHLY STATISTICS

Income Payments–Production–Sales–Inventories–Consumer Expenditures

	Latest Month*	Preceding Month	2 Months Ago	Same Month 1943	1942	1941	1939
INCOME PAYMENTS (million dollars)							
Total	13,669	13,684 r	12,605	12,690	10,981	8,608	6,327
Salaries and wages	9,395	9,281 r	9,185	8,775	7,422	5,524	3,920
Comm., distr and serv industries	7,049	7,018 r	7,054	6,854	6,051	4,766	3,572
Government	2,346	2,263	2,131	1,908	1,371	758	348
Military	1,342	1,304	1,277	973	547	140	40
Nonmilitary	1,004	959	854	935	824	618	308
Other income payments †	4,274	4,403 r	3,420	3,915	3,559	3,084	2,279
Income payments annual rate (adjusted for seasonal, billion dollars)	157.7	156.3 r	157.0	146.1	124.8	98.6	73.1
FOOD PRODUCTION							
Dairy products (million pounds)							
Butter, creamery	100.1	113.3 r	130.5	107.6	124.0	133.7	123.2
Cheese	74.6	81.5 r	91.5	73.2	71.6	85.8	55.9
Milk, evaporated	245.0	275.0	312.0	188.9	203.1	281.7	144.6
Meats (million pounds)							
Total (incl. lard)	1,605.0	1,426.0	1,572.0	1,680.0	1,532.0	1,435.0	1,162.0
Beef and veal	762.6	690.2	704.5	684.4	686.0	642.7	499.3
Lamb and mutton	89.7	80.1	75.5	104.5	90.7	67.2	62.1
Pork (incl. lard)	752.5	655.5	791.9	891.1	755.6	725.2	600.5
Lard	120.1	111.3	155.2	148.2	120.0	127.5	99.5
Poultry and eggs							
Eggs (millions)	3,278	3,515	4,010	2,957	2,755	2,470	2,088
Poultry (receipts of 5 principal markets, million pounds)	62.0	46.8	58.7	55.2	58.9	49.4	37.2
RETAIL STORE SALES (million dollars)							
Total	6,052	5,895 r	5,645	5,789	5,430	4,871	3,748
Durable goods stores	868	824 r	834	852	864	1,234	959
Nondurable goods stores	5,184	5,071 r	4,811	4,936	4,566	3,636	2,809
INVENTORIES (million dollars)							
Total	27,569	27,454 r	27,515	28,390	28,993	26,252	19,157
Manufacturers	17,054	17,139 r	17,266	17,789	17,547	14,730	10,069
Wholesalers	3,999	3,995 r	3,987	3,959	4,029	4,533	3,599
Retailers	6,512	6,320 r	6,262	6,642	7,417	6,989	5,489
CONSUMER EXPENDITURES (million dollars)							
Total	8,298	8,015	7,807	7,672	7,088	6,376	5,293
Goods	5,762	5,473	5,245	5,237	4,698	4,264	3,585
Services	2,536	2,542	2,562	2,435	2,390	2,112	1,908

*Income Payments, Production, Sales, Inventories, October; Expenditures, September. r Preliminary r Revised. † Work relief, direct and other relief, Social Security benefits, dividends and interest, entrepreneurial income.

requirements for transportation of petroleum by rail have turned upward since September, when tankers were diverted for use in the Pacific. As a matter of fact, the total number of petroleum cars (110,000) is reportedly 15,000 short of requirements right now. A new building program for tank cars may have to be authorized.

Control by allocation is not entirely new to the industry. In the closing months last year, sulfuric acid became very tight around the Pacific Coast, largely because of steadily mounting requirements for aviation gasoline. As a result, all sulfuric acid produced in the entire western part of the U.S. was put under allocation in December, 1943; the production pie in that region was divided by WPB's Chemicals Bureau so that most essential needs would be met first.

Now the same sort of control is being instituted in the rest of the country.

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Critical Programs Up 11%

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Number 222

December 16, 1944

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WAR PROGRESS

Prepared in the War Production Board

J. A. Krug, Chairman

War Progress is a confidential report designed to provide a coordinated and continuing picture of the overall war program for the various war agencies. To this end, it presents, analyzes, and interprets basic statistical and economic information, and from time to time examines the pros and cons of controversial questions.

Although War Progress is an official publication of the War Production Board, statements in it are not to be construed as expressing official attitudes of the Board as a whole, or even of individual members. Conclusions, whenever reached, should be considered editorial conclusions.

War Progress is prepared in the Bureau of Program and Statistics (Thomas C. Blaisdell, Jr., Director) by the Reports Division (Joseph A. Livingston, Director).

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Critical Programs Up 11% in November

But miss steeply rising goals by 4%. WPB, WMC, Army, Navy tackle problems on plant-by-plant basis. Men, materials, machines now go to needed items - but not fast enough.

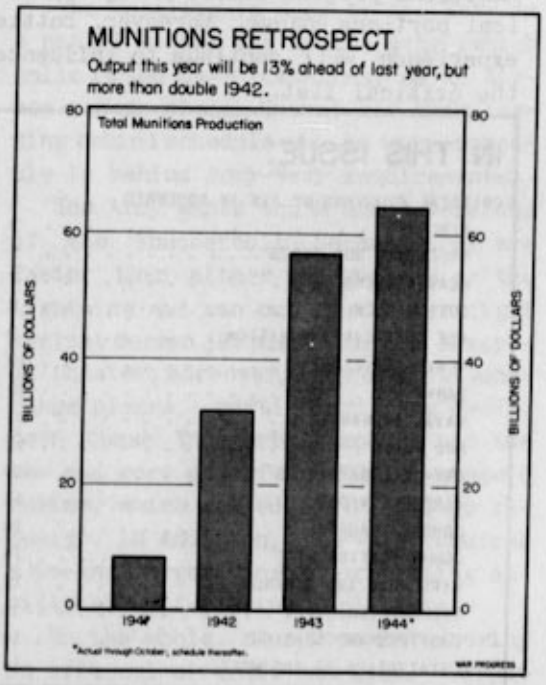
CRITICAL PRODUCTION moved along last month, up 11% over October. Apparently the job of organizing the flow of materials, labor, and machinery into the items the Army and the Navy most urgently require—the Superfortress, heavy artillery ammunition, combat loaders, tanks, field wire, trucks, airborne radar—is being done. But it is not being done so speedily as strategic operations require. The month's gains did not keep pace with steeply rising schedules. Programmed goals were missed, overall, by 4%:

	% Above or Below	
	Oct.	Sched.
Airborne radar.....	+3%	0%
B-29 Superfortress.....	+30	+3
Critical ammun.-ASF.....	+15	-1
Heavy art. ammun. (over 105mm.).....	+23	+6
Heavy field art. (over 105mm.).....	+5	0
All tanks.....	+12	-4
Heavy-heavy trucks.....	+1	-15
Light-heavy trucks.....	+11	+2
Large truck & bus tires.	+1	+5
Navy rockets.....	+22	-6
Navy HC ammun.....	+7	+3
Navy 40mm. AA guns.....	+16	+5
Combat loaders.....	+12	-12
Tactical field wire.....	+5	-3
Cotton duck.....	+17	-1
Dry-cell batteries.....	+5	-9
Total critical programs	+11%	-4%

The big push on these critical items started shortly after the Normandy invasion in June. The record since then is one of steady increases in production. Thus Superfortress output today is running 100% higher than in June; heavy artillery ammunition, 50%; Navy rockets, 200%; cotton duck, 63%; tactical field wire, 50% (chart, page 3).

ADDING AND SUBTRACTING

During November, several changes were made in the critical list. Combat loaders were removed, and the proportion of ships classed as critical dropped from 27% to 26%. The Army deleted some bombs. In October, the entire general-purpose, fragmentation, and incendiary bomb groups were "in." In November these were cut to one-third and more than off-



set the immediate impact of boosts in other ammunition programs which will not attain maturity until mid-1945. The effect: only 37% of total ammunition is critical, as against 48% last month. Other noteworthy changes were the addition of the 57mm. gun, two planes, and a big stepup in mortars.

The net result is that the portion of the program classed as critical is down slightly—from 28% to 25%, as follows:

	% of Program That Is Critical	
	Oct.	Nov.
Aircraft.....	19%	20%
Ships (inc. M. & R.)...	27	26
Guns.....	17	19
Ammun. (inc. bombs)....	48	37
Combat & motor vehicles	62	61
Commun. & electronics..	36	37
Other equip. & supplies	5	3
Total munitions.....	28%	25%

No list and no percentage for critical items will ever stay put. As the total munitions program itself changes, critical portions change. Moreover, battle experience will continue to influence the critical list.

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The point is that the War Production Board, the War Manpower Commission, the Army, and the Navy have organized specifically to do the job of cleaning up the critical programs on a one-by-one basis. Remedies have been and are being devised, thus:

To get machine tools quickly to the ammunition plants, WPB's Tools Division has been made the clearinghouse for all tool orders.

To direct manpower into critical programs, the WMC will make field checks of key plants to determine (1) how much manpower they need, (2) why recruiting is difficult, (3) how labor can be supplied. And by bringing manpower figures down to a consistent basis—and establishing definite responsibility—the facts will be laid on the table.

As insurance against the continuance of deficits in truck and bus tires, a decision has just been made to build new plants. This is on top of plans to round out and expand existing facilities.

To supply urgently needed engine parts for tanks, trucks, ships, locomotives, etc., WPB has set up a new division to schedule the production and distribution of engine parts under M-293. The Navy's Engine Parts Coordinating Office (EPCO) in Detroit—which has built up detailed information on internal-combustion engine manufacturers—has made its facilities available to WPB and the Army.

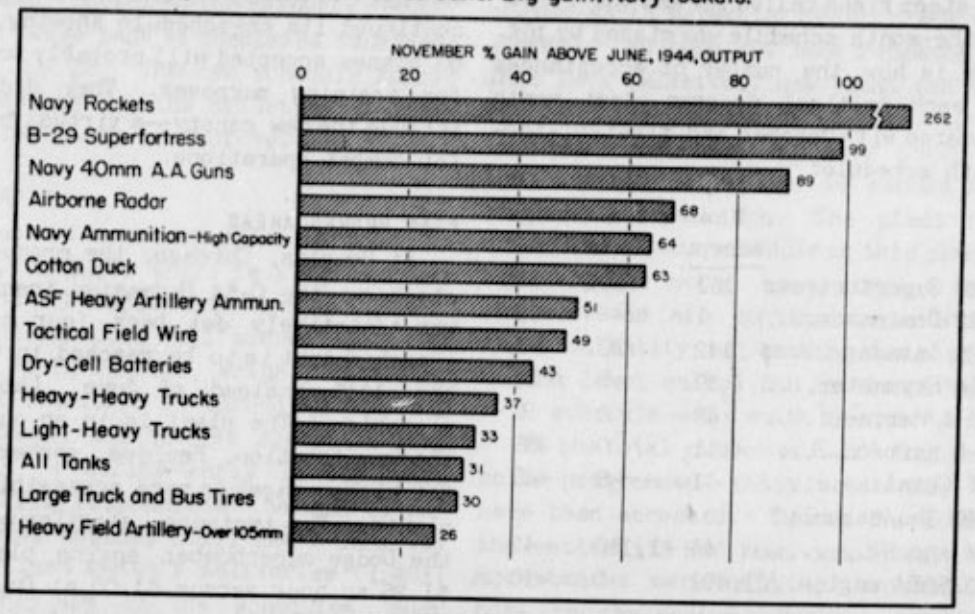
FACT FINDERS

These specific actions are part of a much broader project. They are the result of a series of meetings designed to bring the Army, Navy, War Manpower Commission, WPB, and other agencies together to find out the facts about critical programs and to act accordingly.

What follows is an outgrowth of those meetings. It attempts to measure pro-

PROGRESS ON CRITICAL PROGRAMS

Here is how they have advanced since June. Big gain: Navy rockets.



duction progress and to put a finger on the good spots and the bad. In a sense, it is a control record of what has been done and what remains to be done so that operating decisions can be reached and specific results—on a plant-by-plant basis—can be achieved. And to carry the work beyond Washington and beyond the agencies immediately concerned, representatives of the Army, Navy, WMC, and WPB have already visited key production centers and laid the facts on the table with businessmen and labor leaders. The theory is that if management and labor know what the armed forces need, they'll provide.

Aircraft

TWO aircraft programs were added to the critical list last month: the PBY (OA-10) Catalina and the M and N versions of the P-47 Thunderbolt. As a result, aircraft on the critical list rose from 19% to 20% (chart, page 5).

The Catalina is used by the Navy as a patrol bomber and by the Army (which calls it the OA-10 Catalina) as an air-sea rescue plane. Output has been lagging behind schedule and, in turn, schedule is behind Army-Navy requirements.

The Army wants the M and N versions of the Thunderbolt because they are faster than either the Mustang or the Lightning and can put up a better fight against German jet planes in the European theater; moreover, they are both long-range planes, particularly the P-47N. Both these Thunderbolt models use the new and more powerful R-2800 1-stage C engine, which called for a fuselage redesign. In addition, the P-47N requires a new and larger wing incorporating additional self-sealing fuel tanks.

On the whole, the November showing in critical aircraft was good. Output

of the nine critical items ran to $253,000,000, up 21% as compared with October; but that wasn't enough to achieve the steep rises called for and the first-of-the-month schedule was missed by 16%. Here is how the number of acceptances in each critical program last month compared with October and first-of-the-month schedule:

	Nov. Accept.	% Change Oct.	% Change Sched.
B-29 Superfortress	163	+30%	+3%
B-32 Dominator....	1	—	-90
A-26 Invader.....	142	+30	-3
C-54 Skymaster....	39	+5	-34
PBM-5 Mariner.....	48	0	0
PV-2 Harpoon.....	11	0	-88
PBY Catalina.....	11	-8	-45
P-47 Thunderbolt (M and N).....	46	+1,150	-42
R-3350BA engine...	1,491	0	-10

The Superfortress had its best month against schedule since May. However, it is still running behind Army requirements and all plants are up against the tough—and inevitable—problem of making tactical design changes at the same time that the schedule moves sharply higher. On November 30, the B-29 Superfortress schedule for 1945 was lifted by a total of 312 planes at two plants, Boeing, Wichita, and Bell, Atlanta. The result is a stepup in the monthly peak from 385 B-29s in July, 1945, to 415 in October.

DOMINATOR DIFFICULTIES

Last month engineers corrected the directional instability that had been clamping down on acceptances of the B-32 Dominator. But the ship still has to go through the Army testing mill before it is cleared for quantity production. Even after that, many changes—the result of testing—will be necessary.

Last month the deficit in A-26 Invaders was again accounted for by Douglas, Long Beach; it experienced a shortage of glass panels for the new cockpit canopy. Although Douglas' Tulsa plant continued its on-schedule showing, the 80 planes accepted will probably be used for training purposes. They did not include the new canopy—a virtual "must" for combat operations.

PEAK PUSHED AHEAD

At Douglas, Chicago, the production clock on the C-54 Skymaster transport was tentatively set back four months—peak output is to be reached in October, 1945, instead of June. Labor is a problem. The plant is in an out-of-the-way location. Besides, workers can get higher wages in more accessible war plants. For instance, starting wage at the Dodge superbomber engine plant is $1.25 an hour versus $1.00 at Douglas. Douglas, Chicago, accounted for the entire deficit in C-54s last month; output of 23 planes compared with a schedule of 43. During the month, work was moved into the Douglas, Oklahoma City, plant; this increases the proportion of Chicago's subcontracting from 15% to 35%. Further subcontracting is contemplated if the labor force can't be built up.

Acceptances of the PBM-5 Mariner patrol bomber—made at Martin, Baltimore—were again on the mark with 48. The schedule was cut in October. However, the Navy could use more of these planes. December output of the PBM-5 may be held up for lack of new C-642-SB propellers from Curtiss-Wright. Unless these are received by the middle of the month, only 25 Mariners can be accepted instead of the 48 called for.

At the end of November, the Navy revised its acceptance schedule on the PV-2 Harpoon land-based patrol bomber to reflect the expected rate of wing

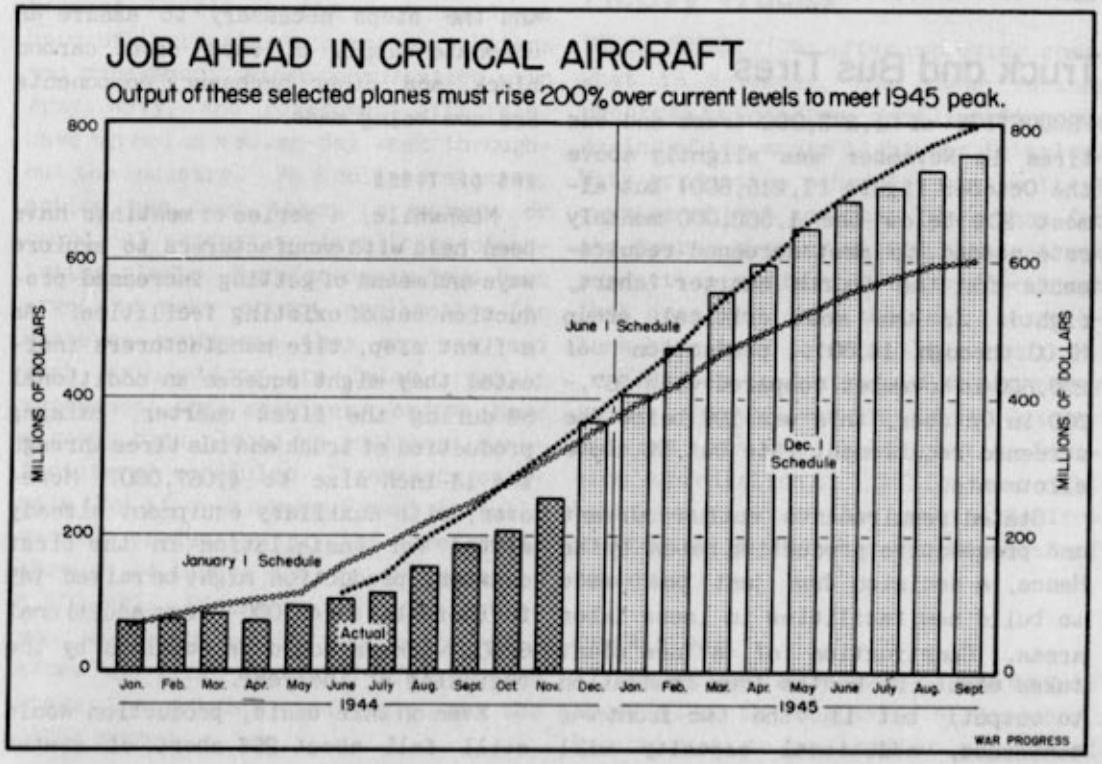
deliveries from Goodyear, Litchfield Park, Ariz. The jam on wings at Goodyear has been eased; at the same time, Lockheed, Burbank—the assembly plant—has a large bank of completed fuselages ready to go. The new schedule should be feasible if the situation at Goodyear continues to improve.

LONG ROAD

Thanks to another splendid month at Dodge, Chicago, there is still a small surplus of R-3350BA superbomber engines. But the schedule was missed again—by 10%. As in October, Wright, Paterson, missed schedule; it turned out only 412 superbomber engines as against a goal of 650. A strike early in the month was largely responsible. Output of superbomber engines still has a long way to go; last month's deliveries (1,491) were only 42% of the scheduled peak (3,550).

To date, only 43 PBY Catalinas have come through at Consolidated, Vultee, New Orleans, versus a cumulative first-of-the-month schedule of 95. And the schedule has been set back repeatedly. This is a relatively new plant and the problem here is one of organization—to absorb and train a labor force so that assembly lines can be manned for efficient production. The plant has submitted a lower schedule on this plane. However, the model is so urgent that the services are continuing to study the possibility of getting output up to the level called for by the current W-12 schedule—48 a month by next April.

Of the total number of P-47M Thunderbolts programmed—133 planes—only 55 have been accepted. Through November, the entire 133 had been completed, but acceptances were held up because of bugs in the engine. However, another 72 P-47Ms came through early in Decem-



ber, thus indicating that engine difficulties are being overcome by Republic and Pratt & Whitney engineers.

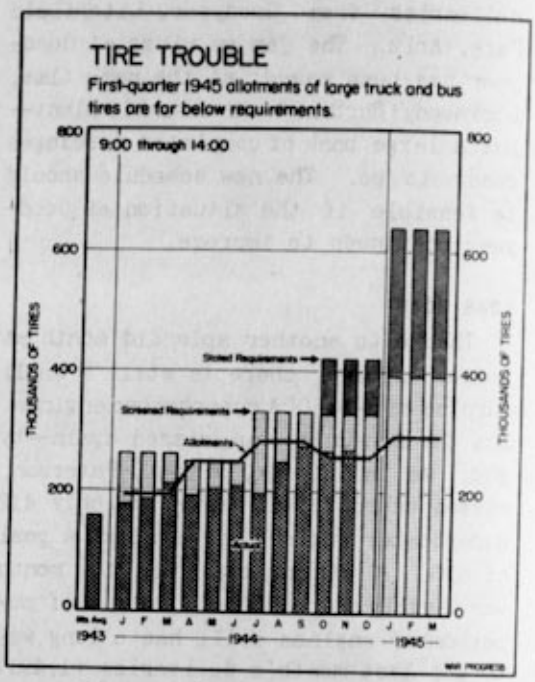
The problem in the P-47N is more serious. No P-47Ns were accepted in November. And through November there have been two acceptances against a cumulative first-of-the-month total of 36 planes. Because of its extreme weight, the plane requires larger and stronger tires than previous versions of the Thunderbolt. These tires are supplied by Goodyear, Akron, but shipments have been delayed by labor disputes.

This model is slated for a monthly peak of 300 in March (then a level of 250 a month after April). Getting a new model up so high in so short a time is a formidable task; however, the manufacturer—Republic, Farmingdale—feels that it can do the job. One of the big problems at Republic is to retrain labor from the regular Thunderbolt (P-47D) line to P-47N production.

Truck and Bus Tires

PRODUCTION of 1,273,000 truck and bus tires in November was slightly above the October figure (1,215,600) but almost 20% below the 1,562,000 monthly rate needed to meet screened requirements for the fourth quarter (chart, right). In the most critical group (9.00 through 14.00), production of 270,600 in November compared with 267,300 in October; this was 18% below the screened requirement rate but 5% above allotments.

Stated requirements outrun current and prospective production rates by far. Hence, a decision has just been made to build new facilities in loose labor areas. Construction of a new plant takes about 10 months from foundation to output; but if the two-front war continues, additional capacity will



save lives. Studies of the size and location of needed facilities, the time when equipment can be made available, and the steps necessary to assure an adequate supply of rayon cord, carbon black, and other necessary components are now being made.

IFS OF TIRES

Meanwhile, a series of meetings have been held with manufacturers to explore ways and means of getting increased production out of existing facilities. As a first step, tire manufacturers indicated they might squeeze an additional 5% during the first quarter, raising production of truck and bus tires through the 14-inch size to 4,067,000. Moreover, with auxiliary equipment already slated for installation in the first quarter, production might be raised 14% further—to 4,746,000—if an additional 6,100 workers could be obtained by the beginning of the year.

Even on this basis, production would still fall about 25% short of stated

requirements—6,388,000 tires—and there is considerable doubt whether the needed number of workers can be obtained in time. Tire plants are in tight labor areas. About 700 workers are needed in Akron, where there is already an acute manpower situation which is about to be aggravated by the reopening of an artillery ammunition plant. Another 500 or so are needed in New England, mostly at Chicopee Falls, where the shortage has persisted for some months despite an exclusive priority on WMC referrals. Workers are also needed in Michigan and Los Angeles. Interregional recruitment will probably be necessary in many of these cases, but there are two obstacles: first, little can be accomplished until after the Christmas holidays; and second, some plants are reluctant to use more nonwhite workers.

SEVEN-DAY WEEK

The current emphasis is on manpower because it offers the most immediate hope of increasing production. Unions and management, after consultation with Army, Navy, and government officials, have agreed on a seven-day week throughout the industry. As a collateral step, action has been taken to augment or round out production facilities of existing plants. Manufacturers have been urged to make prompt application for whatever equipment they can use, and such applications are being promptly processed; some machinery orders have already been placed on equipment manufacturers' schedules. Tiremakers estimate that if such new equipment is fully manned, production in the tire groups through 14 inches can be increased to 5,700,000. (However, this new equipment would not be in production until after the first quarter.) This is 40% above the original estimate, as the table shows:

	1st Qtr. '45 (thousands)
Requirements:	
Stated	6,400
Screened	4,900
Production:	
Current forecast	4,100
With added workers	4,700
% increase	17%
Increased output vs:	
Stated requirements	-26%
Screened requirements	-3
Production with later equip.	5,700
% over current forecast	40%

Within the truck and bus tire group, close to 90% of requirements is for 53 sizes (out of a total of 218) and the Rubber Bureau has inaugurated a new reporting system to keep closer tabs on the production of these. This system may later become the basis for scheduling some of the 53 sizes.

Heavy Trucks

TRUCK PRODUCTION, after improving somewhat in November, has shown further progress in December, partly reflecting easing of the acute tightness in axles. With production schedules for the first quarter of 1945 somewhat lower than for the fourth quarter of 1944, heavy-truck production may be over the hump—though that does not mean that all the problems have been permanently solved.

November production of heavy-heavy trucks (6,822) was 1% above October and not far from the Automotive Division's prediction of 7,000 for the month. Light-heavy production was up 11%—from 23,650 to 26,174—and ran 2% ahead of schedule.

LOWERED GOAL

The schedule on heavy-heavies was lowered at the beginning of November. In contrast to an earlier program of

some 8,000 monthly in the first quarter next year, the schedule has now been set at about 6,700 per month.

The cut reflects a drop in the Army's numerical requirements. But it does not imply that the production job ahead has been diminished proportionately. The cutback is concentrated in what the Ordnance Department calls "operational" trucks—vehicles designed for a particular operation (usually behind the lines)—such as cargo carrying in the Persian Gulf area or along the Burma Road. As an example, the 5-ton 4 x 2 truck tractor is scheduled to decline 65% between this quarter and next (from 6,138 to 2,145).

TACTICAL TRUCKS

But tactical trucks—the ones used in close support of troops—are increased sharply. In contrast to the current quarter, the first-quarter schedule for the 6-ton 6 x 6 is up 58% (from 1,487 to 2,342), and the 4-ton 6 x 6, 71% (1,459 to 2,507). These types are more complex to build; they require three, rather than one or two, driving axles, and take more critical components, rubber, and man-hours.

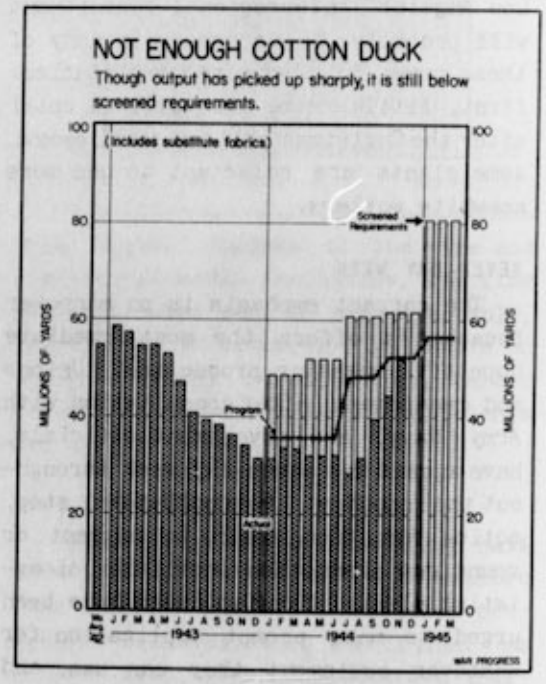
Tactical trucks are in greater demand than ever; the Ordnance Department would like to have more than current schedules call for. In fact, it will be necessary to satisfy some of the difference between demand and supply out of light-heavy production.

Axles were again the major bottleneck in November, accounting for 508 undelivered trucks; but in the first two weeks of December the axle problem was greatly eased by improvement at the new Standard Steel Spring plant at Madison, Ill.

Tires continue to be a bottleneck; lack of tires kept 103 trucks plant-bound at Four-Wheel Drive in November, and there are a dozen important military truck models for which first-quarter truck allocations are only 50% to 60% of requirements. (Tires are discussed on page 6.)

Cotton Duck

PRODUCTION of cotton duck and duck substitutes in November was estimated at 52,000,000 linear yards, up 17% over October and right on schedule (chart, below). However, it was 16% below



screened requirements. Still further increases in January and February are planned, since requirements have increased 29% over the fourth-quarter level. Consequently the accumulative deficit in tentage since the beginning of the year will have to be made up in other ways—light metal shelters, for example.

Some 500 additional looms were put into duck production and about 900 more into tent twill in November, boosting

the combined total to more than 23,000.

The War Production Board's Textile Bureau is making a plant-by-plant check of manufacturers on compliance with WPB orders which require (1) that they produce as much duck as they did during the first quarter of 1943, and (2) that they don't operate looms on other fabrics a greater number of hours than on duck.

The Army's decision to release 500 skilled textile workers to duck mills will help the manpower situation. Incentive payments to workers and mills to overcome the low wage-and-price problems are also being considered. The present price structure is said to favor other fabrics at the expense of duck. However, the Office of Price Administration has made an agreement with the Army on the question of ceiling prices on duck; this may mean a price boost in some mills to stimulate production.

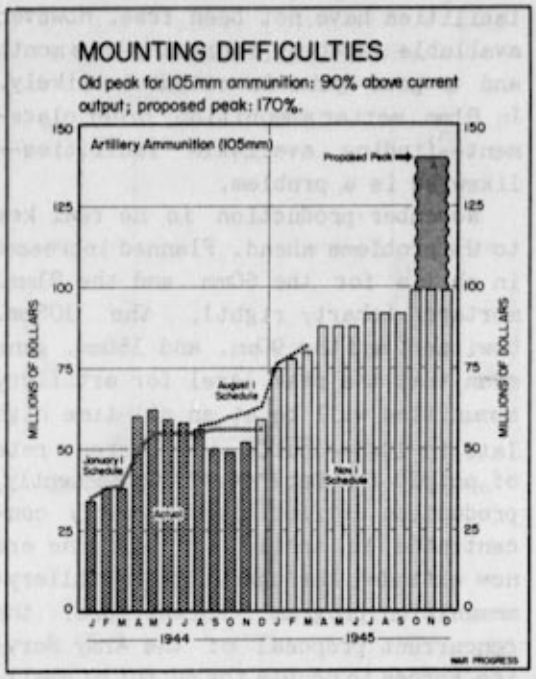
Belgium and France have substantial facilities for making duck. A recent report put French capacity at from 3,000,000 to 4,000,000 yards per month. The problem here is getting raw cotton and other essential supplies to the mills.

ASF Critical Ammunition

PRODUCTION of all critical ASF ammunition items was up last month, the total running 15% ahead of October. However, first-of-the-month schedules—generally reduced for feasibility reasons—were missed by 1%. Gains covered a wide range, for example:

155mm. M101 (gun).....	5%
60mm. mortar.....	28
Incendiary bomb cluster M18	37
155mm. M107 (howitzer).....	55

The critical categories which achieved first-of-the-month goals were heavy ammunition 105mm. (chart, right) and



over 105mm., and 90mm.; 4.2-inch and 60mm. mortar shells. The critical categories failing to meet first-of-the-month forecasts were the 81mm. mortar shells and bombs.

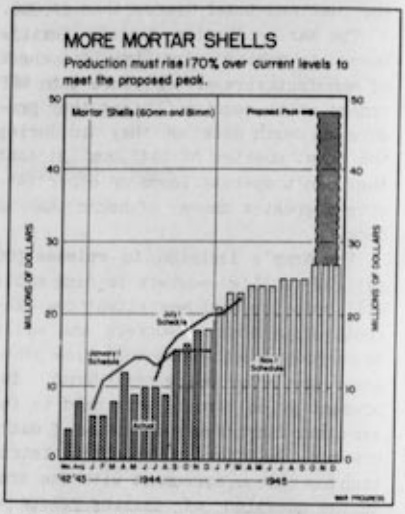
Although heavy-artillery ammunition exceeded forecast by 6%, the performance was not quite so good as it seems. Loadings of reconverted shells boosted the total in the 155mm. group. The important 8-inch shell, M106, failed to meet its schedule of 110,000 rounds by 15,000 shells, or the same amount as the loadings schedules exceeded machining schedules. The loadings forecast for December also exceeded estimated machinings.

CRITICAL BOMBS

Critical bomb production was 4% higher than October but below schedule. Only 244,000 of the 500-pound bombs came through, though 300,000 were called for. This constitutes half the critical bomb program. Here the Army has not been able to place orders according to plan;

facilities have not been free. However, available capacity increases this month and a good gain in output is likely. In 81mm. mortar ammunition, order placement—finding available facilities—likewise is a problem.

November production is no real key to the problems ahead. Planned increases in shells for the 60mm. and the 81mm. mortars (chart, right), the 105mm. howitzer, and the 90mm. and 155mm. guns mean that the peak level for artillery ammunition will be at an all-time high late in 1945—double the current rate of output (WP-Dec9'44,p7). Consequently, production difficulties formerly concentrated in shells for big guns are now extended throughout the artillery-ammunition program. Furthermore, the concurrent proposal of the Army Service Forces to double the output of small-arms ammunition by next summer could later make that program highly critical (WP-Dec2'44,p1).



Heavy Artillery

OUTPUT of heavy field artillery continued to improve in November, up 5% and about on schedule. All big guns and spare cannon met or exceeded schedule except the 155mm. gun spare cannon, which fell five units short. This is attributed to lack of synchronization between the two facilities that made deliveries for the first time: Rock Island Arsenal at Rock Island, Ill., and the Watertown Arsenal at Watertown, N.Y. Rock Island Arsenal is producing the breech assemblies, Watertown Arsenal, the tubes; the two components are assembled at Watertown. This difficulty is expected to be overcome this month.

Production of spare cannon rose 5%, chiefly because of the recent activation of new facilities. Output of complete units remained at the October level: production increased for the 240mm. howitzer and the 155mm. howitzer, but declined for the 155mm. gun, the 8-inch gun, and the 8-inch howitzer as scheduled. These lowered schedules for complete units reflect the interchangeability of facilities for guns and spare cannon, rather than a slackening in the need for these items.

Tanks

AS THE RESULT of an increase in production of the fabricated steel rubber-backed type of tread, medium tank output in November was up 12% to 1,879. However, the November 1 schedule called for 1,958 medium tanks. Because of a pickup in the production of the fabricated type of tank tracks, no tank production was lost in November for lack of treads.

All tanks were on schedule except: (1) The M4 medium tanks with 105mm. howitzer which were 89 behind the 330 forecast. This was because of diver-

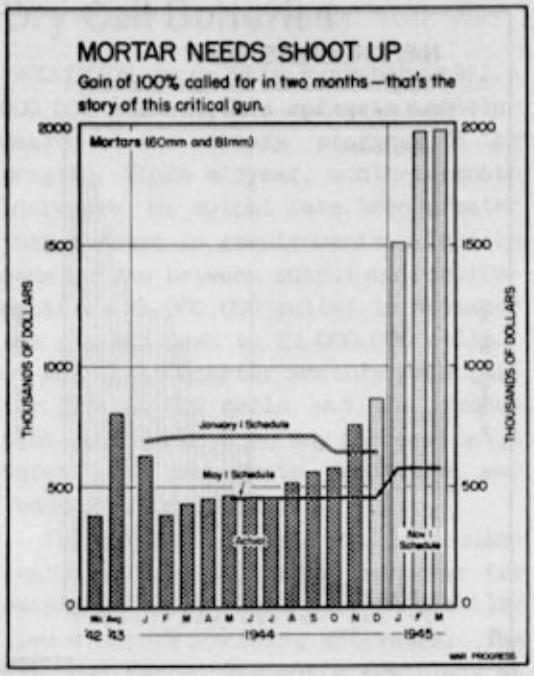
sion of the guns to a command shipment to the United Kingdom; this shortage will be made up when the guns can be replaced. (2) The M24 light tanks were 31 shy of the 448 scheduled, because of failure to receive hulls from the Heil Company and 75mm. gun mounts from National Rubber Company. Heil's problem is manpower, particularly welders; the company has been given permission to recruit directly at the local USES office. National Rubber was recently switched from the 37mm. gun mount to the 75mm., and production bugs in the new operation have not yet been eliminated.

A potential threat to tank production is the shortage of bogie tires—the rubber rollers which support the tank treads. Widening of the tracks from 16 inches to 23 inches is equivalent to an increase in requirements for bogies, at a time when the supply is already tight.

Naval Ordnance

NAVY'S critical ordnance programs did fairly well in November. All made substantial gains over October production: 40mm. antiaircraft guns gaining 16%, high-capacity ammunition 7%, rockets 22%. As a whole the three programs were up 15% and made first-of-the-month schedule. (Only rockets missed—by 6%.) But schedules have been modified for production feasibility and are far below strategic requirements.

The production difficulties besetting these three programs have been similar. All three have lacked the facilities, the machine tools, and the trained manpower to meet their sharply increased requirements. All three have been in competition with the expanding Army ordnance program. The Army, Navy, and WPB Tools Division are attempting



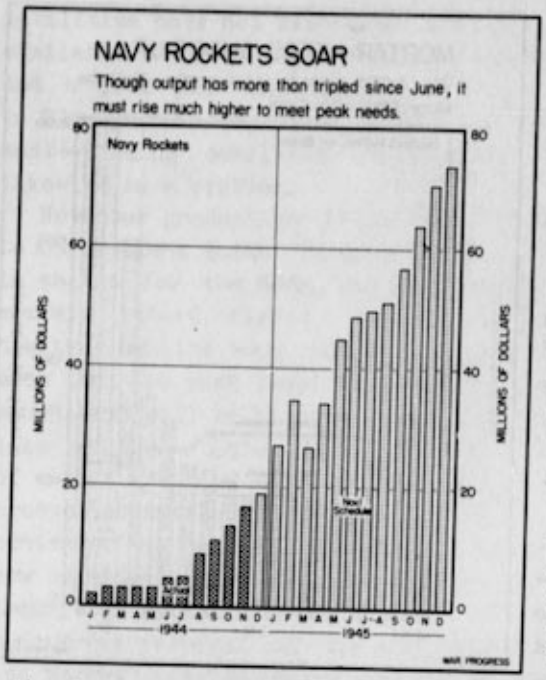
to schedule the flow of machine tools as equitably as possible.

Failure of rockets to meet their current schedule is the result of temporary technical difficulties with parts, motors, and explosives. For the future, the big problem is finding the construction workers for two large loading facilities now being built. Temporary facilities now in use would be entirely inadequate to provide for the rapidly stepped-up program, which calls for doubling of present output by next March, (chart, page 12).

50% FOR FEASIBILITY

Although high-capacity ammunition met schedule, the schedule itself had been reduced nearly 50% below requirements, for feasibility reasons. Large shortages in all sizes have been carried over into the months ahead; and even if present schedules are attained, requirements will not be met until the latter part of 1945.

The 40mm. antiaircraft gun, on the



other hand, may be off the critical list in a month or so. The modernization plan which made this program critical—the project of installing this gun on virtually all of the vessels in the fleet—has been rescheduled so that the main burden of it will not be felt until the second and third quarters of 1945. If present production gains are continued, output will soon reach the level of requirements.

MRO Parts

ALTHOUGH requirements for certain types of trucks, tanks, airplanes, and naval vessels are critical, parts to equip them—and keep them going—are even more critical. This applies especially to all internal-combustion engine parts (diesel and gasoline) such as bearings, cylinder liners, fuel-oil filters, piston rings, impellers, cylinder heads, and valves.

The problem in engine parts increases month by month as more trucks, more tanks, more locomotives, more ships, etc. are put into service. As an indication of how the problem has grown, consider the fleet. At the beginning of 1942—just after Pearl Harbor — the Navy had 1,300,000hp of internal-combustion engines installed in its vessels; today, it has around 50,000,000hp —and the fleet is still growing (chart, page 13). Obviously, it takes more bushings, valves, piston rings, cylinder heads, and so on to keep 50,000,000hp of engines running than 1,300,000hp.

QUESTION OF PARTS

It is still not certain to what extent the engine parts problem is caused by inadequate production of parts and to what extent by improper sequence of deliveries because of inadequate identification of parts orders. But last month, steps were taken to find out.

Under Direction 3 of the General Scheduling Order (M-293), the War Production Board is undertaking to assure delivery of critical engine parts by.

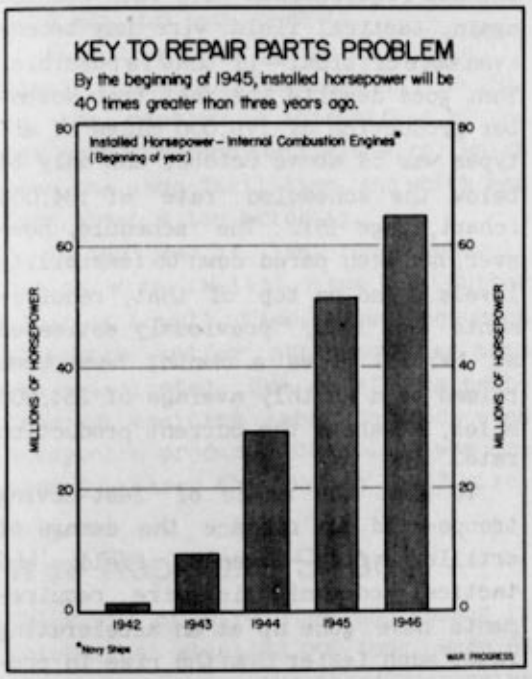
1. Scheduling parts for spares on the basis of relative urgency among the various claimants.

2. Developing an increase in shipments from a particular parts supplier.

3. Screening manufacturers' engine schedules to rock-bottom levels.

In cooperation with the services, a special group has been set up in WPB to administer the new order, with the former director of the Production Scheduling Division in charge. Already, WPB plant scheduling officers, working out of the regional offices, have been established in the most important problem plants. All told, the number of plant scheduling officers may finally run to 25 or 30; and they will be coordinated by a WPB plant scheduling officer who will work with the Navy's Engine Parts Coordinating Office (EPCO) in Detroit.

EPCO was established early this year to check up on manufacturers supplying engines, parts, and components for the Navy. The staff has built up a practical working knowledge of the capacity, managerial ability, labor problems, and past performance of virtually every plant in the engine industry.



EPCO has made its facilities available to the Army and WPB. Thus it is now a clearinghouse for all scheduling and order information for the entire internal-combustion engine industry. The short-run problem here will be to find out how big the spare-parts pie is and then to divide it among the most urgent programs. The long-range objective will be to find the choke points, clear them, and thus increase the flow of parts sufficiently to meet all legitimate requirements for claimants such as the Petroleum Administration for War, Office of Defense Transportation, Department of Agriculture, as well as the military services.

Dry-Cell Batteries

PRODUCTION was up 5% in November to 221,000,000 cells. This reflects a continuation of the steady progress in the program. Since midyear, month-to-month increases in output have been greater than stepups in requirements. Thus in June the gap between output and requirements was 75,000,000 cells; in November the gap was down to 21,000,000 cells.

But first-quarter monthly goals call for 291,000,000 cells and the production-requirements gap may increase until March. In that month production may reach 275,000,000 cells.

The 275,000,000-cell goal is contingent on getting additional manpower for existing facilities and for new facilities which are now being activated. The National Carbon Company's new plant at St. Louis began its hiring during the latter part of November and production operations on one line were scheduled to begin on December 11. Employment will gradually step up during the month as additional production lines are opened.

Several plants, notably those in Milwaukee, Indianapolis, and Madison, have been able to utilize facilities to a greater extent as a result of net gains in employment.

Airborne Radar

AIRBORNE radar for the Army and Navy, according to preliminary estimates, met schedule in November at $111,000,000 and ran 3% above October.

Because new items are constantly coming in and production of a new item at any given moment may just have started to roll, results in a particular month are decidedly uneven. Thus PU-7() AP motor generators, at 1,706 delivered in November, beat first-of-the-month schedule by 206 units and gained 902

units over its October production. But the PU-16( )AP inverters, with 350 scheduled, did not get into production at all because of additional experimental work required to obtain satisfactory operation.

Design change is still the biggest production problem, as it has been from the start. All of the critical items are new developments which have come into the program within the last few months.

Requirements for these items are high and immediate. The AN/APT-5, for instance, would have to more than double its November production (617 units) to meet its December goal of 1,400. And this December goal has been adjusted for feasibility; requirements are 2,080 units, 50% higher still. Similarly with the AN/APG-15—November production was 25 units; December schedule is 150. December requirements are 493. There are half a dozen other sets with equally critical production schedules.

The greatest single need of the industry is that specifications on new sets be received at the earliest possible dates and that orders be placed promptly to allow for adjustment of schedules within plants.

Combat Loaders

COMBAT LOADERS are being taken off the critical list. Forty-six ships were completed last month, six behind first-of-the-month schedule but five above October deliveries. This brought total Navy completions to 124, leading only 45 to wind up the Navy's "expedited program" of 169 ships by December 31. Programmed "must" needs of 135 loaders (by November 1) were completed on December 7, five weeks late.

As the result of slippage, peak deliveries originally set for October will be achieved this month. Then the program—251 ships in all—declines rapidly; however, the Joint Chiefs of Staff are currently considering whether additional combat loaders will be required.

Communication Wire

BECAUSE requirements have been boosted again, tactical field wire has become even more critical—if that is possible. That goes despite the fact that November production of 179,000 miles of all types was 5% above October and only 3% below the scheduled rate of 184,000 (chart, page 15). The schedule, however, had been pared down to feasibility levels. And on top of that, requirements for 1945, previously estimated at 190,000 miles a month, have been raised to a monthly average of 234,000 miles, 30% above the current production rate.

To meet the needs of fast-moving troops—and to replace the damage of artillery fire—assault, field, and tactical communication-wire requirements have gone up at an accelerating rate, much faster than the rise in production. So critical is the need that some lend-lease wire which does not come up to Signal Corps specifications has been used.

Productionwise, both manpower and facilities are short. The Copper Division is now gathering information on the maximum stranding capacity of (a) existing facilities and (b) new facilities soon to become available, and it will estimate the additional facilities needed to meet stated requirements. The Steel Division will make a similar report on steel wire capacity.

The big jump in requirements in November was in field wire (W-110B and W-I/TS) for which 1945 requirements have been raised from an estimated 139,000 miles monthly to 179,000 miles. No-

vember production was 130,000 miles.

Given sufficient steel wire, it is estimated that present wire mill facilities could produce 160,000 miles. Production beyond this level would require additional facilities for compounding, insulating, and stranding. Thus, it is indicated that production for some months ahead will lag well behind minimum requirements.

Stranding facilities continue to limit production of assault wire (W-130) as the problem is intensified by the new jump in demand for field wire, which uses the same facilities, and which has been given a top priority.

In the case of long-range communication wire (W-143), the U.S. Rubber plant at Lowell, Mass., has been much slower in getting into production than was anticipated, due chiefly to problems in training labor to produce an acceptable product. This plant was designed to carry the load on W-143 wire.

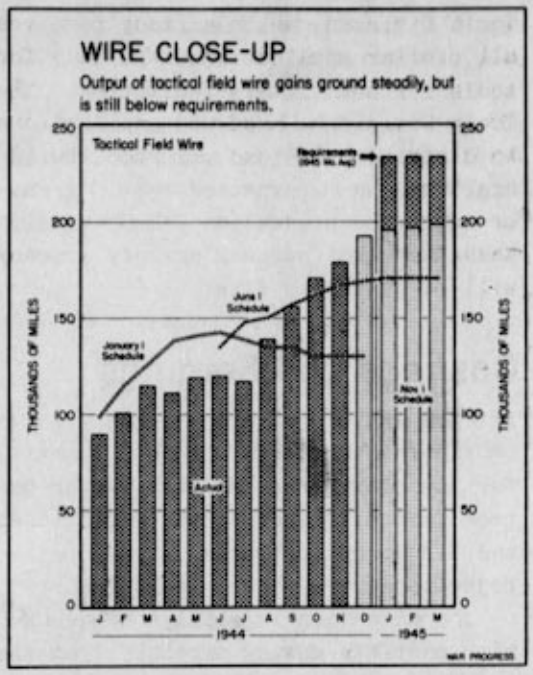
Wire Rope and Strand

SHIPMENTS of wire rope and strand in October, at about 33,000 tons, were 6% above September, the third successive month to show a gain.

Requirements for wire rope cannot be closely estimated. But carryovers of unfilled orders have shown a general upward trend during the past twelve months; and carryover of military orders has increased more rapidly than the total.

Among important military uses for wire rope and strand are winch cables for heavy trucks, cranes, power shovels, etc.; deck lashing, davit rope, arrester gear rope (on aircraft carriers), and other shipboard uses.

Lack of labor is a limiting factor. Also, a shift of demand to the smaller diameters of wire rope has resulted in overtaxing machine capacity in these



brackets. A simplification program prohibiting the use of certain sizes, grades, and constructions became effective late in October. Benefits of this move are now being felt.

Since August, the Steel Division has been receiving a monthly order board from wire rope and strand manufacturers on the basis of which it can divert shipments from less essential to more essential uses when necessary.

Machine Tools

TO SPEED deliveries of machine tools, to see that manufacturers are not overloaded, WPB's Tools Division will hereafter act as a central clearinghouse for orders.

Heretofore, applications for military facilities programs (PD-3As) for under $100,000 have been approved by WPB in the field, while PD-3As for more than that amount have cleared through the Construction Bureau. Now all such applications involving more than $5,000 worth of machine tools will go to the

Tools Division, which already receives all similar applications (WPB-541) for tools for nonmilitary facilities. The Tools Division will screen applications to distribute the load among tool builders. The results expected are (1) greater aggregate production and (2) greater assurance that needs of primary urgency will be satisfied first.

Castings and Forgings

AT LONG LAST, castings are reported to be flowing through in adequate quantity for the heavy-truck program, which has been severely handicapped by shortages and, in some instances, by excessive rejections.

The situation is still touch and go, with castings moving directly from the receiving platform to the production line. There are no banks against which to work in most of the more difficult types of castings—cylinder heads and blocks, axles, pumps, etc. And with the stepped-up production of engine parts expected to result from recent new scheduling activities (page 12), demand for such castings may increase.

During the past month, the Steel Division has set up working arrangements with the procuring agencies, particularly with the Office of Chief of (Army) Ordnance, Detroit (OCOD) and the Navy's Engine Parts Coordinating Office at Detroit (EPCO). These all represent steps toward solving the problem of order identification (WP-Nov18'44,p9).

There is also the task of achieving maximum utilization from foundries that can cast the larger and more-difficult-to-make types of products. Here manpower is still a bottleneck. For some time, there has been a list of critical plants which obtain preferential treatment in labor referrals. Now, the Army has agreed to furlough 1,000 selected men to work in the foundries; and the Navy has also agreed to grant furloughs for this purpose.

KEY STATISTICS OF THE WEEK

	Latest Week	Previous Week	Month Ago	Same Week		
				1943	1942	1941
War Program—checks paid (millions of dollars)	2,022	1,680	1,594	1,675	1,387	474
War bond sales—E, F, G (millions of dollars)	611	561	152	199	184	78
Money in circulation (millions of dollars)	25,165	25,107	24,717	20,255	15,098	11,023
Wholesale prices (1926=100)						
All commodities	104.2 p	104.2	104.1	102.9	100.1	98.2
Farm products	124.4 p	124.6	124.5	122.0	112.0	90.8
Foods	105.4	105.1	104.9	105.9	104.0	88.7
All other	99.0 p	99.0	98.8	97.8	96.2	93.7
Petroleum (000 barrels)						
Total U.S. stocks*	423,321	425,023	426,886	429,621	448,578	490,806 r
Total East Coast stocks*	73,089	74,518	77,893	67,166	57,318	99,623
East Coast receipts**	1,718	1,878	1,722	1,711	1,150	...
Bituminous coal production (000 short tons)**	2,006	2,018	1,945	2,122	1,899	1,903
Steel operations (% of capacity)	96.9%	96.0%	95.4%	99.3%	98.6%	97.5%
Freight cars unloaded for exports, excl. grain**						
Atlantic Coast ports	3,357	3,064	2,665	2,924	1,068	1,596
Gulf Coast ports	495	469	314	558	319	397
Pacific Coast ports	1,780	1,924	2,025	1,260	925	121
Department store sales (1935-39=100)†	363	304	252	297	295	250

p Preliminary * Excludes military-owned stocks r Estimated ** Daily Average N.A. Not Available † Unadjusted

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November War Output Down 1%

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x+675

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Number 223 December 23, 1944

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WAR PROGRESS

Prepared in the War Production Board
J. A. Krug, Chairman

War Progress is a confidential report designed to provide a coordinated and continuing picture of the overall war program for the various war agencies. To this end, it presents, analyzes, and interprets basic statistical and economic information, and from time to time examines the pros and cons of controversial questions.

Although War Progress is an official publication of the War Production Board, statements in it are not to be construed as expressing official attitudes of the Board as a whole, or even of individual members. Conclusions, whenever reached, should be considered editorial conclusions.

War Progress is prepared by the Reports Division (Joseph A. Livingston, Director).

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NUMBER 223 WAR PROGRESS DECEMBER 23, 1944

General Program Order Limits CMP

Policy restricting civilian use of CMP materials to fourth quarter '44 levels will hold back steel supply to conserve men, facilities for critical programs.

FOR THE FIRST TIME in CMP history the question of steel supply is not of primary importance. Supply for the first quarter of 1945 will hold just about level, but even if it were twice as high, claimant agencies would not get much more than has already been allotted to them for CMP's eighth round.

The issuance of the War Production Board's new General Program Order signalizes a change in controlled materials procedure: from here on CMP will be holding back the steel supply to maintain the war effort—to protect military production from the draining away of industrial energy, manufacturing facilities, and above all, manpower. In fact, CMP begins to look like another manpower control.

PLANNING FOR PLENTY

Back in October, CMP officials expected the first quarter of 1945 to be a period of freer allotments, a time for fattening up starved programs. With estimated steel production within 1% of fourth-quarter 1944 supply, and the overall munitions demand certain to drop (actually eighth-round allotments to the military are 10% less than in the current round), the claimants for essential civilian items made optimistic plans. WPB's Office of Civilian Requirements prepared to request 123,000 more tons of steel for increases in 56 products, such as stoves, kitchen utensils, beds, mattresses, washtubs, screening, sewing machines, and so on; WPB's Industry Divisions expected to request 350,000 additional tons for B products, chiefly automotive repair parts, building materials, construction machinery, steel drums, office equipment, and a wide range of industrial machinery; the independent nonmilitary agencies put in claims in behalf of much-needed equipment: War Food Administration for farm machinery and containers, Office of Defense Transportation for diesel locomotives and rails, Petroleum Administration for oil drilling machinery, etc.; and reconversion-minded manufacturers angled for priorities with which to refit their plants for peacetime production.

MISSING MEN

But even while these plans were being made, the present critical situation in military production was developing. In the midst of a slow overall decline of munitions needs, requirements for guns, ammunition, heavy trucks, and certain other items began a spectacular rise. Among the production problems resulting from these sudden increases, the most universal and difficult was the manpower shortage in industrial areas. Throughout all of 1944 the munitions industries had been releasing workers at the rate of 100,000 a month. These workers had not remained handy, ready to be rehired as the need developed; most of them had disappeared from the labor market (the armed forces made a net gain of 2,000,000 during the year). The new military programs found themselves short thousands of workers in the spots where they were

needed. It became evident that increases in civilian-type production in these areas must be ruled out for an indefinite period.

The new General Program Order implements this policy. In effect, it rules that no civilian production program calling for allotment of controlled materials or the use of assigned priority ratings in production will be approved at a level higher than that of the fourth quarter of 1944 (for seasonal programs, of the corresponding quarter of 1944) except upon positive demonstration that the higher level is essential and will in no way interfere with war production. All other civilian production will have to be undertaken through spot authorization with its deferred allotments and rigid on-the-spot manpower checks. (Even this leeway for civilian production has been eliminated in 126 industrial cities by a 90-day suspension of virtually all new spot authorization in labor shortage areas.)

PARTIAL SUCCESS

The intent of the order—to prevent increased allotments for nonmilitary production—has only been partially realized, however, as the table of carbon-steel allotments shows:

	4th Qtr. 1944	1st Qtr. 1945	Change
	(000 net tons)*		
Mil. total....	6,686	6,011	-675
ARCO..	108	79	-29
Army.....	3,340	3,705	+365
Navy.....	1,438	1,207	-231
Maritime.....	1,800	1,020	-780
Foreign total.	1,464	1,460	-4
FEA.....	1,147	1,165	+18
Canada.....	317	295	-22
Nonmil. total.	2,835	3,067	+232
WFA.....	906	1,022	+116
NHA.....	17	27	+10
PAW.....	374	391	+17
ODT.....	1,114	1,253	+139
OWU.....	153	103	-50
OCR.....	271	271*	0
Operations V.C.	3,093	3,316*	+223
Unallotted reserves total.	1,648	1,709	+61
MRO.....	1,245	1,386	+141
Constr. & facil.....	403	323	-80
Total.....15,726		15,563	-163

* Figures adjusted for comparability between quarters.

It will be noted that while the direct military share of carbon steel has dropped 675,000 tons below the previous quarter (chiefly because of the tapering off of the shipbuilding programs), the grand total of allotments has dropped only about 163,000 tons. Thus claimants not directly military will receive over 500,000 tons more steel in the eighth round than they did in the seventh.

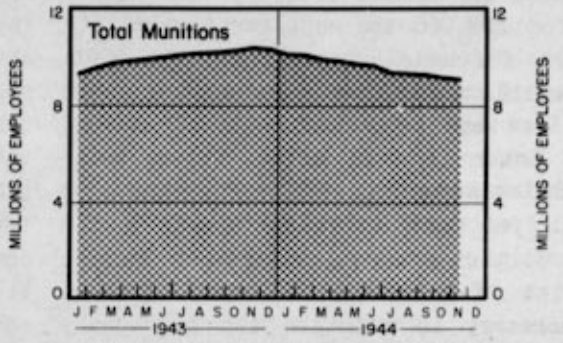
Looking for the reason, we find that among the independent agencies only WFA and ODT have made substantial gains. OCR, subjected to a flat interpretation of the new policy, got none whatever of its 123,000-ton requested increase, and was forced once again to relinquish its aim of raising output of most of its products to "Level II," its theoretical

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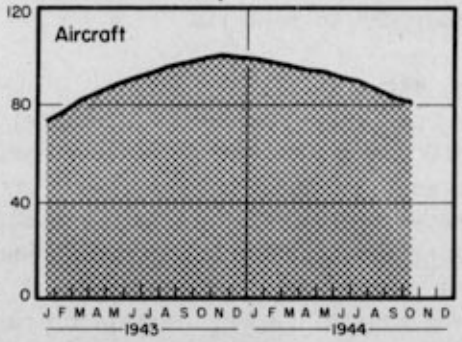
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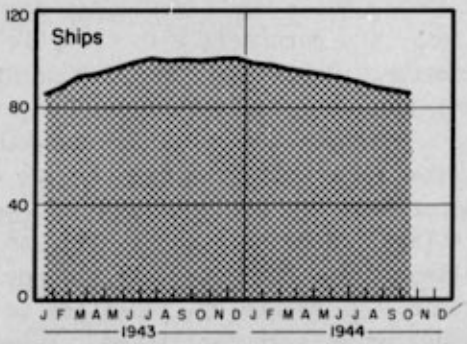
MUNITIONS EMPLOYMENT TRENDS

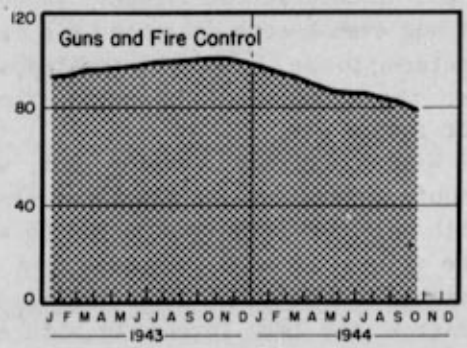
1. Factory rolls in munitions plants declined 12% from the peak in November, 1943.



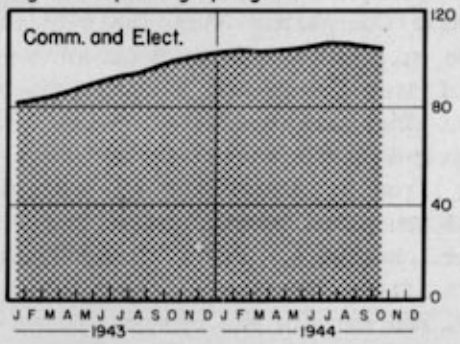
2. The drop in these major groups has been continuous,

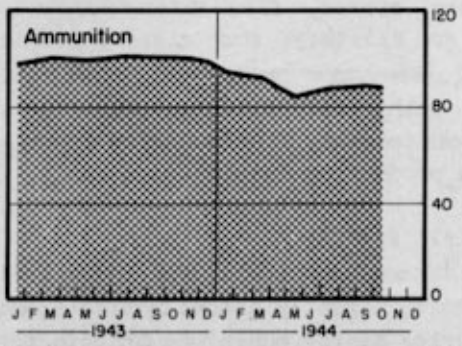


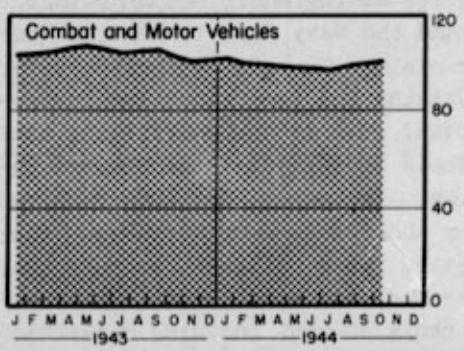




3. While in these, employment stayed high or is picking up again.







WAR PROGRESS

minimum essential production rate of civilian goods in wartime. WFA's increase is almost entirely the result of a 200,000-ton supplementary allotment for metal food containers (made possible by Maritime's release of plate mills) and is justified by the saving of labor it will effect in the food-packing industry. ODT's increase does not in fact represent a gain in its production program, but rather the receipt of a delayed allotment of steel necessary to maintain its previously approved rail program.

The 223,000-ton increase in the share of WPB's Operations Vice Chairman is not so quickly explained: B products—90% of this total—are a complicated group. They are products required in common by many claimants: tools (everything from a tack hammer to a drill press), supplies (bolts, nuts, paper, lumber, hardware, etc.), components (gears, tires, bearings, vacuum tubes, etc.), and certain end products (typewriters, stoves, fire extinguishers). Some are military, some civilian, some both. Some are programmed, some not, some both (for different agencies). Some can feasibly be held down to seventh-round production levels; some can't.

REQUESTS GRANTED

With machine tools and industrial equipment urgently needed by plants and foundries making munitions for both the Army and the Navy (not to mention Russia's claims for mining machinery for the Ukraine and generators for Dnepropetrovsk), it is not surprising that the Tools Division and the General Industrial Equipment Division received most of their requested increases. Other increases were allowed because they would not demand more labor (as in certain badly needed building materials) or because they would actually save labor (as with oil drums, the shortage of which has wasted much labor in reconditioning work).

But a considerable part of the OVC increase is for products which CMP cannot control, the "pure" B products (repair parts, many tools, standard gears, bearings, and other components, nuts and bolts, etc.). These are not programmed because requirements are indeterminate, being the sum total of the demand from manufacturers of a host of items of equipment who have the necessary priorities to buy what they need. The Industry Divisions must estimate this derived demand and get enough steel under CMP to meet it.

THE MRO SIGN

Similarly for the Maintenance, Repair, and Operating Reserve—second largest nonmilitary increase on the list—steel must be set aside to supply an estimated demand from priority-holding purchasers, but here there is even less control because, except for pumps, greasing tools, and a few other special items, the purchaser's priority is automatic. Railroads, steel companies, and most war manufacturers, together with construction projects, coal mines, state and county governments, and even department stores, can use automatic ratings, often as high as AA-1, to buy repair parts and materials, to replace tools and machinery, and often to remodel or enlarge facilities. Recently it has even become possible for a manufacturer to use his MRO allotment symbol for the procurement of certain tools for future use.

With machinery wearing out, with manufacturers having plenty of money, with talk of reconversion in the air, the volume of such purchases has increased steadily of late, and the MRO reserve has been forced up with each CMP period. Also the issuance of special authorizations for the purchase

of B products under the OVC allotment has been more liberal in recent months. Department stores get elevators, hotels get kitchen ranges, police departments get radios, textile mills and printing offices get new machinery.

In fact, the size of the eighth-round CMP allotments to OVC and to the MRO reserve are a necessary consequence of the V-E Day optimism that swept the country a few months ago. By comparison with them the few tons of steel withheld from the production of egg beaters and hairpins does not seem very important. Some thought may have to be given to all the methods by which production is authorized if the ninth-round allotments (on which work begins in a couple of weeks) are to reflect more consistently the purposes of the General Program Order.

For those products that the Order actually does control—for programmed production—its restrictions are often stringent. The 17 products listed below have been singled out for special surveillance. Even if military needs for these products should decrease, leaving steel allotments unutilized, Industry Divisions are forbidden to increase civilian production without a plant-by-plant check to determine how the skills of the released workers could be used elsewhere in the war effort:

Automotive Division:
- Trucks & truck tractors
- Off-the-highway trucks
- Truck trailers
- Motorcycles

Construction Machinery Division:
- Power cranes & shovels
- Heavy motor graders
- Tracklaying tractors

Consumers' Durable Goods Division:
- Bicycles & powercycles
- Commercial electric food equipment
- Cutlery

KEY STATISTICS OF THE WEEK

	Latest Week	Previous Week	Month Ago	Same Week 1943	Same Week 1942	Same Week 1941
War Program—checks paid (millions of dollars)	1,510	2,022	1,659	1,469	1,237	542
War bond sales—E, F, G (millions of dollars)	551	611	855	165	205	66
Money in circulation (millions of dollars)	25,292 P	25,165	24,845	20,582	15,389	11,224
Wholesale prices (1926=100)						
All commodities	104.4 P	104.2	104.1	102.9	100.5	93.1
Farm products	125.6 P	124.4	124.1	121.8	113.3	92.8
Foods	105.7	105.4	105.0	105.7	104.2	90.4
All other	99.0 P	99.0	98.9	97.8	96.2	93.8
Petroleum (000 barrels)						
Total U.S. stocks*	423,006 P	423,321	425,627	428,055	442,406	489,756 E
Total East Coast stocks*	78,994 P	75,009	76,285	66,755	56,210	90,552
East Coast receipts**	1,738 P	1,718	1,690	1,569	1,056	N.A.
Bituminous coal production (000 short tons)**	1,985	2,006	2,030	2,175	2,017	1,910
Steel operations (% of capacity)	96.3E	96.3E	96.3E	99.3E	98.4E	97.9E
Freight cars unloaded for exports, excl. grain**						
Atlantic Coast ports	3,312	3,357	2,088	2,270	1,096	1,634
Gulf Coast ports	578	495	512	399	351	359
Pacific Coast ports	1,800	1,780	1,958	1,225	909	112
Department store sales (1935-39=100)†	365 P	363	256	321	333	299

P Preliminary * Excludes military-owned stocks E Estimated ** Daily Average NA Not Available † Unadjusted

General Industrial Equip. Division:
Industrial power trucks
Service Equip. Division:
Typewriters
Commercial laundry machinery
35mm. motion picture equipment
Transportation Division:
Locomotives (steam & diesel)
Railroad cars
Busses & bus bodies

Before concluding any discussion of current CMP operations, it is necessary to note that, for the first time in over a year, copper supply may become a factor limiting production. The new ammunition programs have increased by 30% the overall 1945 requirements for brass strip. Even if it is not necessary to reconsider the copper allotments already made for CMP's eighth round, it is certain that copper allotments will be tighter in the ninth round.

November War Output Is Down 1%

Gain of 11% for critical programs was not matched by war output as a whole. Every major category fell behind schedule for third month in a row.

NOVEMBER'S spurt in critical programs was not matched by overall munitions production. While total output of $5,200,000,000 (preliminary), was 1% below October, critical programs—constituting a fourth of the full dollar value—gained 11% (WP-Dec16'44,p1). For example, aircraft as a whole declined 3%, but critical planes rose 21%; all guns and fire control fell 1%, but heavy artillery was up 5%; total ammunition rose only 1%, but heavy artillery ammunition increased 23%, Navy rockets 22%, Navy high-capacity ammunition 7%.

The production job was not quite so good in relation to schedule. Every major category fell behind forecast for the third consecutive month. First-of-month goal was missed by 3% in both critical and other programs, but the lag was of a different nature. Critical programs were scheduled to rise and they did, but not enough. Other programs were due to fall a little, and they fell too much.

With the two-front war continuing, deficits pile up the production job ahead. Programs not on the current critical list may get on at any time. Thus the Catalina patrol bomber (used by the Army as an air-sea rescue ship) continually missed schedule over a period of months. Last month it was added to the critical list. Other recent additions for similar reasons are the 57mm. gun and the Victory ship. The P-47 (M and N) was added because of the sharp stepup in schedule. And the recent boost in small-arms ammunition could result in that program being added later.

In dollars, munitions output fell $155,000,000 short of schedule. Ships, which accounted for 20% of total production, were responsible for 30% of this deficit. Aircraft accounted for 27% of total output, 32% of the deficit.

The Thanksgiving holiday undoubtedly was a factor in the failure to meet schedule. Furthermore, munitions employment declined another 85,000. Since the peak in munitions employment in November, 1943, approximately 1,300,000 workers have been separated from factory rolls. Aircraft alone accounted for 36% of this loss.

Aircraft

In addition to the familiar problems of tactical design change, inadequate production control, and model changeover, bad weather was a factor in the

November airplane showing. This prevented the flight testing—hence acceptance—of almost 100 planes completed during the month, including some Flying Fortresses, Lightnings, and Corsairs. As a result, the 71,600,000 pounds of airframe weight accepted were 5% below October and the first-of-month schedule. Numerically, output came to 6,747 planes, 9% below October and 6% short of schedule.

This month's schedule calls for 72,800,000 pounds of airframe weight (6,862 planes), about 2% more than actual output in November; and through the middle of December, acceptances were running at a rate high enough to meet this goal. But because of the Christmas holiday, it's a tossup whether the schedule will be met. Last year, holiday absenteeism was high and output failed to meet the month's mark.

SUPERS OVER SCHEDULE

After missing the target since May, output of B-29 Superfortresses, at 163, was five planes above the first-of-month schedule. With 75 Superforts, Boeing at Wichita again exceeded expectations, this time by six planes; Boeing, Renton, was five planes over its mark of 25; and Martin, Omaha, was again on the beam with 24 Superfortresses. The only plant that missed schedule was Bell, Atlanta, which turned out 34 planes. This was seven better than October but six short of the first-of-month schedule. Bell's plant manager was killed in a plane crash late in November but has since been replaced.

It now looks as if the B-32 Dominator will come through after all. During November, engineers licked the problem of instability and one Dominator was accepted at Consolidated Vultee, Ft. Worth, out of a schedule of 10. None had been accepted in October. In the first half of December, five more came through. Before it is in the clear, however, the B-32 faces a complete round of testing which will probably bring a number of design changes.

Although the PBM-5 Mariner patrol bomber at Martin, Baltimore, was again on schedule at 48 planes, patrol bombers as a group were still bucking new-model and production-control problems.

The 2-engined Catalina (PBY, PB2B, PBN, and OA-10), which has just gone on the critical list (WP-Dec16'44,p5), illustrates the difficulties in this group. Though output was ahead of October, goals were missed at all but one plant: Naval Aircraft, Philadelphia. Consolidated Vultee, New Orleans, was still trying to absorb labor and organize for efficient production; Vickers, Montreal, making the Army version of the Catalina (OA-10), was held up by modifications; and Boeing, Vancouver, was snagged by bad weather. Result: The 57 Catalinas accepted were 25% short of the first-of-month schedule.

In all, 166 patrol bombers came through last month as compared with 158 in October and a goal of 273. On a weighted basis, the first-of-month schedule was missed by 31%, the widest margin of any major group:

	Nov. Acceptances as % of	
	Oct.	W-12
All military planes.	95%	95%
Army procured....	95	98
Navy procured....	94	86
Combat planes.....	94	95
Superbombers.....	131	99
Forts & Liberators	86	99
Patrol bombers....	103	69
Medium bombers....	106	106
Light bombers.....	94	96
Fighters (inc. naval recon.)...	89	93
Transports.....	101	93
Trainers.....	82	100
Communications.....	81	78

The month's debut was the TBY Seawolf at Consolidated Vultee, Allentown, Pa. The TBY is urgently needed by the Navy to meet increased requirements for torpedo bombers. However, only one was accepted out of a schedule of 15. Preliminary flight tests indicate the need for many design changes; moreover, the Allentown plant is new and still has the problem of organizing for efficient and accurate production.

SIX-PLANE MISS

Because of an above-schedule showing at Douglas, Long Beach, the mark of 308 Flying Fortresses was met. Although Ford, Willow Run, ran above schedule on the Liberator, it wasn't enough to make up the loss at Consolidated Vultee, Ft. Worth, where an emergency spare-parts order made it necessary to strip completed planes. Thus the B-24 missed schedule by six planes—567 versus 573. All told, Fort-Liberator output ran to 875 planes.

Last month, the Douglas plant at Long Beach completed its shift to the full-vision cockpit canopy for the A-26 Invader light bomber, and the 67 planes programmed were completed. Because of a shortage of glass panels, however, acceptances slipped five planes below schedule. At Douglas, Tulsa, the 80 Invaders that came through met schedule, but none of them had the new cockpit canopy. Tulsa is now making the changeover and this will cut into December acceptances.

At long last, it looks as if the C-46 Commando is on the beam. All modifications have now been incorporated in this 2-engined heavy transport, and closeout of the P-40 Warhawk line means that the home plant—Curtiss, Buffalo—will be able to devote all its resources to the C-46. The 189 Commandos accepted in November exceeded schedule by one plane, topped October by nine. But Buffalo will shut down for 10 days this month to take inventory. Not only will that reduce December acceptances, it may also disarrange the production line in January. In contrast to the Commando, the 39 C-54 Skymasters accepted last month were 34% below schedule. And once again, the deficit was all accounted for by Douglas, Chicago (WP-Dec16'44,p4).

Despite carburetor trouble at North American, Dallas, output of P-51 Mustangs hit another all-time high in November at 765 planes—2% better than expected. Grumman, Bethpage (525 F6F Hellcats), Eastern Aircraft, Trenton (150 FM Wildcats), and Bell, Buffalo (255 P-63 Airacobras), all met or exceeded schedule. Nevertheless, fighters as a group failed to repeat their good showing in October—acceptances of 2,908 were 170 planes short of schedule.

Signal Equipment

Communication and electronic equipment critical items showed general improvement, but apparently at the expense of the rest of the program. Overall output, at $350,000,000 (preliminary), was 2% under October and missed schedule by 6%. The schedule was 2% lower than the October goal.

Airborne radar for the Army Service Forces met the first-of-month goal but registered a gain of only 3%, as against 11% in October and 15% in September. Production was handicapped by recent major adjustments in the program which have brought many design changes—the bugaboo of radar. The airborne radar schedule declines in December, but rises sharply again starting in January. Output must increase 25% over the current rate to meet the March goal.

The biggest dollar deficit of the month was in radio. For example, airborne radio for ASF dropped 24% under October and 15% below schedule. A large cut in the radio program is scheduled

for 1945; radar is taking over many of its functions.

Production of highly critical communication wire continued to show improvement—up 5% and only 3% below schedule. But schedules are running far below computed requirements, which only recently have been boosted again. The new 1945 requirements call for an average monthly production 30% above the current level, and this with existing facilities. In November, only one of the critical types—W-110—beat the first-of-month schedule. It is in this wire that virtually all of the increase is needed. Long-range communication

PRODUCTION PROGRESS – Preliminary

Value delivered or put in place – millions of dollars

	Nov. Preliminary	Oct. Actual	% Change	Nov. Schedule*	% Deviation Nov. Prelim. vs. Schedule
MUNITIONS AND WAR CONSTRUCTION	$5,415	$5,461	-1%	$5,568	-3%
TOTAL MUNITIONS	5,205	5,242	-1	5,360	-3
Aircraft	1,416	1,466	-3	1,465	-3
Total airframes, engines, propellers	1,125	1,164	-3	1,167	-4
Airplane spare parts	276	285	-3	284	-3
Other aircraft and equipment (excl. commun.)	15	17	-12	14	+7
Ships (incl. maintenance)	1,066	1,120	-5	1,111	-4
Navy	486	523	-7	563	-14
Combatant	173	189	-8	187	-7
Landing vessels	182	203	-10	172	+6
Other	131	131	0	204	-36
Maritime	355	367	-3	324	+10
Cargo and supply	260	248	+5	240	+8
Other	95	119	-20	84	+13
Army Vessels	58	61	-5	57	+2
Ship Maintenance and Repair	167	169	-1	167	†
Guns and Fire Control	259	261	-1	269	-4
Small arms (under 20mm)	48	48	0	48	0
Artillery, mortars, rocket launchers - ASF	57	58	-2	58	-2
Fire control and searchlights (excl. Radar)	56	59	-5	60	-7
Naval guns and other	98	96	+2	103	-5
Ammunition	612	604	+1	613	nil
Small arms ammunition (under 20mm)	47	47	0	47	0
Artillery amm., mortar shells, rockets - ASF	196	185	+6	187	+5
Aerial bombs - ASF	134	135	+1	139	-4
Naval ammunition and other	235	239	-2	240	-2
Combat and Motor Vehicles	476	442	+8	491	-3
Combat vehicles	163	148	+10	171	-5
Motor carriages for SP guns	32	29	+10	32	0
Automotive vehicles and tractors	274	259	+6	281	-3
Communication and Electronic Equipment	350	358	-2	371	-6
Radio	112	119	-6	120	-7
Radar	142	144	-1	150	-5
All Other	96	95	+1	101	-5
Other Equipment and Supplies	1,026	991	+4	1,040	-1
WAR CONSTRUCTION (GOV'T. FINANCED)	210	219	-4	210	†

*As of October 1 for construction, as of November 1 for all others.
†Schedule used for preliminary.

wire—W-143—exceeded October output by 21% but was 14% behind schedule. Assault wire—W-130—fell 3% below October and missed schedule by 17%.

Army Ordnance

Production of ordnance and engineers' items for the Army Service Forces hit $1,000,000,000 for the first month since January. This was an increase of 4% over October, but 1% shy of the first-of-month schedule. With the schedule reduced for feasibility reasons, the attained rate of output remains far short of the Army's computed requirements.

Despite improved production in November, output of key critical items must still rise sharply to meet the first-of-month schedules for December:

	% Gain Over Oct.	% Stepup Req. To Meet Dec. Sched.
Heavy art. amm..	+23%	+9%
Heavy-heavies ...	+2	+11
Tanks.....	+12	+13
Aerial bombs.....	+1	+9

Although dollarwise the production of heavy-heavy trucks (ordnance only) was up 2%, the 5,540 big trucks delivered ran 20 fewer than in October. Reason: the Army is pushing the more costly tactical trucks, used in close support of troops, in preference to "operational" types, designed for behind-the-lines hauling. In addition to being more expensive, tactical trucks are more difficult to build, require more critical components and man-hours (WP-Dec16'44, p7). Output of light-heavy ordnance trucks continued to rise sharply: 20,736 were delivered as compared to 18,885 in October. The schedule called for 18,396.

Tank production was up 12%, but the 1,879 tanks which rolled off assembly lines were 79 short of schedule. Most of the deficit was in the medium M4 mounting the 105mm. howitzer; deliveries totaled 241 against a forecast of 330. Output of 1,082 M4s mounting the 76mm. gun and 117M4s carrying the 75mm. gun exceeded schedules.

Shell loading for heavy artillery (over 105mm.) jumped 23% and was 6% ahead of forecast. However, production must rise even more to meet the all-time high scheduled for 1945. Mortar shells, another accelerating program, also ran 6% ahead of the month's goal, but in the case of the 81mm. heavy high-explosive mortar shell there was an 8% lag. HE 75mm. through 105mm. shells, 9% under October, were 1% ahead of schedule.

Fragmentation bombs ran 7% ahead of schedule. Incendiary bombs, on the other hand, fell 21% short of the forecast, and aerial-bomb production as a whole was 4% behind schedule.

Naval Ships

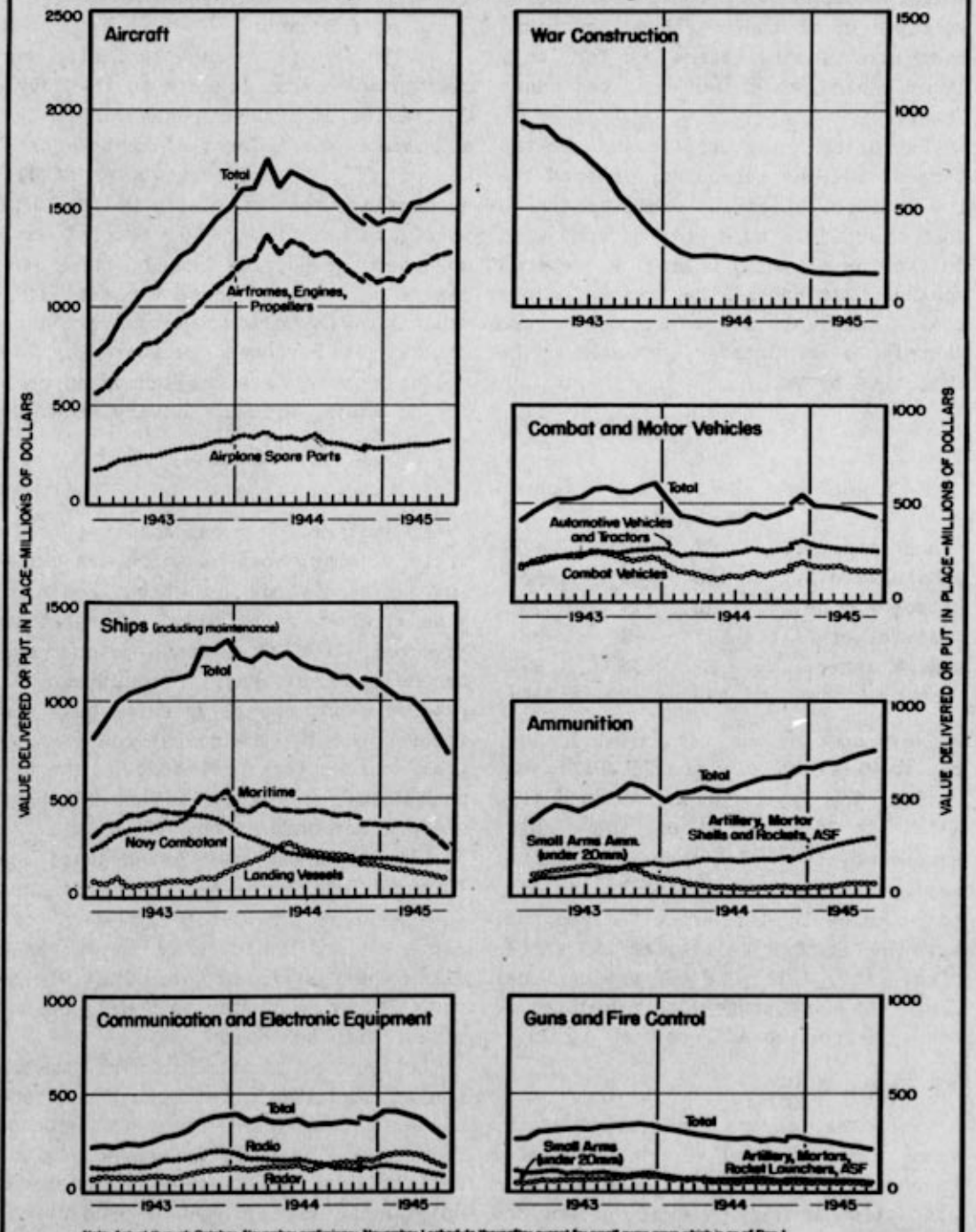
Navy ship completions ran to 239,000 displacement tons in November, 2% below October, 4% behind the first-of-month schedule. Deliveries of combatant ships fell 7% behind the goal, due to delay in completing four vessels—three destroyer escorts and one submarine. The DE program is virtually completed, with 12 more due out of a total of over five hundred.

"Shangri-La," the 27,000-ton aircraft carrier, came through as scheduled, together with the "Commencement Bay"—the first of 19 aircraft carrier escorts of the 12,000-ton class. This baby flattop is somewhat heavier than the Independence class aircraft carriers. These two ships alone accounted for nearly three-fifths of the total combatant tonnage. In addition, six destroyers, three DEs and seven subs were delivered, for a total of 67,000 displacement tons as against 62,000 tons in October.

Landing-craft deliveries, at 120,000 displacement tons, again beat schedule

NOVEMBER MUNITIONS PRODUCTION

For the third consecutive month, all major munitions groups missed the first-of-month schedule. Only ammunition, combat and motor vehicles gained over October.



Note: Actual through October, November preliminary. November I schedule thereafter, except for small arms ammn which is as of Dec. 1.

WAR PROGRESS

slightly, although they were 9% below the October total. Completions were high lighted by the first eight LSMRs (landing ship medium, rocket). These ships, equipped with rocket launchers, go right up to the beachhead and pound enemy shore installations. So far, only 12 are scheduled, but more may be added later.

Patrol and mine craft again hit the target, but, as scheduled, dropped below October. District craft continued to miss schedule by a wide margin, with deliveries slightly below the previous month and 33% behind the first-of-month goal. Auxiliary and other craft rose sharply over October but missed the objective by 7%:

	Nov. Deliv. (000 tons)	% Deviation From Oct.	% Deviation From Sched.
Combatants.....	67	+8%	-7%
Landing craft.....	120	-9	+3
Patrol & mine.....	13	-19	0
District craft....	12	-8	-33
Aux. & other.....	27	+35	-7
Total.....	239	-2%	-4%

Navy completions of combat loaders ran to 46 (eight AKAs and 38 APAs), but missed the goal by one AKA and five APAs. In October, 41 of these ships were completed. To date, 124 combat loaders have been completed by the Navy out of 169 in the expedited program. With the December deliveries (53 scheduled) they will be off the critical list. The APA program is scheduled to end in March; the AKA program, in July.

Maritime Ships

For the second consecutive month, value of Maritime deliveries in November reached a 1944 high. At $486,000,000, production ran 11% ahead of October and equally ahead of the first-of-month schedule. The total was second only to the all-time peak in December, 1943. While deliveries in units totaled only 159 to October's 168, they were 13 ships ahead of forecast.

As in October, the big factor was delivery of combat loaders to the Navy. Deliveries of APAs and AKAs ran to 50, as compared with a first-of-month schedule of 46 and an October total of 41, accounting for virtually half of the total value of Maritime completions. November production brought the cumulative delivery of these types to 140, exactly the number which were previously scheduled to have been delivered by the end of October. December schedules call for 43 ships, with the January schedule declining sharply.

AHEAD ON BOTH COUNTS

After that, the emphasis shifts to Victory ships, most of which are built in the same yards as combat loaders. Nine Victory ships were delivered in November, two more than October and schedule. Last May, production had reached a peak of 16 vessels, but was interrupted by the combat loader program which took precedence. The new peak is set for next June, when 46 ships are due for completion.

Liberty ships came in ahead of the forecast once again—48 delivered against 41 scheduled. In October, 51 were completed. Last month they represented 22% of the Maritime program; last December, 43%. By next June they will be out of Maritime schedules.

Delivery of 22 standard tankers matched the December, 1943, all-time high. Schedule was beaten by two ships, the October performance by four. As now scheduled, deliveries of tankers will remain level until June, then drop out of production.

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