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WAR PROGRESS

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Battlefronts Write the '45 Program

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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.

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Battlefronts Write the '45 Program

Critical items, many for combat operations, represent fourth of rising production goal. December 1 program, plus planned additions, is almost as high as '44 output.

THE PRODUCTION GOAL for 1945 is now expected to be at least 10% higher than estimated two months ago. Monthly estimates of the size of the munitions program had been successively reduced throughout most of 1944, and the $56,600,000,000 October 1 figure was $9,500,000,000 below that foreseen at the year's beginning. But events of the autumn and winter reversed the trend. The program as of December 1 calls for $60,300,000,000 and to this may be added nearly $1,000,000,000 for increases planned for the Maritime program, another $1,000,000,000 for communications and electronics, and increases which undoubtedly will occur in other programs when requirements are fully spelled out.

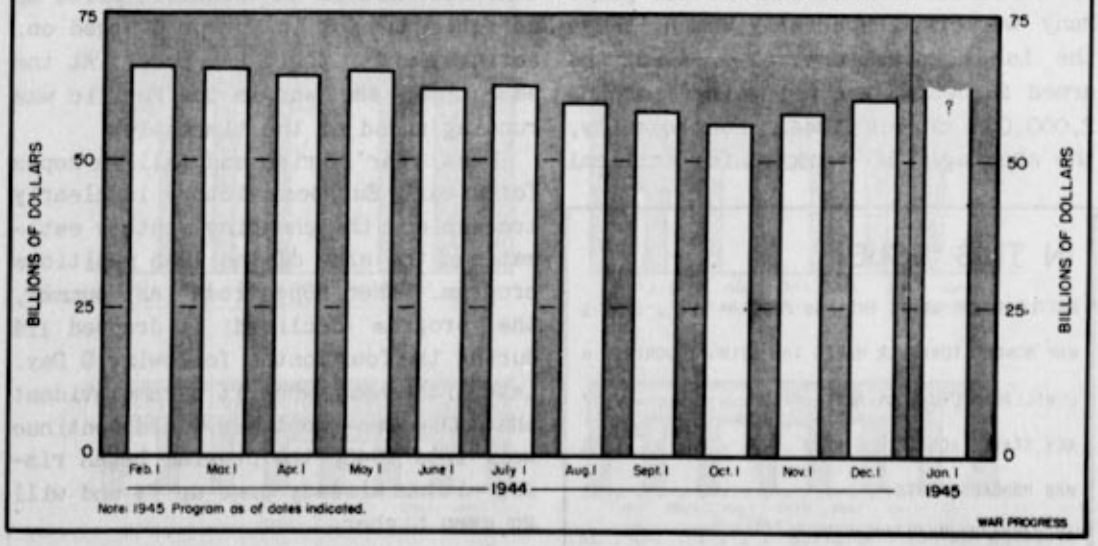
The 1945 program, with these additions, calls for a production job almost as large as the $64,000,000,000 output for 1944—the biggest production year. The job ahead, however, is basically different, and in many respects far more difficult.

A year ago munitions were being manufactured for D Day—still five months away. Output was devoted largely to accumulating a reserve of items which it was expected would be needed for the invasion. And only a comparatively few items were considered critical.

Now, the European war has reached a

SHIFT IN 1945 MUNITIONS PROGRAM

During most of last year, this year's schedules were reduced. But between October and December, the 1945 program was increased 7%—and will go higher.



crisis. Battle experience is dictating the items which must be produced. The number of critical programs has multiplied until they represent a fourth of total munitions production. And many of these items must be produced in a hurry for immediate combat operations. It is no longer a matter of filling pipelines or building up strategic reserves (WP-Nov18'44,p1). A miss in schedule is much more serious than in the past.

At the beginning of 1944, manpower was considered over the hump; although many critical areas still existed, the situation was expected to improve as the year advanced. Facilities generally appeared sufficient except for a few minor additions which were bound to occur. Most materials were in adequate supply. All in all, 1944 began on an easy note.

MISSING MANPOWER

Going into 1945, manpower is a bigger problem than it was 12 months ago. Munitions employment has declined throughout 1944 at the rate of 100,000 a month. And when contracts are cut back, not all of the released workers seek other jobs. Many workers, especially women, leave the labor market entirely. Also, the armed forces made a net gain of around 2,000,000 during 1944. Consequently, the shortage of workers for critical programs has become more acute than ever. Nor are facilities sufficient now; about $1,000,000,000 of additional capacity is needed to meet sharply boosted demands for artillery ammunition, tires, sulfuric acid, etc. Similarly, the materials situation has tightened, especially in lead, copper, aluminum, steel, and lumber.

FALSE HOPES

Another factor which makes the 1945 program difficult is that the American war economy must pull itself out of a declining phase—almost a slump—caused by overoptimism due to the early success of the invasion. By late summer, peace in Europe appeared a strong probability before the end of 1944. Every indication pointed to sharp cuts in munitions programs and the early freeing of labor and materials for civilian production. Some manufacturers began seeking priorities with which to reconvert their plants (WP-Dec23'44,p1). Meanwhile, munitions output, which early in 1944 had been slated to reach a new all-time high last November, was instead 7% below the peak of November, 1943. And as continued misses of schedule piled up deficits, the war in Europe dragged on, eating into strategic reserves. At the same time, the war in the Pacific was running ahead of the timetable.

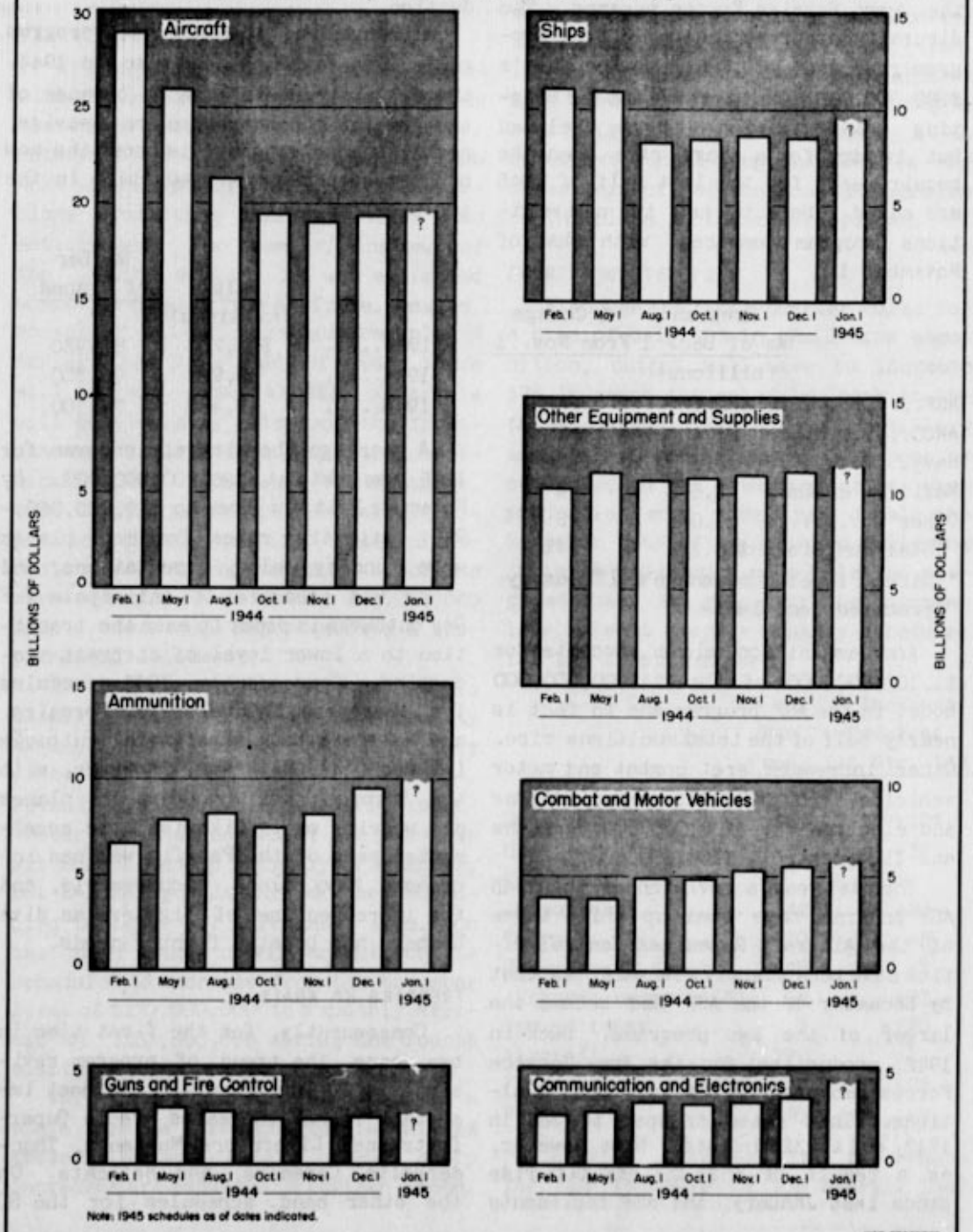
Last year's rise and fall in hopes for an early European victory is clearly traceable in the changing monthly estimates of the size of the 1945 munitions program. When hopes rose last summer, the program declined; it dropped 11% during the four months following D Day. Late in the year, when it became evident that the two-front war would continue well into 1945, the program began rising—it has already gone up 7% and will go even higher.

Between October and November, the

IN THIS ISSUE:

CHANGING PERSPECTIVES

Between November and December, 1945 schedules of all major munitions groups except ships were increased, reversing the downward trend in aircraft, guns and fire control.



Note: 1945 schedules as of dates indicated.

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1945 program was raised $1,300,000,000, and then the December 1 revision brought the big jump—$2,400,000,000. Three-fourths of this latter increase was in the Army Service Forces program. The Aircraft Resources Control Office program rose $500,000,000, and the Navy's $200,000,000. The Maritime and War Shipping Administration program declined but is due for a sharp rise when the requirements for the last half of 1945 are added. Here is how the new munitions program compares with that of November 1:

	Program As of Dec. 1 (billions)	% Change From Nov. 1
ASF.....	$22.2	+9%
ARCO.....	21.4	+2
Navy.....	13.1	+2
Maritime & WSA..	2.6	-4
Other*.....	1.0	0
Total munitions	$60.3	+4%

* Direct foreign purchase and Treasury-procured lend-lease.

Army ammunition alone accounts for $1,100,000,000 of the $1,800,000,000 boost in the ASF program and in fact is nearly half of the total munitions rise. Other increases are: combat and motor vehicles, $300,000,000; communications and electronics, $200,000,000; and guns and fire control, $100,000,000.

The past year's revisions in the 1945 ASF program have been up while those of the Aircraft Resources Control Office have been sharply downward, so that by December 1, the ASF had become the larger of the two programs. Back in 1942, production for the Army Service Forces amounted to 42% of total munitions. This ratio dropped to 38% in 1943, and to 32% in 1944. Now, however, as a result of a $5,200,000,000 rise since last January, the ASF represents 37% of 1945 munitions as against the 26% expected then. Together, the ASF and ARCO are now scheduled to account for nearly three-fourths of 1945 production.

Although the 1945 aircraft program calls for fewer planes than in 1944, the dollar value is greater because of the greater concentration on heavier, costlier models. Here is how the new program compares with production in the two previous years:

	Value (millions)	Number of Planes
1943.....	$13,750	85,930
1944.....	18,920	96,500
1945.....	19,450	77,700

A year ago the aircraft program for 1945 was set at $28,800,000,000. By November 1 it was down to $19,000,000,000. Attrition rates for many planes were running below expectations and there was pressure to anticipate V-E Day cutbacks in order to ease the transition to a lower level of aircraft production. Consequently, 1945 schedules for Liberators, Thunderbolts, Corsairs, and Hellcats took substantial cutbacks (WP-Dec30'44,p8). Now, however, with the European war dragging on, planes are wearing out. Likewise, the accelerated pace of the Pacific war has increased Navy plane requirements, and the increased use of fighters as dive bombers has boosted fighter needs.

TRENDING UP AGAIN

Consequently, for the first time in two years, the trend of program revisions is up in aircraft. The most important recent increases are in Superfortresses, Liberators, Mustangs, Thunderbolts, Corsairs, and Hellcats. On the other hand, schedules for the SC

Seahawk and L-4 Cub have been cut back, and the schedules for the PB4Y and PBM-5 Navy patrol bombers were cut to feasible levels even though the original W-12 schedule was below Navy requirements.

FEWER LAYOFFS

Although the stepup in aircraft schedules will not lead to any major increases above 1944 levels in the use of manpower, materials, or components, it will mean that the release of resources from airplane production will be smaller than anticipated. For example, instead of the 100,000 workers it was estimated would be released from airframe, engine, propeller, glider, and subcontract plants during the first half of 1945, there will be less than 40,000. Materials will be similarly affected; the first-quarter Requirements Committee determination for aluminum, for instance, came to 298,000,000 pounds, or 29% below the fourth-quarter, 1944, allotment, but the new revisions increase requirements 6% to about 315,000,000 pounds, and ARCO has requested a supplemental allotment.

The increase in the Navy program is mainly due to rockets and high-capacity ammunition. As of December 1, monthly schedules for all other major groups, including ships, which declined in November from the plateau of the previous six months, are up slightly in December, but beginning in January are now scheduled to taper off throughout 1945. On the other hand, naval ammunition is scheduled to increase from the November level of $170,000,000 to a monthly average of $233,000,000 during the fourth quarter.

While the production forecast as a whole for the first quarter is only 3% above the November rate of output, sharp increases are required in certain items. For example, ground radar is scheduled to rise 220%. This program dropped sharply in 1944 from a peak of $46,000,000 in March to $5,000,000 in November. The reason: ground radar heretofore has been employed primarily in defense—antiaircraft, coastal defense, etc. (WP-Apr15'44,p10); now new equipment has been developed for gun-laying by searchlight control which makes it an effective combat weapon. This is another example of the constant changes taking place in the radar program.

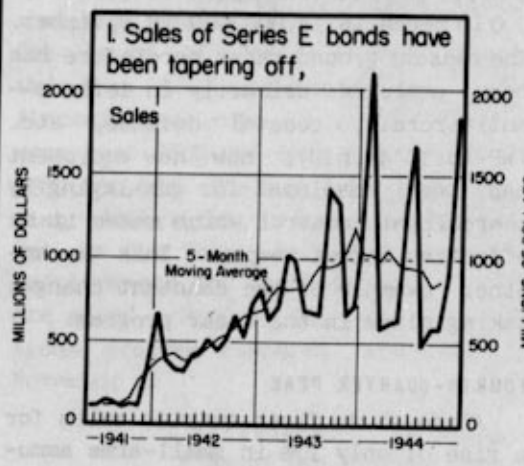
FOURTH-QUARTER PEAK

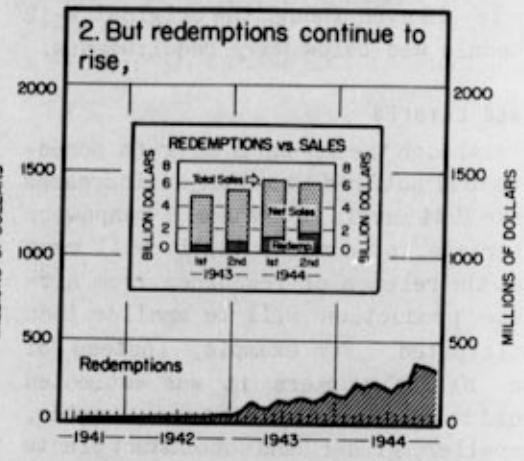
Although the first quarter calls for a rise of only 10% in small-arms ammunition, output will have to increase 57% to reach the scheduled peak in the third quarter. For all ASF artillery ammunition and mortars, the peak is scheduled in the fourth quarter, when production must more than double the November rate of output. The following table shows how much some selected programs have to rise over the November level to meet average monthly schedules for the first quarter:

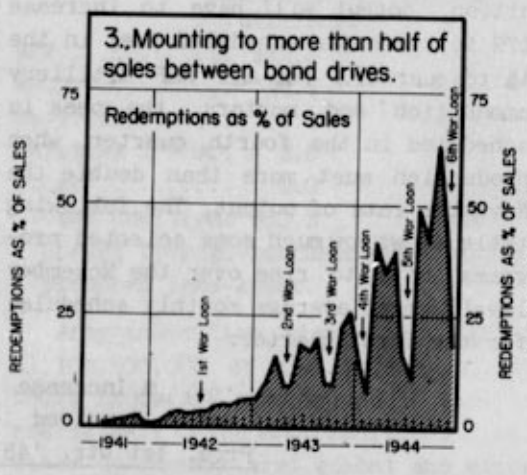
	Nov. Prod. (millions)	% Increase Required 1st Qtr. '45
Small-arms am.	$47	+10%
Heavy-art. am.	54	+37
Other art. am. & mortars	142	+20
Tanks	110	+5
Heavy-heavy trucks .	45	+4
Airborne radar (ASF)	62	+23
Ground radar	5	+220
Aircraft 1,378		+11
Field wire	14	+22
Navy am.	170	+8

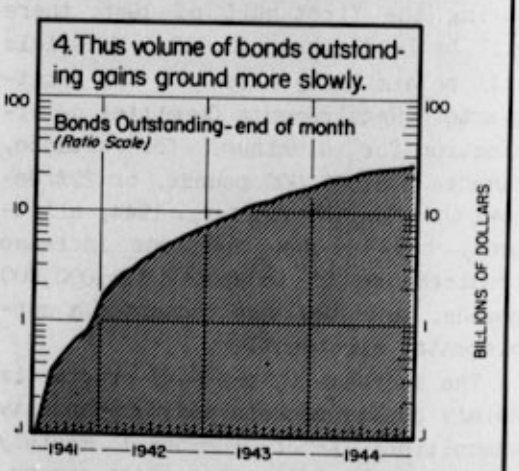
In these programs lies the reason for the increase in the overall 1945

WAR BONDS—TURNOVER MAKES THE GOING TOUGHER



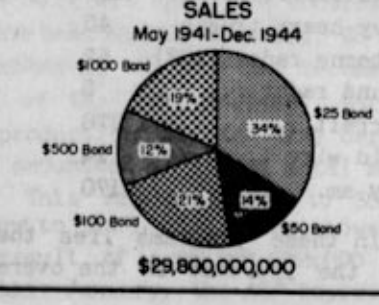


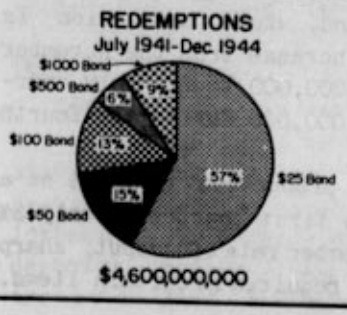




AND THE SMALLER THE BOND....

The bigger the turnover: 15% of all Series E sales have been redeemed; $25 bonds, representing 34% of sales, account for 57% of redemptions; $1000 bonds, 19% of sales, 9% of redemptions.





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program and the crux of the production task ahead. Many plants which had planned to taper output this year must continue to operate at capacity, and plans based on release of manpower, materials, and components must be revised. With the suspension of spot authorization (WP-Dec23'44,p1) and the shift of emphasis to war production, reconversion, at the beginning of the new year, appears more distant than at any time in the past six months.

Civilian Picture on Photo Film

Though the services receive 91% of their requests for first quarter, claimants as a whole take 26% cut. Hitherto comfortable civilian supply is reduced sharply.

SINCE the war began, photographic film has done a generally good job of staying off the scarcity list. True, amateur shutters haven't been clicking so often; distribution of roll, cut sheet, and motion-picture film to nonprofessional civilian photographers has been limited to between 50% and 76% of 1941 output. But the supply of film for Hollywood, the press, medical men, scientific laboratories, and other professional users has been comfortable—despite ceilings on distribution ranging from 75% to 100% of 1941 production.

Now, however, the war has really caught up with photographic film. As the new year begins, every major type—movie, X-ray, aero, cut sheet, and roll—faces the tightest position in its history. Allotments in the first quarter give an idea of the story. Demand from the Army, Navy, Foreign Economic Administration, and other claimants ran to the equivalent of some 214,200,000 square feet of all film types. But they received only 158,400,000 square feet, or 26% less than originally requested.

WHAT THEY GOT

Among individual film groups, the ratio of allotments to initially stated requirements ranged from 51% for 16mm. negative types to 100% for 32mm. positive (which is practically all used by the military):

Film Group	Allotments 1st Qtr. '45 (000 sq. ft.)	% of Orig. Req.
16mm. negative	7,000	51%
Roll	9,000	55
Cut sheet	13,000	68
35mm.	67,500	73
X-ray (medical & indus.) ...	28,900	82
16mm. positive	4,700	86
Aero	21,000	87
32mm. positive	7,300	100
Total	158,400	74%

The Army and Navy did best of all when the first-quarter pie was divided. They got all that they asked for in cut sheet, 32mm. positive, X-ray, and roll film; almost all that they asked for in 16mm. positive and aero film. All told, the services received 91% of original first-quarter requests (chart, page 9).

Outside the military, it was a different story. With the exception of a civilian request for 32mm. positive film (used in printing motion pictures from either 16mm. or 35mm. negatives), all claimants had to take reductions in every major film group.

Some of these reductions were sharp. In 35mm. film—Hollywood's bread and butter—the home front received 71% of stated requirements in the first quarter: 36,700,000 square feet out of 51,800,000. Since requirements for all professional

users of motion-picture film are based on the 1941 rate of consumption, the effect of this is to cut them back to 71% of the average quarterly usage in that year, the lowest level since restrictions were placed on film distribution.

Foreign countries got only 6% of what they asked for in 16mm. negative types, used in microfilm, sound recording, home-type movies, etc. And although the Office of Operations Vice Chairman (representing civilians) requested a modest quantity of aero film in the first quarter (60,000 square feet, or one-fourth of 1% of total estimated output), none was granted.

MILITARY SHARE

The tight position in photographic film may be traced largely to increased requirements from the armed services. Back in 1942, average quarterly output of all types of film came to the equivalent of 117,000,000 square feet. Of that total, the Army and Navy accounted for 20% to 25%, or between 23,400,000 and 29,300,000 square feet per quarter.

In the current quarter, military demand was at least triple the average quarter in 1942, running to almost 87,000,000 square feet—well over half the industry's estimated capacity of 158,400,000 square feet in the quarter. On top of that, requests from other claimants also rose. As a result, demand for every type of film exceeded the industry's productive capacity.

When the Requirements Committee got through, the military's allotment of all types of film in the first quarter came to the equivalent of 79,100,000 square feet, 50% of estimated output. Thus, whereas in 1942 the Army and Navy took 20 to 25 square feet out of every 100 produced, now they are slated to take 50 out of every 100.

Since Pearl Harbor, the photographic film industry has had two major expansions: the first took place at Eastman Kodak, Rochester, the other at General Aniline's Ansco Division, Binghamton. These, together with physical improvements and fuller utilization of facilities, have lifted average quarterly capacity from 117,000,000 square feet to an estimated 158,400,000 today, or 35%.

PRODUCTION PATTERNS

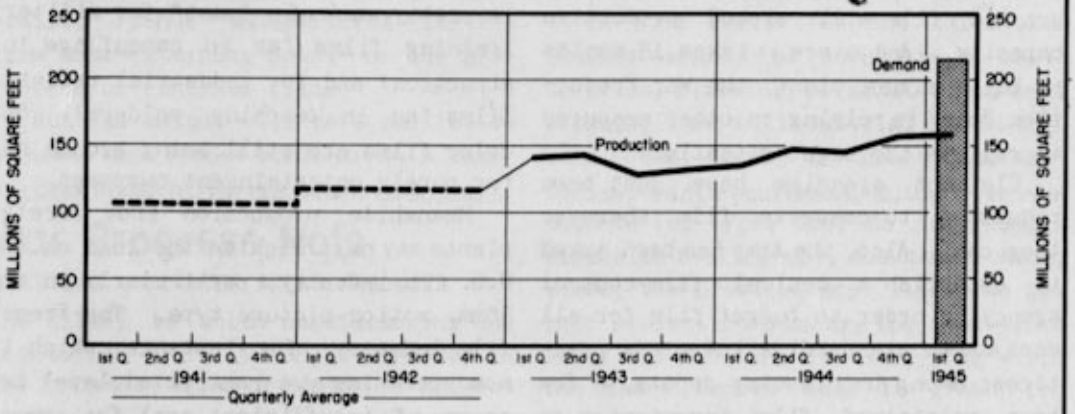
However, capacity figures in the photo-film industry are often more theoretical than real. Within a given plant, production of certain types of film is interchangeable—but not necessarily on a 1-for-1 basis. An additional 1,000,000 square feet of aero film, for example, is not obtained simply by cutting out 1,000,000 linear feet of 32mm. positive. It all depends on the production pattern at a given plant.

Thus, to get that additional 1,000,000 square feet of aero film, it might be necessary to sacrifice 8,700,000 linear feet of 35mm. plus 500,000 square feet of roll film at Eastman Kodak. Or to get an extra 600,000 square feet of X-ray film, Ansco might be able to do it at the expense of 1,000,000 square feet of cut sheet (used largely by newspapers, magazines, commercial photographers, and advertisers).

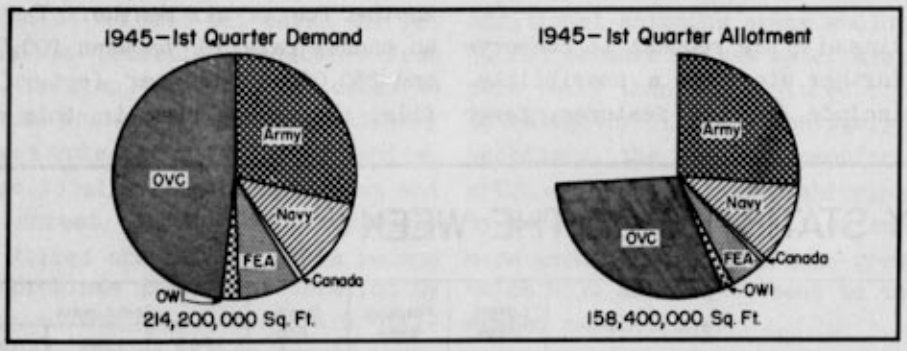
The possibilities for such switching are relatively limited. Although there are ten producers of finished film in the United States, they do not all make a full complement of film. As an indication, three make 35mm.; four, industrial X-ray; five, roll; and nine, cut sheet. Eastman Kodak is by far the largest manufacturer (it accounted for 73% of estimated output in 1943, or 558,000,000 square feet). Dupont and Ansco occupy second and third places, respectively. The remaining companies

PHOTO FILM FUTURES

Though output of film is at an all-time high in the current quarter, it is 26% short of initial demand.

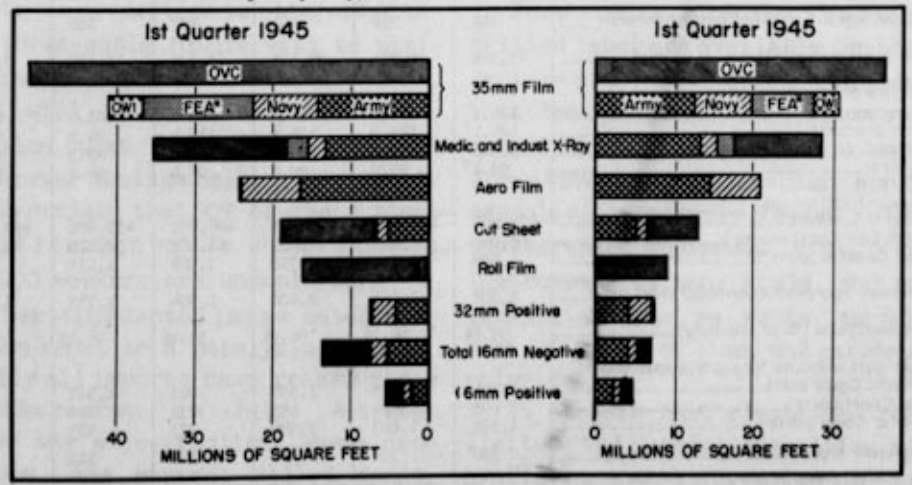


As a result, all claimants are cut – with the military coming out best.



This is the demand by major types:

And this is what was allotted:



*Includes Canada

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—Gevaert, Standard Brands, Buck X-Ograph, Haloid, etc.—are relatively small.

While the two-front war continues, it is likely that the demand for photographic film will exceed productive capacity. And since it takes 18 months to build a new plant, the War Production Board is relying on other measures to relieve the tight situation.

Claimant agencies have just been requested to conserve film wherever they can. Also, the Army has been asked to establish a central film-control agency in order to budget film for all uses and to standardize inventory practices; among Army issuing depots, a few have maintained film inventories in certain types ranging as high as 120 days.

In line with the request to conserve film, further steps are a possibility. These include shorter features, fewer prints, and the reduction of color productions (such as Technicolor). It takes about a third more film to process a color movie than it does the more familiar black-and-white product. Color is pretty much of a "must" for military training films (as in camouflage instruction) and for industrial training films (as in teaching welders). But color films are still being ground out for purely entertainment purposes.

Meanwhile, production from foreign plants may help lighten the load on the U.S. film industry, particularly in the 35mm. motion-picture type. The French film industry, for instance, which is now operating at a restricted level because of insufficient coal for power, is expected to be up around capacity in another four or six months. That means an annual rate of between 200,000,000 and 250,000,000 linear feet of 35mm. film, the volume item in this country

KEY STATISTICS OF THE WEEK

	Latest Week	Previous Week	Month Ago	Same Week		
				1943	1942	1941
War Program—checks paid (millions of dollars)	1,872	1,598	1,680	1,418	385	118
War bond sales—E, F, G (millions of dollars)	510	536	561	297	166	-
Money in circulation (millions of dollars)	25,326	25,335	25,107	15,393	11,109	8,733
Wholesale prices (1926=100)						
All commodities	104.7[P]	104.5	104.2	101.2	101.2	93.8
Farm products	126.7[P]	125.9	124.4	115.4	94.3	95.5
Foods	105.5	105.8	105.4	107.6	99.3	91.2
All other	99.1[P]	99.0	99.0	96.0	94.1	93.9
Petroleum (000 barrels)						
Total U.S. stocks*	417,268	418,915	423,321	426,850	439,926	493,881[E]
Total East Coast stocks*	68,015	69,493	73,089	64,083	52,179	91,396
East Coast receipts**	1,698	1,797	1,718	1,524	1,019	N.A.
Bituminous coal production (000 short tons)**	1,800	1,668	2,006	1,904	1,757	1,694
Steel operations (% of capacity)	95.8%	92.1%	96.9%	98.2%	96.1%	99.9%
Freight cars unloaded for exports, excl. grain**						
Atlantic Coast ports	2,624	3,277	3,357	963	1,517	N.A.
Gulf Coast ports	403	524	495	271	367	N.A.
Pacific Coast ports	1,381	1,667	1,780	723	177	N.A.
Department store sales (1935-39=100)†	390[P]	388	364	117	111	87

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

as well as in France.

Outside the U.S., France is normally the world's second largest integrated producer of film. (Germany outranks her.) Unlike England, Canada, and Australia, France manufactures its own film base—starting point in the production of finished film.

But its output will be a palliative at best; what France turns out in a year, Eastman Kodak alone can match in 90 days.

War Progress Note

WHAT CAN LIBERATED AREAS PRODUCE?

THE EXTENT to which manufacturing and industrial activity can be restored in the liberated areas of Europe is severely limited, for the time being, by the shortage of shipping space caused by the prolongation of all-out war. And yet the maximum feasible production from French, Belgian, and Dutch factories is desirable not only to reduce military shortages and acute civilian hardships, but also to alleviate unemployment and social unrest, which could seriously hamper Allied operations. This is one of the problems under consideration by a group of War Production Board officials now in Europe at the Army's invitation.

Whatever production is obtained within the foreseeable future will be pitifully small compared to overall needs. And it will be small compared to the production that available facilities and manpower would permit. (Officially the French claim that 80% of their plant capacity is now in usable shape and that 1,000,000 workers are unemployed.)

The limiting factor is raw materials, which are short to a paralyzing degree. Virtually all imports have ceased since the German retreat in July. And because of war's destruction, enemy depredations, and current Allied needs, European railroads and port facilities would not be able to handle more than a trickle of incoming materials for many months to come even if the necessary shipping were available.

Held up by this lack of raw materials is a wide variety of products for which some facilities and labor and limited amounts of power are at hand: textiles, clothing, parachutes, rope and cordage, farm and industrial machinery, hand tools, tires, dry and storage batteries, radio equipment, automotive components (of types that do not require extensive tooling-up), and others. Among these, the products most likely to get into production soon are the ones—like tires and military clothing—for which the armed forces' need is great, for which U.S. and British manpower and facilities are short, and for which no additional shipping space would be required because the raw materials are no more bulky than the finished products. In a slightly different category is farm machinery, the European manufacture of which would actually save shipping space by reducing the quantity of American-made machinery and American-grown food which will have to be sent to the liberated populations.

NOTHING TO CARRY

Furthermore, some plant capacity and skilled labor are available for the manufacture of a number of necessary products that demand little or no transport of materials. Of this type are radio and X-ray tubes, electro-medical appliances, ampoules, spectacle lenses, film and photographic equipment, small precision instruments of many kinds, and certain chemicals, such as resin, turpentine, soda, chloride of lime, and carbon tetrachloride.

It appears that electrical power in limited but useful quantities will be available to most factories that can get materials. Army technicians estimate that French power facilities have been

SELECTED MONTHLY STATISTICS

Production–Employment–Disputes–Cost of Living

	Latest Month*P	Preceding Month	2 Months Ago	Same Month 1943	1942	1941	1939
PRODUCTION INDEX–INDUSTRIAL (1935-39=100)†	233	234R	234	247	220	175	126
Total manufacturing	249	250R	249	268	236	182	127
Durable	343	346R	343	376	319	220	136
Nondurable	173	173R	173	181	168	151	119
Minerals	144	145R	145	132	132	135	124
NONAGRIC. EMPLOYMENT–TOTAL (thousands)	38,400	38,414	38,523	39,847	39,952	37,230	31,456
Manufacturing–Total	15,599	15,699	15,839	17,238	16,128	13,821	10,746
Durable	9,157	9,247	9,345	10,412	9,241	7,242	4,812
Nondurable	6,442	6,452	6,494	6,826	6,887	6,579	5,934
Mining	810	816	826	863	949	1,009	943
Trade	7,289	7,146	6,996	7,245	7,382	7,714	6,837
Government (Federal, State, and Local)	5,885	5,932	5,946	5,822	5,620	4,613	4,094
Other††	8,817	8,821	8,916	8,679	9,873	10,073	8,836
LABOR DISPUTES							
Number of strikes in progress	425	490	445	348	172	464	317
Workers involved (thousands)	220	225	205	537	55	339	130
Number of strikes beginning during month	375	440	390	325	144	271	178
Workers involved (thousands)	200	220	185	136	52	228	43
Man-days idle (thousands)	710	690	660	2,863	128	1,397	1,665
COST OF LIVING–ALL ITEMS (1935-39=100)†	126.5	126.4	126.5	124.2	119.8	110.2	100.1
Foods	136.5	136.4	137.0	137.3	131.1	113.1	96.7
Other than foods	121.3	121.2	121.1	117.1	113.6	108.7	101.8
PRODUCTION OF CLOTHING AND SHOES FOR CIVILIANS (1935-39=100)†							
Clothing and shoes combined	100	100R	102	103	102	118	106
Clothing	103	102R	107	106	108	124	114
Shoes	87	91	84	93	98	120	104

*Production of Clothing and Shoes, October; all other, November. PPreliminary. †Unadjusted. RRevised.
††Transportation, construction, finance, service and miscellaneous.

damaged not more than 10%. Most hydro-electric stations are in operation, and the French grid system for the transmission of power is one of the best in the world. Paris is said to be receiving about 50% of its normal requirements. Further power increase will depend entirely upon an increase in the supply of coal—as will production of gas and many other things.

COAL OUTLOOK

But prospects for increase of the coal supply are not bright. In the northern coal-mining regions of France, output was off 90% from normal in September, 1944, and 70% in October. Requirements—for military railroading, for industries directly serving the armies, and for essential civilian services—are far outrunning supply; civilians are having a cold winter. Obstacles to increased production are: (1) labor troubles associated with "collaborationist" miners and operators, (2) lack of supplies—oils, greases, rubber belting, hose, lamps, etc., and (3) the shortage of pit props. This last is the most difficult problem of all because of transportation difficulties between the forests and the mines, and the Army is making every effort to solve it. Before the current German counteroffensive, the Ardennes Forest in Belgium was being counted on heavily as a good source of supply relatively close to the mining regions. Pit props for Holland have previously come from Germany.

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War Production Board

Materials Face a Tight New Year

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Number 226

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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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New Year Threat of Tight Materials

Aluminum, copper, steel, lead—easy in '44—may, with lumber, be '45 problems. Shortage will force reallocation of controlled materials, eliminate new civilian uses.

SHORTAGE of the basic materials of war production is just one more threat to be faced during this belt-tightening New Year season. Aluminum, copper, steel, lead, lumber—all are expected to give trouble in varying degrees. A year ago, all of them except lumber looked easy; aluminum and lead were off the critical list, copper and steel were about to come off. Problems solved in 1943 are returning to plague us in 1945. This looks like progress in reverse. What have we been doing in the meantime?

From its beginning, 1944 was a year of difficult decisions. Problems previously "solved" bobbed up in new aspects. For many materials the gimme-gimme stage of all-out production had passed. The question, "How much can we get?" gave way to "How much do we want?" This new question was hard to answer during a year of violent battle-front changes when estimates of the 1945 munitions program were changing monthly—falling 15% between February and October, then turning sharply up. Supply of the major materials has not been flexible enough to keep pace with these shifts. The resulting shortage is now serious enough to force virtual reallocation of CMP materials for the first quarter of 1945, to eliminate all new civilian uses, and, in the case of aluminum sheet, to affect battle-front plans.

Aluminum

ALUMINUM tells the story in sharp outline. A year ago there was too much of it. Production, at four times prewar levels (the peak: 188,000,000 pounds in October, 1943), had been running ahead of war requirements for several months; manufacturers' inventories and fabricators' pipelines had swelled to unprecedented size. The question became whether to stockpile, to cut production, or to increase consumption (WP-Jan8'44, p1). All three things were done. Potlines were taken out of operation at a rate that cut production of primary aluminum in half by the latter part of the year. Many new uses were authorized: for the military (furniture, canteens, airplane landing mats, etc.), for essential home-front products (bus bodies and engines, industrial instruments, electric transmission lines); and, as the end of the European war seemed approaching, tentative releases were made under the spot plan for new civilian products, chiefly household ware.

PILES OF ALUMINUM

But in spite of these supply-demand adjustments, government stockpiles of primary aluminum continued to increase throughout the year, reaching an unprecedented 500,000,000 pounds—several months' supply at the year-end rate of consumption. There were two chief reasons, both connected with the apparently imminent end of the German war. First, the aircraft program was steadily being reduced; ARCO, which had taken more than 70% of all shipments in the fourth quarter of 1943, took less than half a year later. Second, manufacturers of aluminum products and fabricators of the various shapes were unloading their excessive inventories because of decreasing orders and in preparation for expected contract terminations.

And then in November, with produc-

tion of primary aluminum at its lowest point since 1942 (less than 90,000,000 pounds per month), the upturn began. Extension of the two-front war made it necessary to step up production of planes, landing mats, ammunition, and other items (WP-Jan8'45,p4). First-quarter, 1945, allotments proved insufficient; supplemental requests poured in. It now appears that the new year's requirements will approach those of 1944, perhaps exceeding 200,000,000 pounds per month. In spite of the large reserves at hand, it is probable that potlines will be reopened before the middle of the year. Getting back the released manpower on the West Coast (where the electrical power is available) will not be easy. The pay is not good, and the work is one of the most unpleasant of war jobs, because of extreme heat and fluoride and carbon-dioxide fumes.

SHEET SHORTAGE

But, as is usual when requirements are suddenly stepped up, the acute and immediate shortage is not in the overall supply of the metal, but in a particular shape: this time in aluminum sheet. CMP procedure for aluminum was simplified when first-quarter allotments were made back in October. It appeared that the system of allotting by eight specific shapes was overcomplicated in view of the easing situation. Allotments were made by weight alone with no restrictions as to the shapes—sheets, rods, bars, extrusions, rivets, etc.—in which the material was to be ordered by the claimants. At that time the stated requirements of the claimants for sheet were well within the capacity of the mills. But that was October.

Now ARCO has already placed orders for 158,000,000 pounds of sheet—18% more than its original estimate of 134,000,000—to meet its December 12 schedule, and further large supplemental allotments will be requested for both Army and Navy aircraft. Army has placed orders for 45,000,000 pounds, compared to its original estimate of 31,000,000—the 14.5% increase being the result of new needs for landing mats and ammunition; and now is presenting a supplemental request for 6,800,000 more. Even with Navy and essential civilian orders held below original estimates, the order load resulting from these increases —271,000,000 pounds—is 20% above mill capacity without the supplemental allotments requested. (Alcoa has orders now on its books for 30% more sheet than its mills can produce.)

ENOUGH MACHINES, BUT

Last March the sheet mills could have handled this load, and machine capacity is still ample to do the job. But the 40% decline of shipments during the following eight months (from 93,300,000 pounds in March to below 60,000,000 in November) caused a loss of trained manpower that cannot be soon made up. Nor have the fabricators kept on hand anything like the large stocks of slabs that would be required to meet the new demand, and a great deal of aluminum will be used refilling the pipelines.

Every effort is now being made to step up the mill capacity through labor referrals and newspaper and radio campaigns, but additional manpower to meet the first-quarter load cannot be counted

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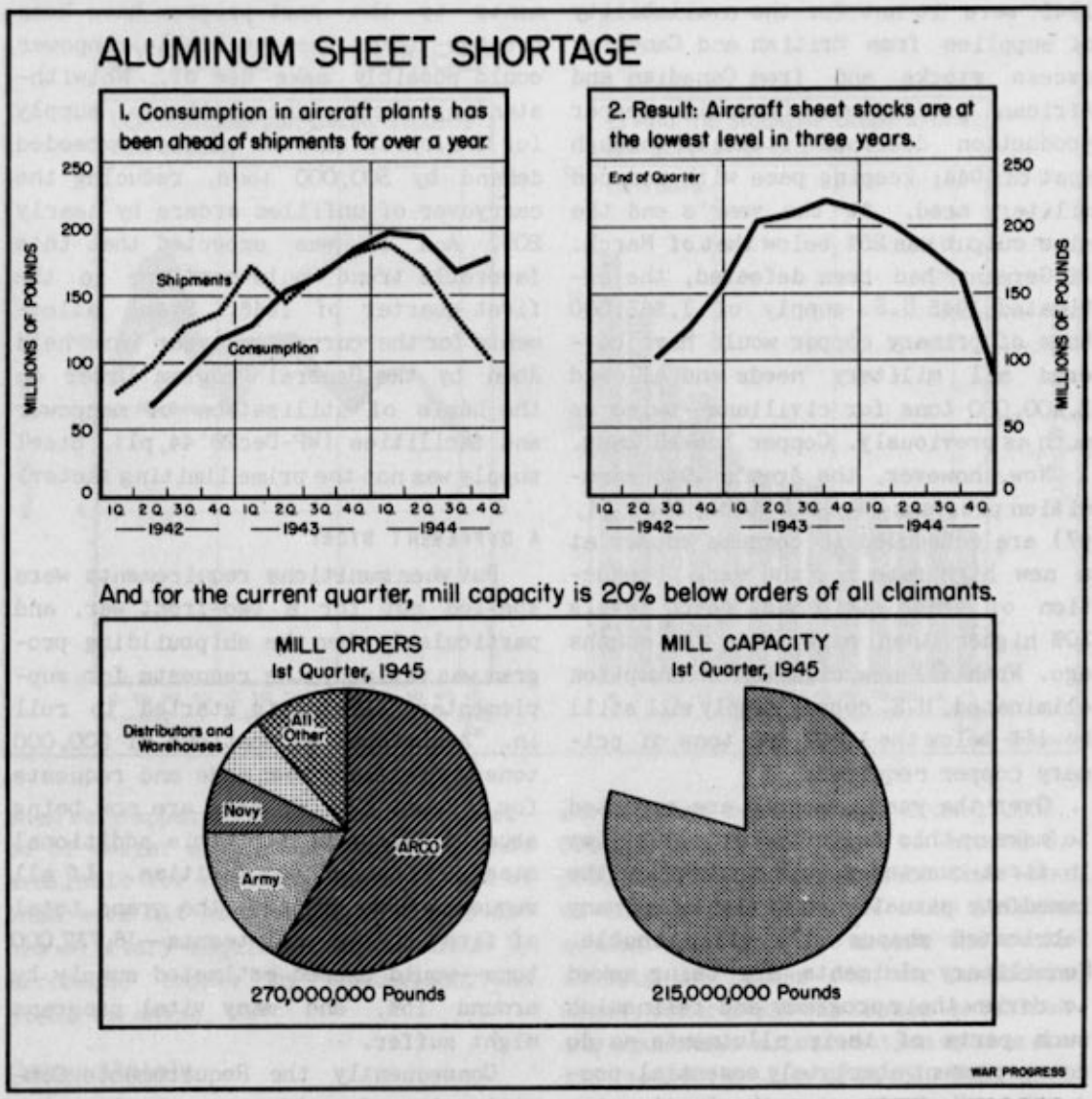


upon. Mill order books have been closed and are now being studied, program by program. Attempts will be made to reschedule orders to get more sheet and to reallocate those that the mills obviously cannot fill. Navy will cut its mill orders 25% under original statement of requirements. Essential civilian allocations may be cut far more drastically, probably by over 50%.

But all of these measures put together will not provide the aluminum sheet capacity to meet Army and ARCO requirements as now stated. It has been recommended that the question of where the unavoidable cuts shall be made be referred to the Joint Chiefs of Staff.

Meanwhile, attempts are being made in the limited time remaining to reinstitute the system of allotting by eight shapes for the second quarter of 1945. Shortages of virtually all shapes, even rivets, are in prospect.

Copper

COPPER repeats the pattern of aluminum, except that in this metal the U.S. would have an insurmountable 16% deficit in

1945 were it not for the availability of supplies from British and Canadian excess stocks and from Canadian and African production. Domestic copper production declined steadily through most of 1944, keeping pace with reduced military need. At the year's end the mine output was 25% below that of March. If Germany had been defeated, the estimated 1945 U.S. supply of 1,563,000 tons of primary copper would have covered all military needs and allowed 1,200,000 tons for civilians—twice as much as previously. Copper looked easy.

Now, however, the Army's 1945 ammunition programs (WP-Dec 2'44,p1; Dec9'44, p7) are scheduled to consume copper at a new high rate for the war. Production of brass strip must reach levels 30% higher than expected a few months ago. With all new civilian consumption eliminated, U.S. copper supply will still be 16% below the 1,867,000 tons of primary copper required.

Over the year, imports are expected to make up this deficit, but a 10% jump in first-quarter requirements makes the immediate situation very tight, and many fabricated shapes will give trouble. Nonmilitary claimants are being asked to review their programs and relinquish such parts of their allotments as do not represent absolutely essential production. No new spot authorization involving copper will be made, and all Z-1 preferences are being withdrawn.

Steel

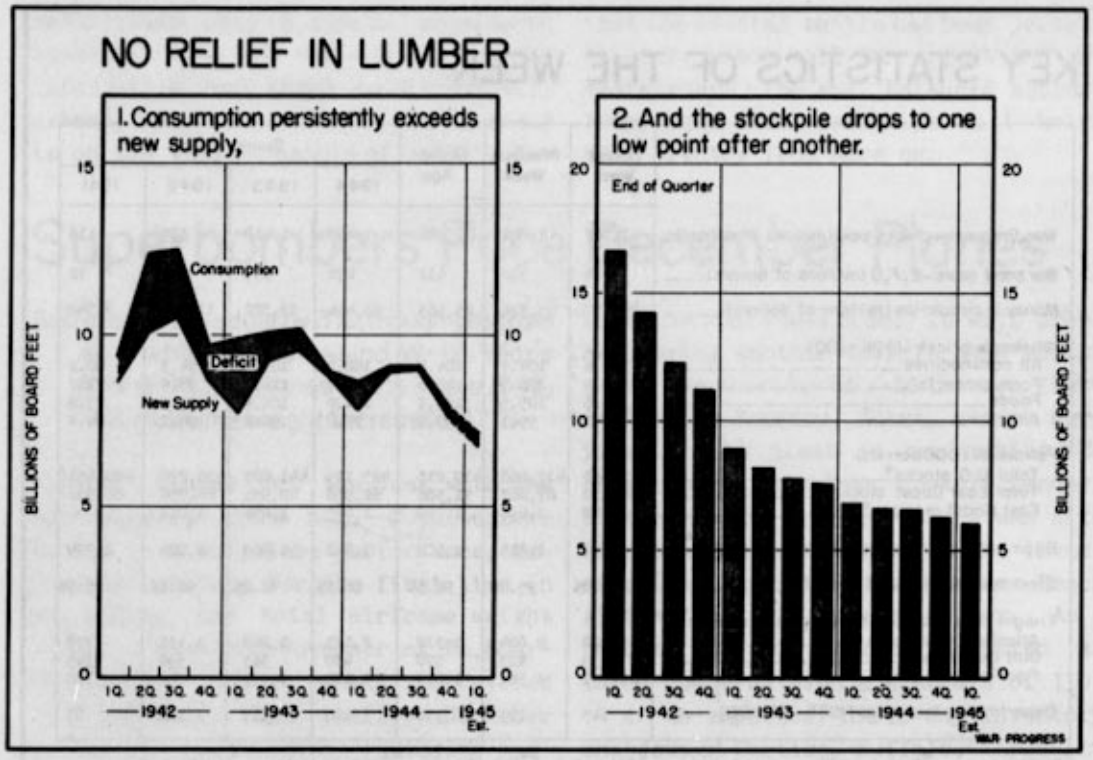
UNLIKE aluminum and copper, carbon steel has never been in abundant supply. Since the difficult third quarter of 1944, however, it has definitely eased. For the first time in the war, substantial quantities have been made available for uses not absolutely essential: for expansion and alteration of facilities, for tools and equipment not immediately connected with war production. Allotments to the spot program have been greater than the available manpower could possibly make use of. Notwithstanding these freer policies, supply for the fourth quarter of 1944 exceeded demand by 300,000 tons, reducing the carryover of unfilled orders by nearly 20%. And it was expected that this favorable trend would continue in the first quarter of 1945. Steel allotments for the current quarter were held down by the General Program Order on the basis of utilization of manpower and facilities (WP-Dec28'44,p1). Steel supply was not the prime limiting factor.

A DIFFERENT STORY

But when munitions requirements were spelled out for a two-front war, and particularly when the shipbuilding program was revised, the requests for supplementary allotments started to roll in. Additional allocations of 200,000 tons have already been made and requests for at least 670,000 more are now being studied. About half of this additional steel is needed by Maritime. If all requests were granted, the grand total of first-quarter allotments—16,737,000 tons—would exceed estimated supply by around 15%, and many vital programs might suffer.

Consequently the Requirements Committee is undertaking a general review of first-quarter allotments. The reserve for the spot program will be reduced by 125,000 tons, and no new Z allotments will be issued. Claimants are being asked to review their programs on an urgency basis and to return all tickets that do not represent war-essential use of steel. They are also being warned that the situation is likely to be tighter in the second quarter, and that no plans for expansion of nonmilitary production can be approved.

Thus, in all three of the controlled materials the pattern is alike. All of



them were apparently headed for a period of easier supply and were being made available for civilian uses, but all of them were hit hard and suddenly by the new military requirements: aluminum by aircraft, copper by ammunition, and steel by ships.

Other Metals

THE FAILURE of the lead supply to meet the needs of the 1945 program and the consequent prospective shortage of civilian storage batteries have been discussed in an earlier issue of WAR PROGRESS (Dec30'44,pp1,4). Other metals outside the CMP group may give trouble before all of the new military requirements have been met.

Lumber

UNLIKE the metals, lumber has always been in tight supply. Since Pearl Harbor, consumption has run steadily ahead of production, with the result that stocks have been reduced from 17,000,000,000 board feet then to around 6,000,000,000 at the present time—most of this latter being of very inferior grades. Last year, to assure the availability of lumber for war production needs, Order L-335 was issued establishing a purchase authorization system similar to CMP (WP-July22'44,p5). This eased the situation temporarily by squeezing out the artificial demand created by multiple placement of orders—a characteristic of lumber distribution prior to full control.

Now, however, production has taken a sharp downturn. The manpower problem is no easier, and the equipment shortage, especially of tires, has reached a crisis. Transport of logs from the woods to the mills moves 85% on rubber. For six consecutive months the logging and lumber industries have received less than one half of their normal replacement needs for tires. The industry's

KEY STATISTICS OF THE WEEK

	Latest Week	Previous Week	Month Ago	Same Week 1944	Same Week 1943	Same Week 1942	Same Week 1941
War Program—checks paid (millions of dollars)	1,507	1,872	2,022	1,499	1,418	385	118
War bond sales—E, F, G (millions of dollars)	214	510	611	272	297	139	72
Money in circulation (millions of dollars)	25,257	25,326	25,163	20,404	15,322	11,062	8,542
Wholesale prices (1926 = 100)							
All commodities	104.6 P	104.7	104.4	102.9	101.4	94.3	80.2
Farm products	125.9 P	126.7	125.6	121.9	116.1	96.9	71.2
Foods	104.6	105.5	105.7	104.6	104.4	91.9	73.2
All other	99.1 P	99.1	99.0	97.8	96.2	94.1	84.4
Petroleum (000 barrels)							
Total U.S. stocks*	417,833	417,268	419,015	425,129	441,887	436,278	470,851 E
Total East Coast stocks*	64,400	67,667	71,386	62,918	49,931	86,350	86,936
East Coast receipts**	1,742	1,698	1,769	1,485	1,054	1,014	N.A.
Bituminous coal production (000 short tons)**	1,662	1,813	1,988	1,842	1,860	2,024	1,799
Steel operations (% of capacity)	93.0%	95.8%	96.3%	86.3%	98.2%	96.1%	95.9%
Freight cars unloaded for exports, excl. grain**							
Atlantic Coast ports	3,122	2,624	3,312	2,173	1,263	1,431	778
Gulf Coast ports	439	403	578	430	363	390	343
Pacific Coast ports	1,871	1,381	1,810	1,215	1,073	241	110
Department store sales (1935–39 = 100)†	145	123	376	110	117	111	87

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

tire deficit is now placed at 250,000, of which 80% are large sizes, 8.25 inch and over. Since these are the sizes in short military supply, there is no immediate prospect of relieving the situation. And the practice of "cannibalizing"—taking tires and other parts from some equipment to keep the rest in operation—has reached a point where it no longer pays off.

The effects of the tire shortage began to be felt in September, and it now seems certain that lumber supply for the first quarter of 1945 will run 10% to 15% below the 7,500,000,000 board feet originally estimated. Since this estimated production had already been 10% overallotted, there is a gap between demand and supply of around 1,500,000,000 board feet. Of this total deficit, approximately 800,000,000 board feet is in western pine, badly needed for the crating of munitions, and 150,000,000 is in the better grades of hard woods used by the Army and Navy for truck bodies, landing craft, tent pegs and poles, cots, mosquito bars, etc.

With the danger threatening that 10% to 20% of the certified orders already authorized could not be honored at the mills during the first quarter, a new set of lumber controls was issued January 5, the most stringent of the entire war. Without written authorization from WPB, uncertified orders can no longer be filled (except in tiny backwoods mills accounting for less than 3% of total supply). Authorizations now in circulation are no longer good for the purchase of western pine and the scarce hardwoods. Special certificates are required for these species.

Thus lumber joins aluminum, copper, steel, and lead on the list of materials that are no longer available for new civilian production or even for many

nonmilitary uses hitherto considered essential. No one can now say how far into the new year these conditions will extend, but it may well be until Germany is on the very threshold of defeat. Now that the crucial battle has been joined, military needs will be urgent and immediate until the end. Balanced against them, home-front hardships will weigh very lightly from here on.

Superbombers Pace December Planes

And exceed schedule by 3%, though program as a whole is 2% behind W-12. Year's total of 96,356 planes is 12% above 1943, and airframe weight increases 47%.

AIRCRAFT closed out the year with the best showing since May. Superbombers turned in a brilliant performance, exceeding schedule for the first time in six months, and total airframe weight was about even with November at 71,604,000 pounds, only 2% behind the revised W-12 schedule. Numerically, December output of 6,696 planes (including special-purpose aircraft) missed schedule by a like percentage and was a scant 1% shy of the preceding month.

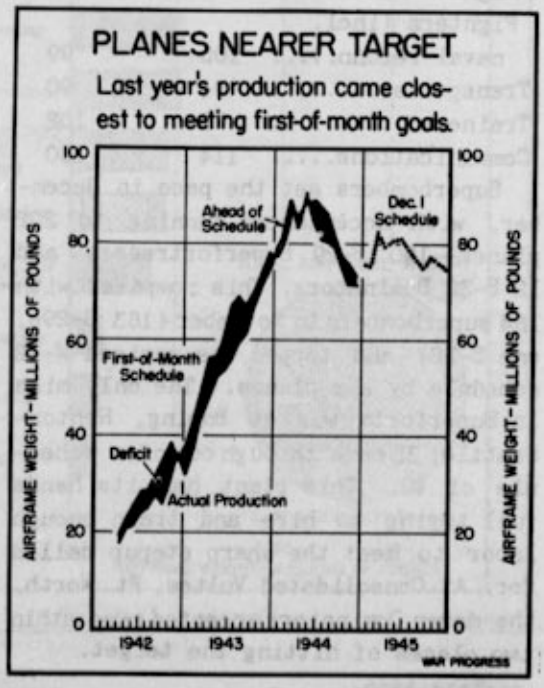
As was true last summer, the deficit from schedule was concentrated in a handful of models:

1. At Consolidated Vultee, New Orleans, the eight PBY Catalina patrol bombers accepted compared with a slate of 24. This plant has had difficulty in organizing assembly lines for volume production and a new management was installed at the turn of the year.

2. The Corsair fighter (FG, F4U) was another problem plane last month. At Goodyear, Akron, output of the FG came to 144 out of a schedule of 205. Center-wing sections from Willys-Overland had to be reworked; also, defective landing-gear struts snagged the production line. Both of these holdups have since been corrected. Although 210 F4Us were programmed at Chance Vought, Stratford, only 168 came through. Major factor in the miss was the shift to the new and more powerful F4U-4 model; it will probably bring another deficit this month.

3. The shortage of A-26 Invader light bombers at Douglas, Tulsa, was no surprise. This plant is now making the change-over to a new cockpit canopy. On top of that, however, there was difficulty with installation of the Invader's lower turret, and wings from Beech Aircraft had to be worked over. As a result, the 80 Invaders accepted at Tulsa compared with a schedule of 110.

4. As expected, the 10-day inventory shutdown at Curtiss, Buffalo, threw the C-46 Commando transport for a loss; output came to 120 planes versus a program of 150. Buffalo also affected December acceptances in another way—there



was a quirk in its schedule. Although 73 P-40 Warhawks were on the docket for December, the Warhawk contract had been completed in November, a month ahead of the original W-12 timetable (dated October 12, 1944). And since plant schedules are adjusted quarterly, the appropriate correction had not been made.

These individual off-schedule performances are reflected in the month's result by major categories. Patrol bombers missed the mark by 14%; fighters, 1%; light bombers, 6%; and transports, 10%. All other groups were either on or above schedule:

	Dec. Acceptances as % of	
	Nov.	W-12 (rev.)
All military planes.	100%	98%
Army procured....	99	101
Navy procured....	104	90
Combat planes.....	101	100
Superbombers.....	122	103
Forts & Liberators	89	103
Patrol bombers....	112	86
Medium bombers....	93	102
Light bombers.....	108	94
Fighters (incl. naval reconn.)...	105	99
Transports.....	94	90
Trainers.....	76	102
Communications.....	114	100

Superbombers set the pace in December, with acceptances running to 202 planes—190 B-29 Superfortresses and 12 B-32 Dominators. This compared with 164 superbombers in November (163 B-29s, one B-32) and topped the revised W-12 schedule by six planes. The only miss in Superforts was at Boeing, Renton-Seattle; 35 came through out of a schedule of 40. This plant has its hands full trying to hire and train enough labor to meet the sharp stepup called for. At Consolidated Vultee, Ft. Worth, the dozen Dominators accepted came within two planes of hitting the target.

Output of B-17 Flying Fortresses and B-24 Liberators was back on the beam last month. With every plant on or ahead of schedule, acceptances of B-17s totaled 306; of B-24s, 469. All told, Fort-Liberator output came to 775 planes versus a schedule of 749.

THE GREATEST YEAR

December ended the greatest plane year in U.S. history. Total acceptances, including special-purpose aircraft, ran to 96,356 planes, 12% more than in 1943. But more significant, airframe weight of 965,581,000 pounds was up much more—47%—thus underscoring the trend toward bigger and more powerful models (table, page 10).

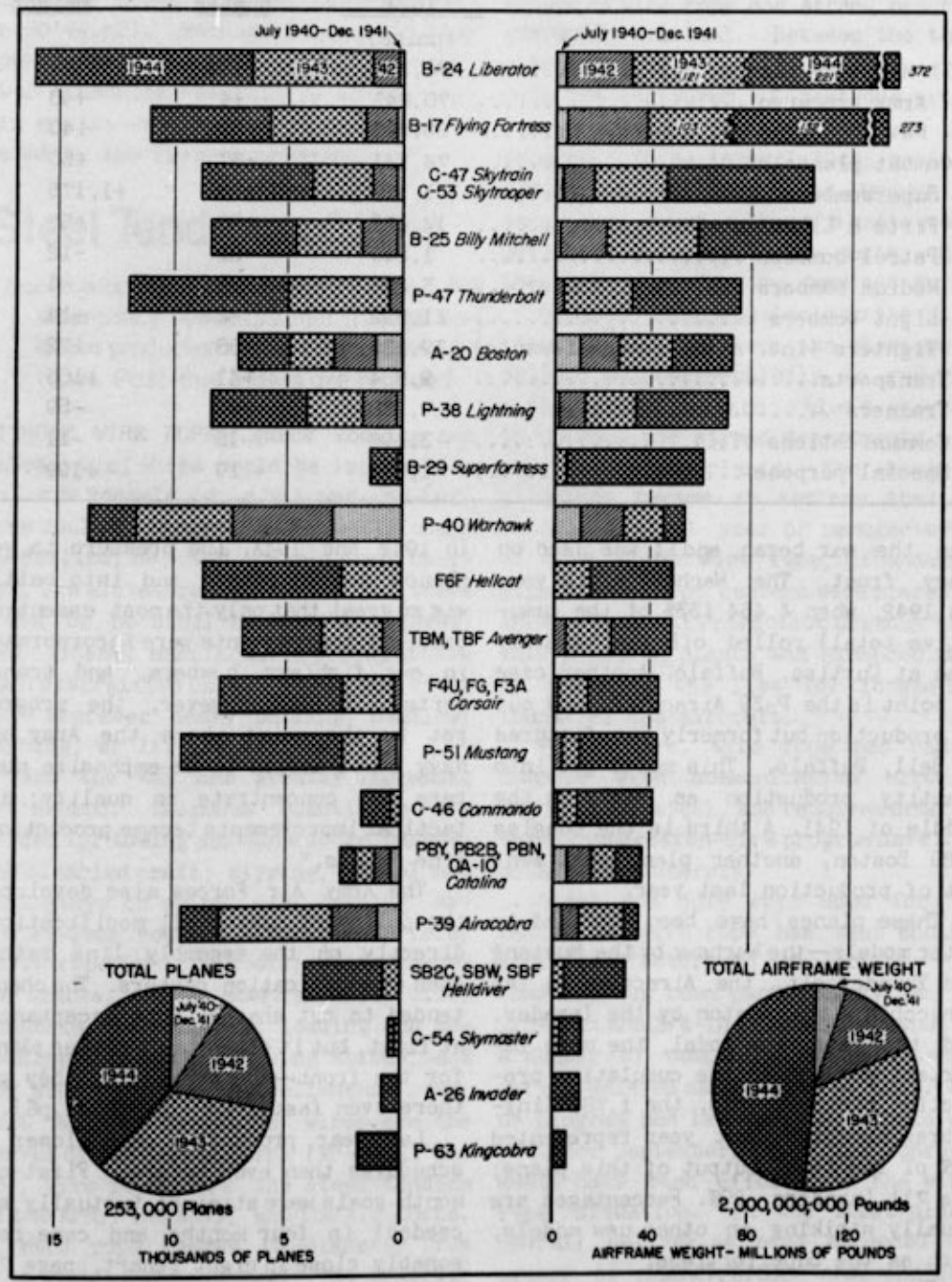
For the first time in the history of the program, some major categories failed to show an increase over the preceding year. Patrol bombers were 12% lower on an airframe-weight basis, reflecting repeated deficits from schedule in that group. Medium bombers were off 4%; here cutbacks were the big factor. In trainers and communications, the declines were 59% and 11%, respectively. Now that the air arm has been built up, the need for training planes has gone down sharply. As for communications craft, military requirements have largely been met and 1944 production was chiefly for replacement.

For most individual models, 1944 was the biggest production year by far. Of the 16,073 Liberators accepted since the program began in July, 1940, some 9,500, or 59% of the total, came through last year. Out of 8,767 Skytrains and Skytroopers produced, last year's output alone accounted for 4,900, or 56%; and so on (chart, page 9).

However, there were exceptions. In the P-40 Warhawk, the 2,000-odd planes accepted last year were only 15% of the cumulative total. The P-40 was the only fighter we had in volume production

PEAK IN PLANE PRODUCTION

Output of airframe weight in 1944 accounted for nearly half the total since mid-1940; unit output, two-fifths. Here's the picture in selected models:



1944—GREATEST PLANE PRODUCTION YEAR

	Total Acceptances 1944 (units)	% Above or Below 1943 Number	Weight
All military planes	96,356	+12%	+47%
Army procured	70,843	+4	+48
Navy procured	25,513	+42	+40
Combat planes	74,141	+37	+50
Superbombers	1,177	+1,179	+1,175
Forts & Liberators	14,871	+58	+57
Patrol bombers	1,840	-21	-12
Medium bombers	5,228	-3	-4
Light bombers	11,892	-2	+14
Fighters (inc. naval reconnaissance)	39,133	+58	+72
Transports	9,854	+41	+105
Trainers	7,578	-62	-59
Communications	3,696	-16	-11
Special purpose	1,087	+119	+199

when the war began, and it was used on every front. The Warhawk's big year was 1942, when 4,454 (33% of the cumulative total) rolled off the assembly line at Curtiss, Buffalo. Another case in point is the P-39 Airacobra, now out of production but formerly manufactured at Bell, Buffalo. This model got into quantity production as early as the middle of 1941. A third is the Douglas A-20 Boston, another plane that went out of production last year.

These planes have been replaced by later models—the Warhawk by the Mustang and Thunderbolt, the Airacobra by the Kingcobra, the Boston by the Invader. And the later the model, the more important was 1944 in the cumulative production picture. Thus, the 1,786 Kingcobras accepted last year represented 98% of the total output of this plane; the 711 Invaders, 99%. Percentages are equally striking in other new models, such as the Superfortress.

The year was not only notable for quantity of output, but also for quality. In 1942 and 1943, the pressure to get planes out of plants and into battle was so great that only the most essential tactical improvements were incorporated in our fighters, bombers, and transports. In 1944, however, the program got to the point where the Army and Navy could afford to de-emphasize numbers and concentrate on quality; all tactical improvements became production-line "musts."

The Army Air Forces also developed the policy of making all modifications directly on the assembly line rather than at modification centers. The change tended to cut sharply into acceptances at first, but it often meant better planes for the front—and eventually they got there even faster (WP-July16'44,p6).

Last year, production came closer to schedules than ever before. First-of-month goals were attained (actually exceeded) in four months and came reasonably close in eight (chart, page 7). Experience was paying off: workers were better trained; management had greater

control over production; and scheduling improved.

In the final half of 1944, the aircraft program began to trend downward. Now this trend must be reversed (WP-Dec30'44,p8). Moreover, since further upward revisions are being formulated, 1945 schedules—especially in the last six months—will be higher than indicated by the current program.

Steel Tendons of War

Though wire rope is still in short supply, the emergency needs are met through selective production of the critical smaller types. Past-due orders are reduced.

WITHOUT WIRE ROPE, quick loading and unloading of ships would be impossible, no large vessels could be towed, no harbors could be dredged, no oil wells could be drilled, no power shovels could operate, few elevators could run, and there would be no steel suspension bridges. Few, if any, manufactured products have such diversified uses. It plays a vital role wherever heavy pulling, hauling, lashing, or lifting is required.

And the war has greatly increased the demand. Enormous quantities are needed for towing portable docks, barges, and disabled craft; rigging, funnel and mast stays on ships; deck lashing; arrester-gear rope on aircraft carriers; davit rope for life boats; winch cables for trucks, cranes, power shovels, etc.; controls for aircraft; loading and unloading vast supplies going abroad; and for scores of other miscellaneous uses. Just as communication wires are the nerves of the Signal Corps (WP-Oct21'44, p5), wire ropes are the steel tendons of the Army, the Navy, and the Air Corps.

Wire rope ranges in diameter from 1/64 inch up to 3 inches. The heaviest demand is now for the smaller sizes: 7/16-inch through 3/4-inch. Winch cables for trucks, davit ropes, arrester-gear ropes, and deck-lashing ropes fall within this critical range.

Until recently the supply-demand position of wire rope and strand has been extremely critical. Between the third quarter of 1943 and the same time last year the carryover of past-due orders for the Army and the Navy had more than tripled. In September, 1944, past-due orders for all users, at 33,450 net tons, were greater than the entire output of the industry for the month. More than half were for the Army and Navy.

Greatest single obstacle to the filling of orders has been the shortage of skilled manpower—chiefly in rod wire mills, although there is also a shortage in the rope and strand departments, and many coremaking plants. The manpower situation became so serious that in October of last year 62 manufacturers of rope wire, wire rope, foundation strand, and rope centers were placed on the new National Production Urgency List. This number of plants was exceeded only by those on the list for forges and foundries and aircraft.

Furthermore, wire rope has had to compete with communication wire for high-carbon steel, and requirements for the communication-wire program have also been rising sharply.

Sisal and jute core used for the center of wire rope has been another limiting factor in production. The shortage has been particularly bad for 1/2-inch and 3/4-inch ropes. Output of a number of companies has been temporarily delayed as a result of this, but no program has been seriously held up.

Since September, two marked improvements have been effected in the wire-rope situation. In the first place, overall deliveries have exceeded new orders by nearly 6,500 tons, and consequently by the end of November the carryover, at 24,000 tons, was down 11%

SELECTED MONTHLY STATISTICS

Federal Finance-Income Payments-Wage Earners

	Latest Month* p	Preceding Month	2 Months Ago	Same Month			
				1943	1942	1941	1939
FEDERAL FINANCE (GENERAL FUND)							
Expenditures-Total (millions of dollars)	8,416	7,828	8,024	7,452	6,500	2,542	832
War	7,503	7,401	7,479	6,718	5,825	1,850	135
Nonwar	913	427	545	734	675	692	697
Revenues-Total	5,416	2,240	2,001	5,736	2,701	1,212	521
Income Taxes	4,347	1,500	1,240	5,040	1,972	767	319
Other revenues	1,069	740	761	696	729	445	202
War bond sales	2,386	1,023	695	853	1,014	529	n.a.
"E"	1,855	807	599	728	726	341	n.a.
"F" and "G"	531	216	96	125	288	188	n.a.
War bond redemptions	359	376	395	201	48	4	n.a.
"E"	334	354	373	186	44	3	n.a.
"F" and "G"	25	22	22	15	4	1	n.a.
Net debt (billions of dollars)	209.9	205.2	200.3	153.6	97.6	54.4	39.5
INCOME PAYMENTS (millions of dollars)							
Total	13,309	13,702	13,684	12,311	10,784	8,171	5,949
Salaries and wages	9,465	9,443	9,281	8,848	7,625	5,572	4,022
Comm., distr. and serv. industries	7,113	7,097	7,018	6,895	6,190	4,812	3,477
Government	2,352	2,346	2,263	1,953	1,435	760	545
Military	1,343	1,342	1,304	1,050	606	142	40
Nonmilitary	1,009	1,004	959	903	829	618	505
Other income payments †	3,844	4,259	4,403	3,463	3,159	2,599	1,927
Income payments annual rate (adjusted for seasonal, billions of dollars)	159.8	158.2	156.3	148.3	128.6	99.5	73.6
NUMBER OF WAGE EARNERS (thousands)							
All manufacturing	12,568	12,659	12,802	14,007	13,267	11,579	8,821
Durable	7,389	7,467	7,572	8,456	7,597	6,072	4,034
Nondurable	5,179	5,192	5,230	5,551	5,670	5,507	4,787

* Federal Finance, December; all other, November. p Preliminary. † Work relief, direct and other relief, Social Security benefits, dividends and interest, entrepreneurial income.

from October, and 28% from September. This improved position is due to the rescheduling of Army and Navy orders, increased production, and standardization.

In the second place, orders for the most urgently needed types have been given precedence and thus critical military needs have been more nearly met. In view of the fact that more than 70% of all wire rope on order is for replacement requirements, it was found that many orders which had been placed were not immediately pressing and that delivery could be delayed until future months. The Army and Navy made a number of heavy cancellations of large-diameter ropes. This made way for a sharp increase in output of the critical smaller ropes.

The shift in emphasis from heavier to lighter types resulted in a decline in total tonnage of mill shipments in November. Since a wire rope 3 inches in diameter weighs 36 times as much as one only 1/2 inch in diameter, for example, shipments in tons are no real barometer of results. Thus, although November shipments, at 30,465 tons, were 8% below October, they fell only 2% short of the production goal of 30,968 tons called for in production directives and allocations.

As the situation now stands, production is being regulated to satisfy emergency demands, but the position will remain tight unless output can be increased. The most urgent need is for .025-inch and .056-inch rope wire for 1/2-inch and 5/8-inch ropes. The large footage of 1/2-inch winch cables for the heavy-truck program necessitates still further shifts in wire-production patterns to balance requirements.

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Critical Programs Move Ahead

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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.

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War Progress is prepared by the Reports Division (Joseph A. Livingston, Director).

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Critical Programs Move Ahead

All groups except Navy rockets show increase over November. Aircraft gains 32%; field artillery, 12%; tires, 10%; etc. But sharp rises called for are not always met.

CRITICAL PROGRAMS churned ahead last month. The drive to get materials, tools, components, and labor into these programs is mounting; at the same time, public thinking has turned far away from last summer's reconversion psychology. The results are being written in steady month-to-month gains in virtually every critical group. December is one more illustration of the trend.

Navy high-capacity ammunition came through with an increase of 5% over November; truck and bus tires were up 10%; heavy field artillery, 12%. In all critical aircraft, production continued to move into new high ground with an increase of 32%; the Superfortress ran 17% ahead of the preceding month. Among major groups, the only one that failed to score over November was Navy rockets—and this was largely due to temporary factors (page 12).

MORE WANTED

In relation to first-of-month schedules, however, December repeated what is now an old story: sharp rises called for were not always met. Tanks, for example, were 2% short; light-heavy trucks for the Army, 8%. What's more, monthly goals in most of the groups—particularly cotton duck, tires, and communication wire—do not reflect full requirements. In other words, although December was another month of progress, the pace should have been faster. Here's the December record of performance in 14 selected groups:

	% Above or Below Nov.	% Above or Below Sched.
Dry-cell batteries....	nil	-11%
Airborne radar.....	+1%	+3
Light-heavy trucks-ASF	+2	-8
Artillery ammunition..	+5	+1
Navy HC ammunition....	+5	-1
Communication wire....	+6	-2
Cotton duck.....	+6	+5
Truck & bus tires....	+10	+7
Heavy-heavy trucks-ASF	+11	+6
Tanks-total.....	+11	-2
Heavy field artil.-ASF	+12	0
Critical aircraft.....	+32	-1
Mortars (60mm. & 81mm.)	+61	+1
Navy rockets.....	-6	-14

Changes in the critical list last month were few. Navy 40mm. antiaircraft guns were dropped. The PBM-5 Mariner patrol bomber was subtracted from aircraft, but three models were added—two jet-propelled fighters and one torpedo bomber. There were also some minor adjustments affecting specialized fire-control equipment and items for the Quartermaster Corps and the Corps of Engineers.

One of the most notable developments last month was an upturn in munitions employment (chart, page 11). Ever since November, 1943—when war output and work rolls hit an all-time peak—workers had been separated from war plants at the rate of about 100,000 a month. December reversed the downtrend and chalked up a gain of 50,000. The drive to get more manpower for an expanded

munitions program is beginning to gain momentum. But it must accelerate.

As against $56,600,000,000 last October, the new proposed munitions program for 1945 has been lifted to approximately $64,700,000,000. That's about 2% greater than estimated output of $63,700,000,000 in 1944. If this goal is to be met, employment in war plants must return to the level of last summer. That calls for a net addition of some 300,000 workers, sometime in the second quarter, to the current force of 9,100,000.

PRODUCTIVITY FACTOR

This assumes, however, that output per worker will continue to gain at about the same rate as it has in the past. If productivity increases faster, the net requirement of 300,000 is an overstatement; if it doesn't increase so fast, the figure is too low.

Most of the increase in manpower from this point will be needed in critical programs. And whereas the proportion of rising programs—mostly critical—is now about a third of the total, it is slated to rise to more than half by the middle of the year.

IN THIS ISSUE:

Aircraft

DECEMBER was the best month to date in critical aircraft. Output ran to $303,000,000, or 32% ahead of November (chart, page 9). And the December 1 schedule was missed by only 1%. In November, the deficit from schedule was 16%.

For the first time since October, an item was dropped from the list, the PBM-5 Mariner. Production at Martin, Baltimore, has been on schedule for three successive months and acceptances should continue to meet the 48 a month called for. This is still below Navy requirements but it represents capacity at Martin. The gap in the critical list left by the Mariner was more than filled by the addition of three models: the P-80 Shooting Star, FR Fireball, and TBY Seawolf.

The Shooting Star and the Fireball are jet-propelled fighters for the Army and Navy, respectively. Production has been lagging, schedules rise sharply, and—since both models are revolutionary—many design problems are to be expected. The TBY is being counted on by the Navy to make up a growing shortage in torpedo bombers. Like the P-80 and the FR, production has been slow in getting under way.

All critical aircraft showed monthly gains in December, with the exception of the PBY Catalina, but most models failed to make first-of-month schedules. Most schedules, in turn, continued to understate military requirements. In fact, the favorable overall showing in December must be credited chiefly to the B-29 and the superbomber engine (R-3350BA). Together, these two items accounted for some 60% of the dollar value of all critical aircraft. And both were out-

standing last month. Here's the statistical record:

	Dec. Accept.	% Above or Below Nov.	% Above or Below Sched.
B-29 Superfort.	190	+17%	+4%
B-32 Dominator.	12	+1,100	-14
R-3350BA engine	1,879	+27	+4
A-26 Invader...	170	+20	-10
P-47 Thunderbolt (M & N)..	149	+224	+49
C-54 Skymaster.	53	+36	0
P-80 Shooting Star.....	5	—	-17
PV-2 Harpoon...	22	+100	-42
TBY Seawolf....	1	0	-95
FR Fireball....	0	—	-100
PBY Catalina...	8	-27	-67

Acceptances of the B-29 Superfortress topped schedule for the second month in a row. However, the December rate must more than double by July—to 415 planes a month. Three-fourths of this increase is scheduled at Boeing, Renton-Seattle, which was the only plant that missed the mark last month (WP-Jan13'45,p8). The Renton-Seattle labor force must expand by 2,000 workers between now and the middle of February. The War Manpower Commission is conducting interregional recruitment for this plant.

BEHIND SCHEDULE

All told, 16 Dominators were accepted last year, only 15% of what was expected at the beginning of 1944. The B-32 is now at about the same stage that the B-29 was more than a year ago: extensive service testing is necessary and many design changes are in prospect. Production timetables at both Consolidated Vultee plants assembling this plane—Ft. Worth and San Diego—may have to be set back several months.

Deliveries of R-3350BA engines exceeded schedule for the first time since last September. But again it was the Dodge plant at Chicago that carried the month—with deliveries of 1,229, it ran 104 over schedule. Wright, Paterson, continued to lag; output of 650 units was 25 engines short of its goal. Engineers are trying to increase the rated output of the superbomber engine, now 2,200hp at take-off. That points up the possibility of new production problems.

Having completed the shift in November to the new cockpit canopy for the A-26 Invader, the Douglas plant at Long Beach was able to beat its December mark of 78 by 12 planes. But Douglas, Tulsa, was deep in the change-over. In addition, the plant was having trouble with installation of the lower turret, and also had to rework wings received from Beech Aircraft. Result: Tulsa's output of 80 Invaders—although the same as in November—missed the target by 30 planes.

JOB AHEAD FOR P-47N

Thunderbolt design bugs and tire shortages were at least temporarily overcome in December, and Republic at Farmingdale came through with 81 P-47Ms and 68 P-47Ns. The stopgap "M" program has now been completed. But output of the "N" still has a long way to go in a short time—to 250 a month by February

By virtue of a reduced schedule, Douglas at Chicago was on the beam last month with 37 Skymasters. Over the past few months, interregional recruitment has expanded the labor force by 550 workers to a total of 16,600 (as of December 29). But recruitment has now been halted until the plant can absorb the new and inexperienced employees. To build up Chicago's nucleus of skilled assembly-line workers, arrangements have been made to shift some 100 employees from Vickers, Montreal. Further measures to take Chicago out of the red are still being studied by the AAF.

Only six jet-propelled P-80 Shooting Stars, all of them service-test models, have been accepted at Lockheed, Burbank. Cumulative first-of-month schedules called for 15. Major problem right now is the I-40 jet-propulsion engine which will be assembled at General Electric, Syracuse, and at General Motors' Allison Division, Indianapolis. Design of the I-40 has been temporarily frozen so that production can get going. But design changes will pile up in the meanwhile.

Lockheed, Burbank, is now receiving PV-2 Harpoon wings in volume from Goodyear at Litchfield Park, Ariz. Installation of these wings—and the completion of planes—is turning out to be a bigger job than originally anticipated. December acceptances doubled November but fell 16 planes behind schedule. However, Lockheed expects to be in the clear on the Harpoon within another month or two.

To date, only two TBYs have been accepted at Consolidated Vultee, Allentown, as against a first-of-year schedule of 129. Flight testing of the Seawolf has brought the usual stream of engineering changes and the model has not yet been stabilized for quantity production. Although the design may be stabilized in another month or two, the schedule will have to be lowered.

FIREBALL DEBUT DELAYED

Ryan Aeronautical, at San Diego, is still working toward its first acceptances of the FR Fireball, although several are now being put through their paces. The job at Ryan is twofold: (1) to build up its labor force despite the tight San Diego labor market, and (2) to organize its extensive subcontracting program.

On January 1, a new management was installed at Consolidated Vultee, New Orleans. The task it faces there is not new: in-plant controls must be tightened and assembly lines manned for fast and accurate production. The plant is shifting from the PBY-5 to the PBY-6, which has a new tail and improved radar equipment.

Tires

PRODUCTION of 1,393,000 truck and bus tires in December set an all-time record and exceeded original forecasts. But this was far below stated requirements of 1,733,000, and truck and bus tires remain highly critical.

As an indication of the tough climb ahead, average output of truck and bus tires must increase 17% over December in the first quarter to meet screened requirements. And to meet stated requirements, the increase must run to more than 50% (chart, page 6).

Intensive efforts are now under way to bring production closer to requirements. These include the acquisition of additional equipment, conversion of certain passenger-tire facilities to the manufacture of small truck tires, recruitment of more manpower, and the building of new facilities (WP-Dec16'44, p6).

All these will help to narrow the gap between demand and supply. In the meantime, steps are being taken to attain the needed supply of tubes, and of components such as tire cord, carbon black, bead wire, etc.

Present capacity for high-tenacity rayon tire cord is 16,000,000 pounds a month versus a requirement of 25,000,000 pounds. However, the Army has agreed to accept cotton cord as a substitute for rayon in the smaller truck tires (A-5 and A-6). This brings requirements down to about 20,000,000 pounds a month, which should be covered beginning in June, when new facilities now under con-

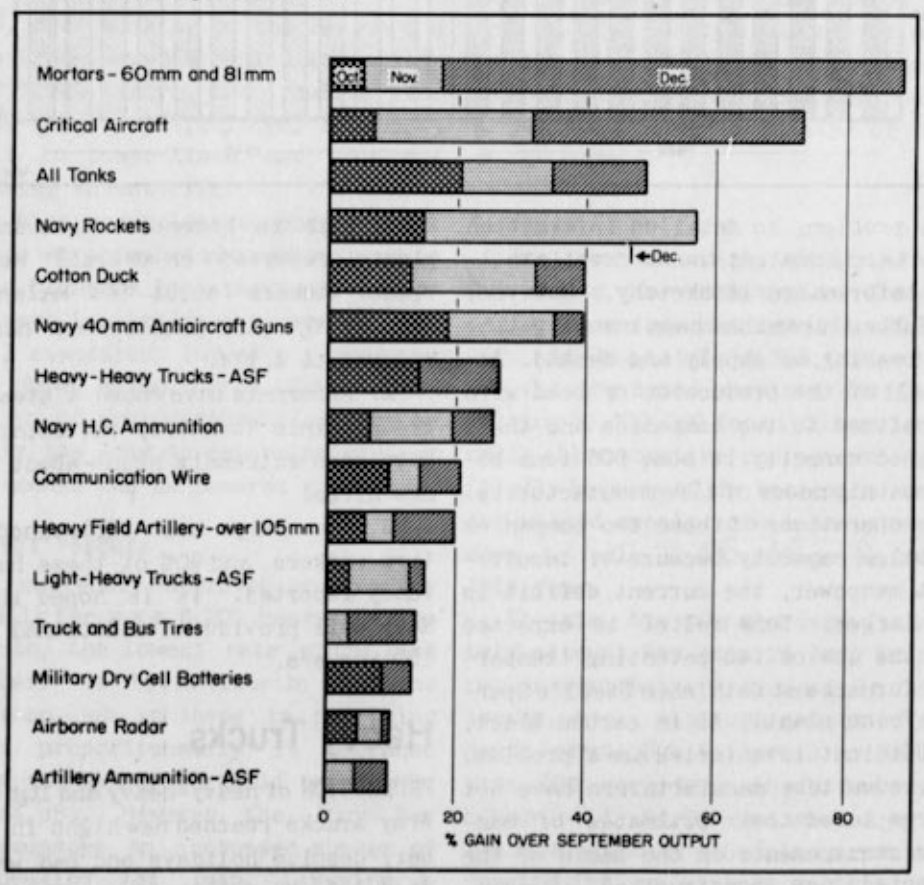
struction come into production. Parenthetically, the substitution will be at the expense of at least 500 tons of natural crude rubber a month; when cotton cord is substituted, more natural crude must be used. Also, it will decrease the quality of tires, thus tend to raise requirements in these groups.

Total output of carbon black (channel and furnace black) is expected to average 78,200,000 pounds a month in the first quarter, as against a requirement of 88,800,000 pounds. If the deficit were to be made up from stocks, these would be reduced to about a three-day's supply at the first-quarter rate of production. This would contrast with normal stocks of between 30 and 60 days. Beginning with the third quarter, new facilities coming into production should lift this component out of the red. A series of meetings with technical representatives of all tire manufacturers began in Akron last week to explore this problem.

In the past, bead wire presented no

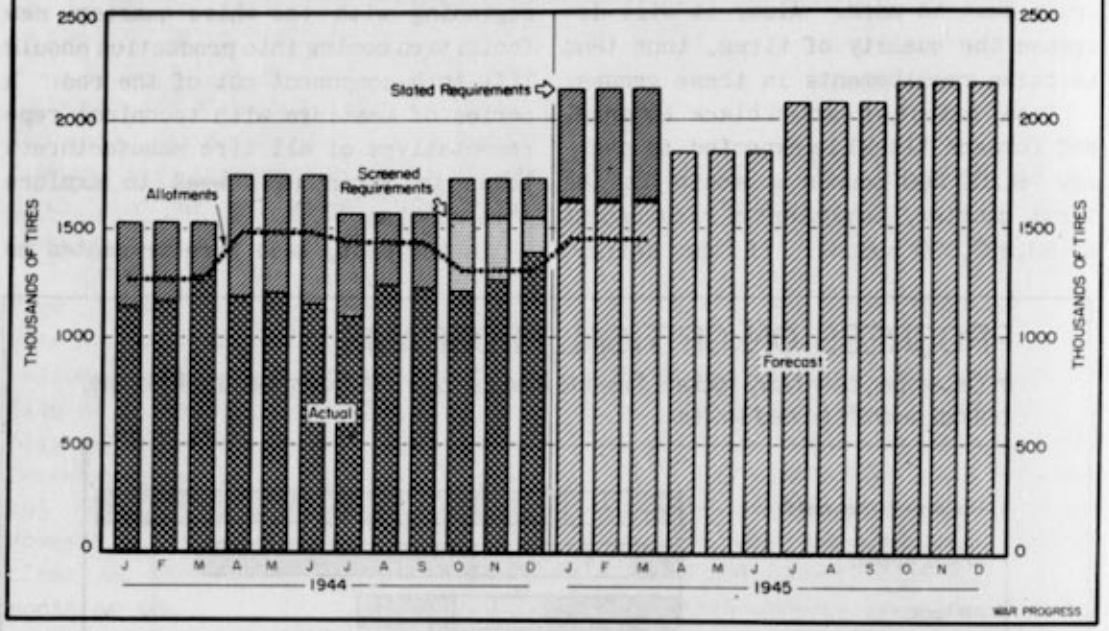
PROGRESS ON CRITICAL PROGRAMS

In December, only Navy rockets failed to increase over the November level. Mortars, critical aircraft gained fastest.



TIRES FOR TRUCKS AND BUSSES

If first-quarter production comes through as forecast, screened requirements will just about be met; but output will still be 25% below stated requirements.



great problem, so detailed information was not accumulated; thus current available information is sketchy. However, the Rubber Bureau has been investigating data bearing on supply and demand. Almost all of the production of bead wire is confined to two companies and their combined capacity is some 600 tons below monthly needs of tire manufacturers. Since operations of these two companies are below capacity because of insufficient manpower, the current deficit is even larger. Some relief is expected from the use of two patenting (tempering) furnaces at Bethlehem Steel's Sparrows Point plant. As in carbon black, insufficient inventories are a problem.

Tire and tube manufacturers have not yet completed their estimates of manpower requirements on the basis of the projected new construction program. With respect to existing plants, the manpower situation is about as follows:

1. Late in November, tire and tube plants reported an overall need for 7,455 workers (about 80% males). By January 6, this requirement had been reduced to 4,914.

2. Referrals have shown a steady increase since November, but separations have been extremely high—about 50% of new hires.

3. The Army has furloughed 1,492 tire workers, and 90% of these have already reported. It is hoped that the Navy will provide an additional 100 to 150 workers.

Heavy Trucks

PRODUCTION of heavy-heavy and light-heavy Army trucks reached new highs in December, despite holidays and bad weather. At 6,185, heavy-heavies were 11% above November; and at 21,358, light-heavies were 2% ahead. But both categories

missed first-of-month forecasts, by 8% and 4% respectively.

Shortages of components—engines, axles, transmissions, winches—were an important factor in the failure to meet forecasts. General Motors fell 15% behind its schedule of 3,646 for 2½-ton 6 x 6 dump trucks because St. Paul Hydraulic couldn't supply enough Gar Wood winches; White lost production of 10-ton 6 x 6 wreckers for the same reason. Moreover, a number of companies complained about delays in receiving shipments of components which were due to the tight railroad freight situation.

TRIPLE TROUBLE

Reo, also working on the 2½-ton 6 x 6 dump truck, was 36% behind its schedule of 1,740. Here, the troubles were varied—labor difficulties, a short-circuit in power lines, and time out for taking inventories.

The high scrap loss in engine-block castings was somewhat reduced last month because Ordnance Department specifications were brought down closer to commercial standards. Industry representatives have asked for a further examination of engineering tolerances as set up by the Army to determine whether requirements can be lowered even more.

FEWER BUT TOUGHER

The currently approved program for 1945 calls for some 5,200 heavy-heavies per month, the lowest rate since last September. It is noteworthy that the production job in these is not being reduced proportionately; it embraces more of the harder-to-build types (WP-Dec16'44,p8). However, the Army has just requested an increased number of heavy-heavies for 1945. Likewise, a rise in light-heavies is in prospect, although the present program calls for only a 2% gain over the December level.

Storage Batteries

STORAGE BATTERIES have been placed on the critical list because (1) the indicated lead supply is below requirements; (2) facilities for plate-forming, dry-charging, and containers are insufficient; and (3) labor is short (WP-Dec 30'44,p1).

Lead requirements for all types of storage batteries—automotive, submarine, aircraft, industrial, etc.—run to 340,000 tons this year (114,000 for the services, 226,000 for civilians). But based on the current distribution of lead, supply available for batteries will be 85,000 tons below needs. This deficit will all come out of the amount required for civilian storage batteries; however, it may, on appeal, be reduced by allocations from a "kitty" of about 46,000 tons.

CIVILIAN CUT

In terms of units, next year's requirements for all types of storage batteries are now estimated at 25,000,000. Of this total, 5,300,000, or 21%, are for the armed services and the remaining 19,700,000 for civilians (practically all automotive replacement type). Chiefly because of the indicated deficit in the lead supply, civilian output may come to only 10,000,000 or 11,000,000 this year.

To date, the only shortage for military account has been in Army Ordnance replacement batteries, used in tanks, trucks, etc. Although estimated shipments of 91,000 batteries in December were 18% more than in November, the schedule of 124,000 was missed by 27%. The first-quarter schedule is much higher, calling for an average monthly output of 183,000, or 91% above December output.

But even that doesn't measure the full extent of the shortage in Army

Ordnance needs. Since April, a deficit of some 375,000 replacement batteries has piled up, about four months' output at the December rate of shipment.

Furthermore, military demands for hard-rubber cases have taxed capacity. Unlike most civilian storage batteries, which can get along with a plastic-composition case, Army-Navy types require the more durable hard-rubber case. A major expansion for these is now under way at American Container Corporation, Rock Island, Ill. Within three months or so, that plant is expected to add upwards of 800,000 containers annually to the military supply.

Meanwhile, WPB is trying to convert some civilian storage-battery facilities to Army-Navy output. This involves special equipment for such operations as plate-forming and battery-charging, and for the manufacture of hard-rubber containers. The possibility of meeting some of the Army requirements by production in France is also being explored.

Manufacturers say they will need more workers to meet increased military orders. What the additional requirement is—and whether it is valid—will be determined through a plant-by-plant survey to be conducted by WMC.

Dry-Cell Batteries

ESTIMATED December shipments of military dry-cell batteries were at the highest level on record—167,000,000 units. Nevertheless, the December objective was missed by 11%.

The production program for the first quarter of 1945 calls for an average of 248,000,000 cells per month, 49% more than December's record output. But this is still below requirements, which have just been tentatively estimated at an average of 283,000,000 per month. The Signal Corps is now working on an even higher estimate for the first quarter.

The problem of bringing shipments of dry-cell batteries into line with military requirements is complicated by the sudden and large increases in the requirements, both as to types and quantities. Since dry-cells have an average "shelf life" of only a few months, it is impracticable to build up large stocks in advance to meet such increases.

Furthermore, most plants are located in critical manpower areas. National Carbon's St. Louis plant, which began operations last month, is now operating only 12 of its 24 production lines because its labor force is insufficient.

To meet the labor shortage, several plants recently increased the work week from 48 to 54 hours, and two "feeder" plants went on a 2½-shift basis.

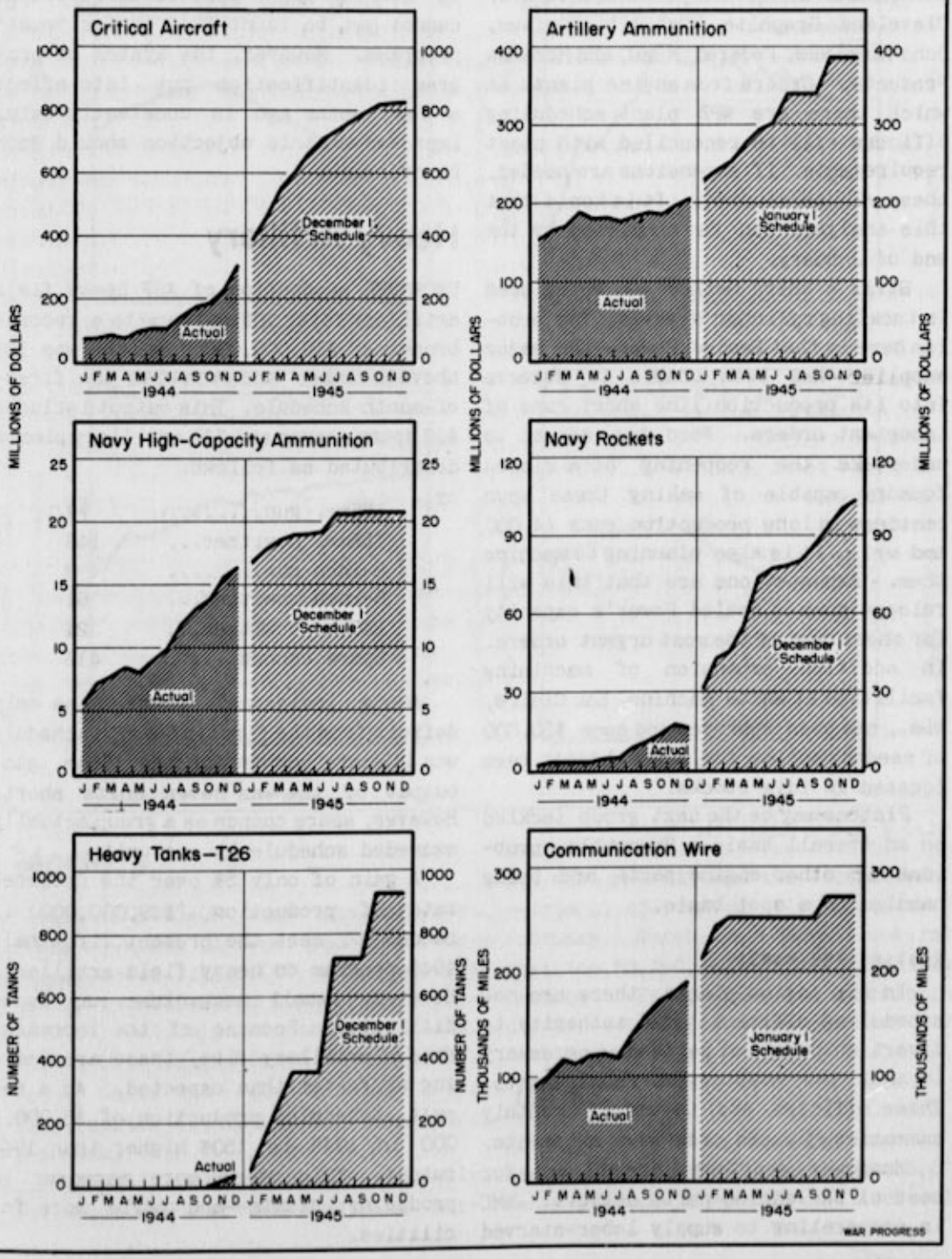
Engine Replacement Parts

WPB's Office of Engine Parts Control has been in active operation about two months (WP-Dec16'44,p12). The engine parts problem is being approached piecemeal, taking the most critical parts one by one. First consideration is being given to blocks and heads, friction bearings, and cylinder sleeves.

The Automotive, Shipbuilding, and Power Divisions have sent out Form 4031 to internal-combustion engine manufacturers asking for a list of castings requirements for cylinder heads and cylinder blocks, by pattern number and engine model. This information will be checked against engine schedules, summarized by foundries, and turned over to the Steel Division within a few weeks. The Steel Division, in turn, will (1) check this information against the capacities of the foundries involved; (2) determine the extent to which requirements can be met; and (3) make recommendations as to the transfer of work

POINTING THE PROBLEM IN CRITICAL PROGRAMS

Gains called for in these selected items range from 25% in high-capacity ammunition to 3000% in heavy tanks.



among foundries, or the expansion of foundry facilities.

On bearings, the approach is slightly different. Order boards are being obtained from the five major manufacturers: Cleveland Graphite, Detroit Aluminum, Bohn Aluminum, Federal Mogul, and Moraine Products. Orders from engine plants at which there are WPB plant scheduling officers will be reconciled with plant requirements. If expansions are needed, these will be studied. It is hoped that this analysis can be completed by the end of January.

Still a third method is being used in tackling cylinder sleeves. The problem here is that Sealed Power—the major supplier—has been unable to squeeze into its production line short runs of important orders. Ford has agreed to undertake the reopening of a closed foundry capable of making these spun castings in long production runs (4,000 and up). It is also planning to machine them. Expectations are that this will release some of Sealed Power's capacity for short runs of the most urgent orders. In addition, expansion of machining facilities at White Machine, Eau Claire, Wis., has been approved and some $50,000 of needed machine tools has already been located in idle stocks.

Pistons may be the next group tackled on an overall basis. Meanwhile, problems in other engine parts are being handled on a spot basis.

ROUTING THE PARTS

In six engine plants, there are now scheduling officers with authority to divert shipments of parts when necessary to meet the most urgent requirements. These officers are to submit monthly summaries of parts orders and shipments.

Manpower shortages are blamed for most of the engine-parts deficit. WMC is cooperating to supply labor-starved plants, but local Manpower Requirements Committees are not always willing to recognize the validity of parts manufacturers' needs. The difficulty here is that a great part of their output cannot yet be identified as for "must" programs. However, the system of program identification put into effect a few months ago is constantly being improved and this objection should soon be overcome.

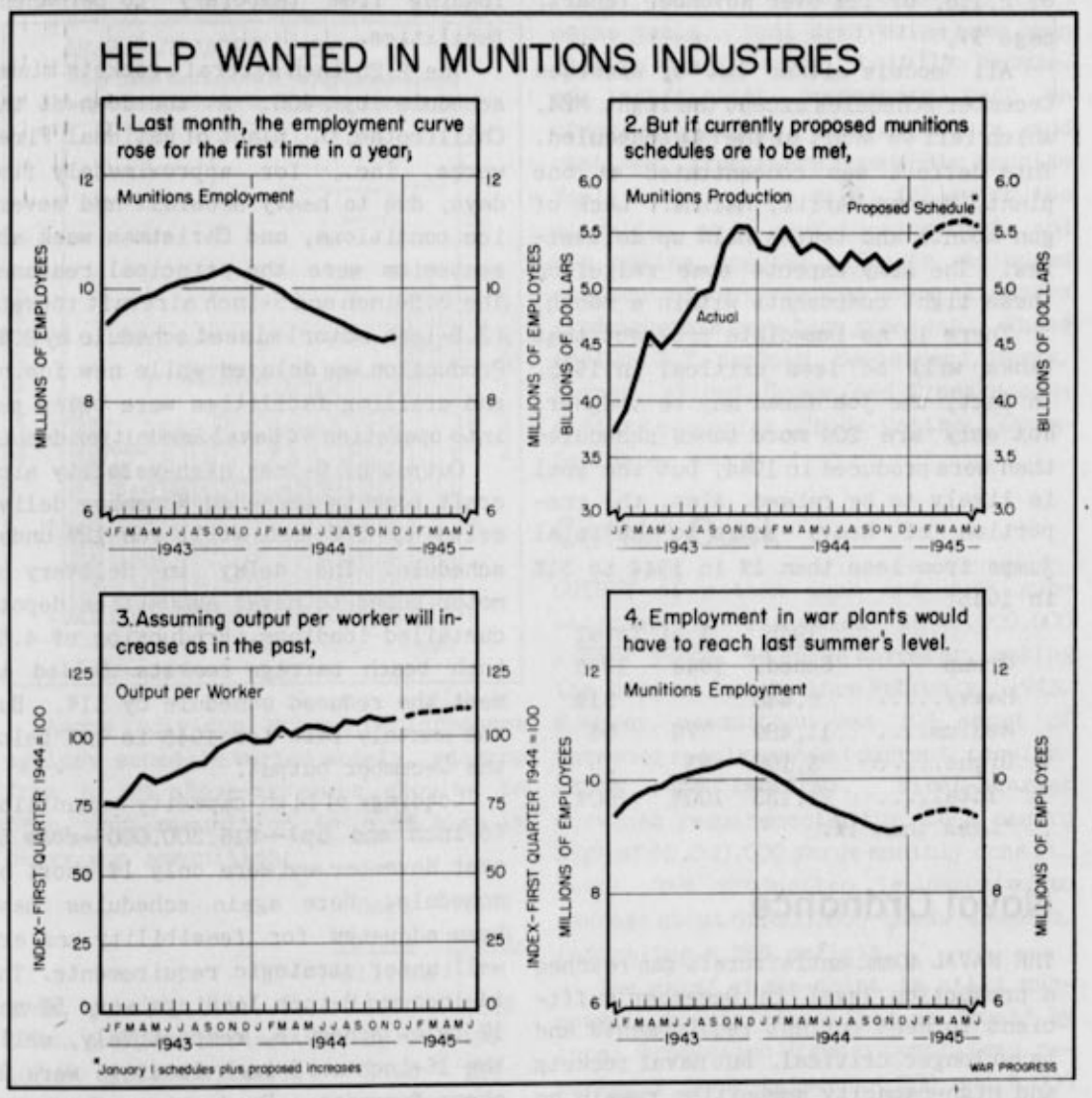
Heavy Artillery

DECEMBER production of ASF heavy field artillery (over 105mm.) came to a record-breaking $19,000,000, which was 12% above November and even with the first-of-month schedule. This output included 413 spare cannon and 310 artillery pieces, distributed as follows:

155mm. gun.....	71
155mm. howitzer...	146
8-inch gun.....	8
8-inch howitzer...	61
240mm. howitzer...	24
Spare cannon.....	413

Among individual items, the only deficit from the first-of-month schedule was in spare cannon for the 155mm. gun; output of 154 was seven units short. However, spare cannon as a group actually exceeded schedule by one unit.

A gain of only 5% over the December rate of production ($19,000,000) is needed to meet the present first-half 1945 program on heavy field artillery. However, recoil mechanisms may cause difficulty. Because of the increased rate of artillery fire, these are wearing out faster than expected. As a result, scheduled production of $5,000,000 in 1945 is 150% higher than 1944 output. This means more manpower in producing plants—and maybe more facilities.



Mortars

MORTAR PRODUCTION rose sharply last month. Output of 60mm. and 81mm. mortars totaled $1,430,000, which was 61% above November and 1% ahead of the first-of-month schedule. In terms of units, output of the 60mm. mortar came to 1,730, or 30 units more than scheduled; the 81mm. mortar totaled 1,586, seven over the mark.

Currently, the 1945 program calls for $21,200,000 of 60mm. and 81mm. mortars. That means average monthly output must rise 24% over the December rate —from $1,430,000 to $1,770,000. In February, March, and April, the rate must top $2,200,000 monthly, 56% above December. Practically all of this increase is slated for the 60mm. mortar.

Tanks

TANK production in December reached a new monthly high for the year. The 2,078 tanks produced compared with a schedule

of 2,118, or 11% over November (chart, page 9).

All models either met or exceeded December schedules except the light M24, which fell 45 short of the 594 scheduled. This deficit was concentrated at one plant, Massey-Harris, Racine. Lack of gun mounts and tracks held up deliveries. The Army expects some relief on these tight components within a month.

There is no immediate prospect that tanks will be less critical in 1945. In fact, the job ahead may be tougher. Not only are 20% more tanks scheduled than were produced in 1944, but the goal is likely to be raised. Also, the proportion of heavy tanks to the total jumps from less than 1% in 1944 to 31% in 1945:

	1945	% of Total	
Group	Sched.	1944	1945
Heavy.....	6,446	*	31%
Medium....	11,489	77%	54
Light.....	3,198	23	15
Total....	21,133	100%	100%

*Less than 1%.

Naval Ordnance

THE NAVAL 40mm. antiaircraft gun reached a production level in December sufficient to meet current requirements and is no longer critical. But naval rockets and high-capacity ammunition remain on the critical list (chart, page 9).

Loading and assembly of rocket ammunition, amounting to $16,000,000 last month, fell 6% below November and missed schedule by 14%. Production in January must double that of December to meet schedule, and the schedule is only half of January requirements. Factors affecting December deliveries included lack of components (both metal parts and powder), unusually severe weather which kept workers off the job, and loss of production occasioned by transfer of loading from temporary to permanent facilities.

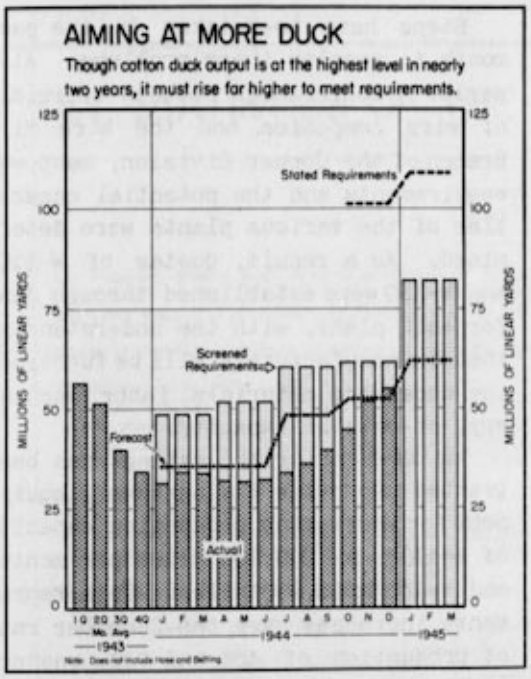
The 2.25-inch aircraft rockets missed schedule by 40%. A shutdown at the Chillicothe, O., plant of National Fireworks, Inc., for approximately five days, due to heavy snowfall and severe ice conditions, and Christmas week absenteeism were the principal reasons. The 3.5-inch and 5-inch aircraft rockets (3.5-inch motor) missed schedule by 20%. Production was delayed while new fusing and drilling facilities were being put into operation at Naval ammunition depots.

Output of 5-inch high-velocity aircraft rockets exceeded November deliveries by 57% but still ran 12% under schedule. The delay in delivery of motor tubes to naval ammunition depots curtailed loadings. Production of 4.5-inch beach barrage rockets failed to meet the reduced schedule by 11%. But the monthly rate for 1945 is 19% below the December output.

Loadings of high-capacity ammunition (6-inch and up)—$16,300,000—rose 5% over November and were only 1% short of schedule. Here again schedules have been adjusted for feasibility and are well under strategic requirements. The 14-inch and 8-inch loadings were 5% and 1% below schedule, respectively, while the 16-inch and 6-inch loadings were 2% above forecast. Production of projectiles is still the limiting factor in the high-capacity ammunition program. One of the main reasons is the lack of forgings and machine tools at Crucible Steel; it is doubtful if the situation can be corrected before February.

ASF Critical Ammunition

ASF critical ammunition continued to gain in December. At $255,400,000, it was 12% higher than November and topped the first-of-month schedule by 1%.



Among individual groups, performances against schedule varied widely, ranging from a 12% above-schedule showing in 57mm. gun ammunition to a 6% miss in heavy gun ammunition:

	Dec. Output (millions)	% of Sched.
57mm. gun	$2.8	112%
60mm. & 81mm. mortar	18.9	105
105mm. gun & howitzer	66.3	104
GP bombs	60.8	105
90mm. gun	7.2	103
Small arms	45.1	98
Heavy gun (over 105mm.)	54.3	94
Total	$255.4	101%

Last month's deficit from schedule in heavy gun ammunition was largely accounted for by two shells. The 155mm. M101 was 14% short of the first-of-month schedule (236,000 shells vs. 275,000), and the 8-inch M106 was 19% short (121,000 vs. 150,000).

These shortages epitomize the difficulty in the program as a whole—machine tools. Tool deliveries have been lagging consistently, chiefly because of insufficient components, such as chucks, mortars, air cylinders, and castings. Expediters from WPB's Machine Tools Division are still following the situation on a week-to-week basis and are making special efforts to speed shipments from companies where slippages from schedule have been greatest. These include J.T. Hepburn, Sundstrand, Morey, Barney LeBlond, Cross, and Cross's subsidiary companies (Cross-Cottrell, Cross-Defiance, etc.).

Cotton Duck

OUTPUT of cotton duck and duck substitutes is estimated at 55,000,000 linear yards, 6% above November, making the biggest month since February, 1943. However, production was 10% short of screened requirements (current requirements less backlog). First-quarter screened requirements run to a record high of 82,000,000 yards monthly (chart, left), but production is expected to average about 62,000,000 yards a month, indicating a 25% deficit.

The chief choke-point is still manpower. Plants classified as "must" by local Production Urgency Committees reportedly need between 4,000 and 6,000 new workers to man idle machinery and to build up second- and third-shift operations. But recruiting continues difficult, especially because of the relatively low wage level.

Some relief is expected from 90-day furloughs for soldiers who formerly worked in the industry. Approximately 200 have already been released and 300 more are looked for. During the month, the Army moved to cut down on absenteeism. Officers were assigned to all important mills to eliminate the causes as far as possible—shopping diffi-

culties, lack of child-care facilities, general indifference to the job, etc.—and to lift morale generally.

Another problem is the supply of cotton yarn. During the fourth quarter, yarn was diverted from tire-cord to duck and duck substitutes. But tire-cord requirements have increased so sharply that the diversion will probably be halted. As an offset, WPB has taken steps (under Direction 9 to M-317) to speed up and make more effective the allocation of yarn to essential users.

Wire Rope and Strand

WIRE rope and strand continues in tight supply, but emergency demands are being met through selective production of the critical smaller types. Past-due orders have been substantially reduced through rescheduling of Army and Navy orders, increased production, and standardization (WP-Jan13'45,p11).

Communication Wire

OUTPUT of the three types of critical communication wire, at 188,500 miles, was up 6% over November, but 2% short of forecast (chart, page 9). The deficit was in assault wire (W-130) and long-range communication wire (W-143); field wire (W-110B) output ran ahead of schedule:

	Dec. Prod. (000 miles)	% Change From Sched.
W-110B.....	137.7	+4%
W-130.....	36.4	-15
W-143.....	12.4	-17
Total.....	188.5	-2%

Deliveries are still limited by shortages of manpower, supply of .013-inch galvanized wire, and facilities for stranding and testing.

Steps have been taken in the past month to resolve these problems. At a series of conferences between officials of wire companies and the Wire Mill Branch of the Copper Division, manpower requirements and the potential capacities of the various plants were determined. As a result, quotas of W-110B and W-130 were established through June for each plant, with the understanding that the manufacturers will be furnished the necessary materials, labor, machinery, or outside capacity.

An AA-1 priority rating has been granted to provide the necessary equipment for increasing production capacity of W-110B to 200,000 miles per month, and W-130 to 65,000 miles. This represents increases over the December rate of production of 45% and 71%, respectively.

Because of the tight supply of high-carbon steel wire, manufacturers are now permitted to make one of the four steel strands of W-110B conductors out of low-carbon galvanized steel wire. However, there is a question as to whether a sufficient quantity of low-carbon galvanized .013-inch wire can be produced, since the same facilities are used to turn out .0095-inch steel wire for W-130. Furthermore, these facilities compete with wire for wire rope and tire bead, both of which are in short supply.

The Steel Division has established load directives on the mills for sufficient .013-inch steel wire to meet the wire manufacturers' quotas. Any failure on the part of steel mills to meet these directives would immediately be reflected in lower deliveries of the finished product (four strands of steel, three of copper) from the copper-wire mills, because the latter have no operating inventories and the present schedule doesn't allow for accumulation of steel wire.

KEY STATISTICS OF THE WEEK

	Latest Week	Previous Week	Month Ago	Same Week 1944	Same Week 1943	Same Week 1942	Same Week 1941
War Program—checks paid (millions of dollars)	1,513	1,507	1,510	1,701	1,414	453	127
War bond sales—E,F,G (millions of dollars)	155	246	531	309	219	225	-
Money in circulation (millions of dollars)	25,209	25,257	25,280	20,408	15,354	11,077	8,542
Wholesale prices (1926 = 100)							
All commodities	104.7"	104.6	104.5	102.9	101.4	95.0	80.2
Farm products	126.3"	125.9	125.9	122.1	116.6	96.9	71.0
Foods	104.7	104.6	105.8	104.8	104.8	94.1	73.0
All other	99.2"	99.1	99.0	97.9	96.3	94.4	84.4
Petroleum (000 barrels)							
Total U.S. stocks*	412,101	417,833	418,915	420,948	440,318	438,291[E]	469,795[E]
Total East Coast stocks*	62,939	64,400	69,493	60,278	48,609	83,713	86,249
East Coast receipts**	1,674	1,742	1,797	1,490	1,209	n.a.	n.a.
Bituminous coal production (000 short tons)**	n.a.	1,662	1,668	1,842	1,860	2,024	1,799
Steel operations (% of capacity)	93.6%	93.0%	92.1%	93.1%	97.0%	96.4%	95.1%
Freight cars unloaded for exports, excl. grain**							
Atlantic Coast ports	3,323	3,122	3,277	3,051	1,156	1,646	776
Gulf Coast ports	450	439	524	369	370	408	342
Pacific Coast ports	1,867	1,871	1,667	1,292	926	165	110
Department store sales (1935–39 = 100)†	165	145	369	143	140	135	102

"Preliminary *Excludes military-owned stocks [E]Estimated **Daily Average n.a. Not Available †Unadjusted

Another factor which may limit production in the first quarter is the shortage of stranding capacity. W-110B and W-130 compete for these facilities. Stranding machines are being added, but the number is still insufficient to meet the increased schedules.

All types of critical communication wire are on the Production Urgency List for labor. The biggest manpower shortage is at the new U.S. Rubber plant at Lowell, Mass., where output of W-143 has reached only 20% of planned capacity because of insufficient labor. Approximately 500 workers are needed.

Airborne Radar

AIRBORNE RADAR improved further in December. Output of $111,000,000 (preliminary), was slightly ahead of the preceding month. Army airborne radar was 9% above the first-of-month schedule; Navy was 4% below. As an indication of the overall progress in this program, December deliveries were more than three times the level of December, 1944.

Despite the overall showing, airborne radar remains critical. Reasons:

1. First-quarter schedules call for a 10% increase over the December level (20% for ASF items). Most of this rise is slated for 16 selected items. At present, these constitute 13% of all production; by June they will comprise 60% of the total airborne radar program.

2. Although aggregate deliveries may appear satisfactory, individual pieces of equipment frequently miss their goals. In December, this was true of 25% of the ASF program.

3. Engineering changes are unceasing, as enemy counteraction makes our equipment obsolescent; moreover, improvements in the art of radar are con-

stantly being made. Indeed, the trend is toward more complex types of equipment—and increased pressure to get them off assembly lines and out to battlefields. One result is that orders tend to be centralized with the larger, better-equipped companies.

4. Schedules are often below strategic needs because of adjustments for feasibility. Schedules for the ASF, for example, are set up with requirements as a basis, but limiting factors such as labor, facilities, components, and developmental problems are also taken into consideration.

Insect Screen Cloth

UNTIL recent months, military requirements were taking about one-fourth of all metal insect screen cloth produced in this country, and the total output of screen cloth made from synthetics (Nylon and Saran). Even though production of metal cloth had declined about 20% from the prewar level, this still left a fairly adequate civilian supply.

But the increased tempo of the offensive in the Pacific nearly tripled military demand during the closing months of 1944 and the first quarter of 1945. Vast quantities of metal cloth are needed to protect troops on tropical islands.

After considerable paring, military agencies have estimated their first-quarter minimum requirements at 92,000,000 square feet. On the basis of these estimates, the Requirements Committee has approved the following distribution of metal insect screen cloth for the first quarter of 1945:

	1st Qtr. '45 (million sq. ft.)
Army.....	62.0
Navy.....	15.0
ARCO.....	15.0
Nonmilitary...	42.8
Total.....	134.8

Production in the fourth quarter of 1944 is estimated at 108,000,000 square feet. Thus output must be boosted 25%. Even if this goal is reached, the amount of metal screen cloth available for civilians will be 60% below consumption in the first half of 1944.

Only small quantities of low-carbon steel and bronze are used in metal screen cloth, and materials present no problem. Facilities are also ample. The only difficulty is in obtaining workers.

Wool Clothing

AT THE BEGINNING of 1944, military stocks of important wool clothing items were in good supply, and many of them were placed on decreasing schedules. But continuation of the war in Europe into the winter months on an ever increasing scale has resulted in an unanticipated increase in requisitions. The terrific wear and tear on clothing under present combat conditions has exceeded all replacement estimates based on previous experience. Increased issue rates have all but drained existing stocks.

Although the supply of wool fiber is sufficient, production of required fabrics in a short period of time is difficult to obtain. One of the main difficulties is the reluctance of manufacturers to accept contracts for fabrication of cloth into military end items.

The Textile Bureau has taken drastic steps to curtail production for civilian needs. It has assumed control over all worsted fabrics and 50% of woolens and has channeled them to military use. Specific directives have been issued governing manufacture of wool items, and this may alleviate the shortage of military clothing within the next few months—at the expense of civilian supply.

The only shortage of facilities is in the manufacture of special cushion soles for socks.

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Not One Manpower Problem...
1944 Production Roundup

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Number 228

January 27, 1945

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 228 WAR PROGRESS JANUARY 27, 1945

Not One Manpower Problem...

But many, due to schedule variations, skills required, plant location. Referral mechanism, employment ceilings adjust flow of labor, but cannot drive men to war jobs.

THERE IS NOT A manpower problem—there are many manpower problems, according to the War Production Board's December report on critical programs. This statement can be verified in almost any plant suffering from labor shortage.

An expanding ordnance plant near Louisville, for instance, will need 10-000 additional workers who must be drawn partly from the tobacco and liquor industries in the city. But there are not enough housing facilities at the plant and it is an hour's ride each way. The plant's starting wages do not compare favorably with what the workers have been getting. And the job is obviously temporary; the workers have not forgotten last year's sudden wholesale layoffs in ammunition plants. How many manpower problems does this plant have?

NO TWO ALIKE

No two war plants in the country are exactly alike in their labor requirements and the difficulties encountered in filling them: in schedule variations, type of labor required, nature of the labor markets available, and in all the special obstacles that stand in the way of getting and holding workers.

Ammunition, radar, rocket, aircraft, and machine-tool plants, and recently shipyards, have suffered from unstable schedules—have found it impossible to adjust their pay rolls to keep pace with the ups and downs of requirements. Locations in labor-starved industrial centers have handicapped tank, truck, and battery factories; out-of-the-way locations have handicapped explosives and shell-loading plants. A lack of skilled labor is hurting many programs; a machine shop has more trouble finding three tool-and-die makers, or a rubber factory 30 tire builders, than an aircraft plant has in signing up 300 raw recruits for training. Employment in cotton duck mills and logging camps has been retarded by low wages, in foundries and dry-cell battery plants by unpleasant working conditions, in lead mines and explosives plants by occupational hazards; and any kind of war plant may be handicapped by poor labor relations or by management policies that increase turnover and reduce efficiency.

WHAT'S IN A TOTAL?

Just as we lump all these problems together and call them "the" manpower problem, so do we lump together all the employment requirements of the 1,200 "must" plants now behind schedule and say they need 175,000 more workers immediately. But the process of addition tends to obscure the real issues. This simple-looking total combines labor requirements of widely varying urgency and validity—adding together on a one-to-one basis the chemical engineer needed by a high-octane gasoline plant, the loom tender called for by the cotton duck plant that is carrying on nonessential production concurrently with its war work, the common laborer said to be needed by the shipyard that has been notoriously wasteful of manpower in the past; and it includes the workers required "to meet schedule" by manufacturers of parts and components who have no schedules at all in the official sense.

And the total is deceptive in another way. Stacked up against the national labor force of 50,000,000, it looks insignificant—easy to get.

Earlier in the war it would have been. Then the great flow of workers into the munitions industries—5,000,000 during the first two years after Pearl Harbor—filled all the empty slots. Now, however, there is no such flow; if the slots are to be filled, it must be by specific, on-the-spot action—action which finds the worker, clears away the obstacles, and puts him in the place where he is needed. Quick solution of the thousands of manpower problems involved in this job depends upon two conditions. First, the government agencies doing the job must be located on the scene of action and composed of men who understand local conditions. Second, they must have the authority to act, accurately and decisively.

Only the first of these conditions has thus far been met. During the past year the PUC-MPCs (WPB's Production Urgency Committees and WMC's Manpower Priority Committees) have become active in all war producing areas throughout the country (WP-Sep23'44,p7). Their membership consists of local representatives of both military and civilian war agencies. They know the local labor markets, the war production programs, the essential civilian needs. They have performed valuable service in adjusting the manpower flow. But because of their limited authority their methods of filling war jobs have been indirect, rather than positive.

The committees have two instruments to work with: plant employment ceilings to force workers onto the labor market and the referral mechanism of the U.S. Employment Service to direct them into important jobs. But employment ceilings have been imposed generally only upon war plants and the other essential activities that are in direct contact with the committees. There has existed neither the clear legal authority nor the large operating staffs that would have been required to impose them upon industry as a whole. The recently initiated "forced release" system for pulling workers out of nonessential activities has not yet met the test of actual operation.

WHAT CEILINGS HAVE DONE

Thus, while ceilings have been indispensable in adjusting the distribution of the labor force already available for war production, they have done little to increase it. They have done much to compel better utilization of labor in war plants; they have done little to prevent its waste in nonessential and frivolous activity. Perfume manufacturers still employ chemists who are needed in ordnance plants; producers of "junk jewelry" hold workers whose manual skill would be valuable in a dozen different war jobs; wholesale florists employ labor that could be used on the farms.

Even if the committees had the punitive authority to impose ceilings on all these activities and the large police force required to enforce them, the gain would probably not repay the effort. The ceiling technique does not release the type of manpower now most needed by the war effort. Employers, in self-interest, would lay off their least productive, least skilled workers.

And, even if the committees had the mechanism for squeezing manpower out of nonessential activities, they would be powerless, as matters now stand, to direct its flow into the urgent jobs. The com-

IN THIS ISSUE:

mittees name the industries and plants which need workers most urgently in local areas. But workers who apply to the U.S.E.S. cannot be forced to accept jobs in these plants or industries. In many areas they can return again and again to the employment office until they find something that suits them; or they can do what nearly half of all job hunters now do: ignore the system completely. Theoretically a worker who leaves an essential job may not take another for 60 days; actually there is nothing to stop him from taking another job, unless he happens to be eligible for military service and thus subject to reclassification by his draft board. In many areas under WMC regulations an employer may not hire men off the street; actually the application of punitive measures that would prevent this is not considered practicable and cooperation is voluntary.

The referral system provides no positive method of holding for essential war work the labor that is released by cutbacks. Out of 312 men recently laid off by a Dayton war plant, a follow-up could trace only 56 who had taken other war jobs.

STIMULUS MISSING

Thus the instruments in the hands of the PUC-MPCs—employment ceilings and labor referrals—are not effective for driving manpower into war work and holding it there. They were not so designed; they were intended as methods for channeling and adjusting its flow. The stimulus that causes workers actually to seek war jobs must come from elsewhere.

It now appears that this stimulus—this driving force—must be provided soon if urgent battle-front needs are to be met. In the past the PUC-MPCs have had a real measure of control only over the workers whose draft deferment depended upon their being in essential war work. An act of Congress that increased the number of such workers would directly increase the number of urgent job placements that the committees could bring about. Selective Service rolls now list close to 20,000,000 men between 18 and 45 who are not in the armed forces. Millions of these of course are in essential war jobs, but other millions are not.

If these other millions were to flow into the U.S.E.S. offices under the immediate obligation to find war jobs as long as any were available, the PUC-MPCs would operate far more effectively. They would have more manpower—more raw material, so to speak—to work with. Interregional recruitment would be far more effective than at present in relieving the pressure on tight labor areas. The long list of war plants behind schedule because of manpower would melt away. And the other causes of failure to meet schedule that have been masquerading behind the manpower cloak would be brought out into the open.

MORE THAN A THREAT

The mere threat of Congressional action along these lines has brought an increase in the number of applicants for war jobs. But it would be futile to infer that the threat alone is enough. If Congress doesn't act, then such legislative repudiation of the principle would quickly reverse any beneficial labor movement that had been brought about.

Besides aiding in the present crisis, increased control over manpower would be a valuable asset to the war production program of the future, especially during the period when diminishing German resistance will encourage many workers to "beat the gun" in looking for peacetime jobs. And as materials and facilities for all kinds of production become more freely available, it may be that the economy in the one-front war period will be more easily controlled by regulation of the manpower component.

December Output—Prophetic of 1945

In year of small ups and downs, last month's rise was smallest; monthly production must increase 6% first quarter to meet schedule. Year's total 12% ahead of '43, double '42.

DECEMBER munitions production, at $5,200,000,000 (preliminary), was only a shade above November, and November was the lowest production month in more than a year. The slight rise can hardly be interpreted as a reversal in the general downward trend which characterized 1944. Such a reversal is essential if the proposed 1945 production goal of $64,700,000,000 is to be achieved. Indeed, average monthly production in the first quarter will have to rise to $5,500,000,000, or 6% above last month's rate.

December was beset by a number of difficulties. Heavy snowfall and ice conditions forced a five-day shutdown of the Chillicothe, O., plant of National Fireworks, Inc. As a result, the 2.25-inch aircraft rocket missed schedule by 40% (WP-Jan20'45,p12). Time was also lost in the transfer of loading from temporary to permanent facilities at naval ammunition depots. Furthermore, many plants were closed down Christmas Day and more absenteeism during the year-end holidays was reported than in previous war years.

SMALL UPS, SMALL DOWNS

Although 1944 total production of $63,700,000,000 was 12% ahead of 1943 and more than double 1942, the year had none of the steadily climbing quality of its predecessors (chart, page 6). It was a year of small ups and downs, with the downs exceeding the ups during the last nine months. And the December increase was the smallest of the lot.

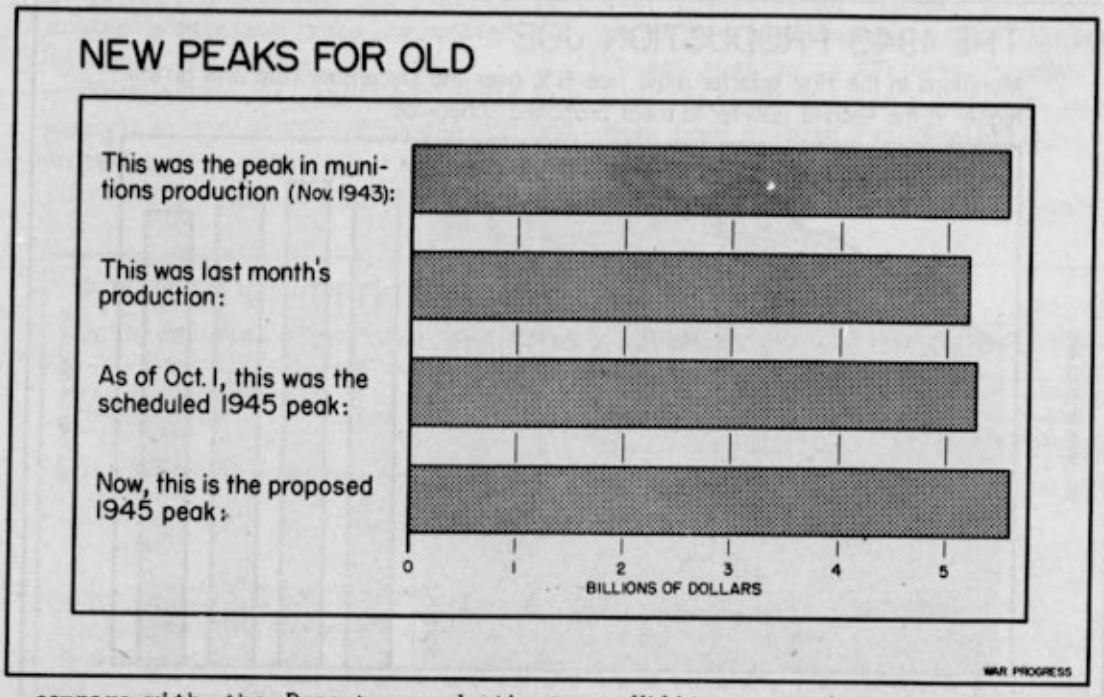
However, there's a December gain that does appear significant: the addition of 50,000 workers to the munitions rolls. This checks a procession of 12 monthly declines (WP-Jan20'45,p1). This decline in the work rolls has been partially offset by increased productivity per worker. To meet pending production goals, munitions work rosters must continue to increase into the second quarter.

DECEMBER GAINS

All major groups of munitions failed to make schedule for the fourth consecutive month, but only ships and communication and electronic equipment failed to register gains over November. The largest gain was in combat and motor vehicles—8%. Biggest deficit from schedule was in guns and fire control—also 8%.

The first-of-month schedule called for $5,330,000,000 and this was missed by 2%. Schedules for the first half of 1945 are much higher: $5,500,000,000 per month average during the first quarter, and a peak of $5,600,000,000 during the second quarter. This peak requires an output 8% better than December's and will surpass the previous high of $5,564,000,000 in November, 1943.

First-quarter production problems vary. Ships and combat and motor vehicles are already at the required level of production, but a rise of 19% is called for in communication and electronic equipment and 13% for ammunition. Much sharper increases are required for many of the critical programs within these major groups—for example, 150% for rockets. Here is how the average monthly schedules in the first quarter



compare with the December production:

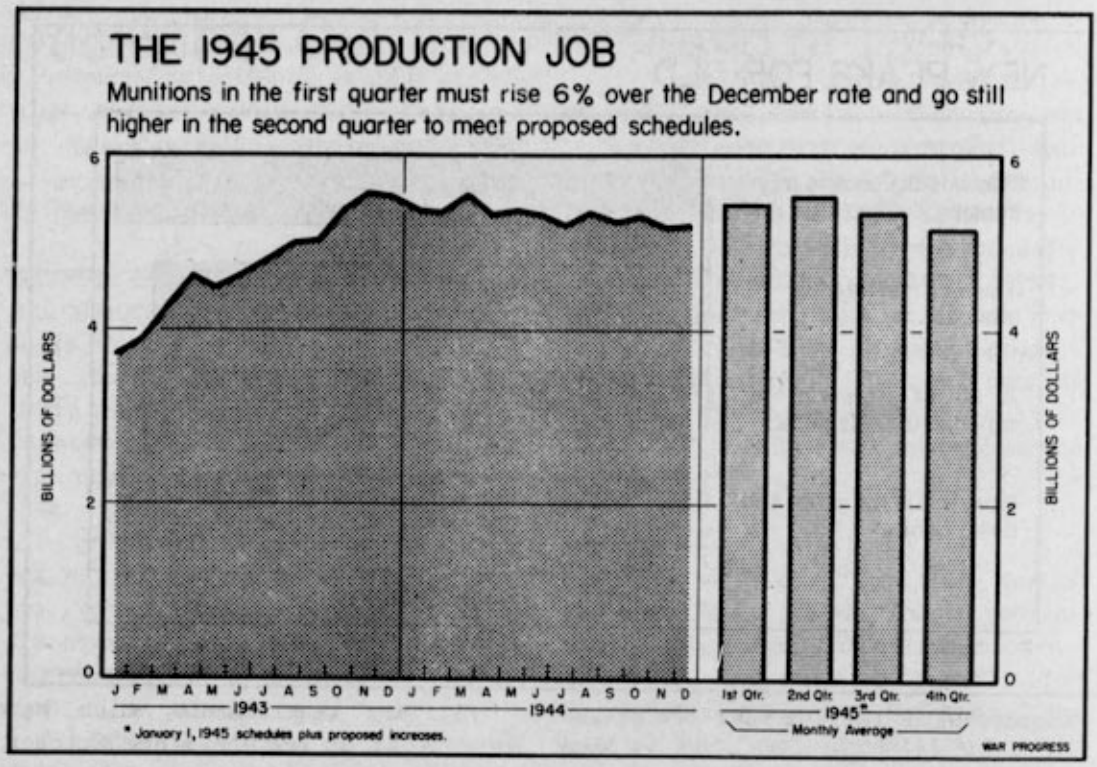
	Dec. Prod. (millions)	% Rise Req. 1st Qtr. '45
Aircraft.....	$1,380	+11%
Ships.....	1,041	0
Guns, fire control..	258	+3
Ammunition.....	620	+13
Combat, motor veh...	516	0
Com., elec. equip...	335	+19
Other equip., supplies.....	1,050	+2
Total.....	$5,200	+5%

The production job ahead is more difficult than in 1944, not only because the program is now larger than last year but because of constant shifts in requirements. Programs in which production has attained a peak are frequently cut back. On the other hand, battlefront tactics and inventions add new items to the list. The effect is to decrease schedules of "easy-to-make" items, to increase schedules of "hard-to-make" items.

Military requirements, which have been going up rapidly since October, are expected to continue to rise as the year's needs are more fully determined. About $2,500,000,000 has been added to the 1945 program since January 1, making the total about $64,700,000,000. These increases include some $500,000,000 each for aircraft and Maritime, and $1,500,000,000 for the Army Service Forces. Although the exact breakdown of the ASF figure has not yet been announced, it is understood that the biggest increases will be in tanks, guns, heavy ammunition, and quartermaster supplies needed to help equip divisions of French troops now being organized to fight with the Allies against Germany and to replace equipment and supplies lost in the German break-through.

Aircraft

December output of airframes, engines, propellers, spare parts, gliders, etc. ran to $1,380,000,000, about even with November; and the first-of-month



schedule was missed by 4%. Measured by airframe weight, December production was 2% short of schedule (WP-Jan13'45 p7). In critical aircraft, however, the monthly gain was sharp, and output of $303,000,000 was only 1% shy of schedule (WP-Jan20'45,p2).

For all of 1944, production of aircraft totaled $18,900,000,000. As in the case of airframe weight, this was a new peak—some 37% higher than 1943. Still, it was well below the $23,500,000,000 planned for at the beginning of the year. The difference between this figure and actual output—$4,600,000,000, or 20%—reflects repeated cutbacks in the aircraft program.

Signal Equipment

Sharp expansion in airborne radar and field and assault wire boosted 1944 production of communication and electronic equipment to a new high of $4,270,000,000 (preliminary)—an increase of 24% over 1943. Radio equipment, which accounted for more than half of 1943 production, declined, and constituted only one-third of 1944 output. Of the $815,000,000 overall gain in signal equipment, more than half ($450,000,000) was in airborne radar:

	1944	1943	% Change
	(millions)		
Radar.....	$1,470	$940	+56%
Airborne....	860	390	+121
Radio.....	1,750	1,815	-15
Other.....	1,050	700	+50
Total.....	$4,270	$3,455	+24%

In 1943, airborne radar accounted for only 11% of total communication and electronic production, but in December, 1944, it represented 32% of the month's output. And the program is continuing

to expand; a rise of 10% over the December production rate is called for in the first quarter of 1945.

Production of critical field and assault wire rose 78%, from $66,820,000 in 1943 to $119,000,000. An even bigger increase is slated for this year—89% over 1944. As of January 1, requirements for 1945 amount to $225,000,000. Output must go up 22% over December to meet the first-quarter schedules, which have been lowered for feasibility reasons.

Ground radar output fell off sharply

PRODUCTION PROGRESS—Preliminary

Value delivered or put in place—millions of dollars

	Dec. Preliminary	Nov. Actual	% Change	Dec. Schedule*	% Deviation Dec. Prelim. vs. Schedule
MUNITIONS AND WAR CONSTRUCTION	$5,408	$5,404	nil	$5,558	-2%
TOTAL MUNITIONS	5,200	5,184	nil	5,330	-2
Aircraft	1,380	1,378	nil	1,439	-4
Total airframes, engines, propellers	1,096	1,096	0	1,143	-4
Airplane spare parts	267	267	0	280	-5
Other aircraft and equipment	17	15	+15%	16	+6
Ships (incl. maintenance)	1,041	1,108	-6	1,082	-4
Navy	464	485	-4	547	-15
Combatant	174	173	+1	179	-3
Landing vessels	158	182	-13	169	-7
Other	132	130	+2	199	-34
Maritime	564	598	-9	524	+12
Cargo and supply	280	304	-8	272	+3
Other	84	94	-11	52	+62
Army Vessels	47	58	-19	45	+4
Ship Maintenance and Repair	166	167	-1	166	†
Guns and Fire Control	258	253	+2	281	-8
Small arms (under 20mm)	22	22	0	22	0
Artillery, mortars, rocket launchers-ASF	62	63	-2	63	-2
Fire control and searchlights (excl. Radar)	54	50	+8	56	-4
Naval guns and other	87	85	+2	107	-19
Ammunition	620	604	+3	624	-1
Small arms ammunition (under 20mm)	45	46	-2	45	0
Artillery amm., mortar shells, rockets-ASF	212	201	+5	213	nil
Aerial bombs-ASF	149	135	+10	148	+1
Naval ammunition and other	214	222	-4	218	-2
Combat and Motor Vehicles	516	481	+7	520	-1
Combat vehicles	184	165	+12	186	-1
Motor carriages for SP guns	33	29	+14	31	+6
Automotive vehicles and tractors	299	287	+4	303	-1
Communication and Electronic Equipment	355	346	+3	355	-0
Radio	102	108	-6	112	-9
Radar	142	139	+2	145	-1
All other	91	99	-8	100	-9
Other Equipment and Supplies	1,050	1,014	+3	1,089	+2
WAR CONSTRUCTION (GOV'T. FINANCED)	208	213	-2	208	†

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

in 1944 because of reduced needs in antiaircraft and coastal defense; from a peak of $42,000,000 in March, it was down to $5,000,000 monthly in the final quarter. However, recent developments have made it an effective offensive weapon (WP-Jan6'45,p1) and now monthly production in the first quarter is scheduled to more than triple.

December output of communication and electronic equipment dropped slightly below November to $335,000,000 and missed schedule by 6%. This decline was due mainly to the fact that radio production was 9% short of the month's forecast. Airborne radar registered a gain of only 1%, because of recent major shifts within the program; it will take time to speed up production on new types of equipment.

Army Ordnance

As a result of cutbacks which took place during the first half of the year, ground army munitions output (excluding signal equipment) amounted to $11,485,000,000 in 1944, or 13% less than 1943's $13,165,000,000. Whereas in November, 1943, production of ground army munitions ran about $1,200,000,000 a month, by May it had declined to less than $900,000,000. Then, with the institution of the heavy ammunition program and other boosts in schedules, the production trend was reversed, and now ground army munitions output is running at a $1,100,000,000-a-month rate, and is scheduled to go even higher.

LONE INCREASE

Ammunition was the only major group in 1944 to show an increase over the previous year; the big cutback in small-arms ammunition was more than offset by the sharp rise in output of heavy-artillery ammunition. The biggest decline dollarwise was in combat and motor vehicles—down nearly $1,500,000,000:

ASF	1944	1943	% Change
	(millions)		
Guns & fire control.....	$1,635	$2,500	-11%
Ammunition...	4,815	4,455	+8
Com. & motor vehicles....	5,035	6,210	-19
Total.....	$11,485	$13,165	-13%

The total 1945 ASF ammunition program, scheduled at $7,145,000,000, is 48% more than output in 1944, and 28% above the December level. Scheduled production of artillery ammunition amounts to $3,900,000,000, or 74% more than production last year. In the case of heavy-artillery ammunition, the 1945 program is nearly triple 1944 output. The aerial-bomb program is 38% greater, and small-arms ammunition, 30% more.

The combat and motor vehicles program for 1945 is up 8%, largely because of the increased demand for heavy tanks. The 1945 program as of January 1 calls for 21,185 tanks, of which 6,500 are heavy models, as compared to only 54 heavies turned out in 1944.

BIG ONES PREFERRED

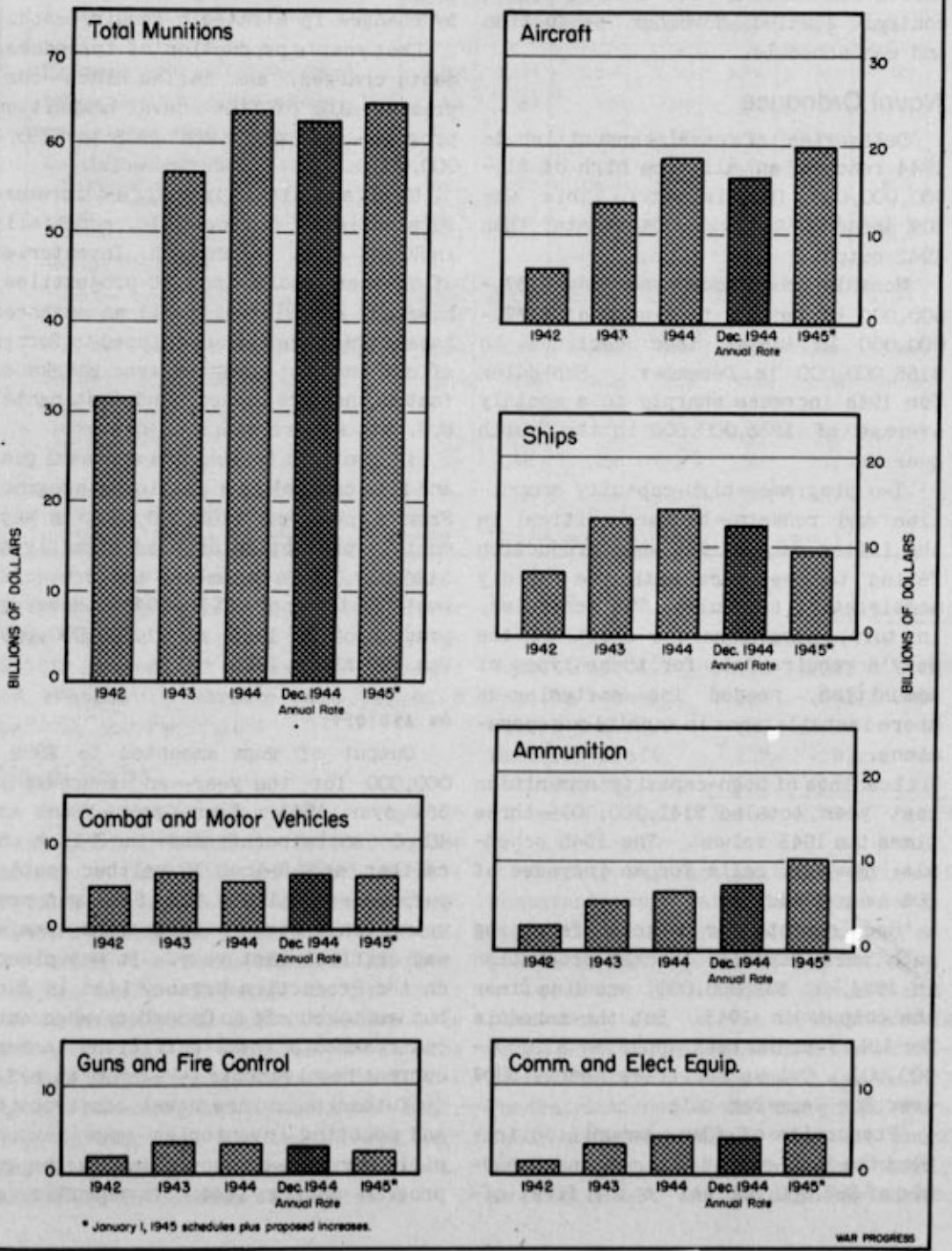
Similarly, the demand for medium trucks has been sharply reduced this year in favor of heavier, costlier types.

In contrast to ammunition and combat and motor vehicles, the ASF guns and fire control program for 1945, at $1,450,000,000, is smaller than output last year—by 11%. However, the mortar program is more than double that for 1944, and heavy field artillery is 35% larger.

December ASF ground munitions production amounted to $1,080,000,000 (pre-

YEAR-END MUNITIONS ROUNDUP

Production in 1944 rose 12% over 1943. This year's proposed schedules are 4% above the December rate. But aircraft must rise 21%, ammunition 36%.



* January 1, 1945 schedules plus proposed increases.

WAR PROGRESS

liminary), slightly higher than in November. Ammunition output was up 8% and was on schedule. Combat and motor vehicles were 8% above November, but missed schedule by 1%. Guns and fire control equaled November production and met schedule.

Naval Ordnance

Deliveries of naval ammunition in 1944 reached an all-time high of $1,900,000,000 (preliminary). This was 50% ahead of 1943 and 300% greater than 1942 output.

Monthly production rose from $137,000,000 in January to a peak of $177,000,000 in August, then declined to $155,000,000 in December. Schedules for 1945 increase sharply to a monthly average of $233,000,000 in the fourth quarter.

Two programs—high-capacity ammunition and rockets—became critical in the latter part of 1944 when production failed to keep pace with the rapidly accelerating schedules. The schedules, in turn, have been far short of the Navy's requirements for these types of ammunition, needed for softening up shore installations in amphibious operations.

Loadings of high-capacity ammunition last year totaled $141,000,000—three times the 1943 volume. The 1945 schedule, however, calls for an increase of 80% over 1944.

Requirements for rockets are rising much more rapidly. Rocket production in 1944, at $92,000,000, was nine times the output in 1943. But the schedule for this year has been upped to $1,000,000,000. Output must rise nearly 500% over the December rate.

Production of 40mm. ammunition tripled the 1943 output and met the schedule of $87,000,000 set in the first-of-the-year forecast. It was aided by transfer of facilities from 20mm. ammunition, production of which declined to $295,000,000—or 19% of the 1943 level—as the result of a cutback caused by changes in strategic requirements.

Last year's production of torpedoes, depth charges, and marine mines—comprising 20% of the naval ammunition program—rose 45% over 1943 to $380,000,000.

Naval ammunition inventories increased substantially during 1944, especially in HC and 40mm. ammunition. Inventories of 14-inch and 8-inch HC projectiles, however, are virtually all at advanced bases; these shells are shipped to forces afloat and to advanced area stocks as fast as they are loaded, and Continental U.S. stocks are close to nil.

In contrast to ammunition, naval guns and fire control is a declining program. From a peak of $163,000,000 in May, monthly production dropped steadily to $126,000,000 in December, and schedules continue to taper off in 1945. However, production in 1944, at $1,700,000,000, was 28% above 1943.

ON AND OFF

Output of guns amounted to $988,000,000 for the year—an increase of 36% over 1943. Four guns—20mm. and 40mm. antiaircraft and the 3-inch 50 caliber and 5-inch 38 caliber double-purpose—constitute 90% of the gun program. Only one of these—the 40mm.—was critical last year. It was placed on the Production Urgency List in June but was taken off in December, when output reached a level sufficient to meet current requirements (WP-Jan20'45,p12).

Cutbacks in new naval construction and mounting inventories were responsible for downward revisions in the gun program during 1944. Inventories of

KEY STATISTICS OF THE WEEK

	Latest Week	Previous Week	Month Ago	Same Week 1944	Same Week 1943	Same Week 1942	Same Week 1941
War Program—checks paid (millions of dollars)	1,562	1,512	1,510	1,701	1,414	453	127
War bond sales—E, F, G (millions of dollars)	214	155	272	309	219	245	n.a.
Money in circulation (millions of dollars)	n.a.	25,209	25,280	20,408	15,354	11,077	8,542
Wholesale prices (1926=100)							
All commodities	103.2[p]	103.0	104.5	103.0	101.6	95.0	80.2
Farm products	125.9[p]	125.9	125.9	122.1	116.6	100.8	71.0
Foods	104.7	104.6	105.8	104.8	104.8	92.5	73.0
All other	99.1[p]	99.1	99.1	97.9	96.3	94.4	84.4
Petroleum (000 barrels)							
Total U.S. stocks*	416,840[p]	417,833	418,915	420,948	440,318	435,873[e]	468,564[e]
Total East Coast stocks*	64,280[p]	64,400	69,493	60,278	48,609	83,354	84,983
East Coast receipts**	1,732[p]	1,742	1,797	1,490	1,209	1,010	n.a.
Bituminous coal production (000 short tons)**	2,008	1,888	1,668	2,042	1,850	1,881	1,729
Steel operations (% of capacity)	92.6%	93.6%	92.1%	93.1%	97.0%	96.4%	95.1%
Freight cars unloaded for exports, excluding grain**							
Atlantic Coast ports	2,847	3,122	3,277	3,051	1,156	1,646	868
Gulf Coast ports	542	439	524	369	370	408	320
Pacific Coast ports	1,903	1,871	1,667	1,292	926	165	102
Department store sales (1935-39=100)†	160	166	369	143	146	135	102

[p] Preliminary. * Excludes military-owned stocks. [e] Estimated. ** Daily Average. n.a. Not Available. † Unadjusted.

naval guns on December 1 were 80% higher than at the beginning of last year. Shifts in types of armament as a result of changes in warfare also played a part in the reduction.

Naval Ships

More tonnage was completed by the Navy during 1944 than the 2,700,000 tons afloat at the time of Pearl Harbor. Total output, at 3,160,000 displacement tons, represented a 22% gain over 1943.

During the first half of the year, landing craft were pushed to the limit; in the second half, combat loaders. As a result of the emphasis on landing craft, they were almost double 1943's total. Combatants, on the other hand, dropped about one-fourth. Nearly half the total tonnage was in landing craft, one-third in combatant vessels:

	1944	1943	% Change
	(000 tons)		
Combatants.....	1,033	1,359	-24%
Landing vessels	1,512	793	+91
Patrol & mine..	159	193	-18
District craft.	127	91	+40
Aux. & other...	329	155	+112
Total.....	3,160	2,591	+22%

Despite the fact that deliveries of combatants were below the 1943 level, completions this year will exceed last year's by 11%.

December contributed 236,000 displacement tons to the 1944 total—1% below November and 8% behind the first-of-month forecast. The lag was mainly in district and auxiliary craft. Indeed, combatant ships were 19% ahead of forecast—10% above November—mainly as the result of the delivery of the

12,000-ton aircraft carrier escort "Block Island" scheduled for January:

	Dec. Deliv. (000 tons)	% Deviation From Nov.	Sched.
Combatants.....	74	+10%	+19%
Landing vessels	116	-3	-6
Patrol & mine..	7	-46	0
District craft.	12	-8	-45
Aux. & other...	27	+4	-36
Total.....	236	-1%	-8%

Other combatants included the 10,000-ton cruisers, "Topeka," "Oklahoma City," and "Atlanta," eight destroyers, two DEs, and eight submarines.

The Navy completed 35 combat loaders, bringing the total through December to 174, or 45 fewer than were scheduled at midyear.

Maritime Ships

Deliveries by the Maritime Commission of $450,000,000 in December brought the 1944 total to $4,750,000,000, as against $4,225,000,000 in 1943—a gain of 12%.

And for this year, $3,700,000,000 is tentatively on the books, some $600,000,000 higher than the 1945 schedule of last month. Most of this increase is for delivery in the second half of 1945. As proposed schedules now stand, $2,400,000,000 is set for the first half, $1,300,000,000 for the second.

Here's how 1944 production compares with 1943:

	1944 (millions)	1943	% Change
Standard cargo*	$470	$490	-4%
Liberty ships..	1,370	2,350	-42
Victory ships..	290	0	∞
Tankers.....	820	695	+18
Combat loaders.	900	30	+2900
All other.....	900	660	+37
Total.....	$4,750	$4,225	+12%

* Includes C1-M-AV1.

The December value of deliveries was 7% below November and 3% behind the first-of-month schedule, but most major types came through as planned; the lag was in minor types. Combat loaders, 2% ahead of schedule, again accounted for nearly half of the dollar total, but from here on they will decline sharply. In January, for example, only 24 APAs and AKAs are scheduled, against deliveries of 44 in December; and by midyear they are virtually out of Maritime schedules. Through December, 187 ships were delivered to the Navy, about one month behind the July 1 schedule of 216 for '44.

"ZIPPER SHIP"

Liberty ships declined as planned but beat the December forecast by one—44 to 43. As in the case of combat loaders, Liberty ship deliveries peter out by mid-1945. Last month, 24 additional modified Liberty ships were put into Maritime schedules, but these are airplane transports. Known as the "Zipper Ship" (Z-EC2), they are scheduled for delivery in the second half of the year.

RISING PERCENTAGE

Victory ship completions were the highest since July—13 delivered to nine for November, though two ships short of the sharply rising schedule. By June, deliveries are scheduled to reach 46. In December, they represented only 8% of Maritime deliveries, but will be about one-fourth during 1945.

Deliveries of standard cargo vessels met the schedule of 11, but were four under the November total. For 1945, this group rises sharply and about 60 are scheduled for June.

Tanker deliveries matched the November total of 27 ships, one ahead of schedule.

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The Coal Supply and John L. Lewis

War Facilities: Still a Declining Program

Remobilizing Machine Tools

W-13 Forecasts Biggest Plane Year

Number 229 February 3, 1945

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.

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NUMBER 229 WAR PROGRESS FEBRUARY 3, 1945

The Coal Supply and John L. Lewis

Prospect for 1945 depends on contract negotiations scheduled for March. Meanwhile, transportation and distribution are major problems with supply-demand position tight.

THIS IS AN odd-numbered year. The contract between the coal operators and John L. Lewis' miners is up again. On March 1, negotiations begin. If 1943 coal history is repeated, some 35,000,000 tons of bituminous coal will be lost by strikes, and a supply crisis would be inevitable.

If there is no strike, however, the supply of bituminous coal will be just about enough to meet requirements for the first nine months of 1945. Then, if the war with Germany is over, requirements will approximate production. If the European war is still going full blast, however, requirements for the 1945-46 winter season will not be met.

CARRYING THE COALS

The crux of the current coal crisis is transportation and distribution. Though the right sizes and grades are not always available, supply just about manages to go around—generally speaking. But it's tight and has been aggravated by bad weather. A temporary ban has been put on all but direct military shipments in the area east of Chicago and north of the Potomac yards in Alexandria, Va. That's why in Washington, for instance, a policeman must certify that a householder's bin is empty before shipment is made.

The Solid Fuels Administration has instituted some quasi priorities on industrial users. Plants needing good coking coals get first choice. Other consumers who would like to get better grades of coal, but who could get along with poorer grades, get second choice, and so on. Also, to guard against hoarding, limitations have been placed on shipments to consumers.

Requirements of bituminous coal for 1945 run to 620,000,000 tons, about the same as in 1944. Production estimates are 580,000,000 tons—some 40,000,000 tons below last year's all-time record output. The drop is due to manpower shrinkage—shrinkage which has already occurred and is likely to continue, as we shall see later.

ASSUMING NO STRIKE

During the current quarter, production is estimated at 150,000,000 tons, against requirements of 165,000,000. It is believed that existing stockpiles, currently at 56,000,000 tons (the same as on January 1, 1944), could make up the 15,000,000-ton deficit. After that, stocks would be at absolute minimum levels. In the second and third quarter—again assuming no strike—production and consumption would be in approximate balance at some 145,000,000 tons per quarter. With the war in Europe continuing, fourth-quarter production would be perhaps 25,000,000 tons short of requirements—with no help forthcoming from the depleted stockpiles. It's against this eventuality that current attempts to boost production and reduce requirements are being made.

The situation is similar in anthracite coal. In 1944, nearly 65,000,000 tons were produced, some 5,000,000 tons short of requirements. For this year, the deficit is expected to be higher.

During 1944, the draft, deaths and disabilities, retirements, and loss to other industries cut employment from 370,000 bituminous miners at the start of the year to 340,000 at the end. This trend is expected to continue. On February 1, for instance, deferments of some 6,000 miners between 22 and 25 years of age will be canceled. During all of 1945, about 10,000 miners are expected to be lost to the draft. In addition, 12,000 workers will be lost through retirements and injuries.

FOR WANT OF A LOADER

The loss of manpower has also resulted in indirect coal losses. For instance, at the beginning of last year, 90% of all coal came from mines operating on a more-than-five-day schedule. By the end of the year, however, this proportion had fallen to 75%. The absence of a few skilled loaders or motormen on certain days—usually Saturdays—makes it unprofitable for operators to keep the mines going. (Absenteeism increased from 8% in March, 1943, to 12% in October, 1944.) If coal miners were deferred, perhaps 10,000,000 additional tons of coal could be produced.

Another 10,000,000 tons might be realized by instituting a nation-wide seven-day week every other week. This was to have started on January 28 in mines in southern West Virginia, eastern Kentucky, Virginia, and Tennessee (where one-third of all bituminous coal is produced). However, because coal cars were not available—due to the storm—the experiment was postponed.

NO TAKERS

It would be possible to increase output by keeping all mines in full operation, especially during the summer months. In 1944, it is estimated that between 2,000,000 and 4,000,000 tons of low-grade coal were not produced because mine operators did not have orders for the coal. Thus, mainly in Indiana and Illinois, operations slow down in the summer because of a drop in orders for the low-grade coal produced in these areas. Production of high-grade coal continues, however, helped along by field men of the Solid Fuels Administration who make sure that mines producing better grades get orders for work.

POSSIBLE SAVINGS

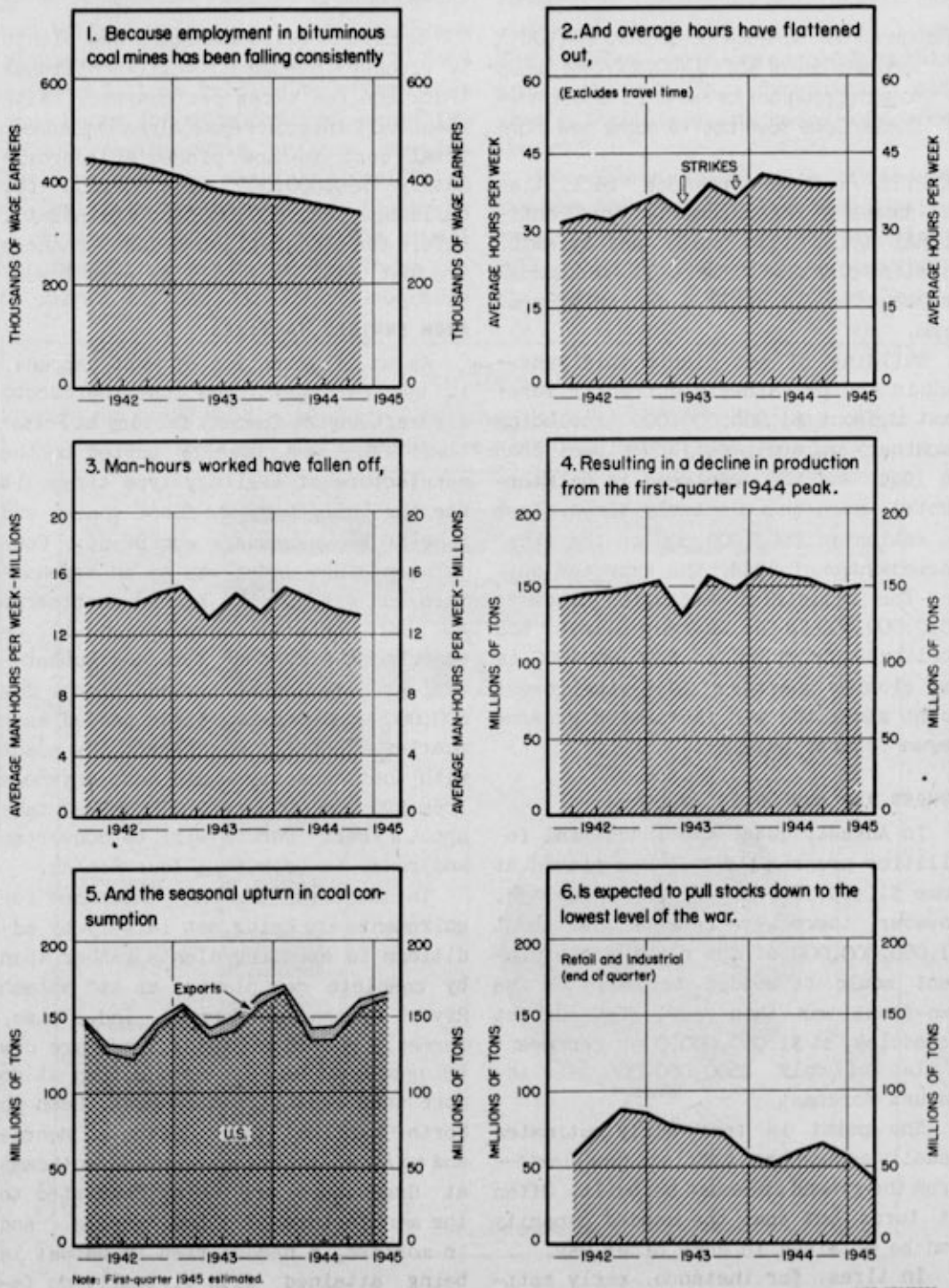
On the other side of the ledger, between 10,000,000 and 15,000,000 tons of coal could be saved by keeping temperatures in homes and factories down. Also, between 1,000,000 and 2,000,000 tons might be saved by a reduction in outdoor lighting.

Thus production could be raised to perhaps 600,000,000 tons and consumption could be cut to 610,000,000—with stocks supplying the difference. Distribution now continues to be the main problem—getting the coal where it's most urgently required.

At worst, there will be a deficit of some 25,000,000 tons—assuming no strike—coming mostly in the last quarter of 1945. And if Germany is knocked out of the war before then, the supply of coal will not be a problem.

IN THIS ISSUE:

FEWER MINERS=FEWER MAN-HOURS=LESS COAL



New Facilities Still Declining

Though current schedules, at $1,900,000,000, represent rise of $500,000,000 over August forecast, program for '45 is 25% below '44. Conversions save cost of some new plant.

DESPITE expanded ordnance facilities and despite announcements that additional tire, tire cord, and aviation gasoline plants will be built, industrial construction is still a declining program.

Building of war plants this year—public and private—is currently forecast at about $1,900,000,000 (including machinery and equipment), 25% lower than in 1944. And the downtrend is uninterrupted, even on a quarterly basis. From an estimated $603,000,000 in the final three months of 1944, the expected outlay for industrial expansion drops to $540,000,000 in the current quarter and continues dropping to $390,000,000 in the closing quarter of 1945—the lowest point since the war facilities program began (chart, page 6).

RUMORS AND SCHEDULES

In August, 1944, the industrial facilities program for 1945 was placed at some $1,400,000,000. A few months ago, however, there were reports that about $1,000,000,000 of new plant and equipment would be needed to carry on the two-front war this year. Yet current schedules, at $1,900,000,000, represent a rise of only $500,000,000 over the August forecast.

The point is that early estimates usually assume that complete new plants—from the ground up—must be built. Often it turns out that the needed capacity can be obtained in some other way.

In tires, for instance, early estimates were that it might cost $100,000,000 or more to build and equip new plants to produce a needed 1,500,000 additional truck and bus tires per quarter. With about half this increase already planned, total cost is now placed at approximately $60,000,000 ($18,000,000 for buildings, $42,000,000 for equipment). Before the planning job is done, chances are that total cost will be even lower.

FROM ENGINES TO TIRES

As an illustration of what happens, it was recently found that the Jacobs Aircraft Engine Company factory at Pottstown, Pa., was ideally suited to the manufacture of military-type tires; it has the buildings, the floor space, and some of the necessary equipment. Conversion is now under way at an expenditure of $15,000,000 in new machinery. At peak, this facility—which will be operated by Firestone Tire and Rubber—will produce 15% of the additional 1,500,000 truck and bus tires needed each quarter. To build an entirely new plant with that capacity would cost anywhere from $20,000,000 to $25,000,000 and take about a year. Jacobs will be converted and ready to go within four months.

In smokeless powder, increased requirements are being met largely by additions to existing plants rather than by complete new plants, as at Wabash River Ordnance, Newport, Ind.; also, formerly cut-back powder lines are now being brought back into production at no more than rehabilitation cost. Down in North Carolina, Camp Sutton at Monroe and an Army Air Forces replacement camp at Greensboro are being converted to the manufacture of 105mm. shells. And in mortars, a needed rise in output is being attained with virtually no facilities expansion at all.

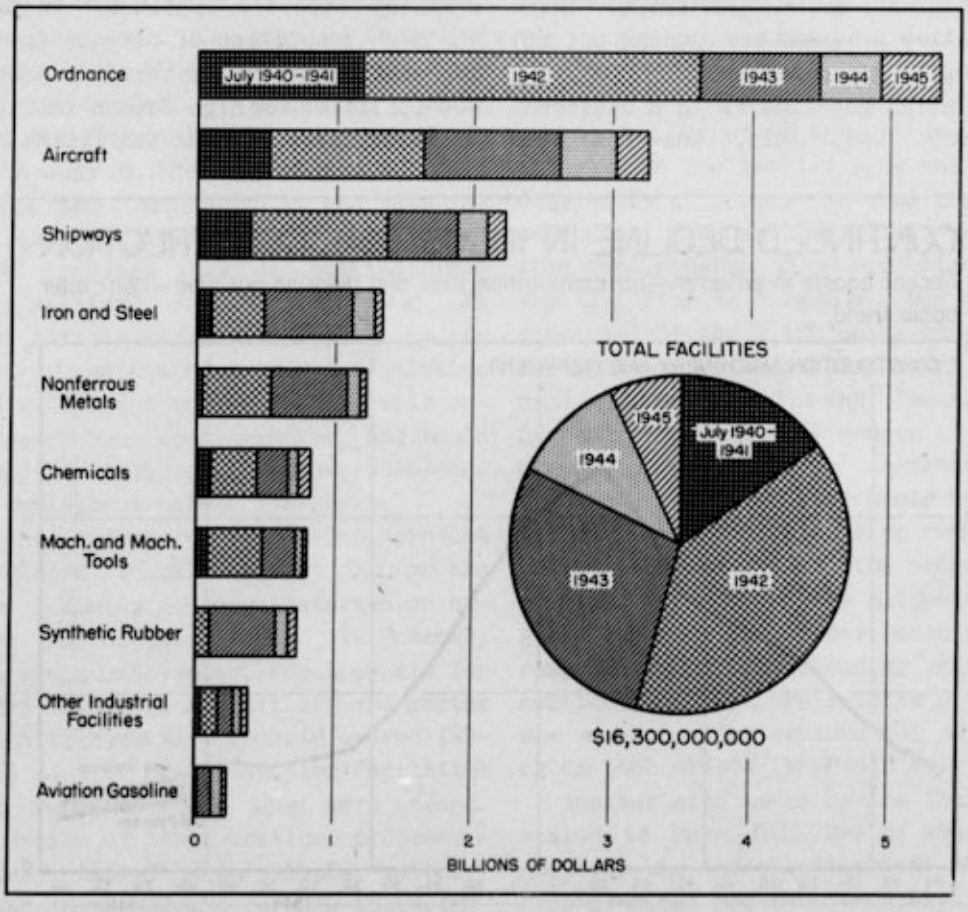
Aside from conversions, additions, and rehabilitation, there are other ways in which production is being expanded without building and equipping complete new plants. In tires, the work week has been increased, thus helping to offset some of the need for more physical capacity. In the engine-parts program, surplus tools will expand machining facilities at less than the cost of new tools.

At the end of 1944, over 90% of all war facilities expansion had been put in place: $22,000,000,000 out of nearly $24,000,000,000. The big push in this program took place in 1941 and 1942, and it was felt throughout the list—in aircraft, shipways, iron and steel, synthetic rubber, aviation gasoline, machine tools, ordnance, etc. By contrast, this year's facilities increases are concentrated.

In ordnance, for example, the program has been boosted to provide more physical capacity for ammunition and artillery. Outlays for ordnance this year are slated at some $450,000,000 (chart, below).

LAST LAP IN PLANT EXPANSION

By the end of 1944, some 93% of the government-financed facilities program had been put in place, with most of the balance in ordnance, aircraft, and ships.



WAR PROGR. '45

That's small compared with the 1942 total of almost $2,500,000,000; but if these boosts hadn't come along, ordnance facilities in 1945 would have been a $200,000,000 program at best. Now it stacks up as the biggest single expansion in 1945.

Similarly, the expanded tire program has lifted scheduled plant and equipment for the synthetic rubber group. And in the "other industrial" group, there have been recent increases in facilities for manufacturing products such as tire cord, diesel engines, and precision instruments.

On the other hand, there have been no significant increases in aircraft, shipways, iron and steel, nonferrous metals, and machinery and machine tools. These facilities programs are running out according to schedule.

Aviation gasoline is in a different category. Last July, the Petroleum Administration for War asked for $350,000,000 of additional facilities. So far, the War Production Board has approved $71,000,000 of this amount ($64,000,000 in Continental United States, $7,000,000 abroad). Giving effect to this increase, the current high-octane program for 1945 totals $134,000,000—or $71,000,000 in the U.S., $63,000,000 abroad.

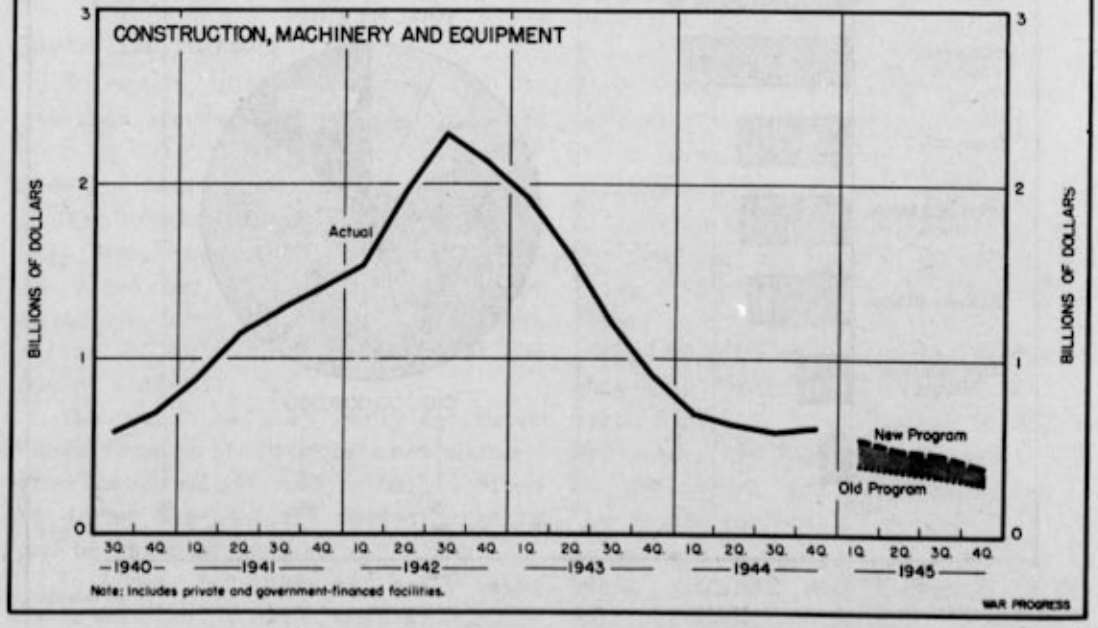
FUTURE FOR HIGH-OCTANE

In contrast to every other major group, with the possible exception of chemicals, the bulk (about 75%) of facilities expansion for aviation gasoline has been with private funds. This, incidentally, is true of all of the recently approved increase. In part, the high proportion of private financing reflects the attractive postwar possibilities for high-octane gasoline.

By and large, the war facilities pro-

CONTINUED DECLINE IN INDUSTRIAL CONSTRUCTION

Recent boosts in program—for ammunition, tires, and aviation gasoline—don't alter basic trend.



gram may be considered set. It is always possible that a radical type of weapon may be developed, thus bringing a rush call for productive facilities. But the chances are that the necessary plant and equipment will be available out of the substantial volume already installed. Therefore, a significant break in the current downtrend of the program is unlikely.

Remobilizing Machine Tools

Unforeseen war needs force re-expansion of industry and deferment of civilian orders. Shortage of components is No. 1 obstacle. Skilled workers, idle tools are sought.

ONE YEAR AGO it looked as if the machine-tool industry's war job was just about over. Monthly production dropped from a peak of 29,530 units in December, 1942, to only 8,400 units in July, 1944. More than half the working force had scattered to other jobs. The industry was asking for permission to produce post V-E Day tools.

On July 29, the War Production Board authorized toolmakers to use idle facilities for production of unrated orders provided this did not interfere with military output. This step, it was anticipated, would enable the industry to maintain toolmaking facilities and sufficient workers to cope with unforeseen war contingencies, and would expedite industrial reconversion—and re-employment—after V-E Day.

The unforeseen war contingencies developed quickly—almost before the tool industry could get started on orders for unrated tools. In October, and again in November, requirements for heavy and medium artillery and mortar ammunition and Navy rockets soared (WP-Dec9'44,p7). New production facilities and tools to equip them were needed. Expansion of other critical programs—tires, tanks, guns, trucks, rubber—added to the demand for new tools.

The machine-tool backlog crept up from $153,000,000 in March to $260,000,000 by the end of the year (chart, page 8). And an industry which had expected a continually shrinking volume of business throughout '44 had to try at mid-year to re-expand. From a low of $33,000,000 a month, shipments rose to $37,000,000 at the end of the year, but this was not enough to keep abreast of Army-Navy demands.

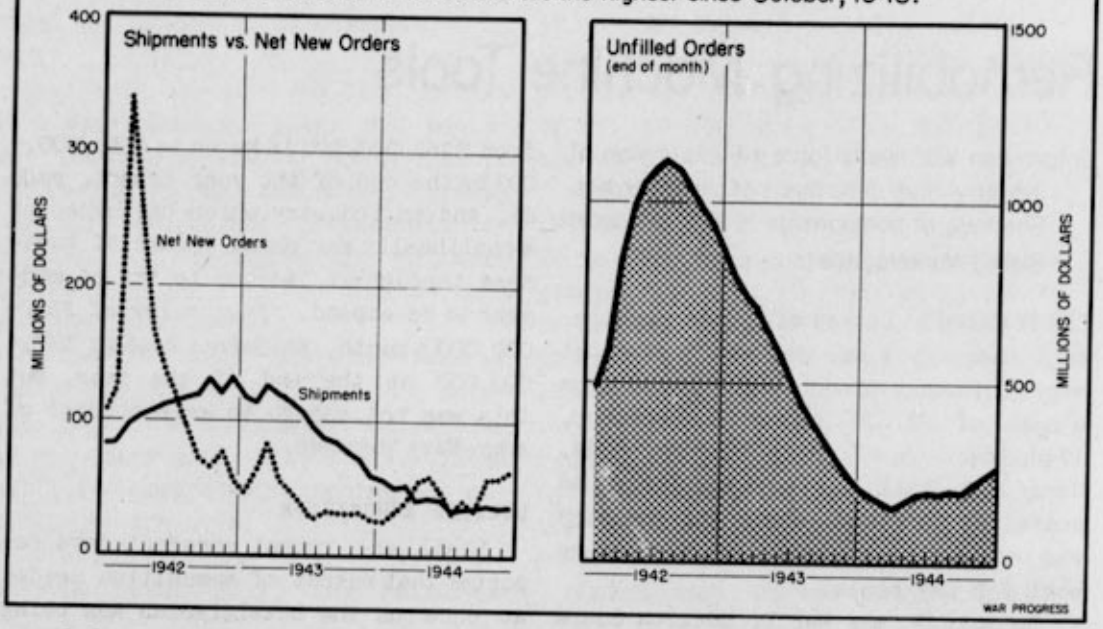
DELAYED AMMUNITION

Shell and rocket manufacturers reported that output of ammunition needed at once on the battlefields was being delayed by slippages in tool shipment schedules. The heavy-artillery ammunition tool program, first projected during the Italian campaign, was behind schedule. Of the 2,827 units scheduled for delivery by the end of January, 2,087 had been shipped through January 18. Concentration of tool orders in a few plants, accompanied by concentration by these plants of components orders, was largely responsible. Five companies which received 42% of the orders accounted for 60% of the slippage. To guard against such order bunching and component plant overloading on other critical programs, WPB's Tools Division was made a clearinghouse for all machine-tool orders (WP-Dec16'44,p15).

Another step taken by the Tools Division to make full use of available capacity was the establishment of pool orders. Last month Defense Plant Corporation, on the recommendation of WPB,

GROWING MACHINE TOOL BACKLOG

For a long time, shipments from machine tool plants exceeded new orders; now the reverse is true. Result: unfilled orders are the highest since October, 1943.



awarded contracts totaling some $40,000,000 to 44 tool plants. These contracts anticipate tool requirements of manufacturers engaged on the mortar and medium-artillery ammunition tool programs. This was the first time since early 1943 that pool orders were found necessary by the War Department.

Shortages of components—iron castings, electric motors and controls, hydraulic pumps, etc.—are the Number 1 obstacle to increased tool production. WPB expediters have been sent into the field to schedule available components through to the most urgent tool orders.

On-the-spot checks disclosed that unrated orders—the tool category which includes some essential war-related machinery as well as postwar equipment—were competing with critical programs for the short supply of components and manpower. To end this conflict, the Tools Division on January 26 ordered tool manufacturers to meet required delivery dates on rated orders before scheduling any unrated orders. Delivery schedules already established for February and March will not be affected except by diversions. As a safeguard against delays in filling essential unrated orders, WPB has arranged for special priorities in urgent cases. Unrated orders comprise about 23% of the $260,000,000 backlog. Deliveries in this category had risen from $24,000 in September to $3,347,000 in December.

THE RIGHT MAN

Shortage of manpower is the industry's Number 2 problem. In January, 1943, the working force was 120,000; by September, 1944, it was only 54,000. Recent recruitment has added only 2,000 workers. Here the task is to find workers with special skills and training in precision machining. Almost all

other war plants are also searching for this type of worker.

Although the Army recently furloughed some 200 soldiers to work in machine-tool plants with Army contracts, many tool companies have been unable to obtain urgency manpower ratings. Local Production Urgency Committees, while recognizing the primary urgency of machine tools for war contracts, have been unwilling to grant priorities to tool plants; since production of war and non-war tools occurs simultaneously, referred workers might be assigned to production of unrated orders.

Currently the Tools Division is analyzing all plant order boards to separate urgent war-related unrated orders (like railroad repair machinery) from non-essential items. When this job is completed, a more realistic picture of the criticality of labor shortages can be presented on a plant-by-plant basis to the manpower authorities.

Meanwhile, intensive efforts have been made to locate "surplus" tools and tools not being fully utilized on war programs. Defense Plant Corporation has "frozen" the sale of surplus machine tools in 34 categories and ordered an inventory of all its leased machines. A joint Army-Navy-Maritime-WPB-DPC committee, in screening inventory reports, discovered some 1,400 machines which appear to be available for immediate assignment to critical programs.

Surplus machines won't entirely solve the present tool shortage problem, however. Most of the idle tools are general-purpose machines. They have an important place on production lines, but the lines can't function until special-purpose machines, now on order, are built and put in place.

KEY STATISTICS OF THE WEEK

	Latest Week	Previous Week	Month Ago	Same Week			
				1944	1943	1942	1941
War Program – checks paid (millions of dollars)	1,576	1,562	1,872	1,627	1,531	507	153
War bond sales – E, F, G (millions of dollars)	257	214	510	651	378	266	-
Money in circulation (millions of dollars)	25,264[P]	25,175	25,326	20,534	15,666	11,251	8,548
Wholesale prices (1926=100)							
All commodities	104.7[P]	104.8	104.7	103.1	101.8	95.5	80.8
Farm products	125.8[P]	126.6	126.7	122.6	117.7	100.3	72.6
Foods	104.4	105.0	105.5	104.7	105.0	93.6	74.1
All other	99.3[P]	99.3	99.1	98.0	96.3	94.5	84.4
Petroleum (000 barrels)							
Total U.S. stocks*	407,376	409,730	417,268	418,352	439,858	496,239[E]	496,786[E]
Total East Coast stocks*	59,987	61,969	69,493	57,876	46,731	78,445	84,854
East Coast receipts**	1,867	1,698	1,698	1,535	1,066	N.A.	N.A.
Bituminous coal production (000 short tons)**	1,993	2,025	1,813	2,125	1,929	1,928	1,647
Steel operations (% of capacity)	90.1%	92.6%	95.8%	96.5%	98.6%	94.6%	97.1%
Freight cars unloaded for exports, excluding grain**							
Atlantic Coast ports	1,972	2,847	2,624	3,020	1,306	1,750	1,002
Gulf Coast ports	511	542	405	397	330	334	235
Pacific Coast ports	2,107	1,903	1,381	1,284	769	307	143
Department store sales (1935-39=100)†	159[P]	160	125	145	125	122	90

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

1945: Biggest Plane Year Yet

W-13 schedule is 2% above 1944 output and 6% above W-12R. The biggest boost: Forts and Liberators. Jet planes emphasized. Aluminum is a problem anew.

ANOTHER boost in schedules for 1945, introduction of a new jet-propelled plane, and extension of schedules through 1946 for the first time—these are the high lights of W-13, latest quarterly revision of the aircraft program.

As schedules now stand, 1945 is slated to record a new high in airframe weight: 987,000,000 pounds (approximately 83,700 planes), or 2% over last year's peak (WP-Jan13'45,p8). Compared with the original W-12 schedule for 1945, the current program is 9% higher in weight and 11% higher in numbers. Even giving effect to upward revisions in W-12 (W-12R) the net increase is substantial, running to 6% in weight and 7% in numbers.

This year's peak is scheduled for October—22% above recent levels. This is a dramatic reversal of the downtrend since May (chart, page 11). Materials are again a problem, along with manpower.

AN OLD STORY

In aluminum sheet, for instance, ARCO is asking for some 207,000,000 pounds in the second quarter. This is **55% more than** initial first-quarter estimates of 134,000,000 pounds. (A request for supplemental allotments couldn't be granted.) Meanwhile, manufacturers are drawing on inventories, now down to about a 30-days' supply, versus a "normal" level of about 60 days. Instead of declining, total aircraft employment must increase almost 4%—from 1,676,000 at the end of 1944 to an estimated 1,735,000 by the middle of 1945.

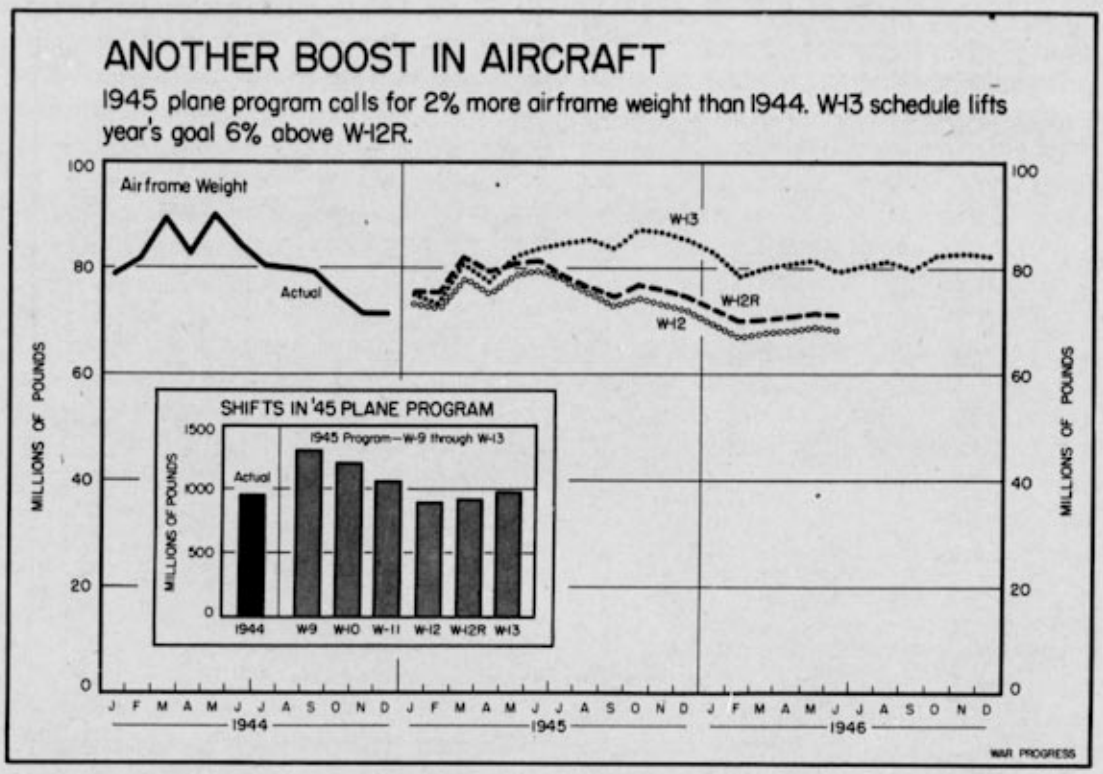
Largest weight increase over W-12R in major groups is in Forts and Liberators: 21%. Fighters are next in line with a boost of 13%. At the other extreme, W-13 forecasts a drop of 14% in light bombers; the A-26 Invader is practically unchanged, but Navy light bombers take a deep cut, in line with decreasing requirements. Because schedules for the B-32 Dominator and 6-engined B-36 are pushed back—a matter of production feasibility—superbombers are now slated to run 2% lower in 1945 than indicated in W-12R. (At 4,384 planes, the B-29 Superfortress is virtually unchanged.)

The number of planes scheduled in each major group this year, together with the percentage change from W-12R (airframe-weight basis), is shown below:

	No. of Planes	% Change From W-12R
All military planes.	83,739	+6%
Army procured....	57,079	+7
Navy procured....	26,660	-1
Combat planes.....	69,271	+6
Superbombers.....	5,176	-2
Forts & Liberators	7,910	+21
Patrol bombers....	2,827	-2
Medium bombers....	2,051	-2
Light bombers.....	12,511	-4
Fighters (inc. naval reconn.)...	38,796	+14
Transports.....	7,313	+3
Trainers.....	2,412	+23
Communications & special purpose...	4,743	+18

Increases in the W-13 program break down into three categories:

1. With an eye on the two-front war, schedules for models such as the B-17 Flying Fortress, B-24 Liberator, P-51 Mustang, and P-47 Thunderbolt have been



lifted. Ford, Willow Run, carries the entire net increase in the Liberator—some 1,100 planes. In a few months, Ford will be shifting over to a radically revised version of the Liberator, the B-24N; changes include a single tail, redesigned aileron, and new engines, ball turret, and pilot's canopy. Instead of releasing 10,000 workers, Ford will be trying to recruit 1,600 more, and in the face of a tight labor area.

2. In planes such as the FG Corsair, F6F Hellcat, C-54 Skymaster, C-46 Commando, and P-63 Kingcobra, stepups stem from increased requirements, chiefly for the Pacific war. The Navy is still emphasizing fighters at the expense of dive bombers. Thus, Goodyear at Akron comes in for a rise of about 300 Corsairs, and Curtiss, Columbus, takes a cut of some 500 SB2C Helldivers. At Bell, Buffalo, a rise of 440 Kingcobras is all accounted for by an allocation to the French air forces. The boost in the Commando (455 planes) means that this transport will begin to replace C-47 Skytrains in the Troop Carrier Command.

3. For new models, such as the P-80 Shooting Star, FR Fireball, and F8F Bearcat, increases are in line with plans to replace standard types in combat squadrons. By contrast, the new TBY Seawolf, the Navy's ace torpedo bomber, is cut by more than 500 planes at Consolidated Vultee, Allentown—this to bring the schedule down to a more realistic level.

UPS AND DOWNS

As compared with W-12R, increases in selected individual models range from 3% for the Fireball and the Skymaster to 31% for the Liberator. On the downside, the smallest decline is in the Dominator (6%) and the largest is in the Seawolf (38%):

SELECTED MONTHLY STATISTICS

Labor Force - Employment - Food Production

	Latest Month* P	Preceding Month	2 Months Ago	Same Month 1943	Same Month 1942	Same Month 1941	Same Month 1939
LABOR FORCE (millions)							
Total	51.3	52.2	52.9	51.9	53.6	53.6	N.A.
Employment	50.6	51.5	52.2	51.0	52.2	50.4	
Male	33.3	33.7	34.1	34.2	36.8	37.5	
Female	17.3	17.8	18.1	16.8	15.4	12.9	
Unemployment	.7	.7	.6	.9	1.4	3.3	
Male	.4	.4	.3	.5	.8	2.4	
Female	.3	.3	.3	.4	.6	.9	N.A.
NONAGRICULTURAL EMPLOYMENT (thousands)							
Total	38,901	38,352 R	38,364	40,197	40,475	37,349	31,688
Manufacturing - Total	15,653	15,602 R	15,698	17,080	16,415	13,817	10,694
Durable	9,220	9,174 R	9,262	10,333	9,471	7,268	4,983
Nondurable	6,433	6,428 R	6,436	6,747	6,944	6,549	5,711
Mining	806	812 R	816	867	938	1,007	928
Trade	7,657	7,295 R	7,146	7,554	7,743	8,123	7,368
Government (Federal, State, and Local)	6,117	5,913 R	5,945	6,071	5,787	4,699	4,112
Other†	8,668	8,730 R	8,759	8,625	9,592	9,703	8,586
FOOD PRODUCTION							
Dairy products (millions of pounds)							
Butter, creamery	85.8	100.3 R	113.3	93.0	106.0	112.6	112.2
Cheese	63.5	75.8 R	81.5	58.4	55.6	71.5	44.2
Milk, evaporated	210.8	245.0	275.0	156.0	166.0	259.8	125.7
Meats (millions of pounds)							
Total (incl. lard)	1,715.0	1,605.0	1,426.0	2,014.0	1,553.0	1,394.0	1,285.0
Beef and veal	694.3	762.6	690.2	676.0	548.6	535.9	472.2
Lamb and mutton	81.1	89.7	80.1	94.4	82.5	57.2	59.1
Pork (incl. lard)	939.2	752.5	655.5	1,243.4	922.0	800.8	753.6
Lard	171.9	120.1	111.3	210.9	145.6	141.6	128.4
Poultry and eggs							
Eggs (millions)	2,998	3,278	3,515	2,707	2,596	2,156	1,880
Poultry (receipts of 5 principal markets, millions of pounds)	62.0	62.0	46.8	71.1	78.7	77.7	81.1

* Labor Force, Employment, December; Food Production, November. P Preliminary. N.A. Not Available. R Revised. † Transportation, construction, finance, service, and miscellaneous.

	W-13 1945	% Change W-12R
FR Fireball.....	700	+3%
C-54 Skymaster.....	1,308	+3
F8F Bearcat.....	1,875	+4
FG Corsair.....	2,162	+16
P-80 Shooting Star..	688	+11
P-51 Mustang.....	8,716	+11
B-17 Flying Fortress	3,197	+14
P-63 Kingcobra.....	2,960	+17
C-46 Commando.....	2,280	+25
P-47 Thunderbolt....	6,857	+28
B-24 Liberator.....	4,713	+31
B-32 Dominator.....	789	-6
SB2C Helldiver.....	2,310	-18
C-47 Skytrain.....	2,043	-19
PBY Catalina.....	427	-21
TBY Seawolf.....	831	-38

The P-84, a 1-engined jet-propelled fighter for the Army, makes its bow in W-13. Still in the blueprint stage at Republic, Farmingdale, only 11 are scheduled for 1945. But if performance lives up to promise, it will be the best jet in the program—and schedules will expand accordingly. All told, W-13 calls for some 1,400 jet-propelled planes in 1945, almost half of them P-80 Shooting Stars. There's a newcomer in the P-80 program: North American, Kansas City, has been teamed up with Lockheed, Burbank.

The jets will really begin to roll in 1946. More than 8,000 have been programmed by W-13. The production peak for the P-80 alone has been set at 750 per month—the second largest monthly rate for any single fighter plane. The record is 765 Mustangs last November.

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WAR PROGRESS

The Tug of War for Textiles

Number 230 February 10, 1945

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.

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War Progress is prepared by the Reports Division (Joseph A. Livingston, Director).

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APG 16—27327-8

NUMBER 230 WAR PROGRESS FEBRUARY 10, 1945

The Tug of War for Textiles

Greatly increased military requirements cut deeply into civilian supplies of essential fabrics. Upgrading of apparel, shortage of low-end items result in 40% price rise.

THE CIVILIAN textile supply is due to reach its wartime low this year, posing a basic problem in production—how to get the types of garments most needed by and most essential to civilians.

The impact of urgently needed programs this year is especially untimely. Greatly increased military requirements for tentage, tarpaulins, clothing, powder bags, etc. have cut deeply into civilian supplies of work clothing fabrics, sheetings, print cloth, sateen, and above all, cotton duck. Moreover it has been necessary to convert large numbers of looms from the manufacture of denims and other essential civilian heavy fabrics to produce duck substitute for tentage.

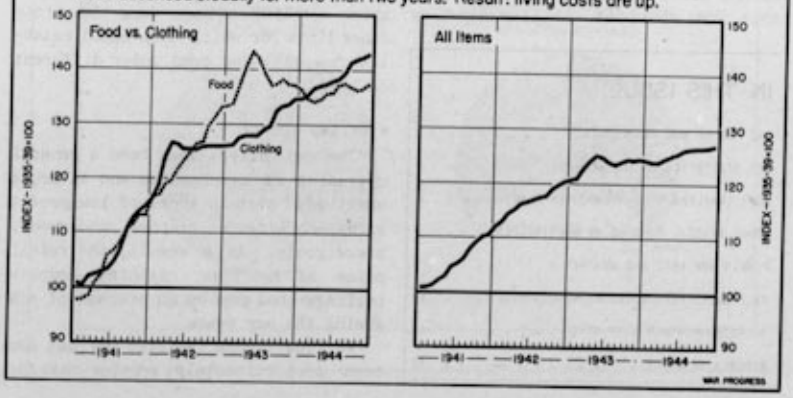
OCR allotments of cotton broad-woven fabrics for the second quarter are likely to be 20% below the previous wartime average (chart, page 3). Here it is a case of rising military requirements versus diminished output. Over the past two years, cotton fabrics output has suffered from labor shortages—manufacturers have not been able to compete with higher-paying war industries; also most textiles are not classed as a deferred occupation.

WOOL, TOO

Wool fabrics, too, have been hit by manpower shortages. This was not much of a problem last year, when military requirements dropped; but this year

THE WIDENING GAP IN LIVING COSTS

Food prices, though higher than a year ago, are below the peak; but clothing prices have advanced steadily for more than two years. Result: living costs are up.



troop needs have gone up unexpectedly as battlefront requirements exceeded all estimates. Estimated military needs for 1945, at more than 200,000,000 yards, are up 45% over 1944, and civilian supplies of around 275,000,000 yards will be the lowest since 1942, when the new army was being outfitted.

In rayon, too, fabric production is declining. The conversion of facilities to high-tenacity yarn for tire cord has already caused a substantial drop, and further inroads will result from a shift of 50% of spun rayon facilities to the production of military cotton yarns. The estimated civilian share of rayon fabric, at 1,275,000,000 yards, is the lowest of the war.

ADDED AGGRAVATION

This contraction in overall civilian supply threatens to aggravate (1) the rising prices of fabrics and clothing and (2) the growing shortage of essential low- and medium-priced goods available to the public.

Up to now these symptoms of scarcity have not been caused primarily by cuts in supply. Cotton fabric at its peak was 30% above the 1939 rate of output; rayon, 25%; wool, 65%. Civilian supplies of cotton and rayon fabrics between 1940 and today have actually averaged above the 1939 level, and wool has been only slightly below, with millions of soldiers no longer in the market for suits.

In the face of this above-peacetime supply, attempts to control distribution have received little support from the public, industry, and Congress. Indeed, Congress during 1943 and 1944 specifically forbade the Office of Price Administration to set quality standards to match its price ceilings or to control the sales policies of retail outlets.

NO SALES RESISTANCE

However, the purchasing power of the American public was rising to unprecedented heights. Manufacturers could sell not only more expensive products but also a great variety. Almost anything offered at retail found a buyer. So manufacturers of both fabrics and garments, in the interest of their profit-and-loss accounts, tended to:

1. Upgrade their products, making them better or simply more expensive, to put them into higher price brackets where the profits were greater.

2. Transfer from standard products where ceiling prices were low into other lines for which they could establish new prices or come under different ceilings.

HIGH AND SCARCE

The net effect has been a general upgrading of merchandise and an acute shortage of certain types of low-profit goods—children's clothes, underwear, piece goods. As a result, the retail price of American clothing—despite ceilings—has gone up an average of 40% during the war years.

For low-income families the cost has been proportionately greater than for

IN THIS ISSUE:

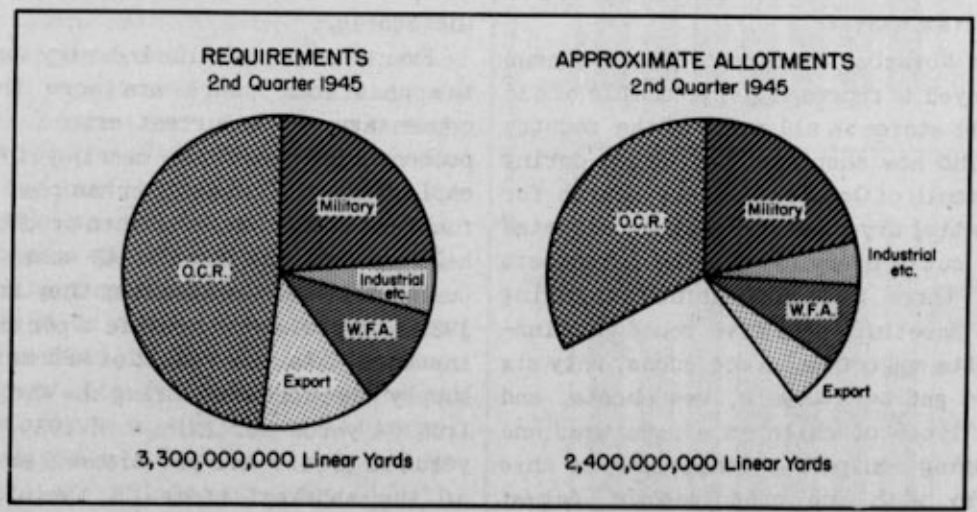
middle-income families. When Mrs. Smith, in a middle income bracket, buys a snowsuit for her daughter she has to pay $10, say, instead of $7. But Mrs. Jones, who used to pay $5, also pays $10 now because she can't find anything cheaper. The price increase for her has been 100%, as compared to Mrs. Smith's 40%. Recent studies indicate that the one-third of American families with incomes less than $2,000 are now paying 50% more for most of their clothing than they did in peacetime and in the neighborhood of 100% more for many items, including both women's and girl's dresses. A joint study by the Census Bureau and the War Production Board indicates that the supply of dresses selling at under $2.25

LESS COTTON FOR CIVILIANS

Here's the past and present picture of supply and allotments of broad-woven fabrics:

	1942	1943	1944 1st half	1944 3rd	1944 4th	1945 1st	1945 2nd Qtr.
	Quarterly Average		Qtr. Avg.	Qtr.	Qtr.	Qtr.	(Est.)
			(MILLIONS OF LINEAR YARDS)				
MILITARY	500	650	463	586	634	643	700
INDUSTRIAL, ETC.	175	150	117	116	115	113	155
W.F.A.	273	340	320	296	312	299	275
EXPORTS	112	137	230	195	205	209	180
CIVILIAN (OCR)	*1,772*	*1,406*	*1,390*	*1,219*	*1,178*	*1,185*	*1,090*
SUPPLY	2,832	2,683	2,520	2,412	2,444	2,449	2,400
% CIVILIAN	*62.6%*	*52.4%*	*55.2%*	*50.5%*	*48.2%*	*48.4%*	*45.4%*

And here's how the second-quarter estimated supply will be distributed – 27% short of stated requirements:



WAR PROGRESS

KEY STATISTICS OF THE WEEK

	Latest Week	Previous Week	Month Ago	Same Week 1944	Same Week 1943	Same Week 1942	Same Week 1941
War Program-checks paid (millions of dollars)	2,122	1,576	1,507	1,844	1,417	549	162
War bond sales-E, F, G (millions of dollars)	227	257	246	870	182	255	-
Money in circulation (millions of dollars)	25,480 P	25,290 R	25,257	20,586	15,798	11,319	8,627
Wholesale prices (1926=100)							
All commodities	104.7	104.7	104.6	103.1	102.0	95.9	80.6
Farm products	125.7	125.8	125.9	122.1	118.2	100.1	72.9
Foods	104.3	104.4	104.6	104.2	105.0	93.7	74.0
All other	99.3	99.3	99.1	98.0	96.4	94.5	84.2
Petroleum (000 barrels)							
Total U.S. stocks*	404,784	407,376	417,833	417,352	440,320	495,988 E	495,012 E
Total East Coast stocks*	58,979	59,987	64,400	56,762	46,415	75,305	83,897
East Coast receipts**	1,693	1,867	1,742	1,514	1,149	N.A.	N.A.
Bituminous coal production (000 short tons)**	1,947	1,995	1,662	2,108	1,867	1,896	1,694
Steel operations (% of capacity)	89.3%	90.1%	93.0%	96.8%	99.5%	95.0%	96.9%
Freight cars unloaded for exports, excluding grain**							
Atlantic Coast ports	3,170	1,972	3,122	2,783	1,223	1,605	1,096
Gulf Coast ports	510	511	439	291	335	445	366
Pacific Coast ports	2,115	2,107	1,871	1,267	888	386	151
Department store sales (1935-39=100) †	163 P	161 R	145	137	126	125	96

P Preliminary R Revised *Excludes military-owned stocks E Estimated **Daily Average N.A. Not Available †Unadjusted

decreased by 70% during the single year of 1943, whereas output of dresses over $6 increased 30%.

SHOPPING SAMPLE

In November the Bureau of the Census surveyed a representative sample of 615 retail stores in all parts of the country to find how shoppers had fared during the month of October in their search for essential dry goods. Results indicated that out of every 10 would-be purchasers only three were successful in buying wide sheeting, only five could get flannelette and cotton piece goods, only six could get bath towels, bed sheets, and many types of children's underwear and sleeping equipment. Comparison of this survey with one conducted in August showed the situation getting worse: 65% of the items had become scarcer, only 5% more plentiful. In October, War Production Board field officers surveyed 28 representative cities and in one-third of them were unable to find underwear of specific types and sizes in any of the stores.

Events in the textile industry during the past four years are more than a commentary on a current crisis. They present a preview of the meaning of "full employment." Consumption has been outrunning production, even when production held up. At the end of 1943 women were buying 10% more dresses than they had in 1939. Baby diapers provide a per capita instance. As the result of WPB action, supply has increased during the war years from 24 yards per infant in 1939 to 34 yards in 1944. And yet diapers are one of the shortest items in the stores. Families are using diapers that never used them before. More people than ever can afford commercial diaper services,

which because of weekly deliveries instead of daily or every-other-day washday at home, need more diapers per infant.

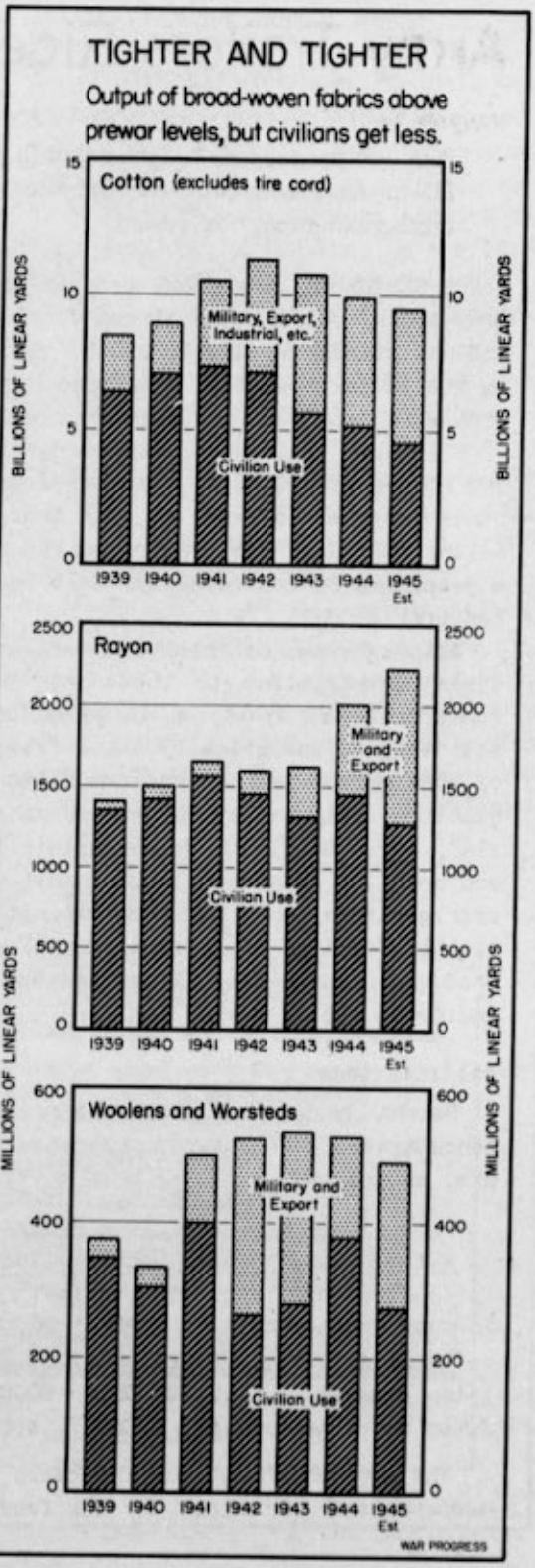
Utilization of French and Belgian textile mills will not offer any great relief in 1945. Any benefits from such production will certainly go to increase the military allotment, which is even now 10% below stated requirements.

Therefore WPB and OPA are combining forces in a program to roll back prices and obtain a larger proportion of essential products. Existing controls will be tightened; new ones will be instituted. Under a WPB order now being prepared, AA-4 ratings will be issued to garment manufacturers to obtain cloth for the production of medium- and low-cost essentials in quantities proportional to their output during a specified base period. Converters will be required to set aside a sufficient part of their output to meet these rated orders. As much as 75% of the fabric available to civilians may thus be reserved for essential uses.

PRESSING DOWN PRICES

At the same time, OPA will tackle the price rises. Garment manufacturers will be required to reduce the average price of each category of their civilian production to the level of the base period. And upgrading of the final product will be discouraged by restrictions all along the line—to reduce the "overfinishing" of cloth by converters, to prevent artificial markups by wholesalers, to limit the trimming and "overfancying" of the final product by garment shops. These savings will be reflected in the retail prices. Many of the staple items will be preticketed by manufacturers with the prices at which they were made to sell.

The big problem is to determine what items are essential, at what prices, and in what quantities.



Army Trailers Ride Toward New Peak

Program for '45 - at $240,000,000 - is 20% over '44 production. Toughest job is in 20-ton front loader, which needs hydraulic mechanism, many heavy tires.

SINCE SEPTEMBER, the 1945 program for Army truck trailers has almost doubled and now stands at $240,000,000. This is 20% larger than last year's production and slightly above the peak in 1943.

Military trailers comprise nearly 10% of the Army's total automotive vehicle program and range in size from a ¼-ton, two-wheel semitrailer pulled by a jeep, to a 60-ton capacity, full low-bed trailer.

Although some of these trailers are a van type similar to those used for commercial transport, a large number are designed specifically as carriers of chemicals, bombs, tanks, ammunition, gasoline, oil, water, bituminous material, etc. Still others are especially equipped as laundries, laboratories, refrigerators, water purification units, clothing repair, shoe repair, map reproduction units, sterilizer and bath, equipment repair shops, etc.

CRITICAL FOUR

Recent boosts in requirements are concentrated in four types of semitrailers, as follows:

	1945 Program	
	Sept.	Today
	(units)	
20-ton, front-loading	2,800	10,500
¼-ton cargo.....	24,000	84,000
1-ton cargo.....	20,000	50,000
1-ton water tank.....	2,800	4,000

The production job is indicated by a comparison of output in the fourth quarter with peaks scheduled for 1945:

	4th Qtr.	1945 Peak
20-ton, front-loading.....	1	4,500 (3rd Q.)
¼-ton cargo....	5,870	33,800 (3rd Q.)
1-ton cargo....	0	23,200 (4th Q.)
1-ton water tank	550	3,150 (2nd Q.)

The problem in the ¼-ton cargo, 1-ton cargo, and 1-ton water tank is to get new facilities or former facilities back into production. When schedules were cut back early last year, many plants turned to other war work. The average cost is only about $300 and each uses only two passenger-car sized tires.

BIG TIRE PROBLEM

The most critical production problem is in the Army engineers' new 20-ton low-bed, front-loading semitrailer with dolly (pulled by a 6-ton, 6 x 6 truck). It is designed for hauling heavy machinery and equipment over rough terrain and replaces the 20-ton, rear-loading type, of which 3,600 were produced last year—980 in the final quarter. The front-loading model has a hydraulic mechanism for lowering the front end to form a ramp. Thus, it can be loaded easier and faster than the rear-loading type. This hydraulic mechanism is one of the limiting factors in production. However, tires are the biggest problem. The new model has 17 wheels (eight in the rear, eight on the dolly, and one spare), each requiring a 1400 x 20 high-flotation tire, which means competition with heavy-heavy trucks. These tires are four feet high and weigh nearly 250 pounds.

Along with tires, the chief shortages

are in wheels and rims. The wheels are much heavier than those generally used on commercial trucks and trailers and require new or expanded facilities. To provide the rims, the Firestone Tire & Rubber Company leased one of the buildings at the Corps of Engineers subdepot at Cambridge, O. After remodeling and equipping, the plant will be ready for production in July. Some 700 workers will be required.

ANOTHER CALL FOR STEEL

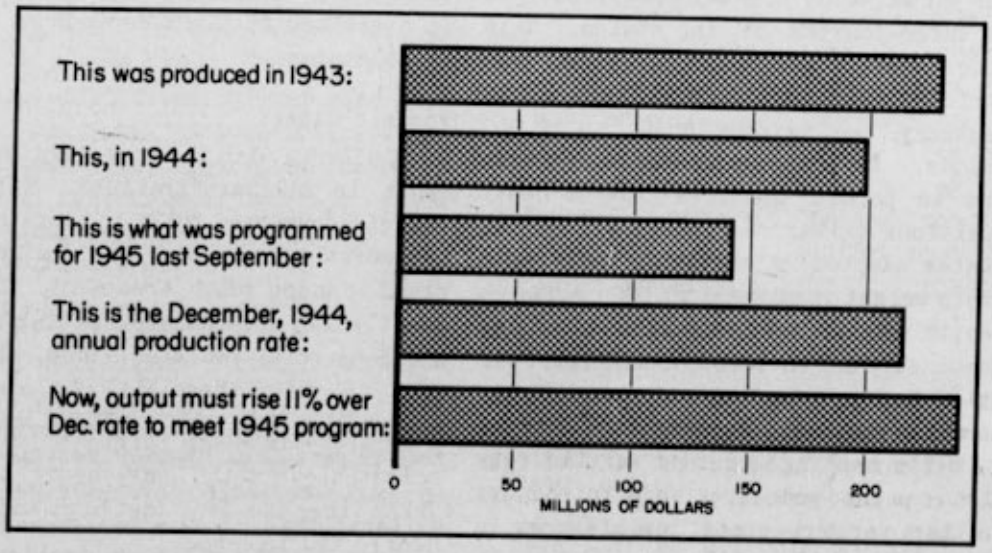
Heavy structural steel is needed for the trailer frame. This, together with the additional steel required for wheels, rims, and axles, will increase the tightness in bar, tube, strip, and plate stocks.

The situation is critical in the 10-ton, two-wheel, stake-and-platform semi-trailer for an entirely different reason. This type has been used extensively to carry supplies over the Red Ball express highway in France. More than 6,700 were delivered in the fourth quarter of last year. The schedule for the first quarter of 1945 calls for less than half that number because additional contracts could not be placed in time to continue the fourth-quarter rate of production. It will be nip and tuck to produce the 7,600 required by the Army in the first half.

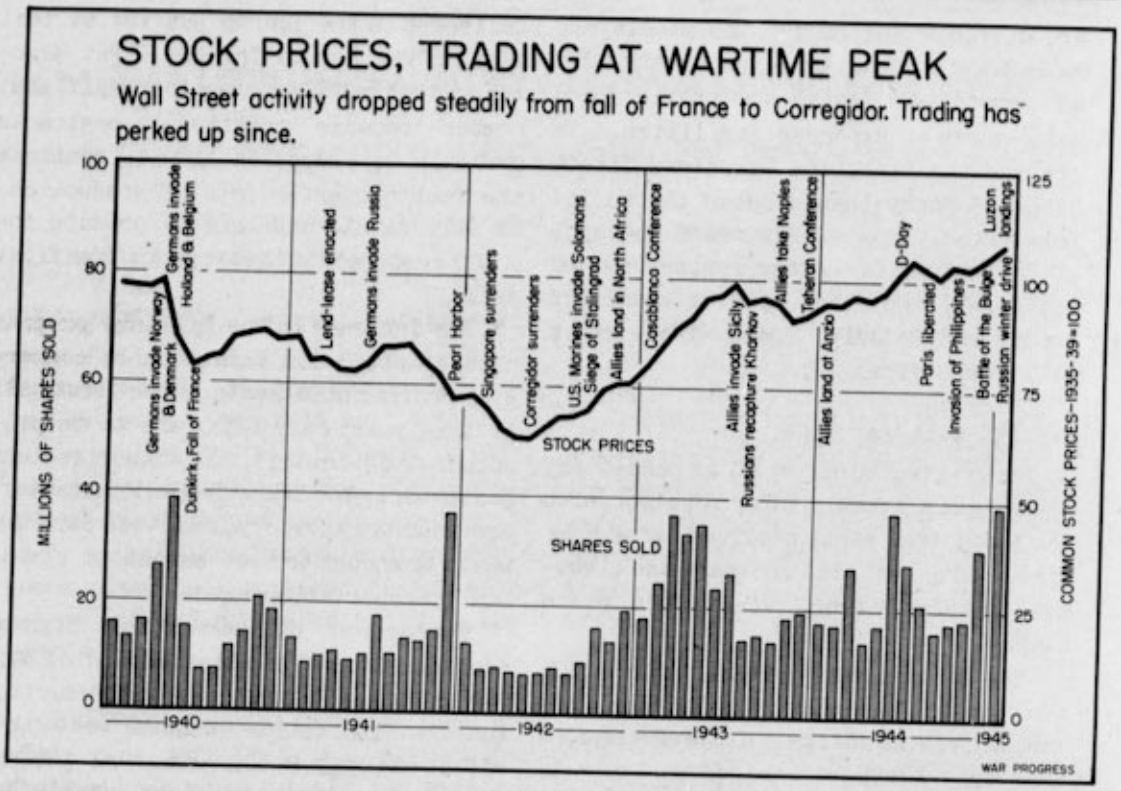
The increase in the military program necessitated a 20% reduction in commercial trailer allotments in the first half of this year; only 9,000 are to be produced, as against 11,250 authorized last September. The Truck Trailer Manufacturers' Industry Advisory Committee says this won't be enough to meet essential civilian transportation needs.

Production of commercial highway trailers reached an all-time high of 50,000 in 1941. In 1942, the War Production Board's limitation orders went into effect and only 8,400 commercial trailers were built. However, last year's deliveries amounted to 24,000. Today there

DOWNS AND UPS IN TRUCK TRAILERS



WAR PROGRESS



are some 175,000 general freight trailers (over five tons) operating over the nation's highways.

Most of the trailers produced during the war exceeded highway specifications in three-fourths of the states. This poses a problem. Most states had restricted weight to about 30,000 pounds; Kentucky, an extreme case, to 18,000 pounds. In 1942, as an emergency measure to permit the free flow of heavy munitions and war machinery, all of the states adopted a standard, allowing a gross weight of at least 40,000 pounds, a length of 45 feet (truck and trailer combined), and an 18,000-pound limit per axle. Much heavier loads are temporarily permitted in some states.

Bills seeking to extend wartime regulations into peacetime were introduced in the various state legislatures in 1943. Favorable action was taken by only 10. Officials in many states maintain that their prewar restrictions are necessary for the preservation of roads and bridges. Then too, there is opposition from the railroads. Thus, the value of investments of truck operators in oversized trailers depends on state legislatures.

POSTWAR MARKET

Similarly with the Army-Navy investments in military trailers. Military vehicles have been built to operate over the worst terrain and are designed to stand up under rough treatment. Consequently they are much heavier than standard commercial vehicles. Thus, the extent to which there will be a market for surplus military trailers will depend in part upon highway restrictions, in part on their operating costs and suitability.

Some of the military trailers may prove impractical commercially, but

most, through modification, should find some use, either on the highway or off, in logging, mining, farming, construction, etc. The tank transporter, for example, may find a role as a transporter of steam shovels. And the ¼-ton cargo trailer, now pulled by a jeep, should be ideal for the farmer about as it stands.

Planes Run Into Bad Weather

Result: Increased absenteeism, deferred testing, and January output was 4% below W-13, though 1% over December. But Superforts beat schedule for third month in row.

AT 72,225,000 pounds—6,532 planes—January plane production was 1% over the preceding month and 4% short of the increased W-13 schedule. As with most industrial production, bad weather was a factor; it interfered with flight testing and increased worker absenteeism. Also, there were the usual changeover complications.

For the third month in a row, the B-29 Superfortress beat schedule; 221 were accepted as compared with a schedule of 215. Boeing, Renton, whose schedule calls for sharp increases was the only Superfort plant to miss the mark. Although it came through with 50 planes, 15 more than in December, output was still 10 planes short. The War Manpower Commission's drive to get more labor for this plant through interregional recruitment is apparently clicking. However, it looks as if the Renton schedule is too steep to handle; this month's goal is 85 planes.

SEVEN SUPERS SHORT

At Consolidated Vultee, Ft. Worth, the scheduled number of B-32 Dominators —20 planes—was produced. But because modifications were necessary, only seven were accepted. One Dominator was slated at Consolidated's San Diego plant, but it didn't come through. Reflecting the 13-plane miss in the B-32, total superbomber output came to 228, or 7 planes below schedule.

For the first time in two years, patrol bombers as a group met schedule. To be sure, W-13 reduced the patrol-bomber schedule for feasibility, but last month's improvement was real, running 10% over December in airframe weight. In the 4-engined class, 65 PB4Y-2 Privateers came through—on the target. Among 2-engined types (PBM Mariners, PV-2 Harpoons, PBY Catalinas, etc.), acceptances came to 153 planes, or one more than forecast.

Among major combat groups, light bombers made the poorest showing against schedule, and fighters were next (airframe-weight basis):

	January Acceptances as % of	
	Dec.	W-13
All military planes..	101%	96%
Army procured.....	102	96
Navy procured.....	100	95
Combat planes.....	100	96
Superbombers.....	114	98
Forts & Liberators..	96	100
Patrol bombers.....	110	100
Medium bombers.....	107	105
Light bombers.....	99	85
Fighters (incl. reconn.).....	93	93
Transports.....	110	96
Trainers.....	84	103
Communications.....	92	91

Forts and Liberators were right on schedule with 746 planes—319 Flying Fortresses and 427 Liberators. This is

about half the peak of 1,508 planes (578 Forts, 930 Liberators) last March.

Repeating December's experience, last month's deficit from schedule was centered in a handful of models:

1. In the A-26 Invader light bomber, Douglas at Tulsa was hit by bad weather, reworking of engines, and change-over problems on the new cockpit canopy. Acceptances of 60 planes fell far short of the 149 goal. As a result, total Invader output (160 planes) wound up with a 36% deficit.

2. In the Corsair Navy fighter, it was bad weather plus a model change-over at Chance Vought, Stratford; it was all weather at Goodyear Akron. Result: acceptances of 220 Corsairs were 29% behind December, 39% below schedule.

3. At Republic, Farmingdale, only 125 P-47N Thunderbolts were accepted as against 211 scheduled. Production of new wings for this model is not coming along as fast as anticipated.

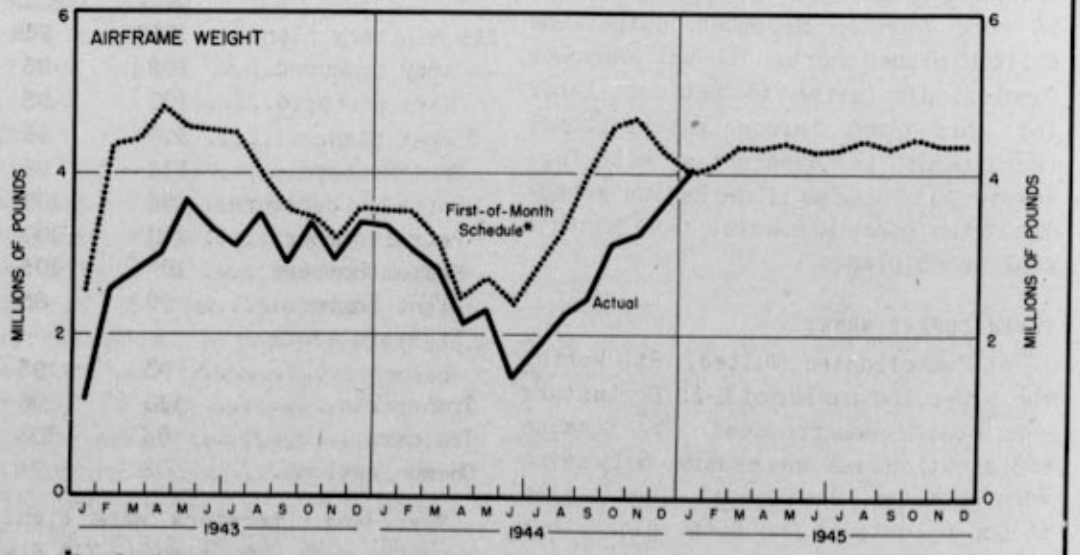
4. At 56 planes, acceptances of the C-54 Skymaster transport missed W-13 by 11 planes. The Douglas plant at Chicago was only one plane shy of schedule (45 versus 46). The real miss came at Douglas, Santa Monica—the first at that plant in more than a year. Last month, Santa Monica began to work on the C-54E, a personnel version of the Skymaster.

BETTER DECEMBER, SCHEDULE

Navy light bombers reversed their recent trend and went over schedule in January for the first time in two months. Output of 663 planes was 1% over December and 2% better than called for. At General Motors' Eastern Aircraft Division, Trenton, the TBM Avenger ran 10 planes over its slate of 340; this will help to offset the expected shortage of torpedo bombers in the first six months this year. At Consolidated

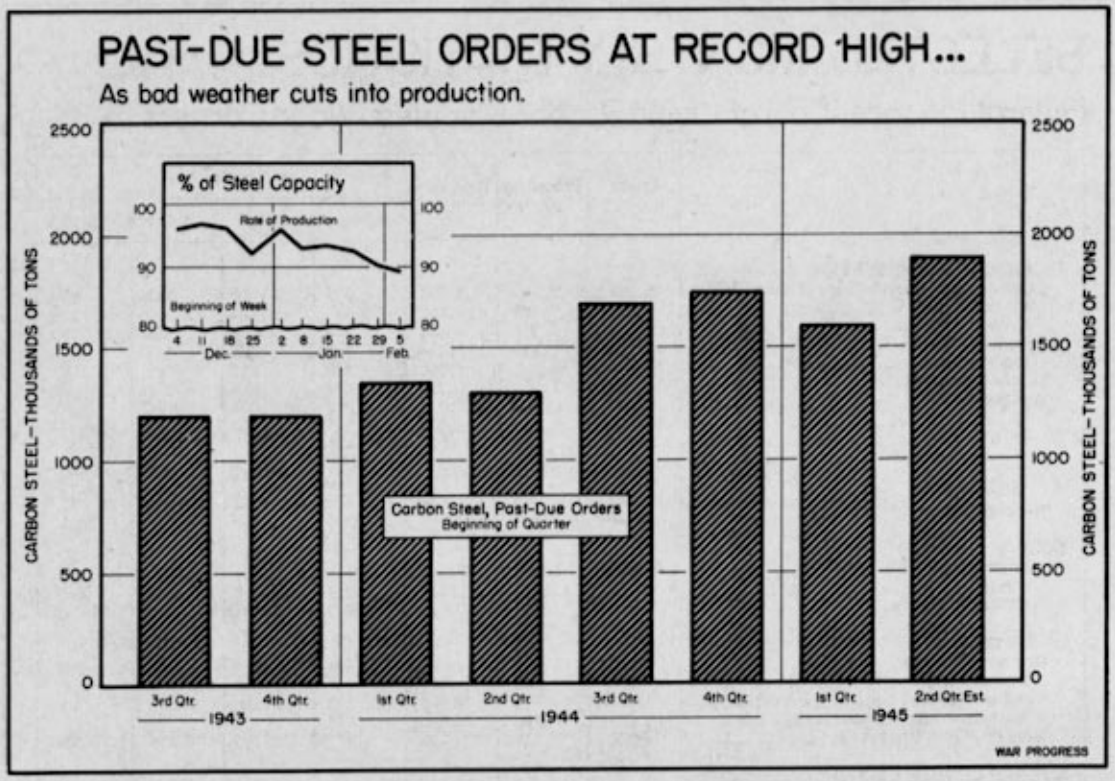
PATROL BOMBERS RISE RAPIDLY

In June production was at the lowest point since January, 1943. But last month it was up to the all-time high, ahead of the first-of-month schedule.



*First-of-month schedule through January, 1945; January I thereafter.
Note: Patrol bombers include PB4Y-2 Privateer, PBY (PBN, PB2B, OA-10A) Catalina, PV-2 Harpoon, PBM Mariner, etc.

WAR PROGRESS



Vultee, Allentown, the TBY Seawolf—the torpedo bomber the Navy is waiting for —had its best month to date, with eight acceptances. However, these represented planes held over from previous months.

It was the other way around on the Army's P-80 Shooting Star at Lockheed, Burbank. Although none of the five scheduled was accepted, they were all shop-completed. These five planes will probably be reflected in the February acceptance total.

MUSTANG RACES

At 857 planes, the P-51 Mustang ran high, wide, and handsome last month. North American at Inglewood ran 19% ahead of December and 8% ahead of schedule with 571 Mustangs. The other producer, North American at Dallas, was 4% ahead of schedule with 286 Mustangs.

Two experimental F8F Bearcats came through at Grumman, Bethpage. The Bearcat is another of the Grumman "Cat" series and will eventually supplant the F6F Hellcat as the Navy's standard carrier-based fighter.

FIRST FOR FIREBALL

Over at San Diego, Ryan Aeronautical managed to get out its first regular acceptances of the FR Fireball; four came off the line, one less than scheduled. The Fireball is the jet-propelled fighter that the Navy is grooming for the Pacific, and extensive flight testing of experimental models has been under way for several months.

At long last, our own jet bombs have begun to roll; 28 JB-2s—an American version of the V-1 robot bomb—were accepted at Republic, Farmingdale. Like gliders and parachutes, the JB-2 is considered an aircraft item rather than an airplane; hence it is not counted in the monthly tally of plane acceptances.

SELECTED MONTHLY STATISTICS

Federal Finance–Cost of Living–Labor Disputes–Wage Earners

	Latest Month* P	Preceding Month	2 Months Ago	Same Month			
				1943	1942	1941	1939
FEDERAL FINANCE (GENERAL FUND)							
Expenditures-Total (millions of dollars)	8,202	8,416	7,828	6,372	2,628	1,111	656
War	7,551	7,503	7,401	5,947	2,104	589	106
Nonwar	651	913	427	425	524	522	550
Revenues-Total	3,556	5,416	2,240	788	578	340	271
Income Taxes	2,422	4,347	1,500	306	133	63	49
Other revenues	1,134	1,069	740	482	445	277	222
War bond sales	1,074	2,386	1,023	1,240	1,061	N.A.	N.A.
"E"	804	1,855	807	815	667		
"F" and "G"	270	531	216	425	394		
War bond redemptions	333	359	376	56	4		
"E"	306	334	354	50	3		
"F" and "G"	27	25	22	6	1		
Net debt (billions of dollars)	212.8	209.9	205.2	103.3	507.6	N.A.	N.A.
COST OF LIVING							
All items (1935-39=100)†	127.0	126.6R	126.5	124.4	120.4	110.5	99.6
Foods	137.4	136.5	136.4	137.1	132.7	113.1	94.9
Other than foods	121.6	121.4R	121.3	117.7	113.6	109.2	101.9
LABOR DISPUTES							
Number of strikes in progress	350	425	490	395	169	287	222
Workers involved (thousands)	105	220	225	274	62	59	37
Number of strikes beginning during month	280	375	440	355	147	143	106
Workers involved (thousands)	85	200	220	263	59	30	12
Man-days idle (thousands)	380	710	690	787	193	476	384
NUMBER OF WAGE EARNERS (thousands)							
All manufacturing	12,638	12,573R	12,656	13,878	13,474	11,557	8,763
Durable	7,444	7,399P	7,463	8,403	7,780	6,084	4,080
Nondurable	5,194	5,174P	5,193	5,475	5,694	5,473	4,683

*Federal Finance, January; all other December. P Preliminary. N.A. Not Available. †Unadjusted. R Revised.

REPORTS ON REPORTS

From Bikes to Bullets

Operations of the Bicycle Industry During the Third Quarter 1944 (confidential; pp. 3) reports that shipments rose 3% over the second quarter and were only 2% below the production peak attained during the third quarter of 1943. Ammunition made up 36% of all shipments; guns and fire control equipment, 17%. The backlog of orders at the end of the third quarter, 1944, was the lowest since mid-1942.
(War Production Board, Bureau of Program and Statistics)

War Bonds

Current Opinions (restricted; pp. 5) states that nine out of every 10 Americans consider war bonds a good investment. However, correspondents for the Office of War Information report occasional rumors that the bonds may be repudiated or devaluated. And resistance to compulsory pay-roll deductions for bonds seems to have risen—only 38% of the people interviewed in a recent Gallup poll approved a 10% mandatory bond deduction, whereas in May, 1943, a deduction of 15% was approved by 52% of those interviewed.
(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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Higher Target for High-Octane

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Number 231

February 17, 1945

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 231 WAR PROGRESS FEBRUARY 17, 1945

Higher Target for High-Octane

Goal of 693,000 barrels per day of aviation gasoline by mid-1946 will be tough to hit. "Refining ingenuity," new facilities have hiked output 800% in three years.

AVIATION GASOLINE is the perfect example of unceasing, increasing demand for quality in a war material. Today, the United Nations have a new and more powerful gasoline for airplanes. It is called "superfuel" and is rated 115/145—which means it has a lean-mixture rating of 115, a rich-mixture rating of 145. As compared with the present combat specification (100/130), it increases a bomber's range and bomb load by 15%. Moreover, it shortens take-off distance and delivers an extra burst of power in the pinches—in climbing, diving, etc.

With a record number of fighters, bombers, and transports in the air, consumption of high-octane gasoline is running at an all-time high. Superfuel, because it puts an overload on blending-agent capacity, would automatically decrease aggregate output. So its use has to be confined to experimental applications.

RECIPE FOR HIGH-OCTANE

The manufacture of one barrel of 100/130 aviation gasoline is basically a matter of mixing about 60% of base stock (straight-run and cracked gasolines) with 40% of alkylate and other blending agents, then adding 4.6 milliliters of tetraethyl lead per gallon to increase antiknock value. To make one barrel of superfuel, the proportion of alkylate and other blending agents must almost double.

This isn't the first time that the industry has been faced with the problem of boosting quality. Planes are constantly being called on to fly higher, farther, faster, and to carry heavier bomb loads. However, as more and more planes come off production lines, as more and more missions are flown, gallonage requirements have increased, thus putting a double load on refineries—increased quantity plus increased quality.

MOVABLE TARGETS

Back in January, 1942, the "ultimate" operational requirement for aviation gasoline was 150,000 barrels a day; a few months later it was up to 200,000 barrels, then 400,000 barrels, and so on. As recently as November, 1944, when production averaged 520,000 barrels a day, the target was set at 612,000 barrels daily by the middle of 1946. Now, with output within sight of that level, the industry has been asked to shoot for 693,000 barrels.

This requirement does not provide for the accumulation of reserves; nor does it provide explicitly for losses due to enemy action such as sinkings, sabotage, and bombings of air bases. The overall goal is to maintain at least a four months' supply. But currently reported stocks of about 18,000,000 barrels are equivalent to little more than a month's supply at the present rate of consumption. Moreover, these stocks are geographically unbalanced; some areas are short, others have a surplus.

Ever since the war began, demand has consistently outpaced the new supply of combat-standard aviation "gas."

This year, for example, production of high-octane gasoline by the United Nations (U.S., United Kingdom, Netherland West Indies, Persian Gulf, etc.) is expected to average 580,000 barrels per calendar day. But the latest estimate of United Nations requirements for 1945 is 639,000 barrels, thus indicating an average deficit of 59,000 barrels a day.

DEFICIT, BUT NO DELAY

But deficits have not grounded planes. Gaps have always been filled with lower-than-combat-standard fuels, such as 91/96, for trainer planes and for operational flights within the Continental United States. The supply-demand position since 1941 follows:

Year	Average Per Calendar Day Prod.	Reqs.	Def.
	(000 bbls., combat-standard)		
1942....	100	126	26
1943....	206	275	69
1944....	449	500	51
1945....	580	639	59

Raising output from 100,000 barrels a day to 449,000 barrels was only possible because there was some slack in the economy and because refiners developed new materials and new processing techniques.

In the middle of 1942, when the specification for aviation gasoline was hiked up to 100/125, there was a stockpile of benzol available to make cumene, a newly developed blending agent. Also, some of the industry's refinery equipment was idle because of the cutback in motor gasoline for civilians; similarly with facilities for producing codimer (pronounced ko-dye-mer). When the ammunition program was cut back, toluene, still another blender, became available.

REFINERS TINKER

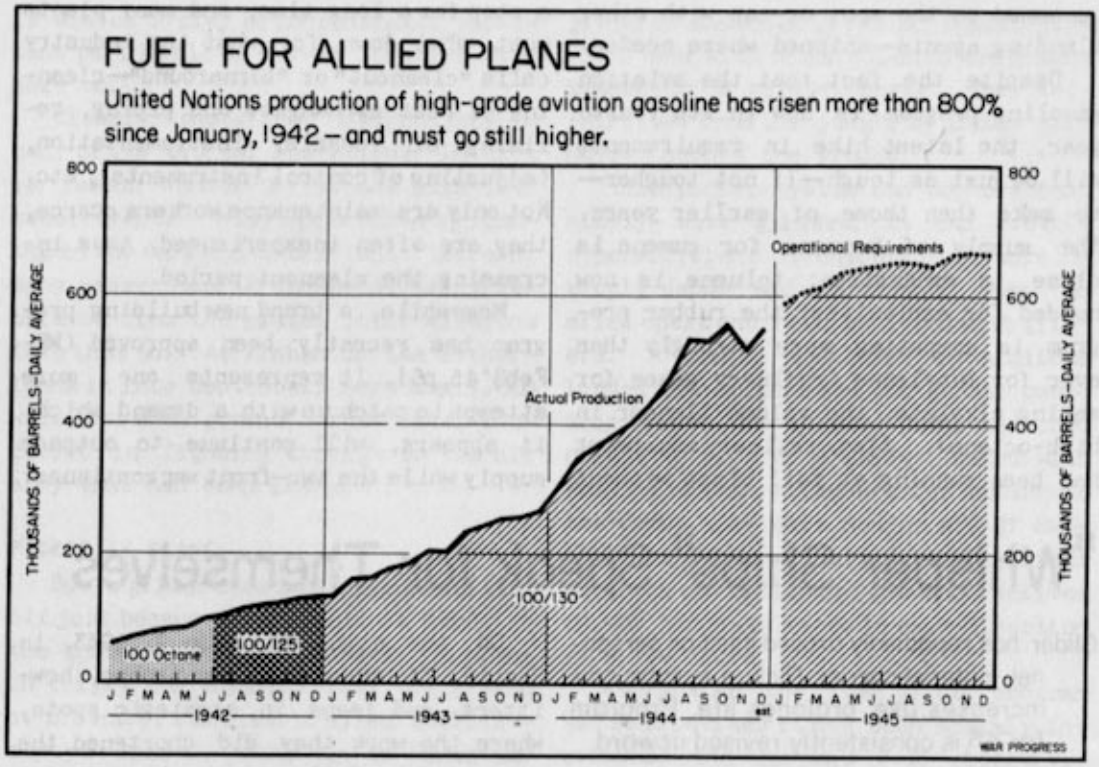
That wasn't all. Catalytic cracking units were converted from motor gasoline to the production of high-octane base stocks and refinery gases for further processing into blending agents. The allowable amount of tetraethyl lead was increased. And then the refiners tinkered. They put a heat exchanger here, a refrigeration unit there, they redesigned some piping at this point, switched fractionating towers at that.

Not only did these measures offset the limiting influence of quality increases, they also made it possible to expand production immediately instead of waiting for new plants to be built—a matter of nine to 18 months. When the war began, about 25 refineries in the United Nations (mostly in the U.S.) were making aviation gasoline, and their combined production then wouldn't even fuel the trainer-plane program today.

47% FOR INGENUITY

Between January, 1942, and December, 1944, average daily output of aviation gasoline by the United Nations increased more than 800%—from an estimated 60,000 barrels to 550,000 barrels. Yet fully 47% of the increase came from

IN THIS ISSUE:



technological improvements, etc.—in short, from "refinery ingenuity":

Method	% of Total Increase
Use of cumene	12%
Mechanical improvements	9
Use of codimer	6
Conversion of catalytic crackers	7
Increased use of lead	8
Use of toluene & other blenders.	5
Total	47%

The remaining 53% came from new construction and equipment (amounting to about $900,000,000).

Tied in with the story of refinery ingenuity is the Planned Blending Program, which the Petroleum Administration for War got under way in the fall of 1942. The idea is to treat the United States as one vast refinery, then operate it at maximum efficiency.

Despite the prevailing specification for high-octane, each refinery contributing to the program is assigned a blend that would make the best use of its equipment and components; this "maximum output" blend for a given producer might rate 98/140. Then some other producer ships him the blending agents necessary to bring his end-product to standard, say 100/130.

Magnolia Petroleum's Beaumont (Tex.) refinery might send surplus alkylate to Sun Oil at Marcus Hook, Pa.; or excess isopentane at Phillips Petroleum, Kansas City, Kan., might be shipped to Shell Oil, Wilmington, Calif. In addition, the Planned Blending Program sets up four centrally located hydrogenation plants for processing the "unsaturated" (hydrogen-hungry) codimer being produced in refineries all over the country. The finished product, hydrocodimer, is either

consumed on the spot or—as with other blending agents—shipped where needed.

Despite the fact that the aviation gasoline program is now in its fourth year, the latest hike in requirements will be just as tough—if not tougher—to make than those of earlier years. The supply of benzene for cumene is close to exhaustion; toluene is now needed for explosives; the rubber program is competing more strongly than ever for butylenes (refinery gases for making alkylate, the volume blender in high-octane). Also, refinery equipment has been running at full blast without a stop for a long time, and many plants must shut down for what the industry calls "cleanout" or "turnaround"—cleaning of heat exchangers and piping, relining of vessels, instrumentation, (adjusting of control instruments), etc. Not only are maintenance workers scarce, they are often inexperienced, thus increasing the cleanout period.

Meanwhile, a brand new building program has recently been approved (WP-Feb3'45,p6). It represents one more attempt to catch up with a demand which, it appears, will continue to outpace supply while the two-front war continues.

"Whisper Ships" Speak for Themselves

Glider has repeatedly proved itself as personnel, materiel carrier. Pickup system now increases use, prolongs life. Program for '45 is consistently revised upward.

GLIDER production is scheduled to reach a new high this year: 7,863 ships, as compared to 1,610 in 1942, a peak of 6,300 in 1943, and 4,435 in 1944. The reason for this stepup is that the "whisper ship" has repeatedly proved it can do things in warfare that nothing else can do.

In May, 1940, the Germans mysteriously reduced the formidable Belgian fortress of Eben Emael by landing demolition engineers and their equipment in and around the walls by glider during the night. This operation illustrates the tactical significance of the glider: it is a large flying container that can deposit its load in places otherwise inaccessible—accurately, silently, and, if need be, in the dark.

In May, 1941, in Crete, it landed the German assault troops who spearheaded the successful aerial invasion of that island.

On the night of July 9, 1943, in Sicily, it landed American troops, howitzers, and jeeps in strategic spots, where the work they did shortened the campaign by a full week, in the judgment of General Montgomery.

On the night of March 5, 1944, in Burma, 200 miles behind enemy lines, it landed engineers, bulldozers, scrapers, tractors, jeeps, pack mules, and all equipment for quick construction of an airfield. It was in full operation and heavily defended by the time the Japs discovered it a week later. And on D Day, in Normandy, it landed whole divisions of troops with artillery, transport vehicles, and tanks in spots precisely chosen for the sealing off of the invasion beachhead.

AIR SERVICE STATIONS

And the glider is more than an assault weapon; given an open field, a single ship can land a ton and a half of supplies at any advance base—or it can be fitted out completely as a field kitchen, first-aid station, repair shop, weather station, etc. This versatile aircraft

is slated to play an increasingly important part in all of the war theaters from here on.

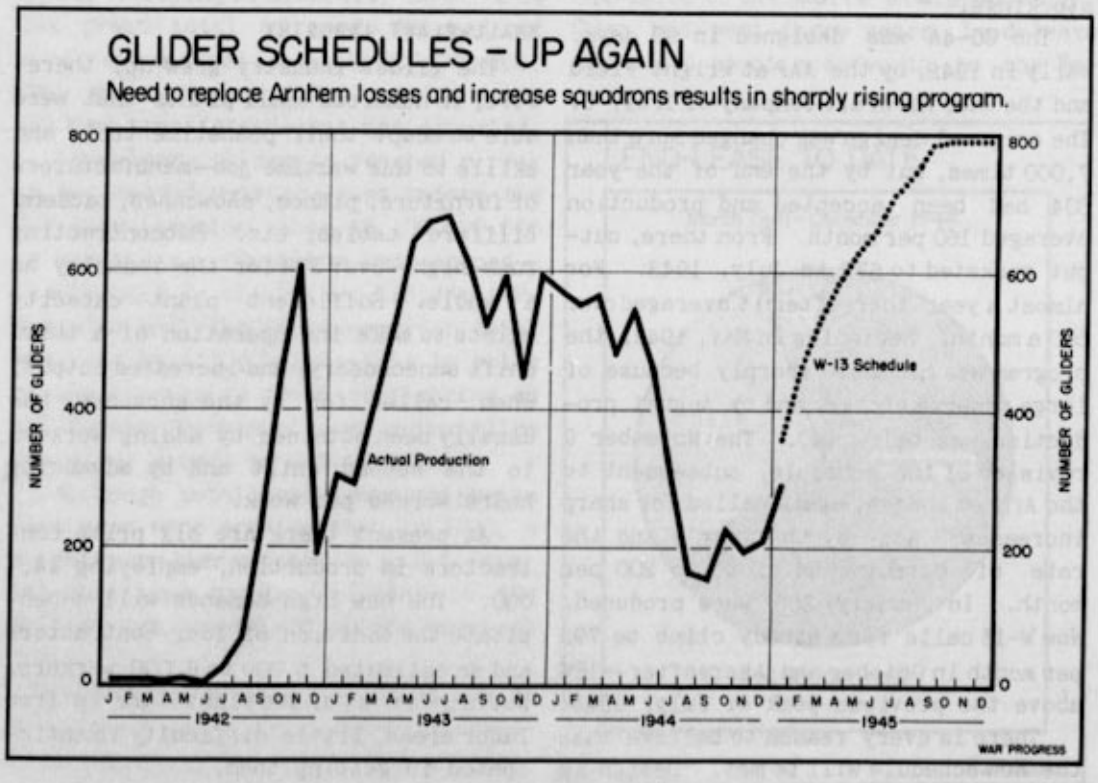
Clearly, the glider is expendable in many of its typical operations, and this is reason Number 2 for the high 1945 requirements. Many are cracked up landing in the dark and on difficult terrain; many never have a chance of being retrieved from the places their missions take them to. At Arnhem in the Netherlands in late September, more than 1,000 were lost when ground forces never succeeded in fighting through to the air army that had been landed.

PICKUP BY PLANE

But a glider need no longer be written off just because no airfield is handy to the spot where it has landed. A plane in flight can snatch it off the ground at the end of its elastic nylon towline—empty or loaded. Recently in Burma two gliders, summoned by radio, landed on a river bank with boats and outboard motors needed by a raiding party. They were retrieved from the jungle by planes that never touched the ground.

This pickup system can do more than simply save gliders; it can provide superefficient transport. Picture a supply depot and an advance base, 50 miles apart and both equipped with gliders. A plane, snatching up a glider loaded with supplies at the depot, could drop it at the advance base, and then circle to pick up a glider loaded with wounded or with prisoners for return to the depot. In this manner a C-47 Skytrain—the plane usually used for glider work—on one filling of gas could deliver 40,000 pounds of cargo in each direction in a few hours.

Every time the 1945 glider program has been revised it has been sharply increased: the current W-13 objective.



effective January 18, is 7,000 greater than W-11 of July 13, 1944, and 2,500 above W-12, November 9. So anxious are the Army Air Forces now to step up production that they are concentrating entirely on one model, the standard 15-place CG-4A. The 30-place CG-13A and Navy's LBP and LBE are temporarily going out of production to make way for it.

NO PLAYTHING

A glider is considerably more than a couple of sticks of wood glued together. The CG-4A has 70,000 parts and costs around $20,000. Its fuselage is of tubular steel and plywood, its wings of wood and plywood; and it is fabric covered over all. Wing span is 84 feet, weight 3,800 pounds. It carries 15 fully equipped troops, six men and a jeep, or equivalent cargo. Its nylon towline, 350 feet long and one inch thick, is the equivalent of 1,620 pairs of women's stockings.

The CG-4A was designed in 90 days, early in 1942, by the AAF at Wright Field and the Waco Aircraft Company of Troy, O. The original design was changed more than 7,000 times, but by the end of the year 804 had been accepted and production averaged 160 per month. From there, output rocketed to 672 in July, 1943. For almost a year thereafter it averaged over 500 a month. Beginning in May, 1944, the program was cut back sharply because of large reserve stocks, and by August production was below 140. The November 9 revision of the schedule, subsequent to the Arnhem losses, again called for sharp increases; and by the year's end the rate of output was close to 200 per month. In January 285 were produced. Now W-13 calls for a steady climb to 793 per month in October and thereafter—18% above the previous peak of July, 1943

There is every reason to believe that the new schedule will be met. Design is standardized and is unlikely to change. Materials will be obtained because the quantities of wood, steel, tubing, and fabric required are relatively small. And as for manpower and facilities, the industry has more than once demonstrated its ability to expand and contract rapidly with the fluctuations of military requirements.

This flexibility of the glider industry is a heritage from the early days of the war when it was aircraft's stepchild. In 1942, gliders were wanted, but airplanes were utterly essential. Early glider contracts issued by the Army expressly stipulated that no workers were to be hired from aircraft factories and that only the least critical materials were to be used. The contracts were placed in locations where they would interfere least with other war work. The industry had low priorities: few specialized tools could be obtained.

SMALL-PLANT INDUSTRY

The glider industry grew up, therefore, in numerous small plants that were able to adapt their peacetime tools and skills to this wartime job—manufacturers of furniture, pianos, showcases, ladders, billiard tables, etc. Subcontracting runs high—over 30% for the industry as a whole. Sufficient plant capacity exists to make the operation of a third shift unnecessary, and increased output, when called for by the services, has usually been obtained by adding workers to the second shift and by advancing hours worked per week.

At present there are six prime contractors in production, employing 14,000. The new high demands will necessitate the addition of four contractors and an estimated 5,000 to 6,000 workers. But since most of the plants are in free labor areas, little difficulty is anticipated in getting them.

Lend-Lease in the Invasion Year

Pre-D Day peak of exports raised '44 total to $11,100,000,000—ahead of '43 by 10%. Goods shipped, services since March, '41, amount to nearly $32,000,000,000.

LEND-LEASE EXPORTS last year came to $11,100,000,000, an all-time high—10% ahead of 1943.

From inception in March, 1941, lend-lease shipments of munitions, industrial products, food and other agricultural products to the United Nations amounted to almost $27,000,000,000. In addition, approximately $800,000,000 in goods has been consigned to U.S. commanding generals for subsequent transfer in the field to lend-lease countries, and nearly $4,000,000,000 in aid has gone to the Allies in the form of services, such as rental of ships, servicing and repair of ships, ferrying of aircraft, etc. Thus the grand total of goods shipped and services rendered is nearly $32,000,000,000. And another $4,000,000,000 in goods has been transferred—but not exported.

Lend-lease shipments reached a peak in the second quarter—just before the Normandy invasion. Some $3,100,000,000 in munitions and supplies went abroad—nearly half to the United Kingdom (WP-Aug19'44,p8). The fourth-quarter total was only $2,475,000,000—this in spite of the increasing tempo of fighting on all fronts. More munitions and supplies are going direct to U.S. troops.

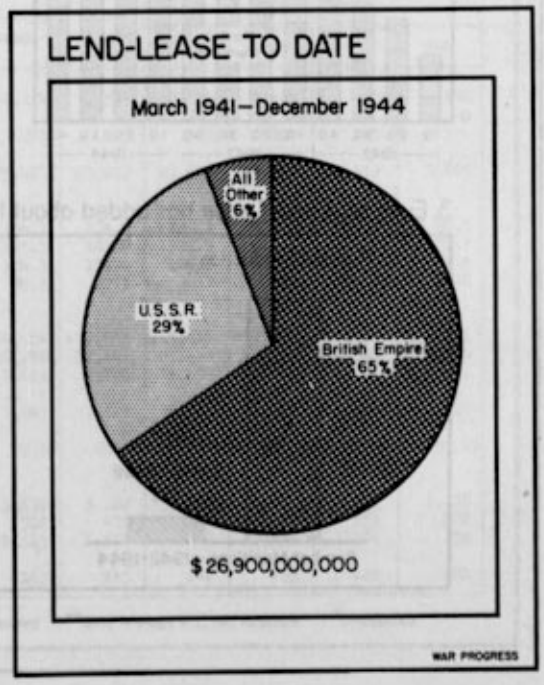
Although total lend-lease shipments last year were greater than in 1943, a slightly smaller proportion of U.S. combat-munitions production went to the Allies—12%, as against 13% the previous year.

Combat munitions constituted 56% of last year's lend-lease shipments; industrial products (including other military equipment and supplies and petroleum products) accounted for 29%, food and other agricultural products for 15%. Dollar value of shipments follow:

	1944	1943	% Change
	(millions)		
Combat munitions.	$6,195	$5,820	+6%
Ordnance.....	1,270	1,550	-18
Aircraft.....	2,710	1,980	+37
Tanks, other veh.	2,030	2,000	+2
Watercraft*.....	185	295	-37
Agric. prod.	1,705	1,815	-6
Industrial prod..	3,220	2,470	+30
Total.....	$11,120	$10,105	+10%

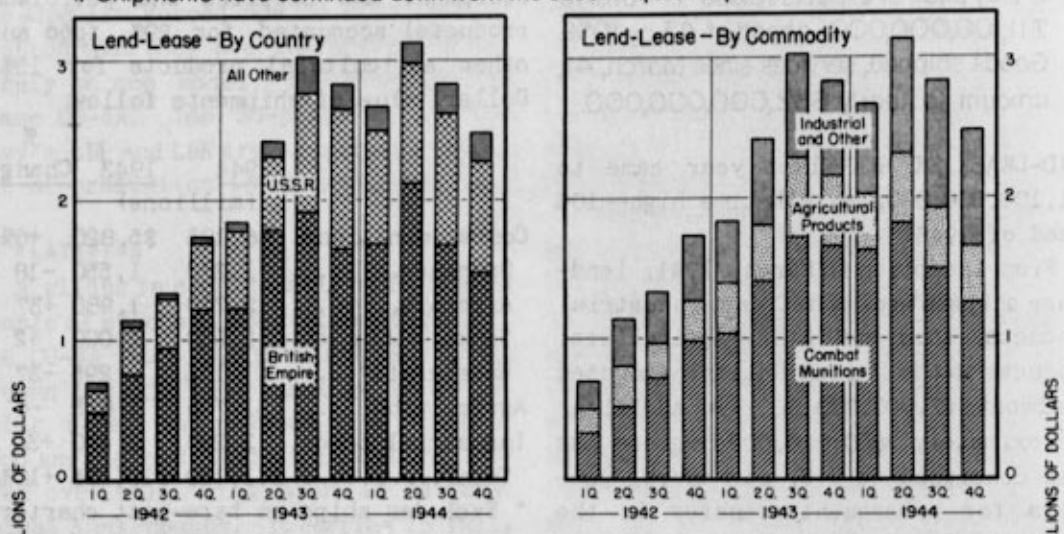
* Excludes ships on bare-boat charter, title to which is retained by the U.S.

Two-thirds--$4,200,000,000—of the combat-munitions exports in 1944 went to the British Empire. This added about one-third to the Empire's own production. Over the past three years, lend-lease has added about one-fourth to the Em-

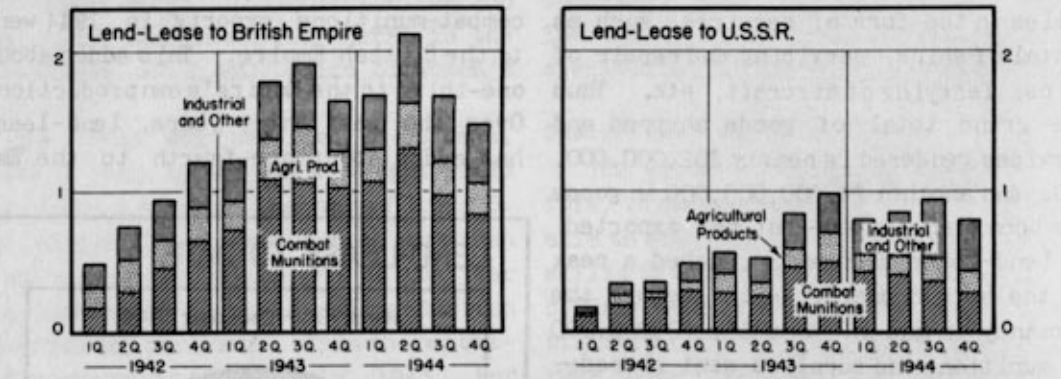


LEND-LEASE SUMMARY

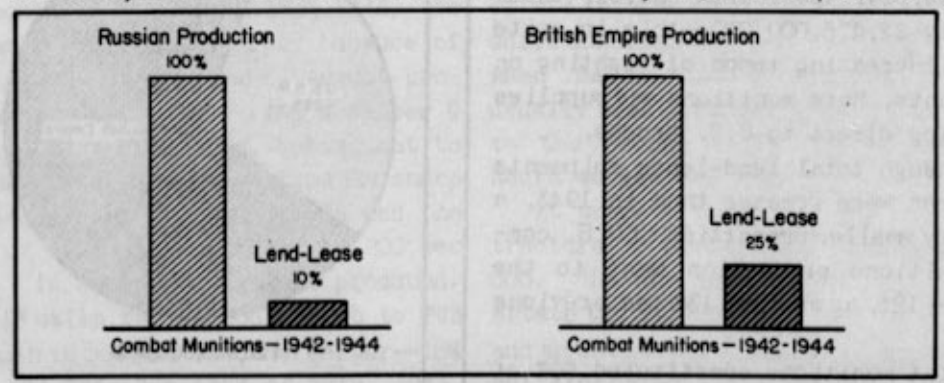
1. Shipments have continued down from the second-quarter peak.



2. The recent trend is away from combat munitions.



3. Even so, Lend-Lease has added about 10% to Russian, 25% to British production.



WAR PROGRESS

pire's production of combat munitions.

The United Kingdom retained its position as the largest recipient of lend-lease, receiving nearly $5,000,000,000, or 44% of total shipments, as compared to $4,000,000,000, or 41%, in 1943. However, exports to the U.K. declined from a peak of nearly $1,500,000,000 in the second quarter to $1,000,000,000 in the fourth quarter, accounting for the bulk of the total lend-lease decline. There was a shift toward more munitions: 57% in 1944, as against 47% in 1943 and 31% in 1942. However, the trend has been reversed in the last half of 1944.

On the other hand, there has been a steady trend away from munitions in exports to the U.S.S.R.; they constituted only 43% of the exports to the Soviet in 1944, as against 47% in 1943 and 62% in 1942. This is an indication of the increasing independence of Soviet war production. The $1,500,000,000 in combat munitions sent to Russia last year is estimated at about 10% of the U.S.S.R. output of combat munitions in 1944. However, the Soviet leans heavily upon the United States for automotive equipment. Vehicles constituted nearly half of the munitions sent to the U.S.S.R. last year. All told, more than 345,000 motor trucks and 30,000 motorcycles have been lend-leased to the Soviet.

Industrial products constituted two-fifths of lend-lease shipments to the U.S.S.R. last year. Included were more than 1,000 locomotives and more than 8,000 railroad cars. Germans, in their retreat from Russian soil, destroyed railroad lines and rolling stock, as well as highways.

Exports to the Soviet and the British Empire accounted for 93% of total lend-lease in 1944. India replaced Egypt as

KEY STATISTICS OF THE WEEK

	Latest Week	Previous Week	Month Ago	Same Week 1944	Same Week 1943	Same Week 1942	Same Week 1941
War Program - checks paid (millions of dollars)	1,688	2,122	1,513	2,104	1,395	499	162
War bond sales - E, F, G (millions of dollars)	220	227	246	589	220	155	-
Money in circulation (millions of dollars)	25,557[p]	25,411[r]	25,209	20,610	15,845	11,339	8,665
Wholesale prices (1926=100)							
All commodities	104.9[p]	104.7	104.6	103.1	102.1	95.7	80.5
Farm products	126.8[p]	125.7	125.9	121.9	118.6	100.7	70.7
Foods	104.9	104.3	104.6	104.0	105.5	94.0	73.2
All other	99.3[p]	99.3	99.1	98.1	96.4	94.9	84.6
Petroleum (000 barrels)							
Total U.S. stocks*	404,325	404,784	417,883	415,516	439,092	496,291[e]	496,111[e]
Total East Coast stocks	57,662	58,979	67,667	55,630	47,430	72,542	83,120
East Coast receipts**	1,860	1,693	1,742	1,558	1,202	n.a.	n.a.
Bituminous coal production (000 short tons)**	1,893	1,947	1,662	2,138	1,917	1,880	1,722
Steel operations (% of capacity)	92.8%	89.3%	93.0%	97.2%	99.3%	95.5%	97.1%
Freight cars unloaded for exports, excluding grain**							
Atlantic Coast ports	3,439	3,170	3,122	2,788	1,514	1,587	1,116
Gulf Coast ports	431	510	439	510	335	353	382
Pacific Coast ports	2,121	2,115	1,871	1,182	906	324	159
Department store sales (1935-39=100)†	172	163	145	142	178	122	101

[p]Preliminary [r]Revised *Excludes military-owned stocks [e]Estimated **Daily Average n.a. Not Available †Unadjusted

the third largest recipient. Shipments to India rose 38% as the war in the Pacific mounted in intensity. The movement of lend-lease to Italy increased sharply, but such goods were consigned to the British and other allied troops fighting there. Shipments to Australia, New Zealand, Algeria, and Iraq dropped off, while Turkey had all but disappeared from the lend-lease picture by the end of the year. Here's how lend-lease exports in 1944 compared with the previous year, by country of destination:

	1944	1943	% Change
	(millions)		
U.K.	$4,938	$4,074	+21%
U.S.S.R.	3,424	2,927	+17
India	724	525	+38
Egypt	471	871	-46
Italy	421	15	+2,707
Australia	311	433	-28
Algeria	73	280	-74
Union of S.A.	65	106	-39
Brazil	57	60	-5
Fr. Morocco	44	42	+5
New Zealand	42	92	-54
China	41	42	-2
Iraq	12	78	-85
Turkey	7	85	-92
Iran	7	14	-50
All Other	483	461	+5
Grand total	$11,120	$10,105	+10%

Although the movement of lend-lease goods to China dropped off slightly, the recent linking of the Ledo and Burma Roads, completion of a pipeline from Calcutta through Burma into China, the employment of a large corps of American technicians to aid in organizing the Chinese transport system, and the assigning of 15,000 American-made trucks to haul equipment and supplies are expected to result in a sharp increase in shipments to China during the coming months.

Soot for Rubber

Carbon black becomes critical as '45 tire and tube requirements rise. Output this year will be nearly 50% greater than '44, largely due to new facilities.

CARBON BLACK (natural gas soot) is to rubber what molybdenum, nickel, and other alloying elements are to steel. It makes rubber tough yet resilient. And because of the sharp stepup in 1945 tire and tube requirements, carbon black is critical.

This year's overall production, at more than 1,130,000,000 pounds, will be at an all-time high—nearly 50% above last year's 760,000,000 pounds. The new facilities installations of $24,000,000, the first of which should begin operating next month, will account for most of the increases.

MAY BE ENOUGH, BUT...

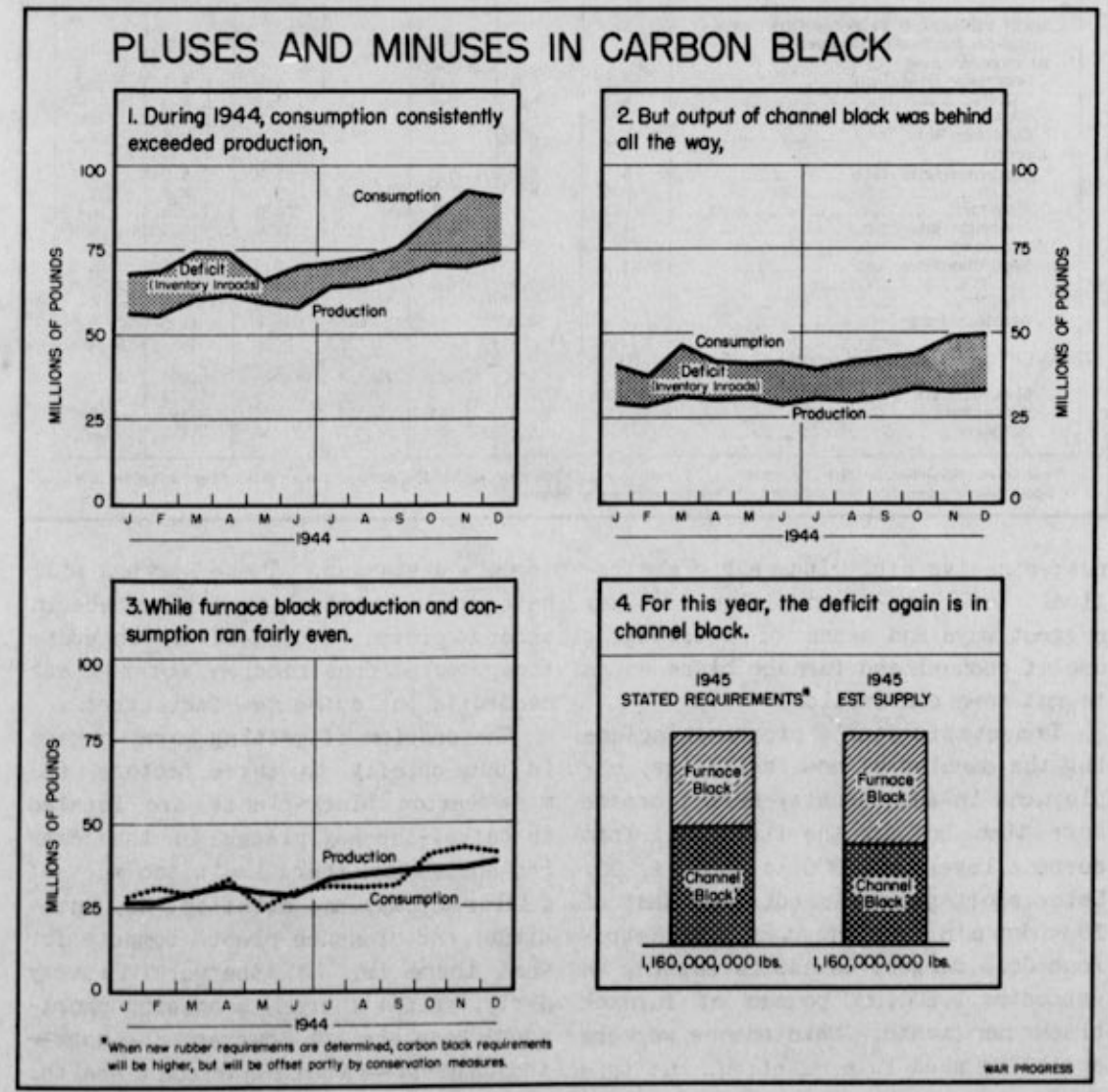
.In total, this production plus inventories appears to be sufficient to meet demand, according to present rubber requirements. (The inventory is small, about 30,000,000 pounds against 175,000,000 early last year.) But rubber requirements are still rising, and steps are being taken to conserve carbon black. Some types of tires may get only 95% as much black as was used on January 12, 1945, the base period; hard rubber products, only about 80%. No carbon black may be used in garden hose, many household products using rubber, certain plumbing supplies, etc. These measures are expected to save some 10,000,000 pounds per month.

Channel black—one of the two basic types of carbon black—promises to remain short notwithstanding. Tire manufacturers prefer channel black to furnace black (the other type) for tire treads because of its smaller, harder

particles, which result in a better end product for certain purposes. Further, channel black is easier to process and sells for 3½ cents per pound as against 5 cents to 7 cents for furnace black. This price differential goes back to pre-OPA days. At the time OPA ceilings were introduced, channel black manufacturers were engaged in a competitive price war and were caught with their prices down.

Current 1945 requirements for channel black amount to 646,000,000 pounds (including export), as against an estimated supply of 548,000,000 pounds. Supply of furnace black is expected to be 616,000,000 pounds, versus requirements of 516,000,000 pounds. Despite the fact that furnace black output will be ahead of requirements, production must be kept high to offset deficits in channel black.

The Rubber Bureau is now working on a detailed breakdown of carbon black requirements to determine how much is needed in tires, tubes, insulating wire,



SELECTED MONTHLY STATISTICS

Income Payments – Labor Turnover – Inventories

	Latest Month*	Preceding Month	2 Months Ago	Same Month 1943	Same Month 1942	Same Month 1941	Same Month 1939
INCOME PAYMENTS (millions of dollars)							
Total	14,388	13,253 r	13,684	13,557	11,897	9,490	7,005
Salaries and wages	9,635	9,508 r	9,541	9,127	7,843	5,813	4,070
Comm., distr. and serv. industries	7,132	7,052 r	7,088	6,961	6,275	4,021	3,515
Government	2,503	2,456 r	2,453	2,166	1,568	792	555
Military	1,350	1,343	1,342	1,048	673	159	41
Nonmilitary	1,153	1,113 r	1,111	1,118	895	633	514
Other income payments†	4,753	3,745 r	4,143	4,430	4,054	3,677	2,935
Income payments annual rate (adjusted for seasonal, billions of dollars)	160.3	159.5 r	158.2	150.9	131.7	103.2	74.1
LABOR TURNOVER IN MFG. INDUSTRIES (rate per hundred employees)							
All manufacturing							
Separation Rate-Total	5.5	6.0	6.4	6.6	6.4	4.7	3.5
Quits	4.1	4.6 r	5.0	4.4	3.7	1.8	.7
Military	.3	.3	.3	.5	1.3	.4	n.a.
Accession Rate-Total	4.9	6.1 r	6.0	5.2	6.9	4.8	2.8
Aircraft							
Separation Rate-Total	4.5	5.6	6.2	5.6	6.2	3.9	1.7
Quits	3.5	4.2 r	4.8	3.9	3.7	2.3	1.1
Military	.2	.3	.3	.5	1.8	.8	n.a.
Accession Rate-Total	4.4	5.2	4.8 r	3.9	11.0	10.8	6.9
Shipbuilding							
Separation Rate-Total	9.1	8.9 r	9.5	8.9	8.3	6.3	1.8
Quits	6.1	5.9 r	6.4	5.9	4.5	2.9	.8
Military	.3	.3 r	.4	.8	2.0	.5	n.a.
Accession Rate-Total	6.6	8.5 r	8.4 r	6.6	9.4	15.3	2.8
INVENTORIES (millions of dollars)							
Total	27,366	27,606 r	27,454	28,564	28,920	26,990	19,749
Manufacturers	16,979	17,100 r	17,139	17,858	17,682	15,179	10,388
Wholesalers	3,987	3,999	3,995	4,117	3,956	4,596	3,606
Retailers	6,400	6,507 r	6,320	6,589	7,282	7,215	5,755

*Inventories, November; all other, December. r Preliminary. rRevised. n.a. Not Available. † Work relief, direct and other relief, Social Security benefits, dividends and interest, entrepreneurial income.

rubber heels, etc. It is a big statistical task. When completed, it may suggest ways and means of rearranging use of channel and furnace black so as to cut down consumption.

To meet this year's program, including the manning of new facilities, employment in the industry must increase more than 50% in the first half, from current levels of 1,800 to about 2,800. Labor shortages are immediate. Want of 30 workers in one plant at Phillips Petroleum Co., Borger, Texas, is costing an estimated 1,500,000 pounds of furnace black per month. Maintenance workers are being used in production, but this is only a stopgap. These workers will have to be put back on maintenance in order to prevent a breakdown. In addition, more construction workers are needed to build the new facilities.

The problem of getting more workers is due chiefly to three factors: (1) most carbon black plants are located in out-of-the-way places in the Texas Panhandle where there isn't too much of a labor supply, and aviation gas, butadiene, and ordnance plants compete for what there is, (2) the work is very dirty, and (3) there is a housing shortage in some areas. However, the work—though dirty—is not injurious to health.

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