

PRESIDENT'S SECRETARY'S FILE  
Subject File  
War Production Board: "War  
Progress": 1/8-3/19/43  
Box 172

## CRITICAL COMPONENTS — BIG JOB FOR 1943

THIS YEAR'S big production job is to schedule critical components—to see that engine parts, boilers, gears, etc. synchronize with demand. Already the list of these products comprises 70 items, and it doesn't include subclasses (individual engine accessories, different compressor sizes, etc.), which would bring the

grand total above 200. And this list is only the beginning (bearings, for example, will eventually break down into 43 subclasses, machine tools perhaps 150); the Navy has just submitted about 30 additional components and most of these are slated for the "must" program. But they are not included in the critical list which follows:

Aluminum forgings	Housings (3"x5")
Amplidynes & selsyns	Hydraulic motors
Automatic pilots (naval aircraft)	Hydraulic generators & parts
Auxiliary turbines	Industrial power trucks
Axles (naval aircraft)	Industrial pumps
Axle shafts (automotive)	Inflation cylinders
Ball & roller bearings	Jewel bearings
Blowers & fans	King pins (automotive)
Boilers	Lenses
Cables (firing & lighting circuits)	Locomotives
Capacitors (power & fixed types)	Machine tools & industrial equipment
Carbon dioxide extinguishers	Main propulsion turbines (ships)
Chain (3/4" & larger)	Mechanical speed changers
Communication equipment	Metalographic equipment
Compressors & vacuum pumps	Naval torpedoes
Control instruments	Oleo struts
Conveying equipment	Oxygen equipment
Cranes & shovels	Parker-type fittings
Crankshafts	Plumbing fixture trim
Diesel engines	Propellers
Elec. motors, generators & starters	Steam engines
Electronics	Stop nuts
Engine accessories	Switch gear
Fire control instruments	Tractors (track laying)
Flashlights	Turbo-blowers & exhausters
Fuses (MK-28)	Turnbuckles
Galvanized mess equipment	Underwater sound equipment
Gas cylinders	Unit heaters
Gasoline engines (except aircraft)	Universal joints (automotive)
Gears	Valves & fittings (ships)
Gyro compasses	Water pump shafts (automotive)
Hand tools	Welding rods & electrodes
Heat exchangers	Wire rope (3/4" & smaller)



(chart, right). In merchant yards, the hard core of steady, so-called permanent workers is reduced proportionately to the newcomers, who are beset by all the petty problems of learning the ropes of a new city: They must find housing; they must become acquainted with shopping centers; they must learn about transportation (often the travel time to and from work runs to three hours or more per day).

**NOT USED TO THE GRIND**

In all war plants where there is a tremendous influx of new recruits to the labor market--many of them women--the same and other factors are at work. Here you have a group which has not been employed sufficiently long to develop day-in, day-out attendance habits. They have not become accustomed to the daily grind. And since the danger of losing jobs has been minimized by the high demand for labor, when the spirit moves them, they take off--frequently to look for other jobs.

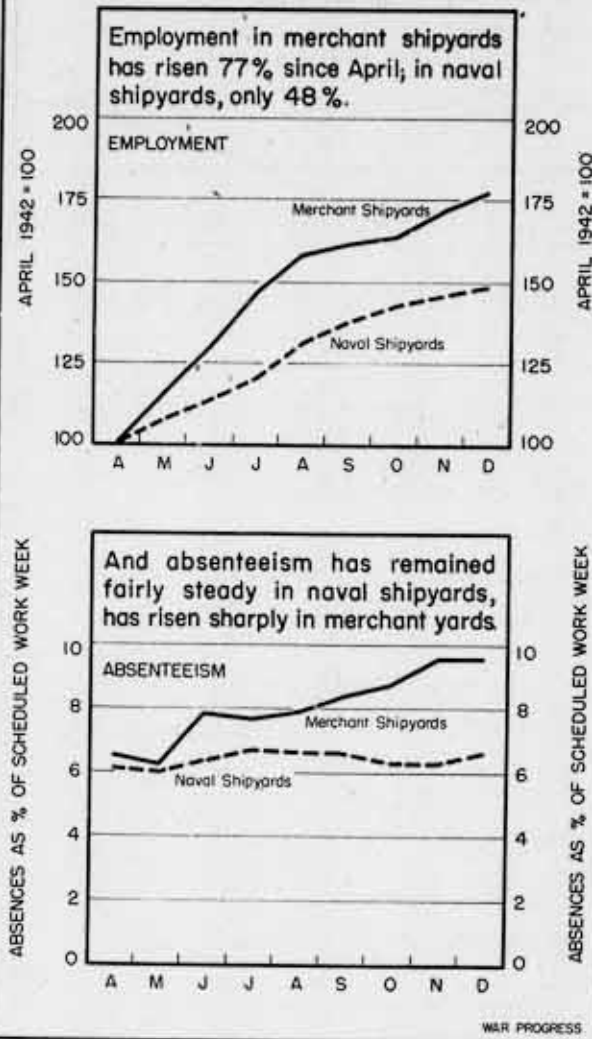
To meet the problems of absenteeism,

**CREATING MAN-HOURS**

BECAUSE OF absenteeism and labor turnover, the Presidential order establishing a 48-hour work week means in actual practice a 46-hour week. But even on this basis the order will create millions of man-hours. Translating November, 1942, man-hours into the employee equivalent, the order will "create" about 800,000 workers in the manufacturing group (196,000 in durable goods, 585,000 in nondurable) and 550,000 in trade. Ultimate results will be greater: Not included in the calculation are transportation, mining, public utilities, finance, etc.

**CONTRAST IN AWOL-ISM**

Leave-taking seems to increase as employment expands.



numerous measures have been and are being tried: keeping stores open at night, trying to improve transportation facilities (stagger shifts, for example); maintaining restaurants at plants so that workers will have satisfactory food and won't get run-down or overtired from want of proper nourishment; providing free medication; etc. The list can go on almost indefinitely. And, of course, propaganda is a potent weapon against AWOLism: 'to impress workers with the need to produce to beat the Axis.

But with all these measures, it is

necessary to bear in mind that absenteeism is born of the times: long hours, night shifts, Saturday and Sunday work, high hourly wage rates (as goods become scarce, absenteeism may be given a further impetus), the haphazard, crowded living and transportation conditions and the seller's market for labor. Hence,

in war production areas, it is to be expected that a high level of absenteeism will be with us for the duration. It's not defeatist to take that point of view, but realistic. And it's a problem which will become increasingly acute as the manpower squeeze and the demand for labor tighten.

## SELECTED MONTHLY STATISTICS

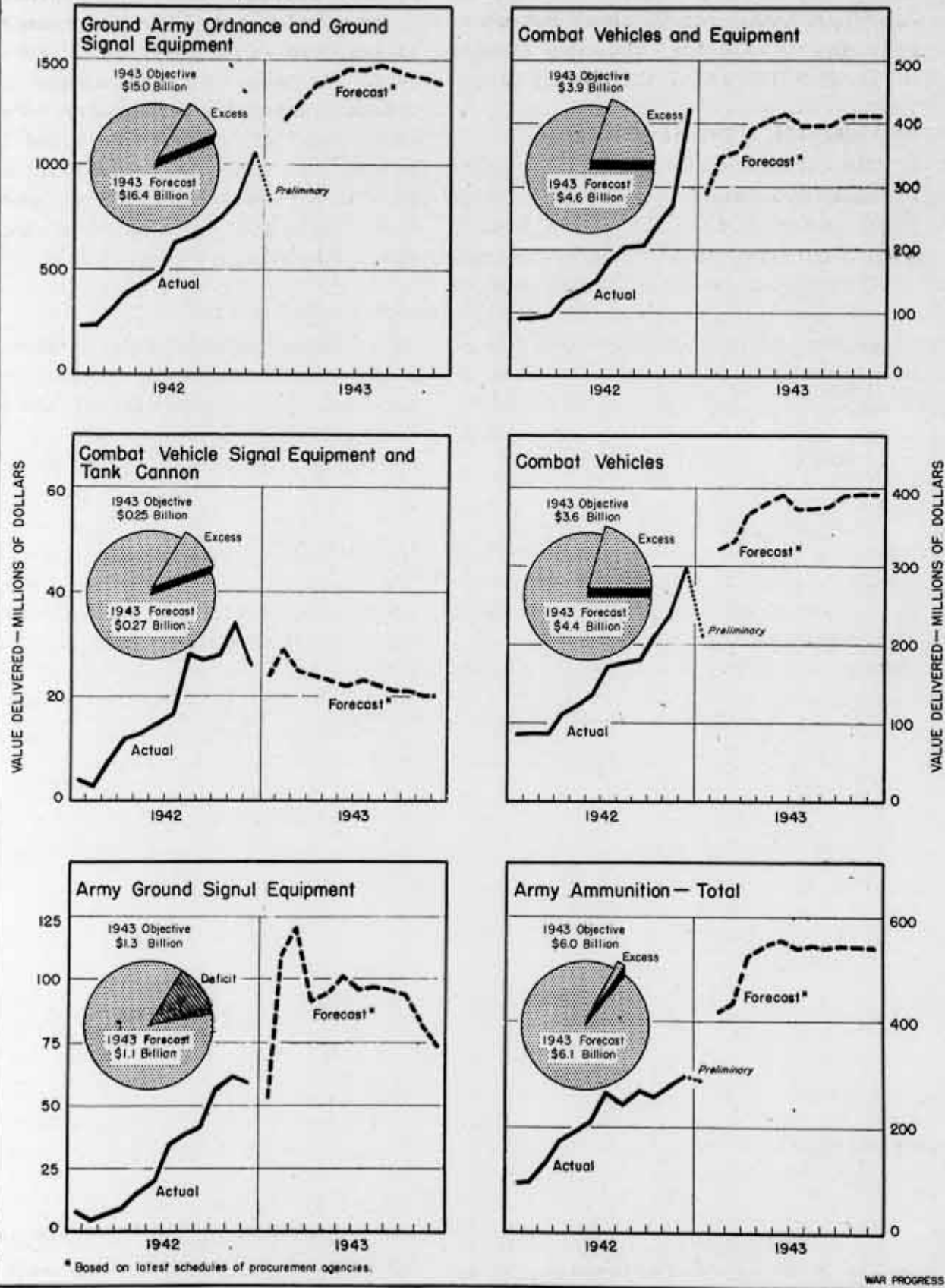
Labor Turnover-Income Payments-Retail Sales-Consumer Expenditures.

	Latest Month*	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Same Month 1939	Same Month 1937
<b>LABOR TURNOVER IN MFG. INDUSTRIES (rate per hundred employees)</b>							
All manufacturing:							
Accessions	6.92	8.14	8.69	8.25	4.76	2.84	2.12
Separations - Total	6.37	7.09	7.91	6.46	4.71	3.46	8.51
Quits	3.71	4.21	4.65	3.85	1.75	0.69	0.60
Military Separations	1.29	1.55	1.71	0.78	0.39	n.a.	n.a.
Aircraft:							
Quits	3.69	3.93	4.41	3.60	2.28	1.14	0.68
Military Separations	1.78	2.22	2.82	0.93	0.81	n.a.	n.a.
Shipbuilding:							
Quits	4.49	5.41	5.39	5.71	2.93	0.75	0.61
Military Separations	1.95	2.43	2.60	0.91	0.48	n.a.	n.a.
<b>INCOME PAYMENTS - TOTAL (million dollars)</b>							
Salaries and Wages	p11,404 p7,614	10,430 7,428	r10,603 r7,279	9,647 6,591	9,376 5,843	7,053 4,126	6,604 3,731
Manufacturing, mining, construction, agriculture	p6,061	5,961	r5,884	5,421	4,961	3,433	3,098
Government	p1,530	1,443	1,369	1,117	795	555	511
Other	p23	24	r26	53	87	138	122
Other income payments	p3,790	3,002	r3,324	3,056	3,533	2,927	2,873
Income payments, annual rate (adjusted for seasonal, billion dollars)	p127.9	125.2	r121.5	112.8	102.0	74.8	68.8
<b>RETAIL SALES - TOTAL (million dollars)</b>							
Durable goods	p944	776	872	837	1,237	1,042	812
Nondurable goods	p5,037	4,116	4,413	3,666	4,348	3,411	3,204
<b>CONSUMER EXPENDITURES - TOTAL (million dollars)</b>							
Goods	4,823	5,120	4,646	4,267	4,233	3,383	3,199
Services	2,339	2,302	2,300	2,277	2,152	1,870	1,812

\* December except for consumer expenditures, November. p. Preliminary. r. Revised. n.a. Not available.

# PRODUCTION PROGRESS

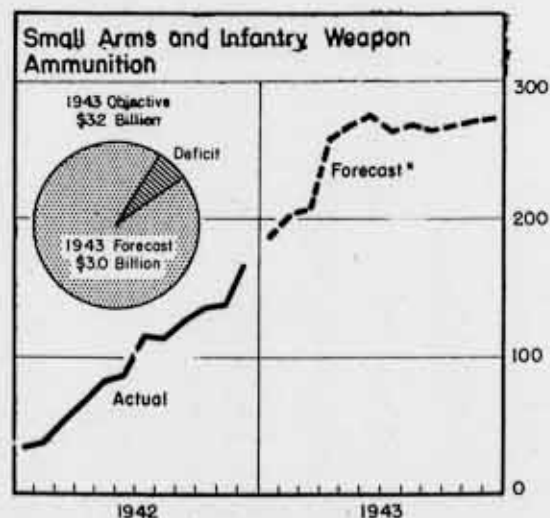
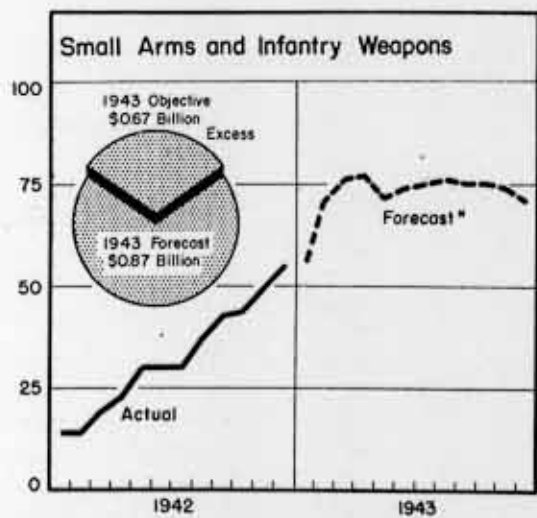
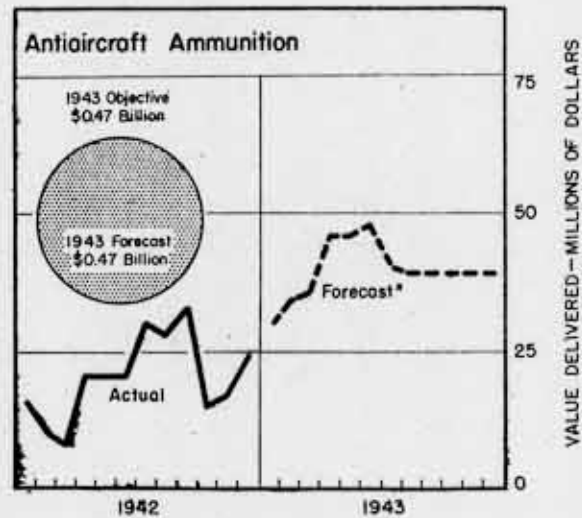
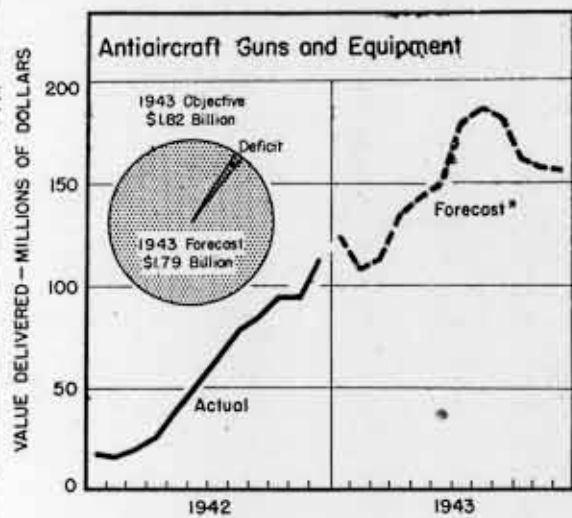
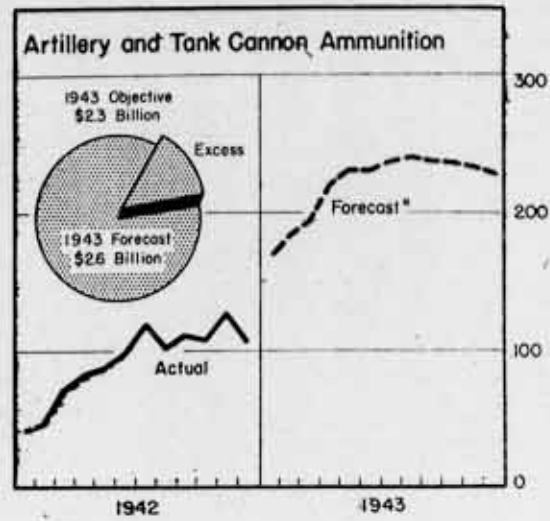
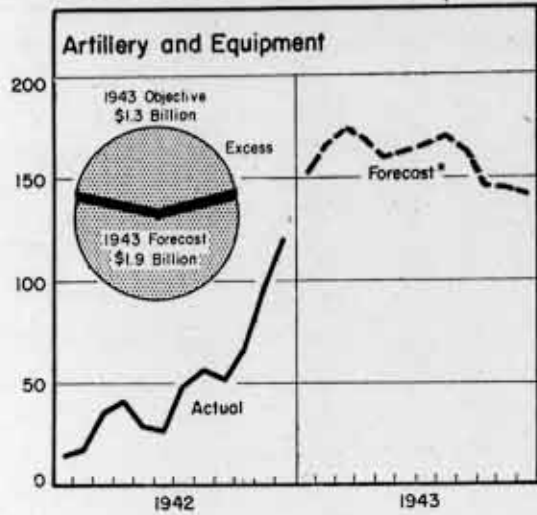
## Ground Army Munitions



BRITISH-SECURE

### PRODUCTION PROGRESS

Ground Army Munitions (continued)



\*Based on latest schedules of procurement agencies.



The President

# WAR PROGRESS

*Confidential*  
*(British Secret)*

DECLASSIFIED  
EO 11652, Sec. 1.4 and 1.5 of GDS  
Continuity Dept. Letter 1142-73  
By BHP, DMS MAR 29 1973

Construction Machinery Hide-and-Seek  
CMP's First Allotments

Number 127

February 19, 1943

## Tractors, Graders, Crushers, and Cranes

They play hide-and-seek with requirements; for despite a decline in war building, demand for construction equipment rises sharply. Problem is one of distribution.

HERE IS A PARADOX: Total government-financed war construction this year will run some 25% under 1942, but estimated demand for construction machinery will be up considerably--from 11% to 88% in six principal types of equipment (chart, page 3).

Part of this apparent inconsistency--a decline in construction and a rising demand for the machinery of construction--can be explained by the more than 50% increase in estimated overseas building by the armed services. Both the Army and the Navy show an understandable preference for new machinery in present and potential combat areas, rather than used equipment that has developed hidden weaknesses from wear and tear.

Whereas last year 35% to 85% of certain key construction machinery output went to the armed services, this year estimated proportions are expected to range from 80% to 95% (and most of the equipment is probably destined to go abroad), as follows:

<u>Machine</u>	<u>% of Production to Armed Services (Estimated)</u>
Concrete construction mixers..	80%
Power cranes & shovels*.....	80
Jaw & roll crushers.....	85
Track-laying tractors.....	85
Motor graders.....	90
Bituminous mixing plants.....	95
Centrifugal pumps**.....	95
* Including drag lines	
** Self-priming	

### AIRPLANE REBOUND

AIRPLANE ACCEPTANCES during the first half of February totaled \$208,500,000, a new peak level for a half-monthly period and \$35,000,000 above the January 1-15 figure. Acceptances per day averaged 29% more than in the first 15 days of January.

If the pattern of recent months is followed, dollar value of plane acceptances for the full month should come to around \$550,000,000--which would be a new record. Though this would be 9% below the 8-L schedule of \$613,000,000, it would surpass January by 22%, even though last month had three more days.

But the paradox does not end there. Last year we had sufficient machinery to put up approximately \$9,500,000,000 worth of government-financed war construction, and although some of this equipment undoubtedly needs repairs and some of it has been junked--or should be--a good part of it is still available for active service. This year such construction is destined to drop sharply--roughly 40%--to about \$5,700,000,000; yet to turn out this smaller volume we are forced to add to the domestic inventory of tractors, graders, crushers, mixers, cranes, shovels, etc.

### NONCONSTRUCTION USES

Of course, some of this equipment has multiple uses. Tractors, for example, are used for hauling logs as well as for road building; cranes and shovels are used for mining as well as



for unloading cargoes and for airport construction; graders are used for patching bombed airfields as well as for highway maintenance; self-priming centrifugal pumps are used for mobile water-purifying units as well as for draining swamps prior to construction; and so forth.

But in most items, the main use is war construction. And the demand for such equipment--both from the armed forces and from agriculture, mining, logging camps, etc.--is rising.

#### RIGHT PLACE, RIGHT TIME

Essentially, the problem is one of distribution--getting the right piece of equipment to the right place at the right time. A few months ago, construction of a Midwestern aircraft engine plant required three large Euclids--heavy-duty, earth-moving truck-tractors--which the contractor was hard put to buy, borrow, or lease. Here is an actual case uncovered by the Construction Machinery Division:

An Army pool in an adjacent district had eight on hand, but the request was referred to the area office, which in turn asked for approval from Washington. Six new machines were held by a manu-

facturer about 700 miles away, but the Office of Defense Transportation--which had jurisdiction over the sale of the equipment--thought the "Army might need them." Three hundred miles distant, 14 suitable Euclids were working on an 18-month municipal waterworks project yet a rental of three machines, which would have lengthened the construction period 10 days, could not be arranged.

#### 30-DAY DELAY

Finally, five small used Euclids were acquired from a private contractor 600 miles away. But construction of the aircraft engine plant was delayed 30 days.

Such examples can be multiplied. Construction of synthetic rubber plants in the Southwest have been reputedly delayed because of shortages of cranes, shovels, and other construction equipment. An army airfield has been held up because a particular type of concrete paver (34-E dual drum) was unobtainable. When one was found, the owner demanded onerous terms. So, WPB was forced to institute requisition proceedings (which were subsequently dropped when the owner relaxed his demands).

#### DIFFUSE OWNERSHIP

Because construction machinery is spread widely over many areas and because, further, its ownership is so diffuse, the problem of obtaining better and prompter distribution of the available supply is intensified in several ways:

1. Private contractors are loath to sell or lease their equipment; another job might turn up in the interim, or terms may not be right.

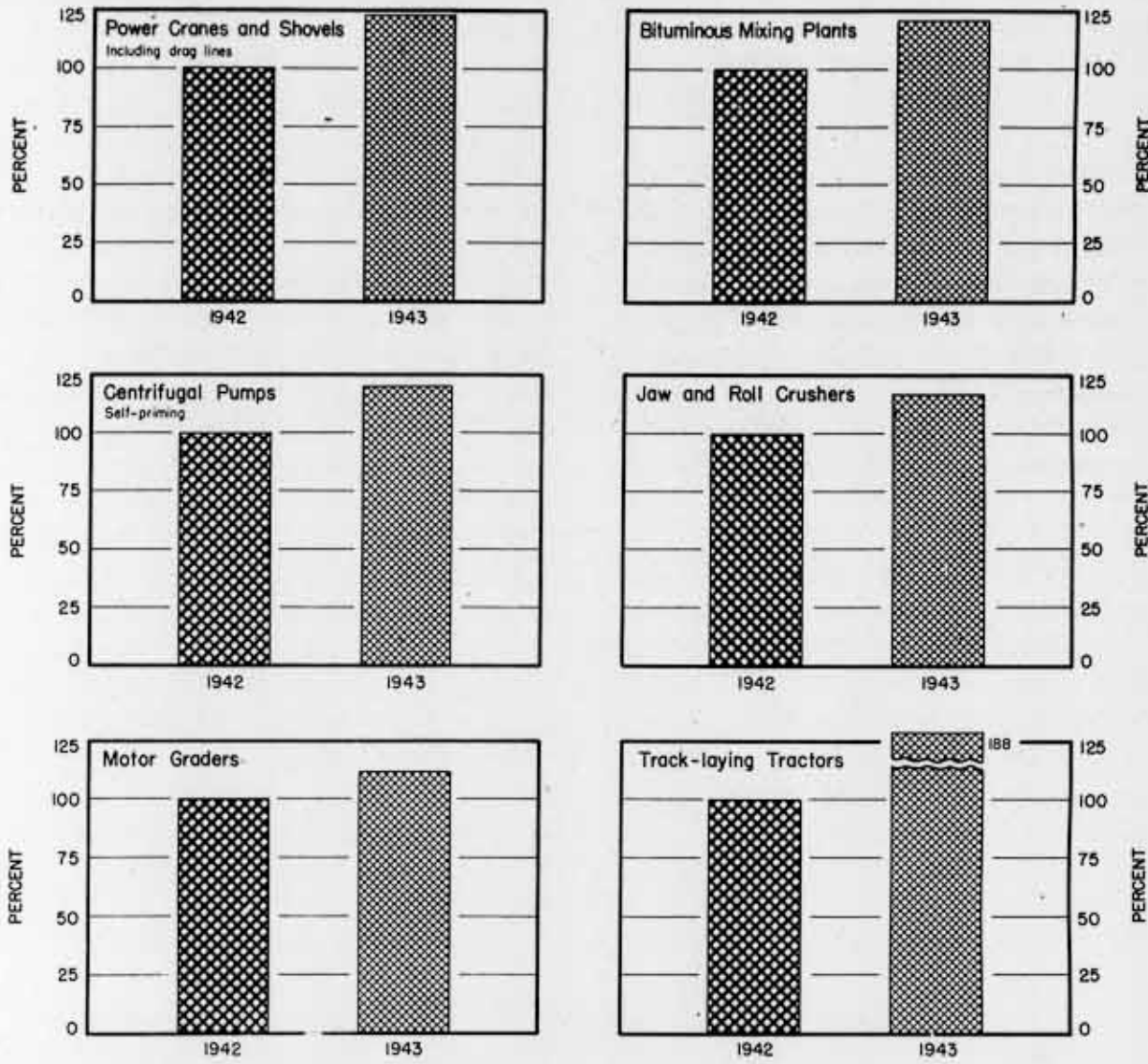
2. States, counties, and municipalities are under various restrictions about letting equipment get out of their control. Here the rigid hand of statute

#### IN THIS ISSUE:

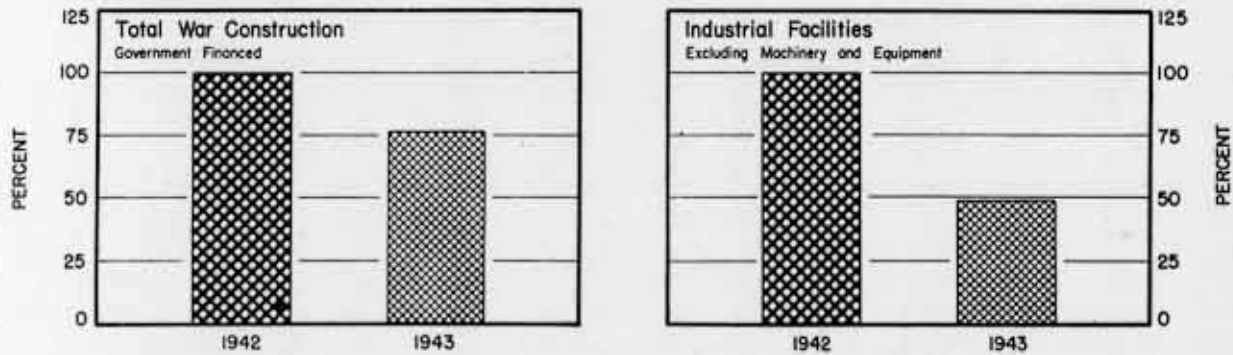
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### CONSTRUCTION MACHINERY PARADOX

Demand for tractors, mixers, cranes and shovels, etc., is estimated to increase like this:



But total war construction is slated to go down, with the biggest drop in industrial facilities:



closes the door. Yet, because of rubber and gasoline restrictions, road upkeep --for which most local-government construction machinery is bought--is down; and consequently the need for such equipment is also down. Here's a partial list of construction machinery and equipment in the hands of local governments:

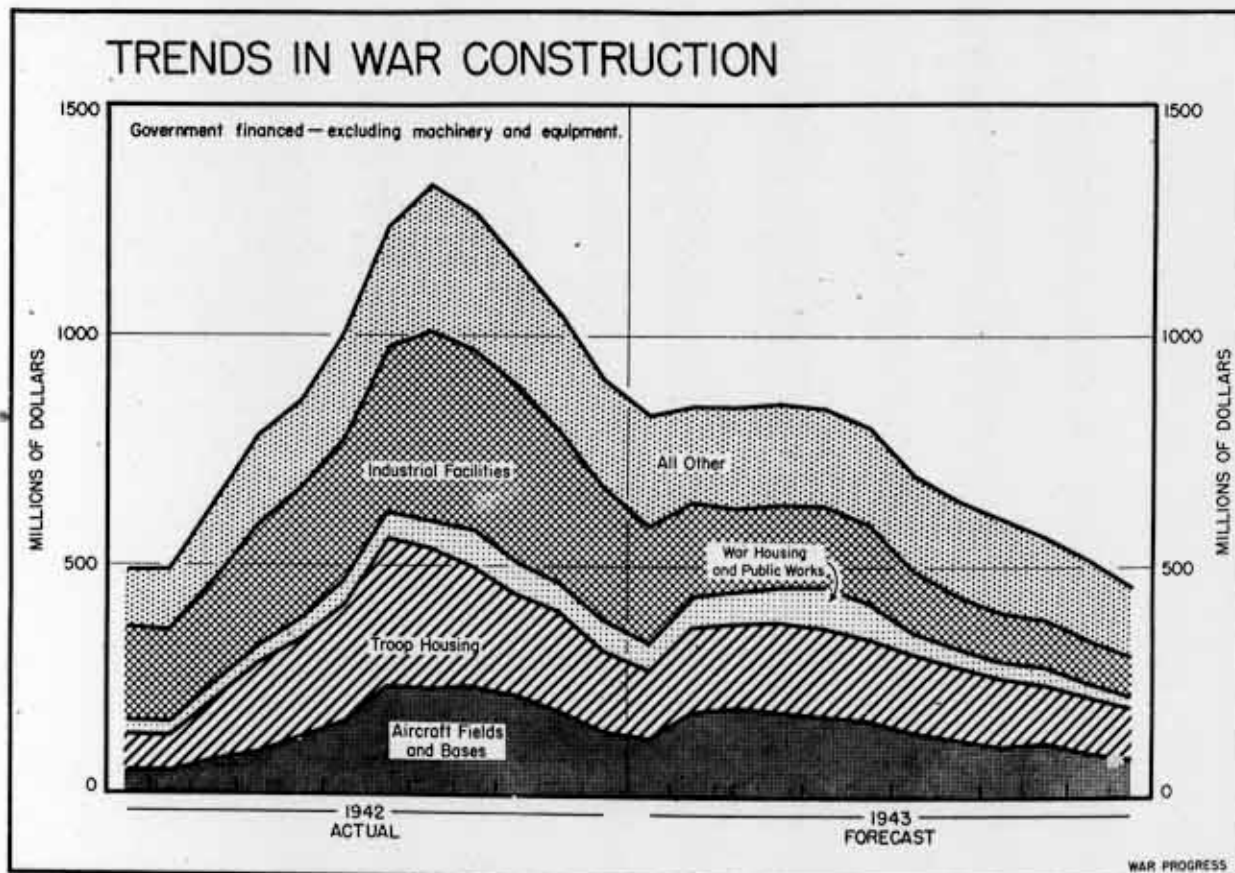
Snow plows.....	27,700
Motor graders.....	16,700
Tractors*.....	16,700
Pull graders.....	16,100
Spreaders.....	6,300
Scrapers & carryalls.....	5,100
Rollers.....	4,700
Mixers.....	4,100
Crushers.....	2,000

Dozers.....	1,400
Loaders.....	1,300
* Track-laying and wheel	

3. Army and Navy procedure also gets in the way of the free flow of equipment on hand. The tendency is to hold construction machinery in pools in local areas awaiting calls--mostly on work for the Services. This leads to underutilization of existing machinery.

**WHILE TOOLS LIE IDLE**

The main point is that construction is going down (chart, below). Contractors who a few months ago were working their machinery overtime are now hunting for work to do; equipment is idle



AFTER REACHING A PEAK OF \$1,300,000,000 IN AUGUST, 1942, WAR CONSTRUCTION HAS FALLEN STEADILY FOR FIVE MONTHS. AND FOLLOWING A SLIGHT FEBRUARY-APRIL BULGE, SCHEDULES CALL FOR A FURTHER DECLINE. WHILE ALL CLASSES ARE SLATED TO TRACE THE SAME GENERAL PATTERN

IN 1943--A MODEST RISE IN THE EARLY MONTHS, THEN A RESUMPTION OF THE DROP--DIFFERENCES ARE APPARENT ON A YEAR-TO-YEAR BASIS. INDUSTRIAL FACILITIES, FOR EXAMPLE, WILL BE OFF 51%, TROOP HOUSING, 21%, AND AIRFIELDS, 6%; BUT WAR HOUSING WILL RISE 7%.



in one spot, in urgent demand elsewhere.

If this pool of equipment could be coordinated--directed to where it is needed--the domestic demand for construction machinery could be somewhat

curtailed, thus saving materials and manpower for munitions. Indeed, this might well open the way to fuller conversion of construction machinery plants to war work.

## Controlled Materials Plan in Action

Claimant agencies--as in the British debut--overshoot the mark on requests, and Requirements Committee has to do some pruning. Major agencies closest to line.

FOR THE FIRST TIME AROUND, claimant agencies under the Controlled Materials Plan followed the pattern set by their British prototypes when the Iron and Steel Allocations Scheme was first instituted over there, back in 1941. To be in a good bargaining position for "getting theirs," they overrequested materials.

### OVERLAP OF "A" AND "B"

Another reason for oversized requests was duplication resulting from confusion over "A" and "B" products and from lack of information (bills of materials) particularly on "B" products (WP-Jan 5 '43, p8). As a result, original second-quarter requests exceeded expected supplies by from 24% in the case of aluminum to 35% in copper. Though reduced by preliminary revisions, when finally submitted to the Requirements Committee, some wholesale pruning of requirements still had to be done to equalize demand and supply.

As time goes along, however, and as claimant agencies learn from actual experience in dealing with the Requirements Committee, it is to be presumed that requests will come much closer to supply. At least that was the British experience.

On the whole, second quarter requests for the three controlled materials--

steel, copper, and aluminum--were cut to 84% in carbon steel and down to 58% in copper-brass mill products. But in individual instances, cuts were much greater. For instance, in carbon steel cuts amounted to 52% (Office of Rubber Director); in aluminum, to 58% (Canada); in copper-brass mill products, to 71% (Secretary of Agriculture); and so forth.

These curtailments do not necessarily imply that production will actually be affected sharply. In many cases requests were disproportionately high relative to real requirements because of the inclusion of contingency reserves. Had such reserves been excluded, the allotment-to-request ratios would not have been as low as the following table suggests--this is particularly true of the carbon steel authorization to the Navy and the aluminum authorization to aircraft (excluded from the table are allotments to the Office of Civilian Supply and "B" products because such determinations are still tentative):

	Allotment as % of Requests
<u>Carbon steel</u>	
Three biggest claimants:	
Army.....	90%
Maritime Commission.....	92
Navy.....	87
Next three claimants:	
Lend-Lease.....	67
Defense Transportation..	71
Canada.....	86
All other claimants.....	75

industrial pumps, automatic pilots, industrial process instruments, speed reducers, hand service tools, and a number of other components are currently expected to cover 1943 requirements. Indeed, capacity for turning out compressors--used in shipyards, ordnance factories, synthetic-rubber and 100-octane gasoline plants, etc.--is actually somewhat higher than this year's requirements. But the surplus capacity is concentrated in larger units; smaller compressors still are a production bottleneck. Besides, supply and requirements in virtually all the others balance so closely that even a slight change in the program could knock the facilities picture out of kilter.

#### MUST FORESEE CHANGES

Essentially, as production rises and as programs change, there is urgent need to foresee increased demands for certain types of industrial and munitions components. When the tank program, for example, is cut back, requirements for Diesel engines go down. On the other hand, if anti-aircraft schedules go up, then the production of amplidynes for automatic fire control instruments must be scheduled out accordingly. And because of frequently complicated inter-relationships among components, adequate scheduling is seldom a simple problem.

#### TAILOR-MADE TURBINES

Consider the case of marine turbines. When strategy dictates a switch from heavy combat ships to vessels expressly designed to protect convoys, new turbines must be designed and built. The original ones can't be substituted; turbines--like most components--are tailor-made.

And finally, adequate statistical information on supply and demand is not always available far enough in advance to permit dovetailed planning of pro-

#### NEW ECONOMIC TABULATIONS

WAR PROGRESS has revised its tabulations of monthly economic data, and beginning this week (page 14), they will appear in more condensed form under the new title of "Selected Monthly Statistics." Both confidential and nonconfidential statistics will be included, but only those data will be presented which help to give a quick, rounded picture of the progress of the war effort. Figures will be presented promptly as they become available, and changes may be made in the list from time to time as new statistical measures of important economic trends are evolved or older ones lose their significance.

duction and deliveries. For instance, 1943 output of antifriction bearings cannot be estimated until the latest aircraft and tank requirements are known. For many other components, manufacturers have never reported production; or, when they have, reports have been incomplete.

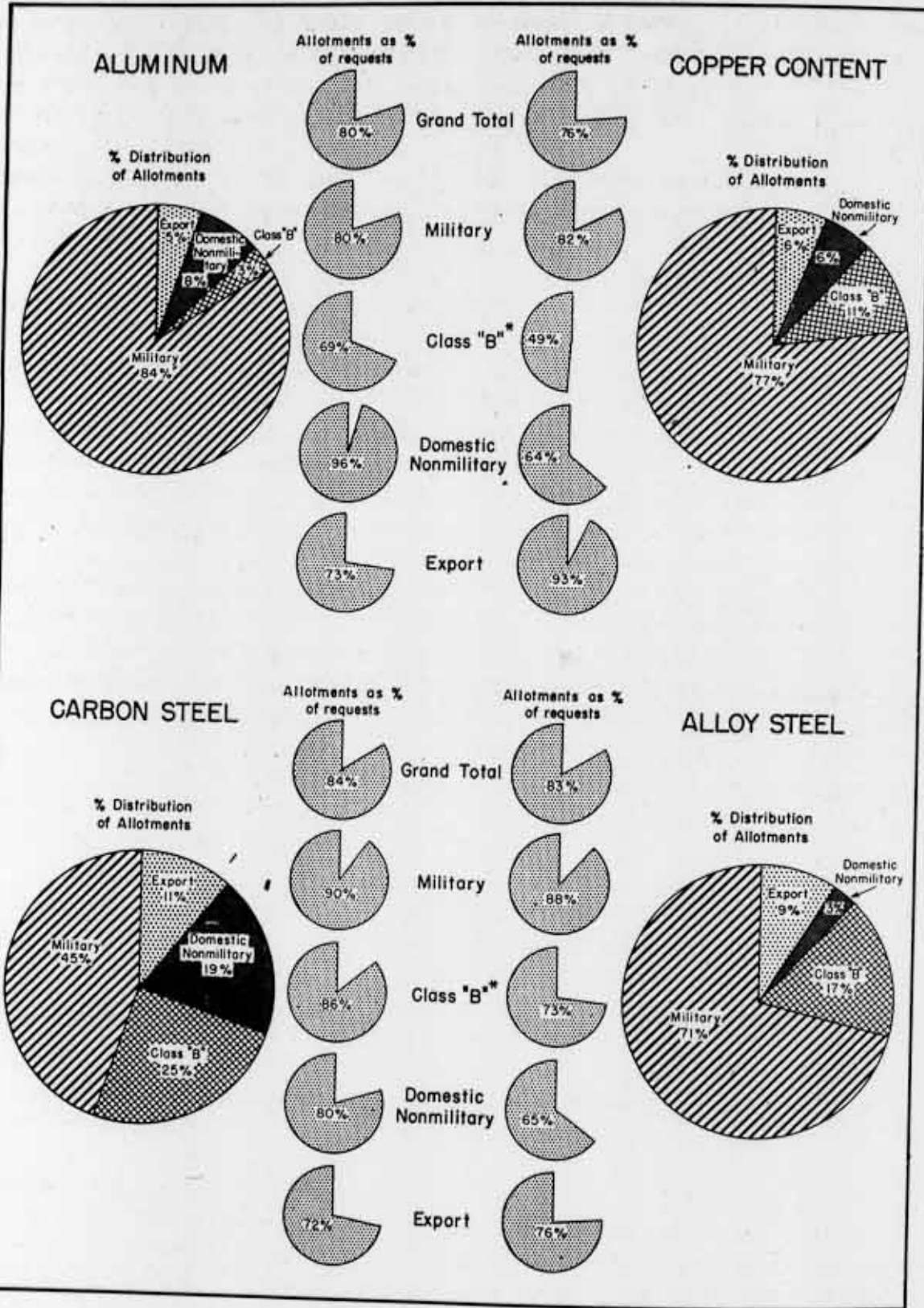
#### DATA SKETCHY

The consequence is that reasonably accurate supply-requirements estimates on a major portion of the components currently being studied aren't available. Amplidynes (motor generator systems used in automatic fire control), crankshafts, forgings, meters, steam engines, Parker-type fittings (used in aircraft, tank, and submarine fuel systems), ship propulsion machinery, and optical systems for binoculars, range finders, high altitude cameras, etc. are all cases in point.

In many instances, the shortage of components is traceable directly to unusually large demands for particular purposes. Thus the synthetic-rubber,

# CHARTING THE FIRST ROUND OF CMP

The armed services take from 45% to 84% of total allotments.



\*All class "B" data refer to a tentative reserve.



		Allotment as % of Requests	other allotments amount to follows: <u>Carbon steel</u>
<u>Alloy steel</u>			
Three biggest claimants:			Army..... 22.6%
Army.....	83%		Maritime Commission..... 12.7
Navy.....	93		Navy..... 8.6
Aircraft.....	96		Three large allotments..... 43.9
Next three claimants:			Other allotments..... 31.8
Lend-Lease.....	93		"B" products..... 24.8
Canada.....	53		Reserve..... 4.5
Petroleum Administrator.	85		Total..... 105.0%
All other claimants.....	78		<u>Alloy steel</u>
<u>Aluminum</u>			Army..... 41.3%
Four biggest claimants:			Navy..... 15.5
Aircraft.....	79		Aircraft Resources Control Office 14.8
Army.....	91		Three large allotments..... 71.6
Navy.....	87		Other allotments..... 12.6
Lend-Lease.....	75		"B" products..... 17.8
All other claimants.....	15		Reserve..... 2.9
<u>Copper base alloy (sheet &amp; strip)</u>			Total..... 105.0%
Three biggest claimants:			<u>Aluminum</u>
Army.....	81		Aircraft..... 67.7%
Navy.....	79		Army..... 7.3
Lend-Lease.....	100		Navy..... 4.7
Next three claimants:			Three large allotments..... 79.7
Aircraft.....	63		Other allotments..... 12.3
Canada.....	76		"B" products..... 3.5
Petroleum Administrator.	100		Reserve..... 4.5
All other claimants.....	66		Total..... 100.0%
			<u>Copper content</u>
			Army..... 45.7%
			Navy..... 17.6
			Lend-Lease..... 4.8
			Three large allotments..... 68.1
			Other allotments..... 11.6
			"B" products..... 10.1
			Reserve..... 10.2
			Total..... 100.0%

In most cases the three major claimants for each material came closer to getting their requests in line with actual allotments than other claimants.

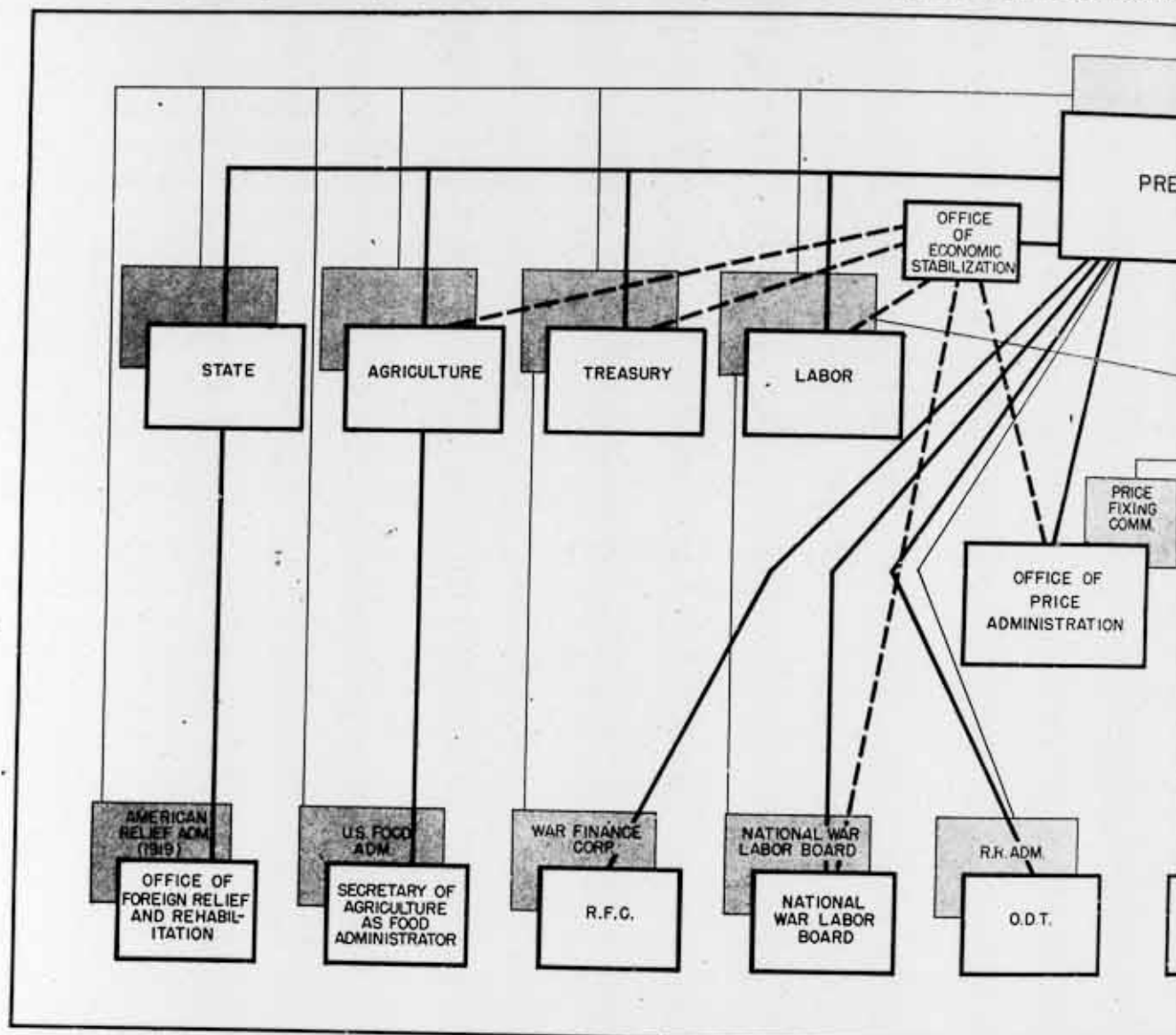
**SUBJECT TO SCRUTINY**

Since their individual and combined requirements come to such a large proportion of the total supply, their requirements were actually subjected to scrutiny and negotiation before being formally filed.

What proportion of supply was allotted to military products, domestic nonmilitary products and export or set aside as reserve for class "B" products is shown in the chart (page 6). What three major claimants receive and what all

In the case of carbon and alloy steel, allotments exceed estimated supply by 5%. This inflation follows established procedure, assuring steel producers of sufficient orders for maintaining capacity production even if, in the course of the quarter, some orders should be cancelled because of changes in programs and schedules.

"THE FUTURE IS ONLY THE PAST AGAIN" — ECONOMIC MOBILIZATION  
 Most of today's major war agencies have their 1917-18 shadows— WPB, the War Industries Board



## Organization Parallel

THE PROBLEM OF ECONOMIC MOBILIZATION, THOUGH MANY SIDED, CAN BE SIMPLY STATED: TO DIRECT THE NATIONAL RESOURCES—LABOR, MATERIALS, AND MACHINES—TOWARD THE SINGLE-ENDED PURPOSE OF WINNING THE WAR. BUT THE DIRECTION OF RESOURCES INTO VARIOUS COMPETING CHANNELS—MUNITIONS PRODUCTION, FOOD PRODUCTION, FUEL, TRANSPORTATION, ETC.—PRESENTS ALMOST INSURMOUNTABLE DIFFICULTIES. THE JOB IS SO BIG THAT

SPECIALIZED ORGANIZATION UNITS ARE UNAVOIDABLE; YET SPECIALIZED UNITS, BECAUSE OF THEIR OWN SPECIAL INTERESTS, TOO OFTEN DO NOT SEE WAR PROBLEMS AS A WHOLE.

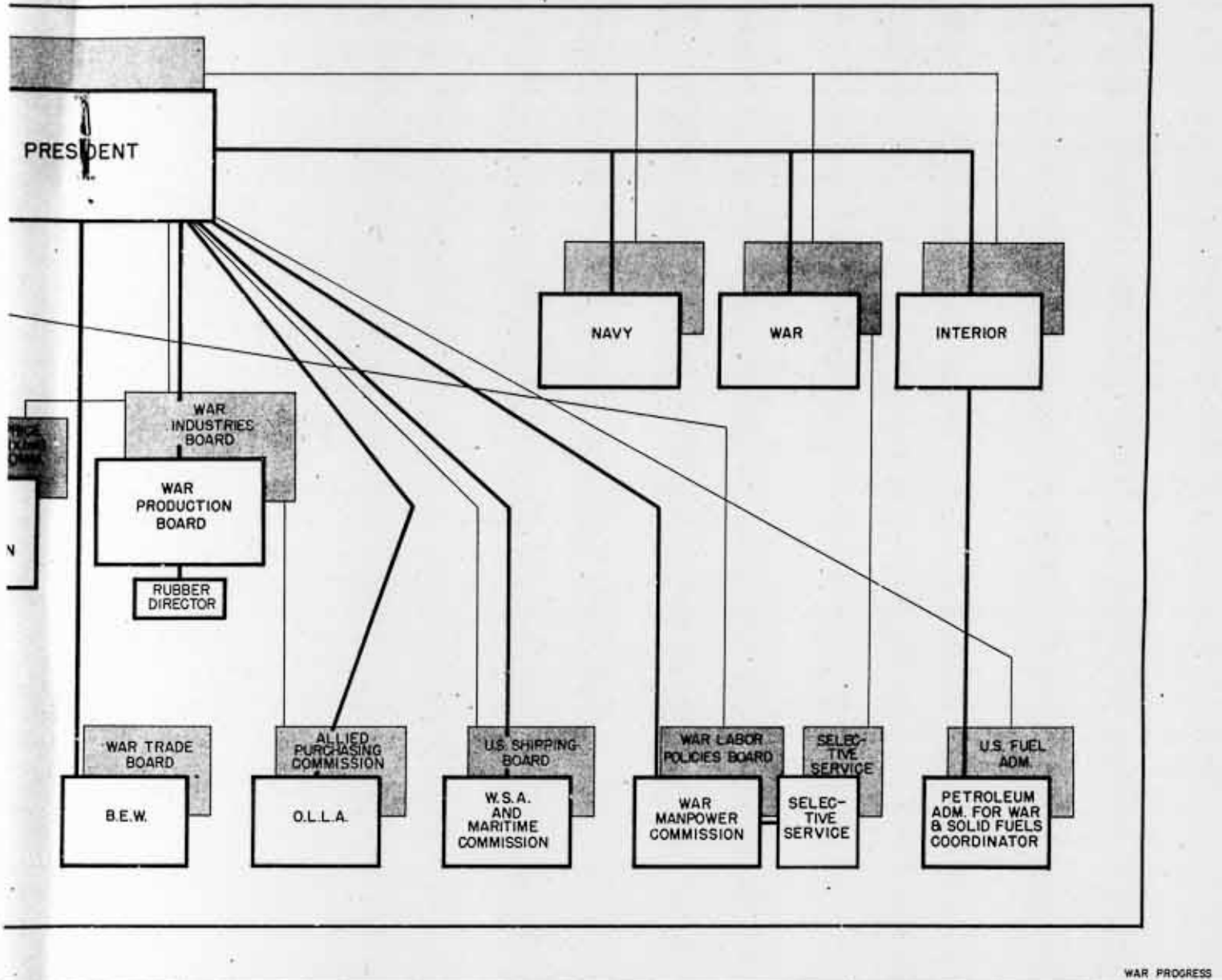
FOR THE HARD FACTS OF OPERATIONS ARE THAT NO ORGANIZATION CHART CAN MAKE SEPARATE PROBLEMS OUT OF WHAT IS ESSENTIALLY ONE OVERRIDING PROBLEM: MOBILIZING ALL RESOURCES AT THE SAME TIME FOR WAR.

IN HIS REPORT TO PRESIDENT WILSON IN 1919, THE CHAIRMAN OF THE WAR INDUSTRIES BOARD WROTE:

"WHEN IT IS REMEMBERED THAT WHAT WAS REALLY BEING ADMINISTERED WAS TOTALITY OF AMERICAN RESOURCE, THAT

# MOBILIZATION, THIS WAR AND LAST

es Board; Lend-Lease, the Allied Purchasing Commission, and so on.



EACH [INDIVIDUAL] ADMINISTRATION THROUGH CONTACT PECULIAR TO ITSELF REFLECTED VERY ACCURATELY THE REAL SITUATION ONLY IN ITS OWN GALLERY AND NOT ELSEWHERE, WE ARE COMPELLED TO THE CONCLUSION THAT ... A MORE SYSTEMATIC ORGANIZATION WOULD HAVE RESULTED FROM A GROUPING OF [INDIVIDUAL] ADMINISTRATIONS ABOUT A COMMON FUNCTIONAL CENTER...\*

AS POINTED OUT EARLY LAST MONTH, THIS PROBLEM OF INTER-AGENCY COORDINATION IS BOUND TO BECOME INCREASINGLY CRITICAL IN 1943 (WP-JAN 8 '43, P1).

THE UNITED STATES IS REACHING THE LIMITS OF CAPACITY IN MANPOWER, MATERIALS, AND MACHINES. AND

AS WE APPROACH SUCH LIMITS, THE LESS ROOM THERE IS FOR INDEPENDENT ACTION BY INDEPENDENT AGENCIES. EVERY PROGRAM AND POLICY IMPINGES ON SOME OTHER PROGRAM AND POLICY. AN ARMY DECISION TO INCREASE PRODUCTION OF A MAJOR MUNITIONS ITEM, FOR EXAMPLE, DEMANDS A DECISION FROM THE WAR MANPOWER COMMISSION ON THE AVAILABILITY OF LABOR, FROM THE OFFICE OF DEFENSE TRANSPORTATION ON TRANSPORTATION, FROM THE WAR PRODUCTION BOARD ON MATERIALS, ETC.

WE SHALL SOON HAVE TAKEN UP THE SLACK IN AMERICA'S PRODUCTIVE CAPACITY; THE NEXT STEP IS TO TAKE UP THE SLACK IN ORGANIZATION.

## Give-and-Take of Lend-Lease

As our troops take up stations in Britain, Australia, New Zealand, etc., the tide of reciprocal aid—food, shelter, munitions and supplies—rises.

LEND-LEASE is no longer a one-way street. As increasing numbers of American troops land on allied territory, reciprocal aid—so far as it can be evaluated in dollar terms—begins to offset an increasing part of total U.S. aid to those countries.

In effect, lend-lease reciprocity is an exchange by the United States of munitions, food, metals, industrial machinery and miscellaneous services for food, shelter, services, and some munitions for its forces overseas.

### YANKS IN BRITAIN

The last seven months of 1942 are a case in point. American forces in Great Britain received 1,120,000 long tons of supplies from British stocks (excluding construction materials), more than the amount sent to our forces from the United States. In the same period, total U.S. lend-lease and direct purchase exports to the United Kingdom are estimated at 7,500,000 long tons.

The Quartermaster Corps got about 53% of the reciprocal aid; Corps of Engineers, 19%; Ordnance Department, 10%; Air Force and Medical Corps, 8% each; Signal and Transportation Corps, the rest.

### BARRACKS AND CAMPS

Food, shelter, munitions, medical supplies, and miscellaneous military equipment constitute the bulk of British reciprocal aid. The construction program for American troops alone—barracks, camps, airfields, repair depots, hospitals, and their maintenance and

equipment—will cost the United Kingdom about \$560,000,000 when completed.

All American soldiers in the British Isles are fed and supplied to some extent under reciprocal aid. (American supply officers are only allowed to spend up to \$20 for any single purchase; anything above that is procured on reverse lend-lease. Hence, since June, 1942, the U.S. Army disbursed only about \$1,000,000 in cash purchases.)

### TONS OF FOODSTUFFS

Some of the American troops get only British rations for a time; others receive American rations (chiefly frozen and canned meat and fish) supplemented by British bread, home-grown vegetables, tea, chocolate, cereals, sugar, etc. Altogether, the U.S. Army obtained about 29,000 long tons of foodstuffs from June 1 to December 31, 1942. In 1943, however, the draft on British stocks is scheduled to increase sevenfold, as the following table indicates:

	Procurement 6/1/42 to <u>12/31/42</u>	1943 Require- <u>ments</u>
	(thousand long tons)	
Sugar & syrup...	2.2	40.8
Flour.....	3.8	68.1
Composition rations.....	12.2	nil
Fresh fruits & vegetables.....	2.1	22.6
Potatoes.....	5.0	32.0
Marmalade & jam.	nil	13.0
Salt.....	0.01	5.7
Others.....	<u>3.6</u>	<u>34.7</u>
Total.....	28.9	216.8

In military supplies, the United Kingdom's stocks are regarded as a common



pool. Thus, the British have lend-leased to the United States over 3,800 tons of ammunition; artillery for an entire division; several hundred Spitfires; 80,000 tons of coal; a number of medical maintenance units (one unit will carry 100,000 men for thirty days); over 25,000 bicycles; and 30,000 tons of engineering equipment.

The U.S. Navy has been provided with some British arms, ammunition, naval stores, bunker oil, grease, degaussing equipment, and the like.

#### RANGE OF SERVICES

Services furnished under reverse lend-lease range from recreational facilities to repairing naval ships and transporting American troops and their equipment in and out of the British Isles. Thus, over 700,000 deadweight tons of British shipping were made available for transporting military cargo, not including a number of troopships. Some 400 R.A.F. instructors have been detailed to U.S. Army Air Force schools. British military and civilian personnel supplement American staffs at airfields, barracks, supply and repair depots. U.S. Army officers are billeted on lend-lease in private homes and hotels.

Reverse lend-lease likewise embraces materials exported to the United States, such as barrage balloons, machine tools in short supply here, and a few industrial materials. Thus, some 20,000 tons of high-grade benzol, used in the manufacture of aviation gasoline, have already been received and 40,000 more are due.

#### THEY SHIPPED TO BATAAN

Australia's reverse lend-lease program began with shipments of food to MacArthur's army on Bataan. Today Australia supplies nearly all the food consumed by our forces on its soil and has

undertaken, in collaboration with New Zealand, to feed those in New Caledonia, New Guinea, New Hebrides, and the Solomons. Australia also makes uniforms, tires, aircraft parts, tractors, and motor vehicles for the American army, and provides numerous transportation and communication services. American warships and auxiliary vessels are docked and repaired in Australia on reverse lend-lease.

#### AND THE FIJI ISLANDS

New Zealand likewise lend-leases many goods and services to the United States. About one-fifth of New Zealand's reciprocal aid (in dollar terms) to the end of 1942 has consisted of foodstuffs. Camps, warehouses, hospitals (for American forces invalidated to New Zealand), communications, fuel, small boats, stevedoring and port charges, blankets and boots, are also important items. In addition, New Zealand has supplied a large amount of military equipment and foodstuffs used by the American Army in the Fiji Islands.

#### MIDDLE EAST AND AFRICA

Other countries have provided reverse lend-lease. In fact, whenever the U.S. Army or Navy enters British or Free French territory--Egypt, South Africa, West Africa, New Caledonia, India, etc.--it draws to the maximum extent on local supplies. Thus, in the Middle East, our troops received goods and services valued at around \$6,500,000 up to November 30, 1942, including \$5,000,000 turned over to them in local currency to procure labor and materials.

Russia is not at present supplying us with the reciprocal aid, for two reasons: (1) her resources are strained to the utmost in fighting the Axis; (2) no American troops are stationed in the U.S.S.R.

## KEY STATISTICS OF THE WEEK

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War program checks paid (millions of dollars)-----	1,395	1,417	1,446	1,169	500
War bond sales (millions of dollars)-----	220	182	344	145	155
Commodity prices (August 1939=100)					
28 Basic commodities-----	174.7	174.7	173.6	167.3	165.2
Controlled-----	162.0	162.1	161.8	161.4	162.1
Uncontrolled-----	206.8	206.7	203.4	182.1	173.1
Nonferrous metal scrap-----	117.3	117.5	117.5	119.0	131.5
Textile scrap-----	172.9	172.8	172.5	171.6	173.7
Petroleum carloadings (no. of tank cars)					
Total-----	52,197	52,721	53,156	52,331	49,364
Movement into East-----	27,168	25,812	26,666	26,981	6,935
Exports (no. of freight cars unloaded for export Friday)					
Atlantic Coast ports-----	1,514	1,223	1,156	1,518	1,587
Gulf Coast ports-----	335	335	370	442	353
Pacific Coast ports-----	906	888	926	808	324
Unused steel capacity (% operations below capacity)-----	0.5	0.7	0.2	2.8	3.8

## Tanker Problem

Subs outank United Nations construction in 1942 despite record output in U.S. shipyards; so '43 goals have been set higher. New techniques may cut building time.

IN 1942, tankers were the special targets of enemy submarines. Sinkings were up about 180% over 1941, compared with 85% for all merchant vessels.

### RATE OF SINKINGS

In the first half of the year, submarines were especially effective in their efforts, sinking tankers three times as fast as United Nations shipyards combined could build them.

However, with the institution of convoys and the routing of domestic fuel by rail, barge, and pipeline to the Eastern seaboard, losses dropped sharply. At the same time, United States construction picked up (26 vessels in the first half of '42, and 36 in the second). Even with these additions to the fleet,

construction did not equal losses in the second half of last year. And altogether, tanker tonnage of the United Nations declined 15% between Pearl Harbor and the end of 1942.

Tankers, therefore, present a major United Nations production objective for 1943. And this country bears the heavy production burden. U.S. plans call for tripling output to some 200 vessels, totaling about 3,450,000 tons deadweight. This will constitute around 18% of the entire program for ocean-going merchant ships, as compared with 13% in 1942. In addition, the Maritime Commission is planning to convert a number of dry-cargo ships to bulk-petroleum carriers.

### STIFF SCHEDULE

This represents a major stepup in operations, requiring an average output during 1943 of 17 tankers a month and, as schedules are now laid out, 22 vessels per month by the end of the year. Yet in 1942 the country's shipyards averaged only five per month and in the last three months—from November through Jan-



uary—the average was six vessels.

Most of the ocean-going tankers now on the ways are ships of 16,600 tons deadweight, capable of making 14.5 to 15.5 knots. Each has a capacity of about 4,250,000 gallons.

COMPARATIVE BUILDING TIME

At present, it takes approximately 180 days to build a tanker, from keel-laying to delivery, as against 52.6 days for 10,000-ton Liberty ships. But tankers are larger and of more complicated design than Liberties. Moreover, the Liberty ship has been in mass production for more than a year, while tankers are just entering the mass-production stage. As industrial know-how is gained, how-

ever, and repetitive operations and assembly-line techniques are perfected, building time for tankers should be cut sharply—perhaps to four months or less.

The limiting factor in the tanker program is the availability of propulsion machinery (large turbines and generators), even though additional facilities for manufacturing these critical components were brought into production in 1942. Attainment of objectives also depends on the supply of critical materials—especially steel. Will the tanker program get all the steel it needs? This is as much a strategic as an industrial decision, depending in the end on how badly our own and allied forces need oil.

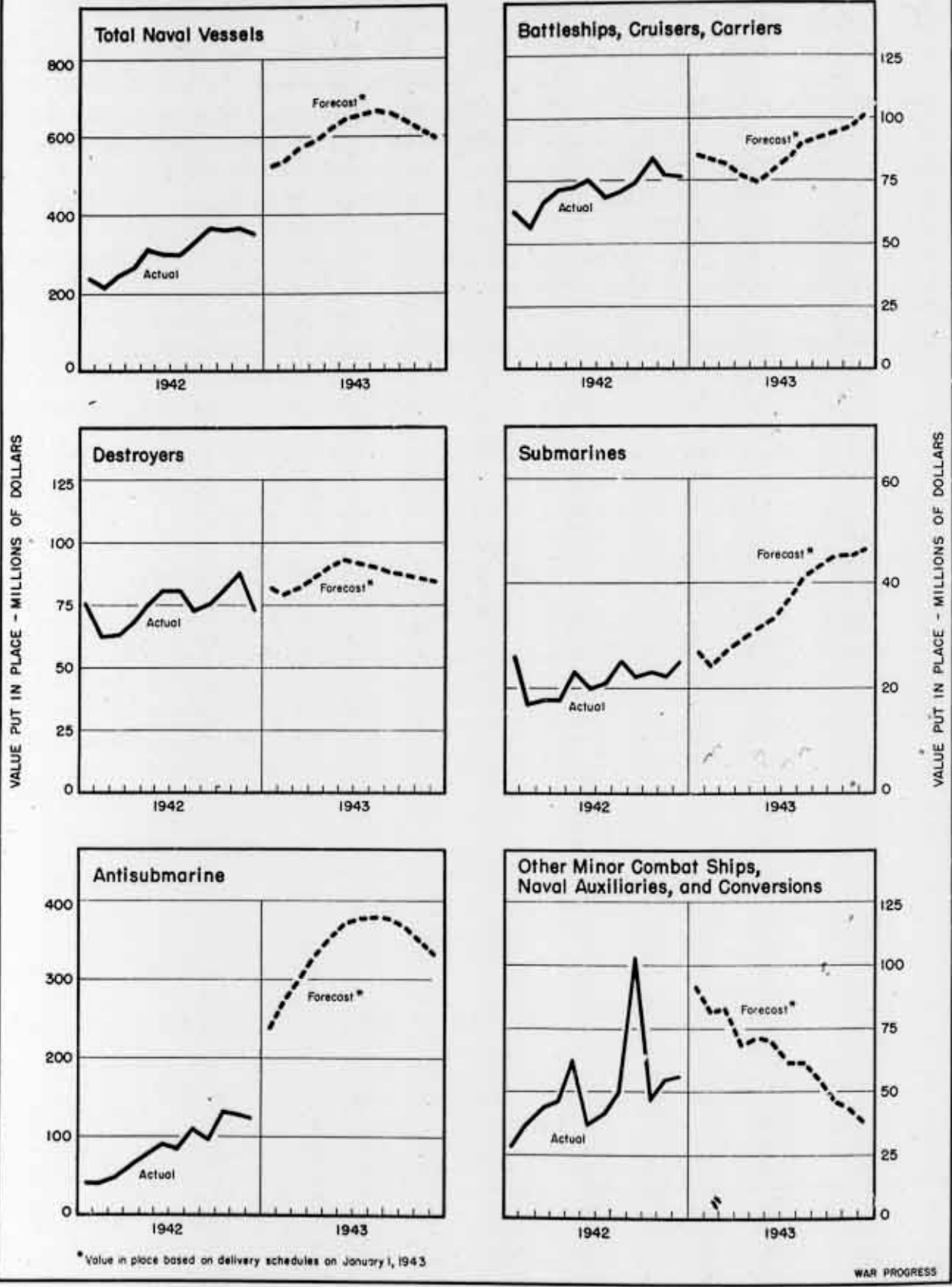
## SELECTED MONTHLY STATISTICS

### Production - Hours and Earnings

	Latest Month*	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Same Month 1939	Same Month 1937
PRODUCTION INDEX—INDUSTRIAL	p194	193	194	180	166	117	82
Total Manufactures	p207	206	206	189	173	118	78
Durable	p286	282	279	251	216	128	70
Nondurable	p143	145	146	139	137	109	85
Minerals	p117	120	132	131	125	117	100
AVERAGE HOURLY EARNINGS (Cents)							
All Manufacturing Industries	90.7	90.5	r89.3	84.0	78.7	66.2	65.6
Durable Goods	100.4	100.5	r99.0	93.3	87.1	72.7	71.0
Nondurable Goods	76.2	75.6	r75.1	72.7	69.5	60.5	60.7
Bituminous Coal Mining	108.5	107.3	r107.0	108.6	106.8	88.9	86.6
Metalliferous Mining	93.4	92.8	91.3	88.7	85.4	70.5	70.0
AVERAGE HOURS PER WEEK							
All Manufacturing Industries	44.4	44.0	43.6	42.6	41.2	38.6	34.5
Durable Goods	46.2	46.1	r45.8	45.1	42.8	39.6	34.2
Nondurable Goods	42.1	41.3	r40.8	39.6	39.4	37.7	34.7
Bituminous Coal Mining	35.7	34.4	34.2	33.2	31.6	28.1	29.1
Metalliferous Mining	43.9	44.4	44.0	44.0	43.0	40.0	43.8

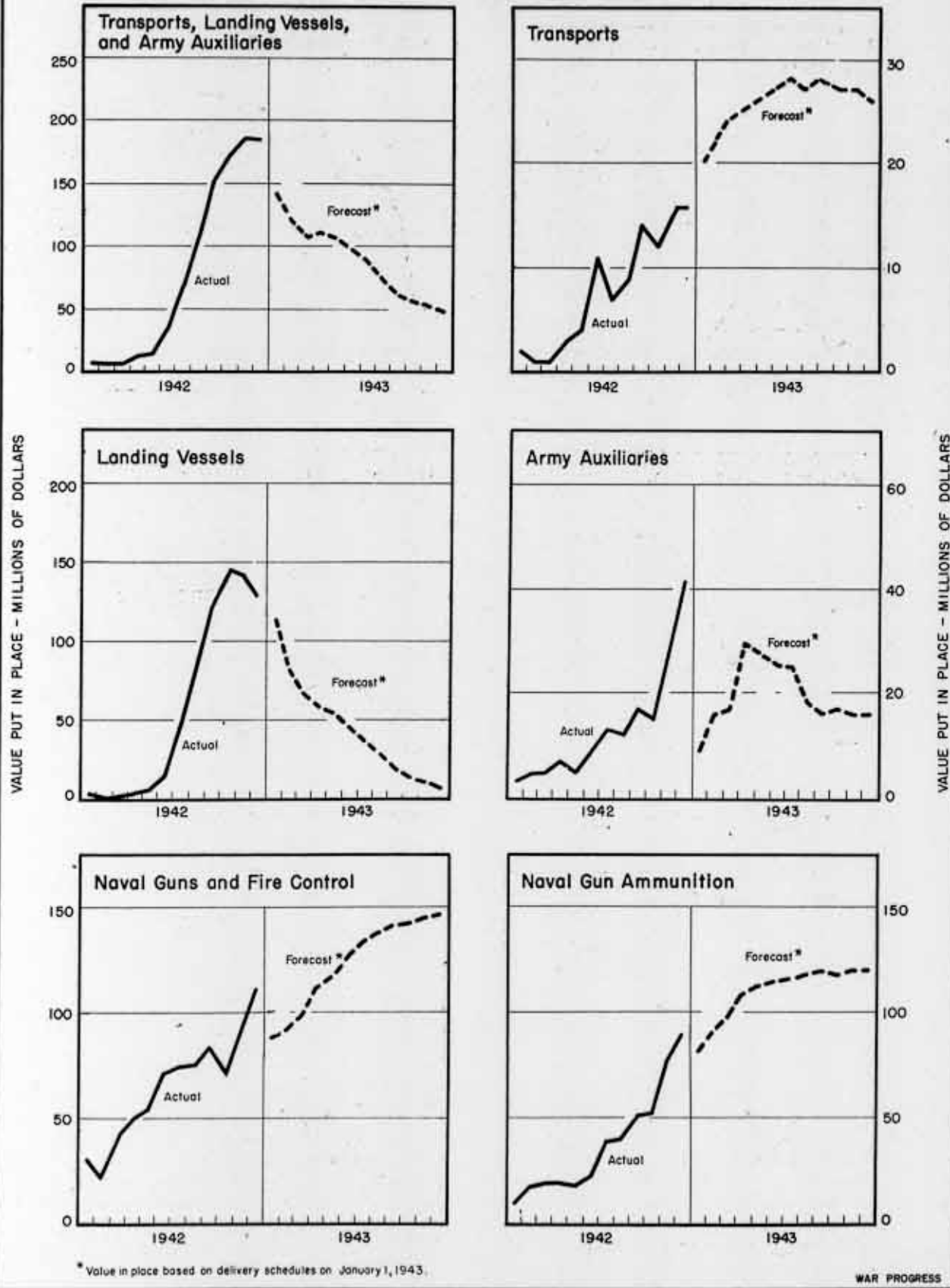
\* Production (unadjusted), January; hours and earnings, December. Production figures for 1939 and 1937 represent 1940 and 1938 respectively. p Preliminary. r Revised.

### PRODUCTION PROGRESS Naval, Army, and Merchant Ships and Equipment



### PRODUCTION PROGRESS

Naval, Army, and Merchant Ships and Equipment (Continued)



100-octane gasoline, and destroyer escort vessel programs have thrown a heavy load on the productive capacities of plants making turbines, gears, fans, blowers, valves, heat exchangers, electrical equipment, and pumps. But the problem extends to raw materials, too.

#### MATERIALS TO COMPONENTS

Allotments of critical metals and materials will be made to the claimant agencies--Army, Navy, Maritime Commission, Aircraft Scheduling Unit, Office of Civilian Supply, Office of the Rubber Director, etc. Not only must these allotments be directed to manufacturers of end products, such as planes, tanks, guns, and ships, but they must also be directed to manufacturers of industrial components for those items. And that

is a major production job for 1943--coordinating the flow of raw materials with the scheduling of components production and end products.

#### TOO CRITICAL ITEMS

The magnitude of the job is only now coming into sight. From 26 classes a few weeks ago, the list of critical components now being studied has grown to 70 (table, page 8); including subclasses, the total is over 200. And as the months move along, the list will grow larger. For the more end products made, the greater will be the demand for industrial components and the greater will be the need for accurate scheduling of production--from raw material to intermediate product to the finished munitions item.

## Plane Output, Plus "Pool," Up 18%

Hits new high in dollar value and passes President's promise of a 5,000-a-month rate; planes added to "pool" boosted total. Year's output 2 1/2 times '41.

**AIRPLANE ACCEPTANCES** in December came to \$513,512,000 (preliminary)--18% above November and 3% above the forecast. Unit production reached approximately 5,500 planes (up 14% from November and 3% above the revised 8-L forecast), shooting past the 5,000-a-month rate promised by the President. This was made possible by accelerated acceptances in the last three days of the month, which followed a deep drop over Christmas.

#### NOT FLOWN AWAY.

Also, planes in the "pool" increased by 665 over November, easily the largest such addition during 1942 (chart, page 11). This "pool" consists of planes accepted but not flown or shipped away

for lack of a component part or instrument or pilot or because of bad weather. It increased sharply during the final days of the month, suggesting that there was an increase in the number of December acceptances lacking certain components, or held on the ground because of weather conditions.

#### AND THEY'RE BIGGER

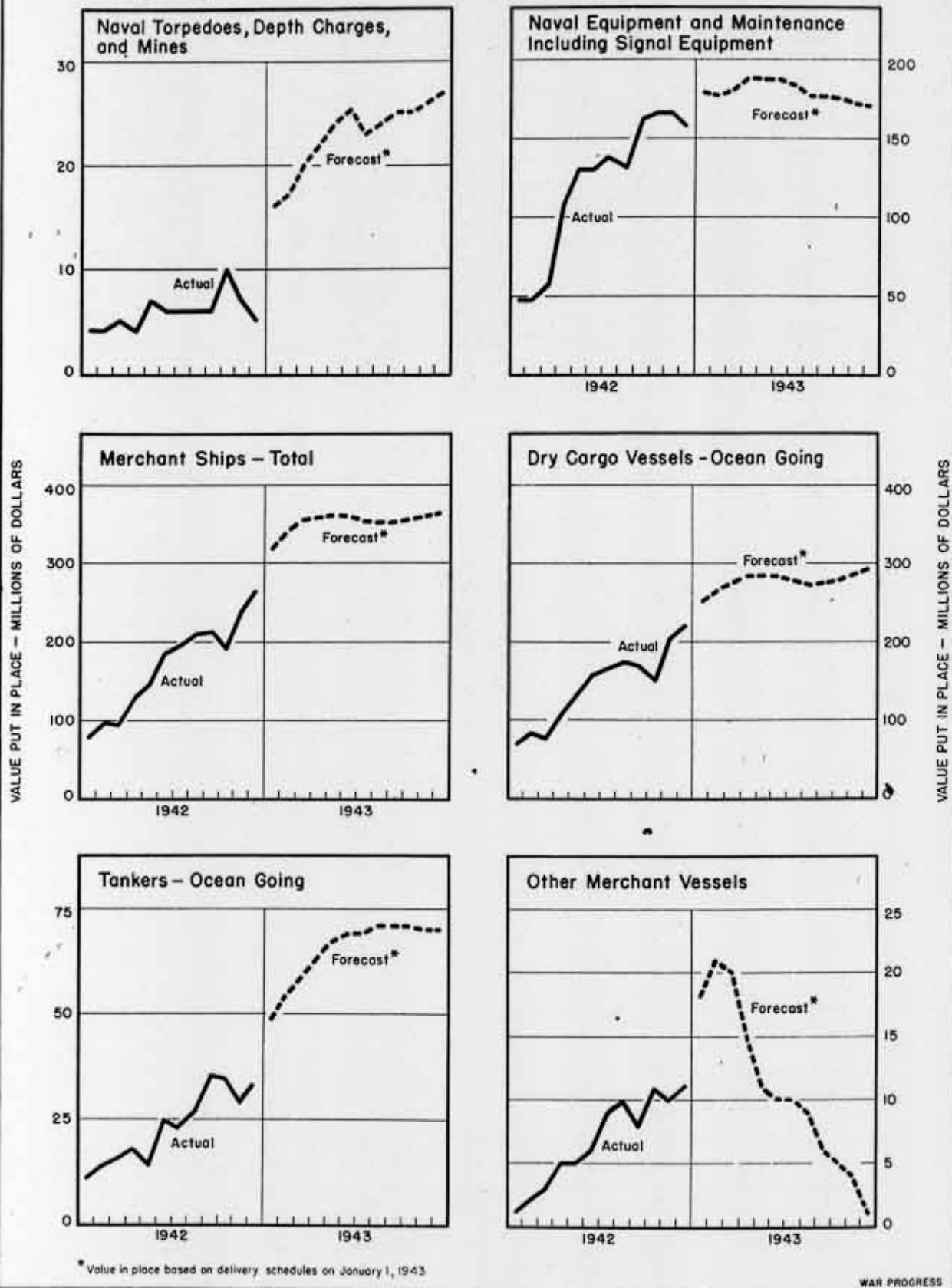
Last year, 47,696 planes were produced--two and a half times as many as in 1941. If the 1943 schedule is met, output--in terms of units--will more than double again this year. In terms of dollar value, it will more than triple (rising from \$3,900,000,000 in 1942 to \$13,200,000,000 in 1943), because of the increasing proportion of heavier, costlier planes (WP-Jan 1'43, p5).

The major plane groups all made good showings during December as the following table, using dollar terms, indicates:



## PRODUCTION PROGRESS

Naval, Army, and Merchant Ships and Equipment (Continued)



The President

# WAR PROGRESS

*Confidential*  
*(British Secret)*

DECLASSIFIED  
E.O. 11652, Sec. 1.4, and 5(D) of (2)  
Executive Order, Letter, 11-14-78  
By HRP, Date MAR 29 1979

Food to Russia – Chemical  
Warfare – Biography of a  
Gun

Production Progress Tables

Number 128

February 26, 1943



## Food First in U.S. Aid to Russia

Exports to U.S.S.R. last year were chiefly fighting stuff, but loss of the Ukraine has pinched food supplies severely, and Russians want fats, meats, fruits, etc.

LAST YEAR, United States aid to Russia consisted chiefly of fighting stuff. Munitions (aircraft and parts, guns and ammunition, tanks and other vehicles) accounted for about 60% of the total shipments in dollar value; industrial goods (metals, machinery, etc.), for 25%; foodstuffs, for only 15%. This year, food will get the highest priority, with trucks, machinery, and munitions next in importance.

### FOOD SHIPMENTS RISING

Until now, Great Britain--which must import half her food supply--has had the first call on U.S. food surpluses. Thus, in 1942, the United Kingdom got about three-fourths of the \$980,000,000 of

agricultural products exported under lend-lease; Russia only one-fifth. Russia's share reached a peak of \$40,000,000 in April (40% of all food shipments) but dropped to \$8,000,000 or 13% by August. Since then shipments have been rising steadily and in December totaled \$35,000,000, or 37% of all lend-lease agricultural exports. Though Russia's share dropped last month, the Soviets get equal consideration with Great Britain in the assignment of food shipments.

### CROP ACREAGE OVERRUN

For this there is good reason. Russia's food situation has steadily deteriorated since the Nazis overran the Ukraine, the Crimea, and North Caucasus. This region--the breadbasket of Russia--accounted for roughly 40% of the Soviet's prewar crop acreage. In major items, it was even more important, producing over 70% of the winter wheat,

### CHANGED NOMENCLATURE

IN THIS ISSUE, War Progress introduces new terminology in its Production Progress charts and tables (pages 12 to 16).

The Statistics Division is substituting the word "schedule" for "forecast" and the phrase "required production" for "objective."

The term "forecast" has been frequently misconstrued to signify a prediction or estimate of deliveries, whereas in reality it is a statement of production plans, which might or might not be realized. So "schedule" has been chosen. It does not carry

the connotation of prediction, and is the actual term used by the Aircraft Scheduling Unit.

The term "required production" is a direct adaptation of Army phraseology. It is almost self-explaining: How much new production is needed by a certain date to realize stated requirements as of that date. For example: If the Army has 1,000 tanks on hand on December 31, 1942, and needs 10,000 by the end of 1943, subtract the 1,000 from the 10,000 and you get "required production" for 1943.

80% of the sugar beets, and most of the oilseeds.

Though the Red armies have ejected the Nazis from the North Caucasus and part of the Ukraine, equipment, seed, and livestock necessary to cultivation have been destroyed or carried away. So it will be some time before production can be resumed.

#### LEANER CIVILIAN DIET

In unoccupied Russia, the agricultural situation is equally critical. Shortages of skilled labor, horses, and farm equipment seriously hamper operations, especially harvesting. With the railroads and highways overworked in carrying military supplies, it is difficult to transport agricultural products from farms to the cities. Moreover, food processing plants in areas occupied by the Nazis have been destroyed, or at best only partially evacuated to safe areas. (And millions of refugees have streamed into parts of Russia which were never self-sufficient in food.)

Consequently, after 20 months of war, the average civilian gets much leaner

fare than in Germany. Thus, the meat ration for heavy workers in Moscow is 78 ounces per month, compared with 105 to 145 ounces in Germany; the fat ration is 28 ounces per month, compared with 46 to 88 ounces in Germany. Last autumn, light workers and dependents (children and housewives) in the Soviet capital could obtain no fats, and many persons in other parts of the country, no meat or butter. Even potatoes--a major part of the Russian diet--were not sold between harvests. Milk, eggs, fish, and vegetables were quite scarce and, where obtainable, fetched from 20 to 50 times the established prices.

#### RED ARMY RATIONS

Virtually all U.S. food shipments are directed to the Red Army (which, as in other countries, eats better than civilians) and consist largely of energy-giving items--fats, meat, sugar, oils, dairy products, dried fruits and vegetables. In the 14 months from December, 1941, through January, 1943, lend-lease shipments to the U.S.S.R. included:

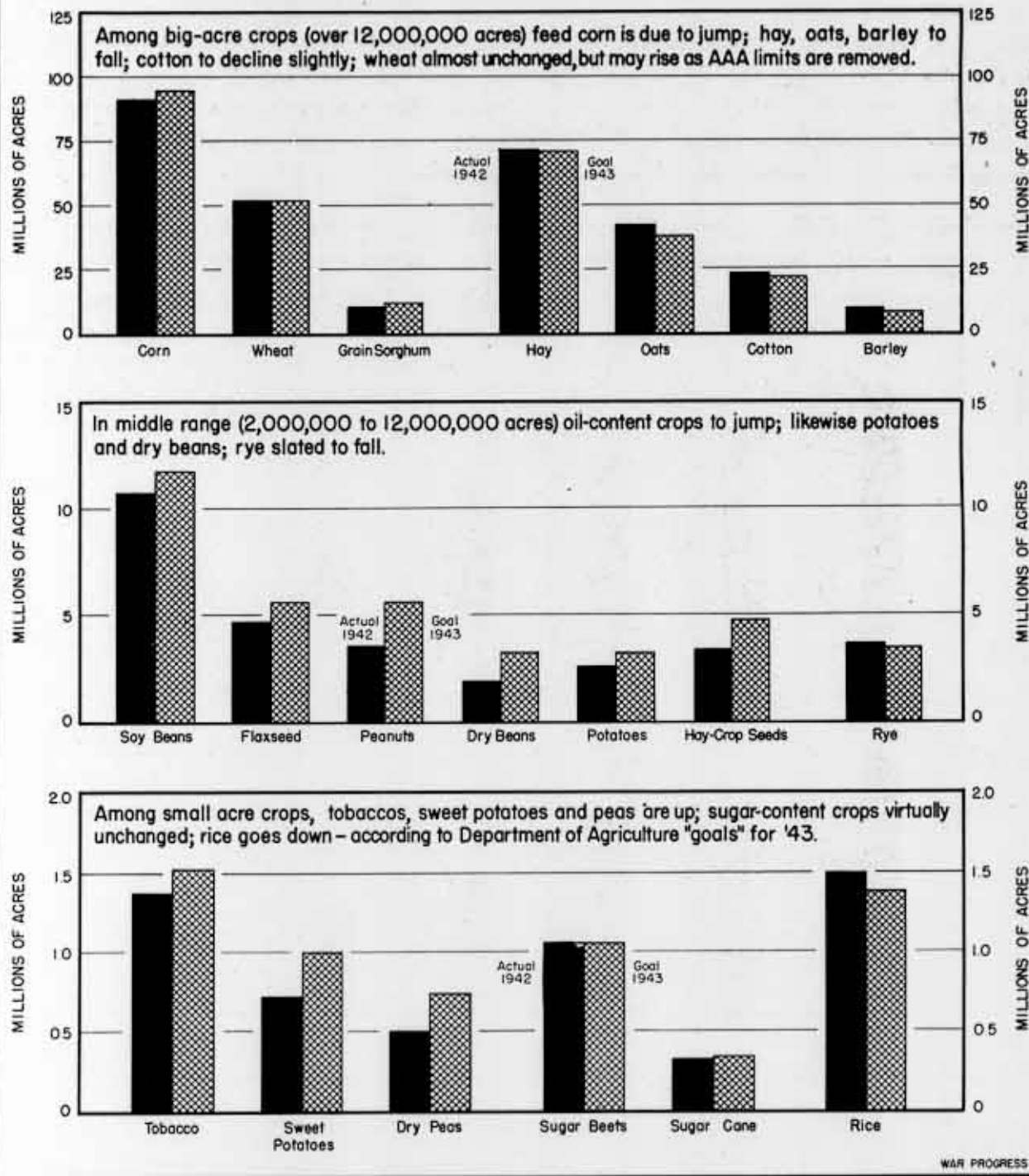
	Tons
Wheat.....	160,000
Sugar.....	113,000
Canned meat.....	123,000
Other meat.....	74,000
Lard.....	52,000
Vegetable oil.....	59,000
Cereals other than wheat & wheat flour.....	39,000
Dried fruits & vegetables..	51,000
Cheese.....	3,000
Dried eggs.....	19,000
Butter.....	8,000
Dried milk & milk products.	7,000

Two-thirds of all cargoes for the Soviet Union have been carried on American ships, one-third on Russian vessels. From November 1, 1941, to October 1, 1942,

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### UPS AND DOWNS IN FARM PRODUCTION FOR '43



### Shape of Crops to Come

THE DEPARTMENT OF AGRICULTURE HAS SET 354,274,000 ACRES AS THE 1943 CROP GOAL—LESS THAN 1% OVER THE 1942 GOAL AND LESS THAN 2% OVER ACREAGE ACTUALLY PLANTED LAST YEAR. ALTHOUGH OVERALL ACREAGE WAS CLOSE TO THE AGGREGATE GOAL LAST YEAR, SOME INDIVID-

UAL CROPS FELL FAR SHORT OF QUOTAS: PEANUTS, 26%; DRY PEAS, 25%; DRY BEANS, 18%; SWEET POTATOES, 17%; POTATOES, 9%; FRESH-MARKET TRUCK CROPS, 8%.

ATTAINMENT OF GOALS DEPENDS ON VOLUNTARY COOPERATION OF THE NATION'S 6,000,000-ODD FARMERS. THE DEPARTMENT SETS NATIONAL QUOTAS, THEN SUB-QUOTAS TO STATES, COUNTIES, AND INDIVIDUAL FARMS. THE DEPARTMENT'S AGENTS THEN ATTEMPT TO GET FARMERS TO

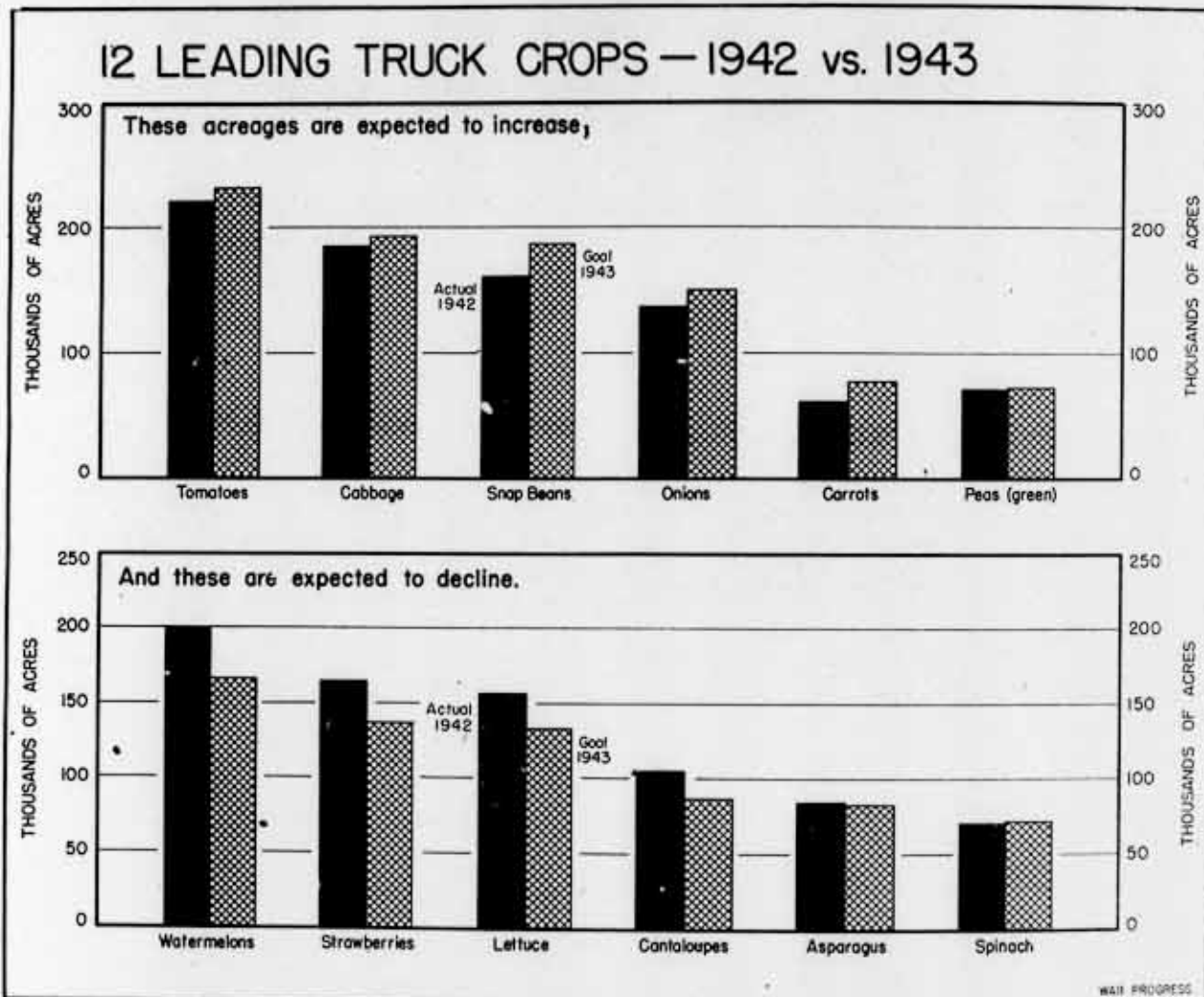


some 17% of the 1,745 voyages made by American dry-cargo ships with lend-lease materials were bound for Russia. However, as with other lend-lease goods, more food was available than could be shipped.

Losses in convoys to Russia have been heavier than in convoys to other parts

of the world. But fewer food than munition cargoes have been sunk.

In the current year, lend-lease food exports to Russia will increase greatly if more ships become available, despite the possibility of shorter U.S. supplies in some major items (chart, Page 3).



## Shape of Crops to Come (Cont.)

PLANT CROPS IN ACCORD WITH THIS OVERALL PLAN.

GOALS FOR '43, IF ATTAINED, WILL MEAN SUBSTANTIAL INCREASES IN ACREAGES OF KEY WARTIME CROPS: PEANUTS, 49%; DRY BEANS, 55%; DRY PEAS, 45%; SWEET POTATOES, 42%; GRAIN SORGHUMS, 23%; SEED FOR HAY CROPS, 39%.

TOBACCO IS ALSO SLATED TO RISE. COTTON ACREAGE SHOWS ONLY A SMALL DROP (3%) DESPITE A HEAVY CARRY-

OVER. DECLINES ARE SLATED FOR SOME GRAINS: OATS, 13%; BARLEY, 7%; RYE, 6%.

AGRICULTURAL GOALS FOR LEADING TRUCK CROPS CALL FOR INCREASED ACREAGE IN ITEMS WITH HIGH NUTRITIVE VALUES (MINERALS, VITAMINS, ETC.); SMALLER, BUT STILL SUBSTANTIAL, ACREAGES FOR THOSE LOW IN THE SCALE OF FOOD VALUE—FOR INSTANCE, CANTALOUPE, WATERMELON, LETTUCE, WHICH ARE RATED "LESS ESSENTIAL FARM PRODUCTS" IN THE LIST PREPARED BY THE DEPARTMENT OF AGRICULTURE TO GUIDE DRAFT BOARDS IN DEFERRING AGRICULTURAL OPERATORS AND WORKERS.



## Brief Biography of a Gun

20mm. aircraft cannon mirrors typical problems in war output. Slow to start, it soon outsped its ammunition; but now it's stabilized with strategic needs.

IN THE LIFE STORY of any given gun in the U.S. armament program, you are likely to find a reflection of the whole war production saga--the delayed start, the better-than-hoped-for acceleration of production when once under way, the peril of imbalance with complementary items not doing so well, and the shifting dictates of strategy as battle experience grows.

The 20mm. aircraft cannon, accounting for 21% of the value of the aircraft armament program for 1943, but less than 1% of the total 1943 ordnance program, is a case in point.

### WHAT "HISSO" CAN DO

The vital statistics on this gun--a Hispano-Suiza called "Hisso" for short--follow: The effective range is 600-800 yards. It fires the smallest U.S. high explosive projectile (less than a third of a pound) at a potential rate of 500-600 rounds a minute. It delivers almost three pounds of projectiles per second at 600 yards, nearly twice the poundage delivered by the .50 caliber machine gun. Its armor-piercing shell is used not only against planes but against railroad trains and even small ships. The Hisso fires through the hub of the propeller or can be wing mounted.

### DEVELOPED IN EUROPE

The 20mm. aircraft cannon was developed in Europe during the 1930s. Our Army adopted it as a standard weapon in 1941, and a pilot model was built. Early in 1941 production was scheduled

at 3,600 units, all to be built by Bendix. The first gun was supposed to have been produced by May, 1941, but actually did not appear until August.

Meanwhile, the number of suppliers was increased to four by the addition of the Olds Motor Division of General Motors, the Munitions Manufacturing Company (a subsidiary of International Business Machines), and International Harvester. It's the typical case of the widening periphery of war production.

### PRODUCTION LEAPS

Although Bendix got into production of the Hisso first, most of the 1,395 guns turned out in 1941 were made by Olds. In 1942 production leaped up to 62,000 guns, with Olds manufacturing over half of the total. Monthly output increased 200%--to a peak rate of 7,650 units--between January, 1942, and January, 1943, as the four manufacturing firms gained know-how. Raw material problems were apparently not serious and the 20mm. manufacturers were unusually fortunate in obtaining machine tools. (Makers of many other types of ordnance were held back by lack of tools.)

### CHECK AND BALANCE

Early last summer, production was moving ahead so rapidly in relation to the goal that it was decided to switch over some facilities to the manufacture of other ordnance items. In accordance with this plan, Munitions Manufacturing Company's facilities are being diverted after February. And production of the Hissos, starting in March, will stabilize at around 6,600 guns a month, compared with 7,653 in January. On this basis, production this year will total

around 80,000 guns, a rise of 22% over 1942.

The 20mm. aircraft cannon is an important international-aid item. Of the guns so far completed, some 70% have been or will be shipped to foreign air forces. Another 20% is in storage awaiting assignment, presumably to U.S. forces. The Army Air Force is using only 8% and the Navy 2%. This is partly explained by the fact that while production of the gun was doubling the goal last year, only 49% of the ammunition objective was turned out. Shortages of brass strip were involved in the ammunition lag. This may be ameliorated if large scale substitution of steel for copper takes place later this year.

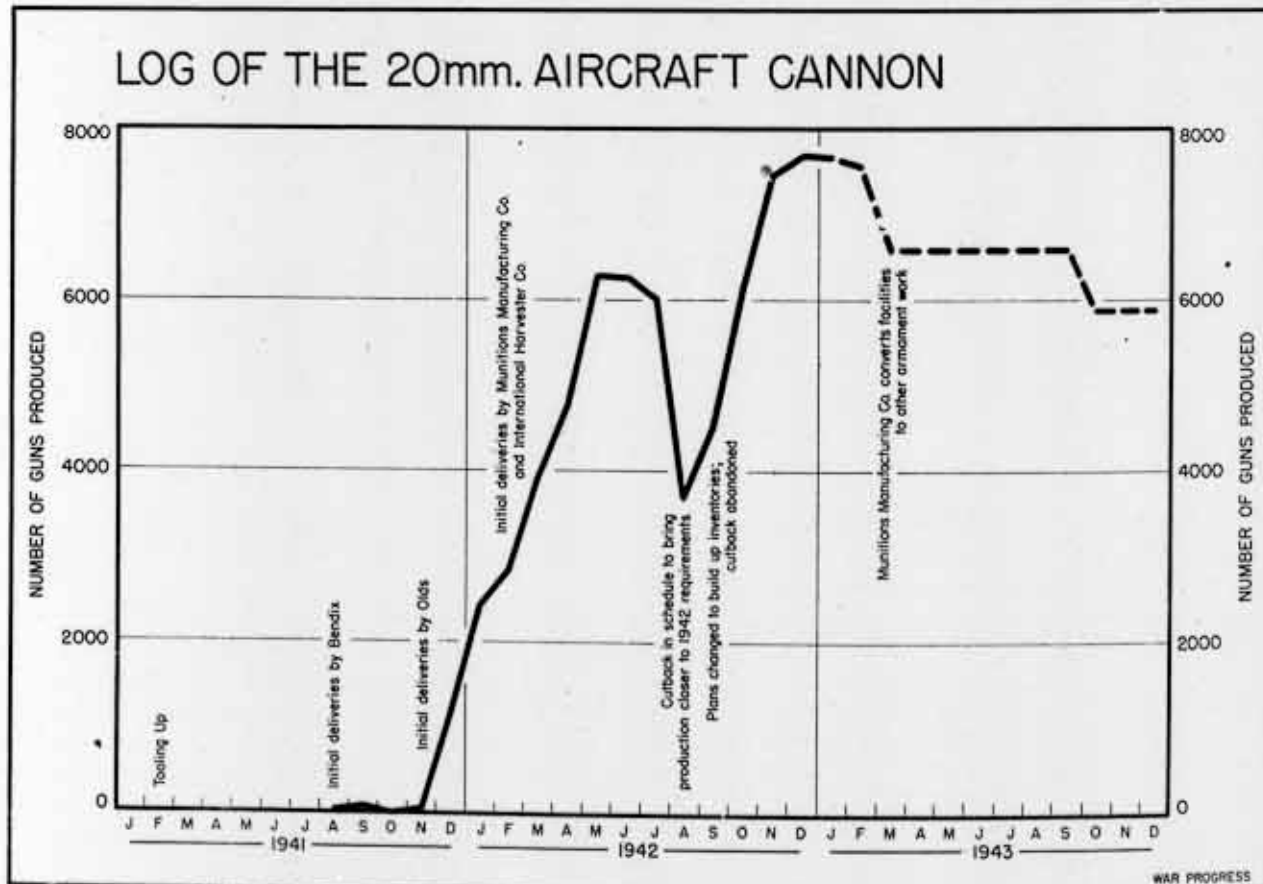
Moreover, original plans for production of the 20mm. aircraft cannon were based on the President's January, 1942, objectives of 60,000 planes in 1942 and 125,000 planes in 1943. Now that plane

objectives have been reduced, requirements for these guns have been cut also. In the meantime, however, facilities had been devised and production plans set at the higher level.

**MORE CANNON ON PLANES**

But stockpiling of the 20mm. aircraft cannon fits in with plans for installing more cannon on bomber and fighter planes both here and in Great Britain. The 20mm. is already mounted on our twin-engined pursuits and on several types of light, medium, and heavy bombers. The British use them on Beau-fighters, Spitfires, Hurricanes, etc., and the Germans are known to mount 20mm. cannon on recent-model Messerschmitts and Focke-Wulfs.

As more and more armor is put on combat planes, the necessity for using the heavier fire power and explosive shell of the small aircraft cannon grows.



Presumably more and more United Nations planes will be cannon equipped, and on older types cannon may, to some extent, replace the heavy (.50 caliber) machine guns.

## Fighting Gas with Gas

Army equipped to protect against chemical warfare - and to retaliate in kind. Output of chemical munitions exceeds goal in 1942, scheduled to triple this year.

ONE OUT OF EVERY FOUR American casualties in the first World War was caused by chemicals--mainly in poison-gas form --and the U.S. Army works on the theory that the best precaution against chemical warfare attack is to be prepared for ample defense, coupled with quick retaliation.

### PRODUCTION TALKS

Last year, the Army backed up this philosophy with the production of well over \$200,000,000 worth of chemical warfare service weapons, ammunition, agents, equipment, and supplies. Not large relative to total munitions, this output was nevertheless greater than the value of our 1942 wheeled artillery production, for example, or of our submarine deliveries.

This \$200,000,000 value includes gas masks, grenades, and certain other items procured by the Chemical Warfare Service for the Navy and for international aid. But while it includes agents for artillery gas and smoke shells which are in heavy production, it does not include the shells themselves. Nor does it include civilian-defense gas masks and other equipment designed by the Chemical Warfare Service but procured by the OCD.

All modern warfare, of course, is based on chemicals. But in the restricted

sense of the term, chemical warfare involves use of lethal gases, screening smokes, and flame and incendiary chemicals. And it is fought with weapons and ammunition. Some of the weapons--notably the 4.2-inch chemical mortar, the Canadian-produced 2-inch bomb thrower, and the portable flame thrower--are specifically for chemical warfare purposes, but gas and smoke shells are also made for use with standard artillery pieces from 75mm. to 155mm.

### COCKTAILS FOR TANKS

Gas, smoke, and incendiary aircraft bombs and hand grenades (including the frangible gas- and oil-filled glass bottle type especially suited for use against tanks) are also produced in large numbers. Smoke and lethal gases are discharged from portable chemical cylinders (used only when the wind is toward the enemy) as well as from chemical land mines and from spray tanks mounted under the wings or in the bomb-bays of airplanes. Smoke pots and large slow-burning "candles" are also used. Naval vessels employ special smoke-screen equipment; and smoke shells are fired from naval guns for screening purposes.

### MUSTARD AND LEWISITE

Foremost among the chemical agents in terms of production is mustard gas which, along with lewisite, is the most deadly of the standard warfare gases. Mustard gas (nicknamed "hot stuff") eats away the skin as well as the lungs and other membranes; it may persist for months in woods, dugouts, and other confined areas. Lewisite, though less persistent, is similar in its action to mustard, and takes effect sooner (table, page 8). Phosgene, which is also in substantial production, is less lethal but affects personnel immediately. Sulphur trioxide (second only to mustard gas in terms of



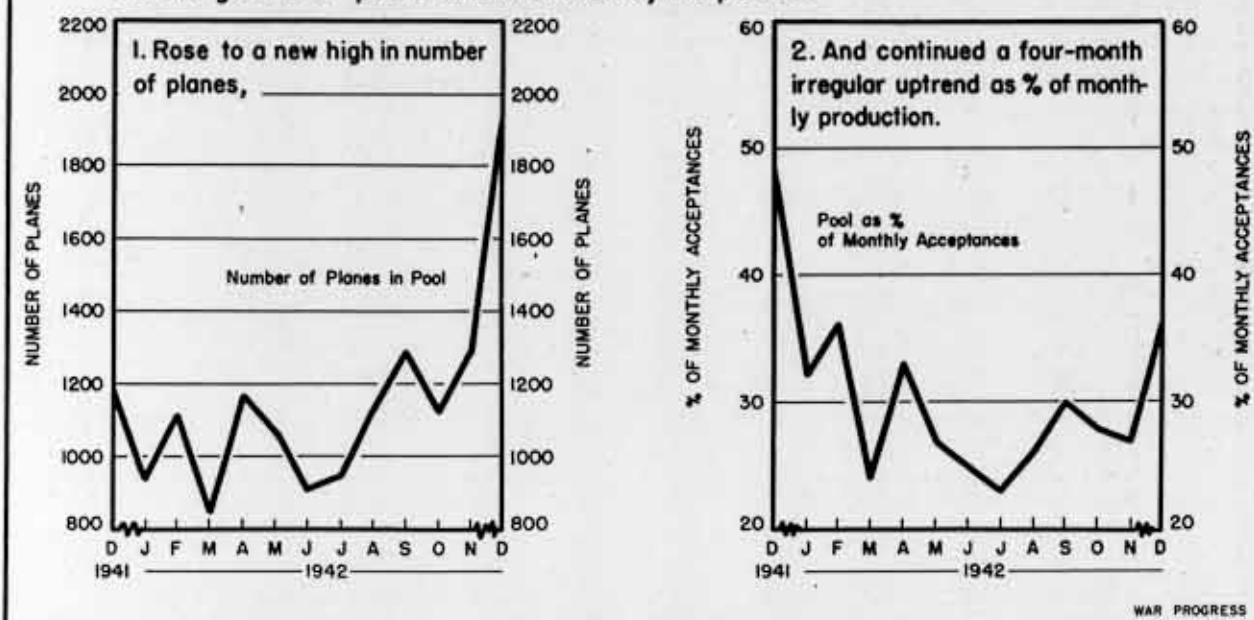
## GUIDE TO BATTLEFIELD CHEMISTRY

NAME	SYMBOL, NICKNAME	FORM	ODOR	PHYSIOLOG- ICAL EFFECT	PROTEC- TION	PERSIS- TENCE	TACTICAL USES
Mustard	HS Hot Stuff	Gas	Garlic Horseradish Mustard	Burns skin, membrane. De- layed effect	Mask, Cloth- ing	Open 1 day, woods 1 wk. to all winter	Neutralize areas Counter-battery Personnel attack
Lewisite	MI Mustard Imitator	Gas	Geraniums	Irritates na- sal passages. Later: burns, poisons	Mask, Cloth- ing	Open 1 day, woods 1 wk.	Similar to mustard
Ethyl-di- chlorarsine	ED Enemy's Delight	Gas	Biting Stinging	Blisters, sores; paralysis of hands	Mask, Cloth- ing	1 hour	Counter-battery Preparation fire Harassing fire
Chlor- picrin	PS Puking Stuff	Gas	Flypaper Anise	Coughing, cry- ing, vomiting	Mask	Open 6 hours, woods 12 hours	Harassing fire
Diphos- gene	DP Di-Phos	Gas	Ensilage Acrid	Coughing, painful breath- ing, watery eyes	Mask	30 min.	Harassing fire
Phosgene	CG Choky-Gas	Gas	Musty hay Green corn	Irritates lungs. Causes dopiness	Mask	10-30 min.	Surprise attacks Gas-cloud re- lease For quick effect
Chloraceto- phenone	CN Cry Now	Gas	Apple blossoms	Smarting eyes, tears. Temporary	Mask	10 min.	Training. Mob control. Forces mask wear
Brombenzyl- cyanide	CA Cry Always	Gas	Sour fruit	Smarting eyes, tears. Effect lasts some time	Mask	Several days (More in winter)	Neutralize areas Counter-battery
Adamsite	DM Dirty Mixture	Gas	Coal smoke	Sneezing; sick, depressed feeling	Mask	10 min.	Gas-cloud attacks Mob control
Sneeze Gas	DS Dirty Smoke	Smoke	Shoe polish	Sneezing, tears	Mask	5 min.	Harassing, screening
HC Mixture	HC Harmless Cloud	Smoke	Sharp Acrid	Harmless	None	While burning	Screen small operations; training pur- poses
Sulphur Trioxide	FS Fuming Spray	Smoke	Burning matches	Prickling of skin; tears	Mask	5-10 min.	Airplane spray for screen on broad front
Titanium Tetra- chloride	FM Floating Mantle	Smoke	Acrid	Harmless	None	10 min.	Screening
Diphenyl- chlorarsine	DA Dopey Ache	Smoke	Not pronounced	Sick feeling; headache	Mask	Summer, 10 min.	Harassing fire
White Phosphorus	WP White Phos.	Smoke	Burning matches	Burning pieces adhere to skin, clothing	None Avail- able	10 min.	Screen advancing troops; incen- diary effects, losses
Thermit	TH The Heat	Incen- diary		Intense heat ignites ma- terials	Cover of earth, sand	5 min.	Destroys materiel
Chlorine	CL Chlorine	Gas	Highly pungent	Lung irri- tant	Mask	10 min.	Surprise attacks



### THE AIRCRAFT POOL

Each month the Army and Navy accept planes not fully equipped or tested. These go into a "pool." And last month, the pool...



	% Change from Nov.	% Deviation from Forecast
Total planes...	+18%	+3%
Combat.....	+16	+2
Service combat.	+26	-8
Trainer.....	+32	+24

connected with new models, fell 18% below forecast and barely gained over November.

Bombers moved up 18% over November and slightly exceeded the forecast. The four-engined bombers were again the star performers. The B-17s (Flying Fortresses) were way ahead of schedule, as usual. Other good news: Ford's Willow Run plant exceeded its revised schedule (down sharply from expectations last spring) for B-24s (Liberators) for the second month in a row. Moreover, the first Boeing B-29s (four-engined bombers, almost twice as heavy in airframe weight as the Forts) were accepted.

Output of the pursuit group climbed 10% above November and 6% above the schedule. The twin-motored P-38 (Lightning), which has proved its mettle in North Africa, was 13% ahead of November, 4% ahead of schedule. Republic's P-47 was practically on schedule. Navy fighters, which did well in former months, fell 7% behind schedule.

#### LIGHT BOMBERS HAMPERED

Medium bombers were up 13% above November and 11% above the schedule. But light bomber output, hampered by conversion of several types, and by problems

The first of the stainless steel basic trainers BT-12 (WP-Dec 18 '42, pl 0), scheduled for November, was delivered last month.

## War Progress Notes

#### MORE MONEY

INDIVIDUALS had more money to spend and more money to save last year than in any previous year. Income payments, at around \$114,000,000,000, were one-third higher than in 1941, and despite a 60% jump in taxes, disposable incomes rose

1942 output) is one of the most effective standard agents for creating large-scale smoke screens. These agents, among others, were used in the last war; certain new screening and toxic smokes and gases are now under experiment.

**PROTECTIVE OINTMENTS**

Finally, chemical warfare requires protective and service equipment of many kinds. Gas masks are made in several types, with total unit output for 1942 measured in the millions. Hundreds of tons of protective ointment for the skin are being turned out. Decontaminating agents and apparatus, including hand and power-driven sprays, are produced on a large scale.

Output of chemical warfare munitions was slightly in excess of the objective for 1942, except for the 4-pound incendiary bomb. This important item (valued at nearly one-quarter of 1942 deliveries of Chemical Warfare Service items) met only a little over half the requirement, largely because of design difficulties. And 1943 schedules for this bomb are

still indeterminate because of uncertain allocations of the necessary magnesium.

Performance among other groups was somewhat varied: While agents (including mustard) more than met the objective, certain gas masks and smoke grenades were somewhat below objective. So were cluster smoke bombs, 100-pound incendiary and 6-pound oil incendiary bombs, airplane spray tanks, and floating smoke pots used to screen landings and other water operations.

Efforts are being made to remedy this imbalance by the end of 1943. And except for the 4-pound incendiary bomb, production should meet the 1943 objective. (This has been considerably reduced in the February Army Supply Program, along with the general cutback in ground army and related munitions.)

**DISCOURAGING THE AXIS**

Thus, unless the enemy's technology should develop new and more deadly agents, it appears that the Army's mobilization for chemical warfare, coupled with the production potential of the world's

**KEY STATISTICS OF THE WEEK**

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War program - Checks paid (millions of dollars)-----	1,527	1,395	1,123	1,108	592
War bond sales (millions of dollars)-----	212	220	279	143	160
Commodity prices (August 1939=100)					
28 Basic commodities -----	175.3	174.7	174.0	166.8	165.2
Controlled -----	162.1	162.0	162.0	161.4	162.0
Uncontrolled -----	208.7	206.8	204.5	180.5	173.3
Nonferrous metal scrap -----	117.5	117.3	117.5	118.3	131.5
Textile scrap -----	170.7	172.9	172.5	171.4	175.2
Petroleum carloadings (no. of tank cars)					
Total -----	51,986	52,197	53,631	55,867	49,872
Movement into East -----	26,152	27,168	26,520	27,694	7,987
Exports (no. of freight cars unloaded for export Friday)					
Atlantic Coast ports -----	1,226	1,514	1,212	1,574	1,649
Gulf Coast ports -----	398	335	328	330	406
Pacific Coast ports -----	980	906	848	711	309
Unused steel capacity (% operations below capacity)-----	1.1	0.5	1.4	2.7	3.7

largest chemical industry, will make poison-gas tactics unprofitable to the enemy. But this qualification is necessary: Certain of our allies remain

ill equipped to cope with poison gas. And our exports of chemical warfare munitions are very limited--less than 5% of 1942 production.

## War Progress Notes...

### GUNS vs. BIRDS

NONESSENTIAL CONSTRUCTION, large and small, is being whittled to the bone by programming agencies and by the WPB. In the last three months, projects totaling \$1,215,000,000--equivalent to 9% of total war construction in 1942--have been stopped to free materials, equipment, and manpower for more essential uses. Greatest savings resulted from stopping WPA projects totaling \$413,000,000; power and irrigation projects, \$348,000,000; less essential army and navy projects, \$348,000,000. Also eliminated: scheduled bird refuges at \$2,700,000.

### HOUSING WAR WORKERS

TO HELP RELIEVE housing congestion in crowded war production areas, the War Production Board about a year ago offered special priorities to builders--A-2 ratings on homes to be offered for rent; A-5 on homes to be sold. The objective was to provide places to live for newcomers to war-work areas (technically called in-migrant workers).

But a survey just completed reveals that only 28% of the homes completed between June 1 and November 1, 1942, with priority assistance are occupied by in-migrant families having war-worker members--18% on rentals; 10% through purchase. In some areas, such as Canton, O., and Pontiac, Mich., not a single privately built home had been rented to in-migrants. The survey also showed that 47% of these homes were occupied by local, and not in-migrant, war work-

ers, and 25% by persons not engaged directly in war work.

Examples of in-migrant occupancy of 68,000 homes in 137 defense areas follow:

	% Defense Homes		
	Occupied By In-migrants		
	Renting	Buying	Total
Leesville, La...	89%	0%	89%
Joplin, Mo.....	86	1	87
Phoenix, Ariz...	54	20	74
Mobile, Ala.....	22	43	65
Columbia, S.C...	51	2	53
Vallejo, Cal....	2	47	49
Atlanta, Ga.....	23	20	43
Baton Rouge, La.	12	31	43
Troy, N.Y.....	23	0	23
Cleveland, O....	15	4	19
Brooklyn, N.Y...	2	3	5
Waterbury, Conn.	1	4	5
Average.....	18	10	28

To get back to the original objective --of seeing that incoming war workers get homes--the War Production Board and the National Housing Agency have specified that war housing priorities can only be granted to builders of homes for rental to in-migrant war workers. However, the house may be sold to the war-worker occupant after four months' rental. Compliance is enforceable by the power to revoke priorities or institute criminal proceedings.

### PRICE AND QUALITY

OPA is trying to tie in minimum standards with maximum prices even where substitute materials are used. For ex-



ample, it has designated 16 laboratories throughout the country as official testers of wooden springs which have been substituted in furniture pieces. And producers of new model fireplace grates must label them with the retail ceiling price and also provide the buyer with a guarantee of performance. Without the guarantee, the maximum price must be reduced by 15%.

**CASEIN BRISTLES**

NOW in pilot plant production is a new synthetic bristle suitable for use in paint brushes. Basic raw material for turning out the product--which was developed by the Department of Agriculture

to replace the hog bristles formerly imported from China—is casein, obtained from skimmed milk. Large quantities of skimmed milk are fed to livestock, usually pigs. (The 39,000,000,000 pounds used for that purpose in 1940 would be sufficient to produce much more than enough "milk" bristles to fill 1943's requirements for paint brushes.) So far, nylon has proved the best of the synthetics for the job because (1) it doesn't fray, (2) it can be tapered properly, and (3) it stands up under the chemical action of paint solvents. Nylon, however, is being used largely for military purposes, especially parachute manufacture.

**SELECTED MONTHLY STATISTICS**

Transportation-Prices-Cost of Living-Labor Disputes-Employment

	Latest * Month	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Some Month 1940	Some Month 1938
TRANSPORTATION-COMMODITY AND PASSENGER (1935-39=100)†	193	r198	r205	182	146	109	97
Commodity	183	r195	r204	182	147	109	93
Passenger	224	r209	208	181	143	108	109
WHOLESALE COMMODITY PRICES ALL COMMODITIES (1926=100)	p101.9	p101.0	100.3	98.7	96.0	79.4	80.9
Farm products	117.0	113.8	110.5	105.3	100.8	69.1	71.6
Food products	105.2	104.3	103.5	99.2	93.7	71.7	76.3
Other than farm products and foods	p96.0	p95.9	95.8	95.7	94.6	83.9	83.5
COST OF LIVING-ALL ITEMS (1935-39=100)	120.6	120.4	119.8	117.0	112.0	99.5	101.8
Food	133.0	132.7	131.1	124.6	116.2	94.8	99.7
Other than food	114.2	114.1	114.1	113.2	109.8	102.0	102.9
LABOR DISPUTES							
Number of strikes in progress	225	200	225	520	255	222	288
Workers involved (thousands)	100	61	65	100	49	41	n.a.
Man-days idle (thousands)	450	200	175	450	390	247	473
NONAGRIC. EMPLOYMENT-TOTAL (thous)	p37,906	38,942	38,533	37,234	34,876	29,744	28,085
Manufacturing-Total	p15,719	15,684	15,434	14,641	13,468	10,453	9,295
Durable goods	p9,180	8,971	8,751	8,082	7,138	4,871	4,108
Nondurable goods	p6,539	6,683	6,707	6,559	6,330	5,582	5,187
Government	p5,730	5,811	5,723	5,184	4,558	3,984	3,857
Other	p16,457	17,447	17,376	17,409	16,850	15,307	14,933

\* January, except for transportation, December. †Unadjusted; figures for 1940 and 1938 refer to 1939 and 1937 respectively. n.a. Not available. p Preliminary. r Revised.



## PRODUCTION PROGRESS

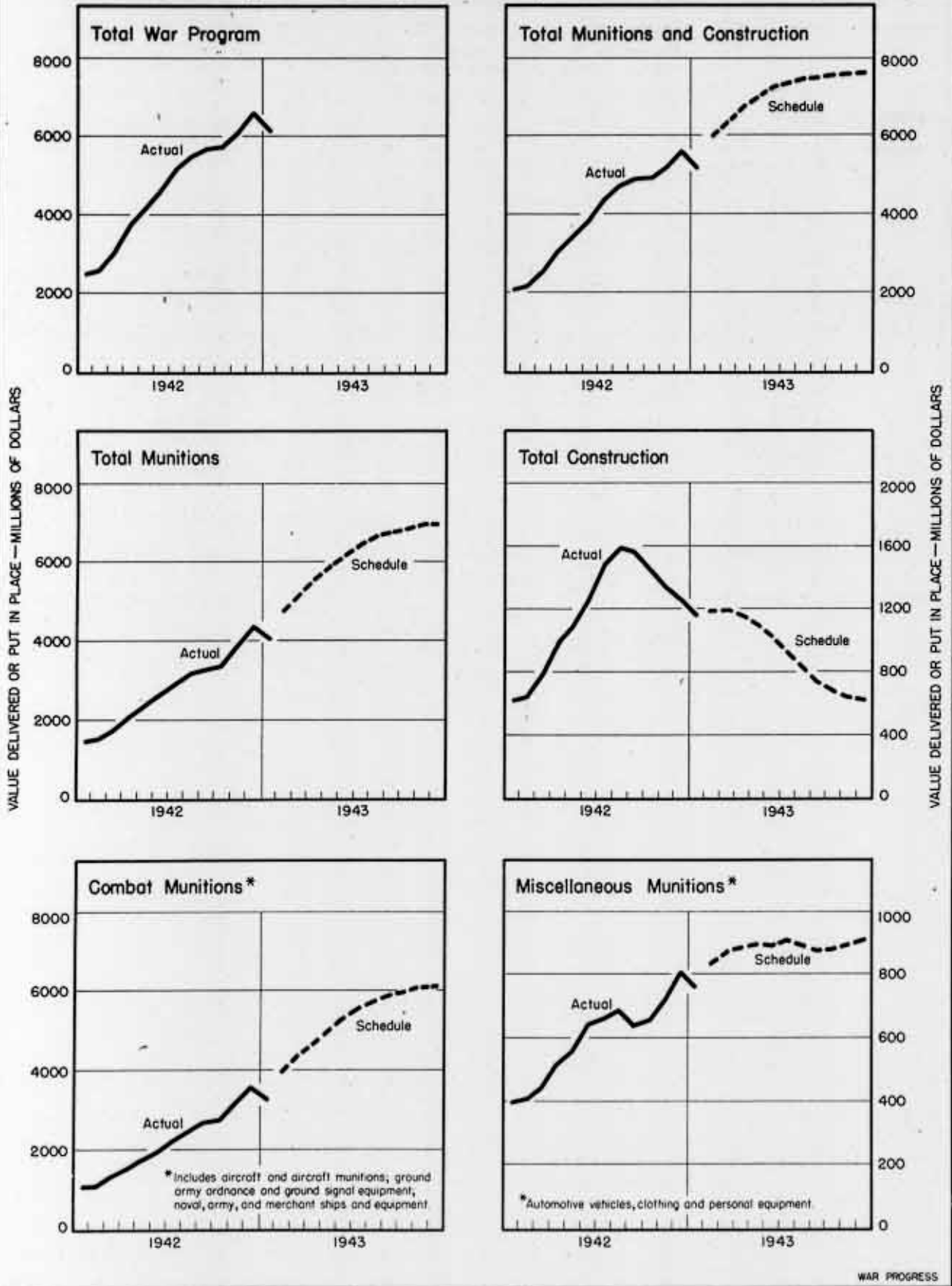
### General Summary (Value of production, in millions of dollars)

		Total Program	Total Munitions & Construction	Total Munitions	Total Construction	Misc. Munitions		
Valuation of Actual Production	1942 1st Quarter Avg.	2,703	2,242	1,556	686	410	1942 1st Quarter Avg.	Valuation of Actual Production
	2nd Quarter Avg.	4,137	3,458	2,340	1,118	573	2nd Quarter Avg.	
	3rd Quarter Avg.	5,403	4,626	3,080	1,546	662	3rd Quarter Avg.	
	October	5,701	4,834	3,385	1,449	663	October	
	November	6,084	5,184	3,831	1,353	723	November	
	December	6,571	5,592	4,376	1,216	812	December	
Valuation of Schedules*	1943 January	6,176	5,161	4,013	1,148	759	1943 January	Valuation of Schedules*
	February		5,943	4,749	1,194	829	February	
	March		6,376	5,181	1,195	875	March	
	April		6,697	5,544	1,153	889	April	
	May		6,976	5,877	1,099	898	May	
	June		7,213	6,187	1,026	895	June	
	July		7,366	6,453	913	903	July	
	August		7,463	6,654	809	891	August	
	September		7,486	6,761	725	885	September	
	October		7,540	6,857	683	888	October	
	November		7,572	6,926	646	895	November	
	December		7,603	6,990	613	909	December	
1942 Actual		55,090	46,592	32,520	14,072	7,123	1942 Actual	
1943 Schedule*			83,396	72,192	11,204	10,516	1943 Schedule*	
1943 Req. Prod.			83,090	71,886	11,204	11,096	1943 Req. Prod.	
1943 Schedule as % of Req. Prod.†							1943 Schedule as % of Req. Prod.†	
		Combat Munitions(a)	Aircraft & Aircraft Munitions	Ground Army Munitions(b)	Naval and Army Vessels & Equip.	Merchant Vessels		
Valuation of Actual Production	1942 1st Quarter Avg.	1,146	453	263	340	90	1942 1st Quarter Avg.	Valuation of Actual Production
	2nd Quarter Avg.	1,767	648	444	521*	154	2nd Quarter Avg.	
	3rd Quarter Avg.	2,419	838	662	712	206	3rd Quarter Avg.	
	October	2,722	936	759	836	191	October	
	November	3,108	1,113	857	898	240	November	
	December	3,564	1,338	1,070	895	261	December	
Valuation of Schedules*	1943 January	3,254	1,307	831	861	255	1943 January	Valuation of Schedules*
	February	3,920	1,592	954	1,034	340	February	
	March	4,306	1,755	1,121	1,075	355	March	
	April	4,655	1,954	1,211	1,130	360	April	
	May	4,979	2,156	1,298	1,163	362	May	
	June	5,292	2,356	1,382	1,193	361	June	
	July	5,550	2,529	1,472	1,195	354	July	
	August	5,763	2,638	1,584	1,190	351	August	
	September	5,876	2,753	1,595	1,176	352	September	
	October	5,969	2,886	1,573	1,154	356	October	
	November	6,031	2,990	1,550	1,131	360	November	
	December	6,081	3,079	1,531	1,108	363	December	
1942 Actual		25,397	9,208	6,792	7,355	2,042	1942 Actual	
1943 Schedule*		61,676	27,995	16,102	13,410	4,169	1943 Schedule*	
1943 Req. Prod.		60,790	28,276	14,721	13,624	4,169	1943 Req. Prod.	
1943 Schedule as % of Req. Prod.†							1943 Schedule as % of Req. Prod.†	

Note: Schedules as of Feb. 1 for aircraft and aircraft munitions, ground army munitions, and other S. O. S. items; as of Jan. 1 for all others. \* Army schedules are in process of revision. † Since Army schedules are being revised to meet the new Supply Program, comparison of present schedules with required production are not valid. (a) Includes aircraft and aircraft munitions, ground army and ground signal equipment; naval, army, and merchant vessels; excludes miscellaneous munitions. (b) Ground army ordnance and ground signal equipment.

### PRODUCTION PROGRESS

General Summary — Munitions, Construction, Miscellaneous



## PRODUCTION PROGRESS

### Aircraft - Ordnance (Value of production, in millions of dollars)

		Combat Planes	Aircraft Armament	Aircraft Ammunition	Artillery & Equip.	Artillery & Tank Cannon Ammunition		
Valuation of Actual Production	1942 1st Quarter Avg.	180	17	33	23	54	Valuation of Actual Production	1942 1st Quarter Avg.
	2nd Quarter Avg.	233	27	45	33	90		2nd Quarter Avg.
	3rd Quarter Avg.	294	29	57	52	110		3rd Quarter Avg.
	October	313	33	66	66	107		October
	November	368	37	76	97	126		November
	December	425	40	101	121	106		December
	1943 January	366	37	86	105	82		1943 January
	February	515	37	85	122	72		February
	March	593	40	106	132	110		March
	April	685	39	130	148	135		April
May	784	41	146	146	167	May		
June	897	43	157	147	190	June		
Valuation of Schedules*	July	1,005	46	156	144	220	Valuation of Schedules*	July
	August	1,101	50	156	155	273		August
	September	1,200	50	153	155	274		September
	October	1,299	48	148	173	272		October
	November	1,359	46	147	149	272		November
	December	1,397	45	146	144	272		December
	1942 Actual	3,227	328	648	606	1,102		1942 Actual
	1943 Schedule*	11,201	522	1,616	1,700	2,339		1943 Schedule*
	1943 Req. Prod.	11,201	541	1,780	1,328	1,747		1943 Req. Prod.
	1943 Schedule as % of Req. Prod.†							1943 Schedule as % of Req. Prod.†

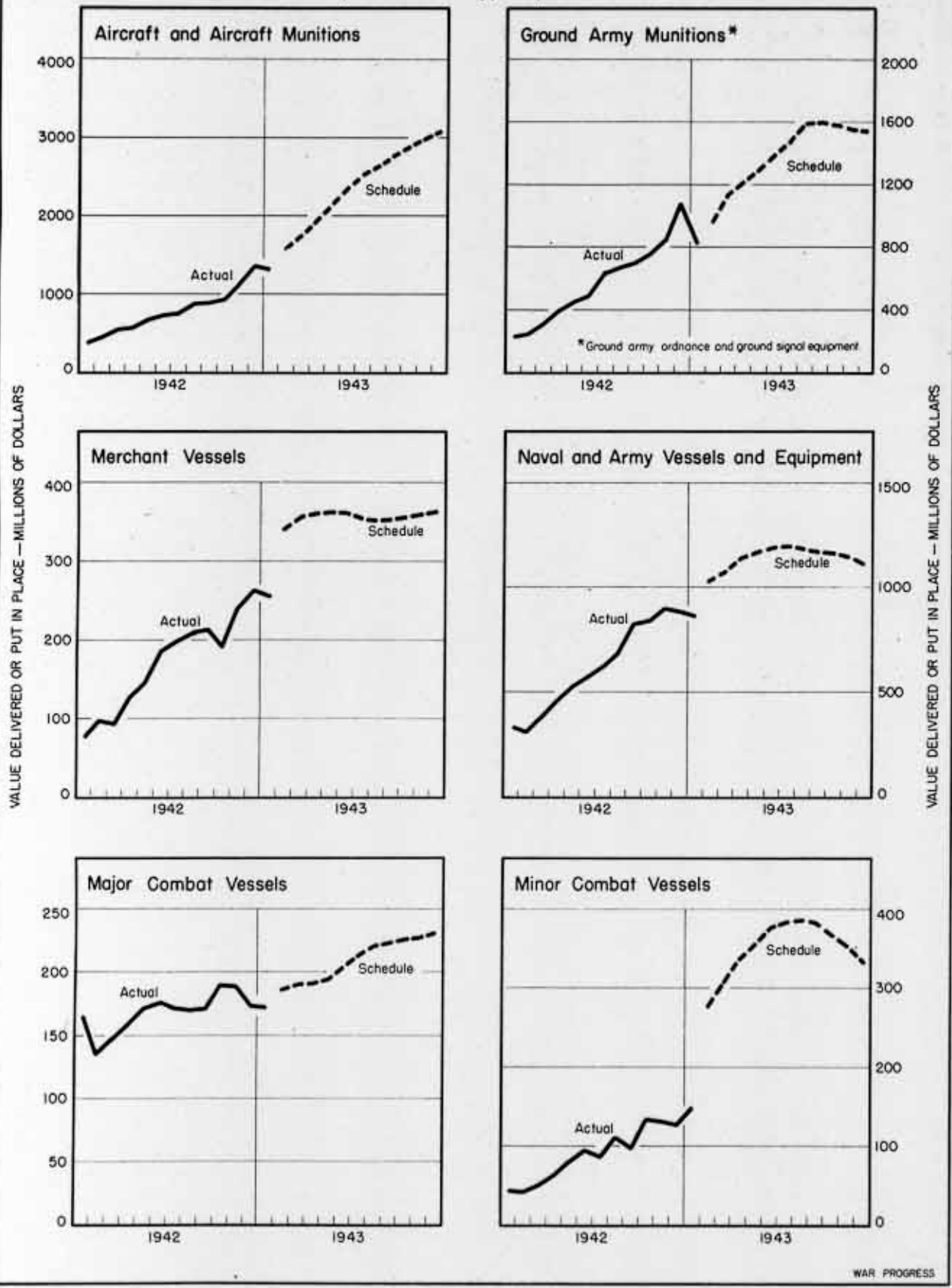
  

		Antiaircraft Guns & Equip.	Antiaircraft Ammunition	Small Arms & Infantry Weapons	Small Arms & Infantry Weapon Ammunition	Combat Vehicles		
Valuation of Actual Production	1942 1st Quarter Avg.	18	12	16	42	88	Valuation of Actual Production	1942 1st Quarter Avg.
	2nd Quarter Avg.	39	21	28	81	124		2nd Quarter Avg.
	3rd Quarter Avg.	76	30	37	118	176		3rd Quarter Avg.
	October	95	15	44	135	212		October
	November	95	17	49	138	239		November
	December	109	24	55	168	399		December
	1943 January	110	19	54	178	211		1943 January
	February	113	18	53	166	272		February
	March	129	25	58	189	317		March
	April	137	29	64	214	349		April
May	142	32	71	235	359	May		
June	143	35	76	264	372	June		
Valuation of Schedules*	July	155	41	75	290	363	Valuation of Schedules*	July
	August	184	43	79	324	356		August
	September	195	42	79	325	357		September
	October	178	42	80	322	364		October
	November	168	43	80	316	370		November
	December	160	43	81	309	375		December
	1942 Actual	701	246	388	1,162	2,014		1942 Actual
	1943 Schedule*	1,811	412	850	3,136	4,065		1943 Schedule*
	1943 Req. Prod.	1,625	453	800	3,185	3,738		1943 Req. Prod.
	1943 Schedule as % of Req. Prod.†							1943 Schedule as % of Req. Prod.†

Note: Schedules as of Feb. 1 for aircraft and aircraft munitions, ground army munitions, and other S. O. S. items; as of Jan. 1 for all others.  
 \*Army schedules are in process of revision. †Since Army schedules are being revised to meet the new Supply Program, comparison of present schedules with required production are not valid.

### PRODUCTION PROGRESS

Selected Items — Aircraft, Ground Army, Ships





# PRODUCTION PROGRESS

Ships-Construction-Miscellaneous (Value put in place, in millions of dollars)

		Battleships, Cruisers & Carriers	Destroyers	Sub- marines	Antisub- marine Vessels	Transports (Army, Navy)				
Valuation of Actual Production	1942						1942	Valuation of Actual Production		
	1st Quarter Avg.	62	67	20	44	1	1st Quarter Avg.			
	2nd Quarter Avg.	73	75	20	77	6	2nd Quarter Avg.			
	3rd Quarter Avg.	71	76	23	97	10	3rd Quarter Avg.			
	October	84	82	23	130	12	October			
	November	77	88	22	127	16	November			
	December	76	73	25	124	16	December			
	1943						1943			
	January	75	72	24	146	11	January			
	February	83	79	24	270	22	February			
Valuation of Schedules*	March	81	82	27	299	24	March	Valuation of Schedules*		
	April	77	86	29	329	25	April			
	May	74	90	31	351	26	May			
	June	78	93	33	370	27	June			
	July	84	92	37	378	28	July			
	August	90	90	41	380	27	August			
	September	92	88	43	378	28	September			
	October	94	87	45	366	27	October			
	November	96	86	45	349	27	November			
	December	101	84	46	331	26	December			
	1942 Actual		856	897	260	1,034	96		1942 Actual	
	1943 Schedule*		1,025	1,029	425	3,947	298		1943 Schedule*	
1943 Req. Prod.		1,025	1,029	425	3,947	298	1943 Req. Prod.			
1943 Schedule as % of Req. Prod.†							1943 Schedule as % of Req. Prod.†			
		Landing Vessels	Industrial Facilities	Aircraft Fields & Bases	Clothing & Personal Equip.	Automotive Vehicles & Equip.				
Valuation of Actual Production	1942						1942	Valuation of Actual Production		
	1st Quarter Avg.	2	360	61	68	177	1st Quarter Avg.			
	2nd Quarter Avg.	8	524	122	98	171	2nd Quarter Avg.			
	3rd Quarter Avg.	85	662	233	117	196	3rd Quarter Avg.			
	October	145	684	214	109	174	October			
	November	142	649	188	107	179	November			
	December	129	606	146	106	207	December			
	1943						1943			
	January	95	581	125	110	185	January			
	February	83	551	185	153	196	February			
Valuation of Schedules*	March	66	530	192	157	218	March	Valuation of Schedules*		
	April	57	480	185	163	238	April			
	May	53	435	175	192	229	May			
	June	45	390	165	186	225	June			
	July	36	325	150	186	221	July			
	August	29	280	124	186	194	August			
	September	17	245	99	186	201	September			
	October	13	229	99	189	212	October			
	November	10	227	98	196	224	November			
	December	6	227	98	204	241	December			
	1942 Actual		700	6,606	1,793	1,171	2,044		1942 Actual	
	1943 Schedule*		510	4,500	1,695	2,108	2,584		1943 Schedule*	
1943 Req. Prod.		510	4,500	1,695	2,097	2,928	1943 Req. Prod.			
1943 Schedule as % of Req. Prod.†							1943 Schedule as % of Req. Prod.†			

Note: Schedules as of Feb. 1 for aircraft and aircraft munitions, ground army munitions, and other S. O. S. items; as of Jan. 1 for all others.

\*Army schedules are in process of revision. † Since Army schedules are being revised to meet the new Supply Program, comparison of present schedules with required production are not valid.

The President

# WAR PROGRESS

*Confidential*  
*(British Secret)*

DECLASSIFIED  
EO 11652, Sec. 1.4, and E.O. 11652  
Executive Dept. Order, 11-15-74  
By NED, JAC MAR 29 1973

Airplane Output in February... Sim-  
plification—Battlefield and Factory...  
Scorecard on Merchant Shipping...  
Planes and Their Motors

Number 129

March 5, 1943

# Airplane Production Recovers

Acceptances run 9% ahead of January and attain highest daily average on record, exceeding December. But output lags behind schedule and big job lies ahead.

17% over January, as this table (weight of airframes, excluding spares) shows:

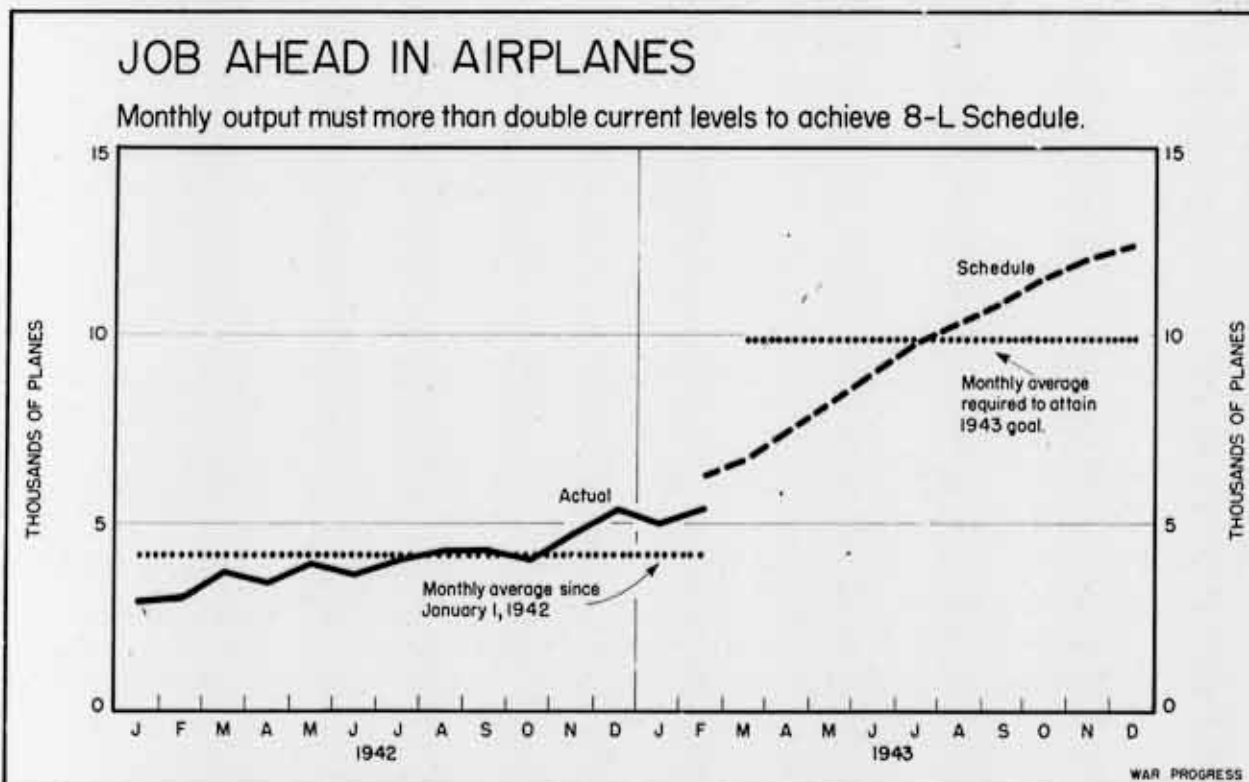
ACCEPTANCES of military planes in February recovered from the January slump. At 5,452, they were 9% above January's 5,013 and almost reached the record level of 5,489 planes established in December. However, production fell behind the 8-L schedule by 13%.

In daily output, February surpassed December, the previous high. Acceptances averaged 195 per day, as against January's 162, and December's 177.

In terms of airframe weight, which makes allowance for the greater amount of materials which go into bombers compared with fighters, etc., February exceeded December by 3%. And it was up

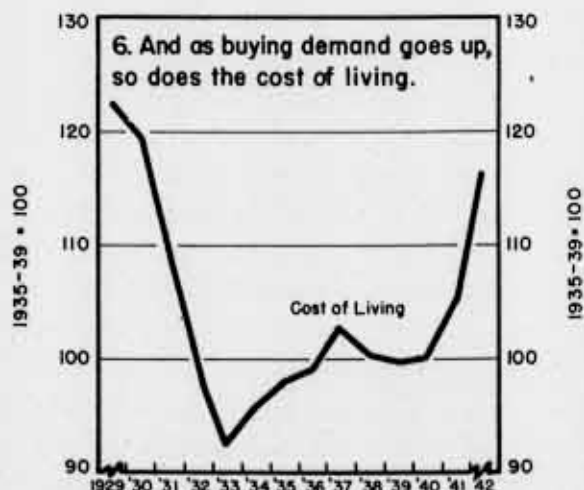
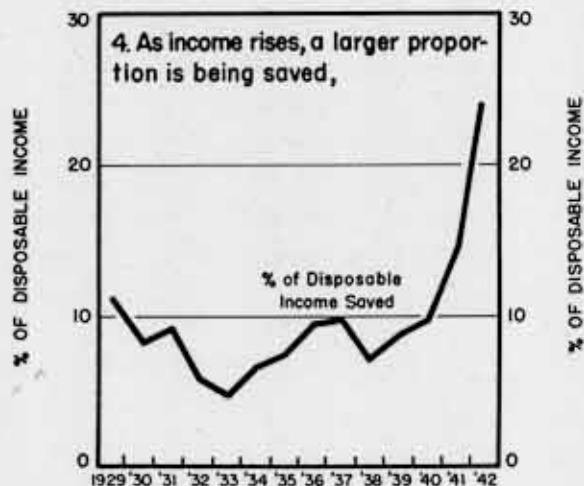
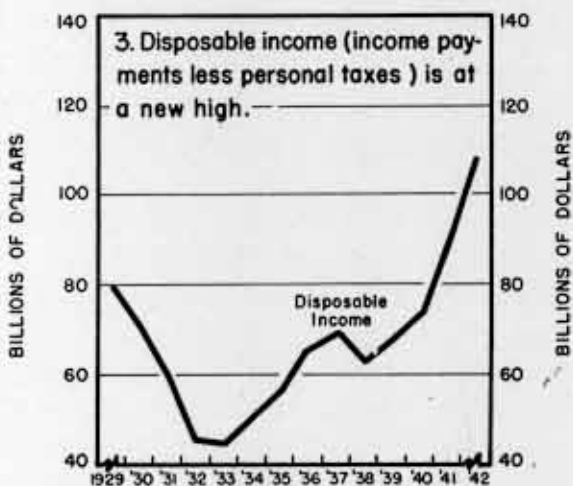
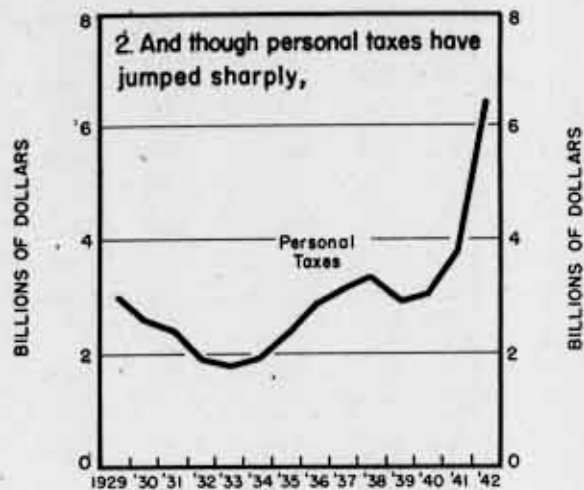
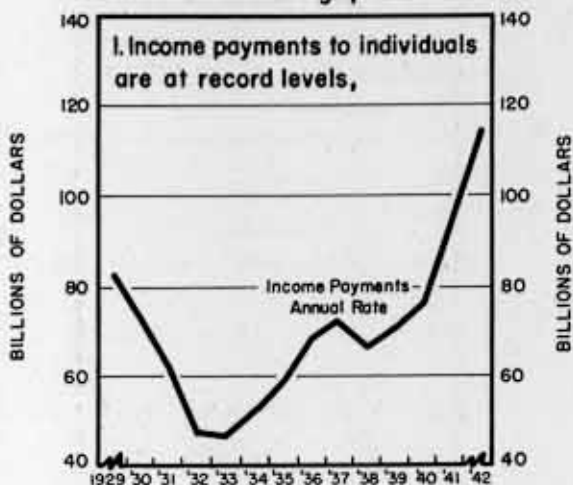
	Jan.	Feb. as % of 8-L Sched.
All military planes	117%	87%
Combat planes	123	87
Bombers (including flying boats)	127	89
Army fighters	100	82
Navy (fighter & reconnaissance)	163	76
Service combat	94	77
Transport	94	78
Communication	92	69
Trainers	104	94

The table indicates that Navy fighters



### HIGHER INCOME, HIGHER SAVINGS, HIGHER LIVING COST

And there is higher spending, too; for the rise in savings is not enough to close "inflation gap".





and reconnaissance planes made the best single percentage gain among major groups, but they fell sharply--24%--below forecast. Bombers, which constitute about two-thirds of weighted plane production, showed a 27% month-to-month gain and, next to trainers, came closest to making the February schedule.

#### BIG BOMBERS BEAT 8-L

Heavy 4-engined bombers came through especially well. The number accepted was 36% ahead of January and 2% above February's schedule. This contrasts with January's especially poor performance, when they were 11% short of both schedule and the previous month's output. The better-than-average rate of production for the biggest bombers reflects the special efforts being devoted to getting them out; they get a top priority rating among airplanes when it comes to distributing critical parts and materials.

Despite labor difficulties, the Boeing B-17 "Flying Fortress" ran 30% ahead of January and 10% ahead of 8-L schedule. Ford's Willow Run bomber factory, though again behind production plan,

turned out two and one-half times more planes than in January. However, a tenfold monthly increase is called for by the end of this year.

Among patrol bombers (flying boats), results varied widely. Acceptances of 2-engined models registered a 45% gain over January, but the heavy 4-engined types dropped 25%. Neither group attained schedule, the heavier patrol bombers falling 65% behind 8-L and the lighter ones 38%. Output of the PBM "Mariner" continues to lag. It fell 66% behind schedule, after no deliveries in January.

#### THE LONG-AWAITED "CORSAIR"

Among Army fighters, the "Airacobra" and the "Warhawk" were both on schedule. But the Navy's long-awaited fighter, the 2,000 hp. "Corsair," which has just seen action for the first time (in the South Pacific), fell 25% behind schedule. Also behind schedule was Republic's "Thunderbolt," the P-47.

Within the category of transport planes, heavy 4-engined machines ran 7% ahead of January and met the 8-L schedule in the number accepted, though slightly below schedule on a weight basis. The first C-76 (Curtiss "Caravan") plywood cargo plane was accepted. This 2-engined transport is to be built on a mass scale by the Higgins company of New Orleans, as well as by Curtiss.

#### OUTPUT MUST DOUBLE

February's overall performance, despite the high daily average of acceptances, suggests the magnitude of the production job that lies ahead (chart, page 1). To meet the 1943 schedule, monthly production during the rest of this year must average 55% higher than in February. And by December, the February rate of output must be more than doubled.

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## Simplification—In Factory and Battle

Cutting down on types and sizes is scheme to boost production, save manpower and materials. But it's a big help in combat because parts can be interchanged.

IN MAY, 1942, when Rommel launched his drive toward Egypt, the British Eighth Army was frequently unable to maintain its mechanical equipment at maximum operation—not because of enemy gunfire, but because of the many different kinds of repair and replacement parts required. These could neither be stocked in sufficient quantity nor expeditiously handled. At one time, in fact, a third of all British tanks at the battle front were out of action—being cannibalized (stripped of parts) to keep the remaining two-thirds in running order.

### ELIMINATING FRILLS

That story has been and is being changed—through simplification. In order to save materials and machinery, in order to boost output, the armed services, manufacturers, and the War Production Board worked out ways (1) to cut out frills and furbelows, and (2) to do away with many types and sizes of numerous products. In short, they standardized where possible. (Standardization begins where simplification ends.) And since standardization means interchangeability, it is at once a boon—and necessity—on the battlefield.

### PLETHORA OF ENGINE TYPES

The air-cooled gasoline engine (up to 35 hp.), used in pumps, field radios, generator sets, fire-fighting units, water-purification systems, plane and tank auxiliary engines, etc., is a case in point. This has been a problem throughout the North African campaign.

Back in July, 1942, 16 manufacturers were producing 98 basic air-cooled engine models for the armed services, the Maritime Commission, and for the agricultural, mining, and logging industries. Moreover, each purchaser requested a particular kind of engine to meet its needs; in the Army, for example, the Corps of Engineers, Chemical Warfare Service, Signal Corps, Air Forces, etc. often laid down different specifications for the same end use. The result was that many variations of these 98 basic air-cooled engine models were being produced: Some buyers specified the same kind of carburetor but a different-sized gas tank; others specified the same-sized gas tank but a different type of starter; still others specified the same kind of starter but a different type of muffler; and so forth.

### CUT FROM 98 TO 47

Eight months of cooperative study have now made it possible to reduce the number of basic engine models from 98 to 47, a cut of more than 50%. What's more, each basic model produced by a given manufacturer will take a single-type carburetor, muffler, air cleaner, spark plug, starter, etc. One kind of paint job has been decided on for the armed services (a double cross-coat of semigloss olive-drab enamel); similarly, a uniform parts-and-maintenance manual has been accepted. (Military engine deliveries were sometimes held up because the exact manual specified wasn't available.)

Simplification of the air-cooled gasoline engine will cut spare parts requirements by an estimated 40% and also boost production. Already, one manufacturer—with no increase in labor or machinery

--has virtually doubled his former "peak" output of 90 engines daily. And that's only one example of what simplification can do.

**OVER 100 ORDERS ISSUED**

So far, many civilian as well as military and industrial products have been simplified (table, page 5). Since February, 1942, when the first order involving simplification was issued, roughly 100 such orders have been released. The average reduction in product variety has been 75%; the following list is illustrative:

Product	No. of Sizes or Types		% Cut
	Before	After	
Valves & fittings...	4,030	2,500	38%
Electric light bulbs	3,500	1,700	51
Hand tools*.....	1,150	357	69
Mech. water coolers.	27	8	70
Wood saws**.....	800	210	74
X-ray equipment.....	100	25	75
Industrial power trucks.....	221	50	77
Auto tire chains....	14	3	79
Portable jaw & roll crushers.....	25	5	80
Auto stor. batteries	100	16	84
Shipping bags***....	100	12	88
Chemical fertilizers	800	90	89
Steel wheels & tires	500	50	90
Douglas-fir plywood.	4,300	300	93
Enamelware.....	450	25	94
Fluorescent ltg. fix.	200	2	99

\*Heavy forged. \*\*Manual and special purpose. \*\*\*Textile and paper.

In bottleneck items, simplification has increased productive capacities from 8% to 50%. (The average has been 17%.) Examples: valves and fittings, 8%; universal portable electric tools, 10%; electric motors and generators, 10%;

essential galvanized ware, 10%-15%; machine-tool electrical specifications, 10%-15%; industrial power trucks, 25%; Portland cement, 25%; and enamelware, 35%-50%.

**EVEN BOBBY PINS**

Also, numerous economies in critical materials have been effected. Thus, elimination of unessential types of domestic cooking and heating appliances saved 350,000 tons of iron and steel annually; the same thing in electric motors and generators--with up-rating--saved 5,600 tons of copper. Curtailing extra designs in shoes and streamlining manufacturing processes saved 30,000 tons of leather. By limiting the length of bobby pins to two inches, 4,000 tons of steel were saved. A recent order shortening wooden matches by one sixteenth to one-fourth inch will save an estimated 380 carloads of lumber annually.

**RECORD OF SAVINGS**

Overall economies last year, as a result of 82 simplification orders, are placed as follows:

Material	Estimated 1942 Savings (thousands)
Copper (tons).....	17
*Cloth (yds.).....	180,000
Leather (tons).....	30
Lumber (bd. ft.).....	450,000
Pulp (tons).....	227
Steel (tons).....	600
Solder (lbs.).....	35
Tungsten (lbs.).....	8

\*Includes cotton, wool, and rayon.

At the same time, enough man-hours were saved (15,000,000) to build 23 Liberty cargo vessels. And inventories were reduced an average of 25%.



Close attention to simplification is not native to the present emergency. In the first World War, types and sizes of farm machinery, clothing, metal containers, hardware, auto tires, shipping containers, etc. were also reduced—with the usual overall savings in materials, manpower, and transportation. But now, after little more than a year of war, it is generally accepted that simplification is further advanced than it was at the time of the Armistice in 1918. The current scorecard on unfinished simplification projects follows:

<u>Stage of Acceptance</u>	<u>Project</u>
1. Proposed or initiated....	24
2. In process of development	83
3. In process of revision...	37
4. Orders being written.....	26
5. Orders being circulated..	63
Total.....	233

### SHORT SUMMATION OF SIMPLIFICATION

SINCE FEBRUARY, 1942, WHEN THE FIRST ORDER INVOLVING SIMPLIFICATION WAS ISSUED (L-42, SCHEDULE I ON VALVES), AROUND 100 SIMILAR ORDERS HAVE BEEN RELEASED. PRODUCTS SIMPLIFIED RANGE FROM CIVILIAN ITEMS SUCH AS CLOTHING, HAIRPINS, AND BABY CARRIAGES, TO INDUSTRIAL ITEMS SUCH AS CONCRETE REINFORCEMENT STEEL, INDUSTRIAL POWER TRUCKS, AND PORTABLE JAW AND ROLL CRUSHERS. MANY OF THESE ORDERS AFFECT MORE THAN ONE PRODUCT. THE ORDER ON CAST-IRON WARE (L-42-C) SIMPLIFIED SKILLETS, KETTLES, GRIDDLES, FLAT IRONS, AND DUTCH OVENS; THE ONE ON HAND TOOLS (L-157) SIMPLIFIED HOES, PICKS, TONGS, WEDGES, HAMMERS, SLEDGES, AND MATTOCKS. IN ALL, 315 PRODUCTS (140 CONSUMER AND 175 INDUSTRIAL) WERE SIMPLIFIED LAST YEAR—AND THE ROLL CONTINUES TO GROW AT AN ACCELERATED RATE. HERE'S A REPRESENTATIVE LIST OF PRODUCTS THAT HAVE BEEN SIMPLIFIED:

Asphalt & tarred roofing products	Fluorescent lighting fixtures	Men's & boys' clothing
Automotive storage batteries	Footwear	Metal containers
Automotive tire chains	Forged axes, adzes, hammers & hatchets	Mobile house trailers
Baby carriages	Fountain pens, mechanical pencils, wood-case pencils, pen nibs, & penholders	Oil burners
Barbed & fence wire	Galvanized ware	Paper & paperboard
Bed springs & mattresses	Glass containers & closures	Pipe fittings
Bicycles & parts	Hair & bobby pins	Plumbing fixtures, fittings, & trim
Builders' finishing hardware	Hand forks, hooks, rakes, hoes, eye hoes, & cultivators	Plumbing & heating tanks
Cast-iron ware, soil pipe & fittings, & tubular radiators	Heavy forged hand tools	Portland cement
Chemical fertilizers	Hearing-aid batteries	Poultry netting & flooring
Coal stokers	Heating specialties (vacuum & vapor)	Radio tubes
Concrete construction mixers (portable)	Hospital enamelware	Refrigeration condensing units
Concrete reinforcement steel	Ice refrigerators (domestic)	Mechanical water coolers
Cooking & heating appliances (domestic)	Incandescent, fluorescent & other electric discharge lamps	Shovels, spades, scoops, & telegraph spoons
Dewatering pumps	Industrial power trucks	Steel wheels & tires
Douglas-fir plywood	Jaw & roll crushers (portable)	Textile shipping bags
Dry-cell batteries	Loose-leaf metal parts & units	Toilet tissue rolls
Electric motors & generators	Low-pressure heating boilers	Umbrellas
Enamelware	Machine tool electrical specifications	Universal portable electric tools
Feminine apparel (including lingerie & lounging wear)		Valves & valve parts
Fire protective, alarm, and signal equipment		Wallpaper
		Water heaters
		Wood saws (manual & special purpose)
		X-ray equipment



Last year, it required an average of three and a half months to complete a simplification project (the range was from six weeks to around eight months); but the 1943 average is expected to be cut roughly 30%, to about 10 weeks.

#### ARMY KEEN FOR IT

With manpower, materials, and machines all short, the urgency to save on all sides has become manifest. What's more, manufacturers, the armed services, and War Production Board officials have a better understanding of the problem--of ways and means of simplifying and standardizing.

Besides, the value of interchangeable parts in the battlefield has acted as an additional spur to technicians in the armed forces. Indeed, the Army has been outstanding in developing methods to simplify transport vehicles.

## Ships Behind Schedule

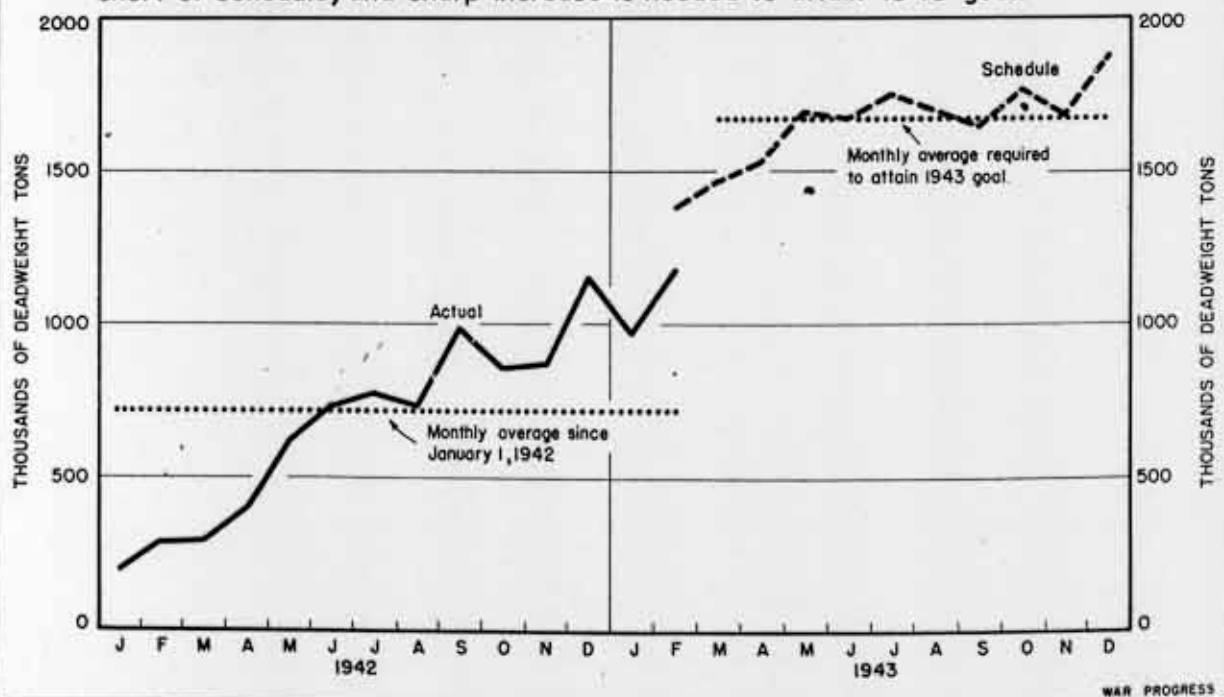
Though February deliveries of merchantmen set an all-time record, they are short of month's goal for third time in a row. Absenteeism, weather blamed.

DELIVERIES of major types of ocean-going vessels set an all-time record of 1,177,000 tons deadweight in February, topping January by 20%; but they fell 15% behind schedule, for several reasons: (1) bad weather, (2) excessive absenteeism, and (3) the new and higher 18,900,000-ton Maritime Commission program for 1943 was not approved until January, resulting in delays in getting an increased volume of materials.

The February performance suggests the size of the job ahead. To meet the 1943 schedule, Maritime Commission yards must average 1,670,000 tons per month—

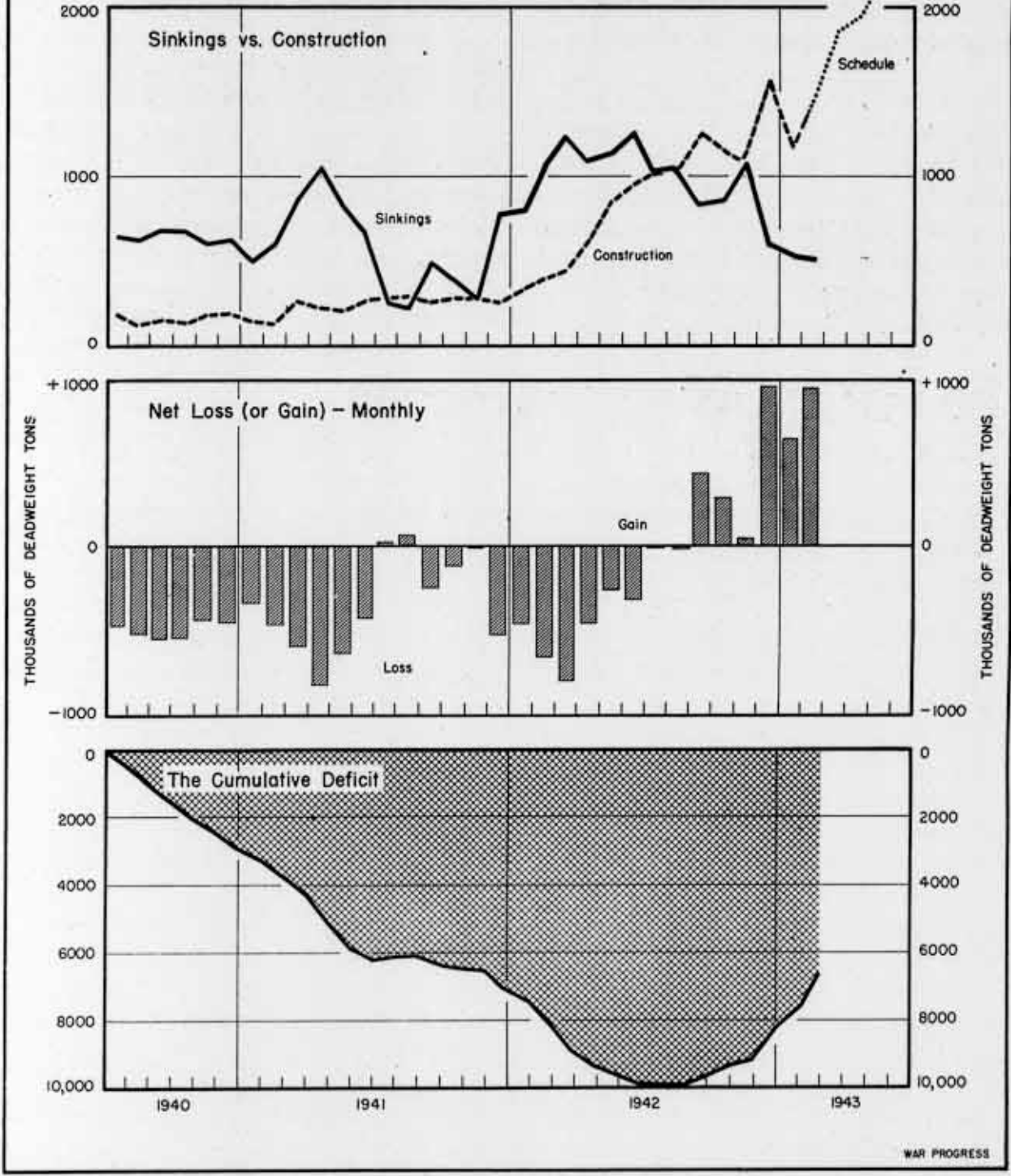
### NEEDED: 40% STEPUP IN MERCHANT SHIPBUILDING

Though February output of ocean-going vessels tops previous record, it falls short of schedule, and sharp increase is needed to attain 1943 goal.



### SCORECARD ON MERCHANT SHIPPING

Sinkings of United Nations vessels drop for the third successive month and construction rises, resulting in another substantial gain in net tonnage.



IN FEBRUARY, SINKINGS OF MERCHANT SHIPS DROPPED FOR THE THIRD MONTH IN A ROW, WHILE NEW CONSTRUCTION ROSE SHARPLY OVER JANUARY LEVELS. RESULT: THE UNITED NATIONS MERCHANT FLEET IS UP NOTICEABLY. INDEED, IF LOSSES ARE HELD TO THE CURRENT RATE AND NEW CON-

STRUCTION COMES UP TO SCHEDULE, ALLIED SHIPPING WILL BE BACK TO MID-1940 STRENGTH WITHIN FOUR TO FIVE MONTHS. HOWEVER, THE TEST OF THE RECENT TREND IN SINKINGS, WHICH ARE THE LOWEST SINCE NOVEMBER, 1941, WILL COME IN THE SPRING.

or 40% above the February level.

Even if allowance is made for the fact that February had only 28 days—daily output averaged 42,000 tons deadweight against 37,300 tons in December, the previous high month—a 33% increase in average monthly output is called for.

#### ABSENTEEISM COSTLY

Merchant ships have fallen behind schedule for three successive months. In January, an estimated 11,800,000 man-hours were lost through absenteeism in yards building merchant ships, almost enough to account for the month's 200,000-odd ton lag behind the forecast.

Preliminary reports for February indicate that absenteeism has not abated.

Unusual snowfall on the West Coast and abnormally low temperatures on the East Coast slowed up actual construction of ships as well as prefabrication.

In February, building time for Liberty ships went up, thus reversing a 13-month trend. It took 62 days, on the average, to produce a Liberty, from keel-laying to delivery, compared with 52.6 days in January. This was due not only to excessive absenteeism and unfavorable weather, but also to the fact that yards which just came into production had not perfected industrial techniques.

## The Power Behind the Planes

Output of aircraft engines closer to schedule than in the case of planes. Pioneer firms aided by converted auto plants, which now account for more than half the production.

FOR EVERY 100 engines installed in combat planes, the Army and Navy require 40 additional engines as spares. Despite this 14-to-10 ratio, monthly production of engines has held generally closer to schedule than in the case of airplanes themselves.

In January of this year, for instance, when aircraft production slumped 16% below schedule (WP-Feb 12 '43, pl), airplane engines were only 7% behind.

More than pulling their weight in this showing are newcomers to the industry—the automobile manufacturers. With one exception, their January output equaled or bettered the schedules laid out for them.

Today, the airplane engine industry roughly divides into two parts. The old-line companies—Pratt & Whitney and Wright—still carry the major burden of engineering, development, and experimen-

tation, as well as maintaining a greatly expanded output in their own plants. And up until Pearl Harbor, they produced practically all the radial engines for combat planes. However, General Motors' Allison Division was making Allison Vee-type motors and Packard and Ford had facilities in preparation.

#### AUTO FIRMS COME IN

But now, nine automotive firms are turning out aircraft engines for the Army, Navy, and the Allies. In 1942, their output of motors for tactical planes only—bombers, fighters, and transports—was valued at about \$858,000,000, or roughly 50% of the total value of such engines produced in the United States last year. And in 1943, the production of the automotive group is scheduled to triple—to around \$2,600,000,000—or about 65% of the total.

The step from automobile to airplane motors is not a simple one—it requires re-education, retooling, and in most instances, new plants. Packard, for example, contracted to build an adapta-

tion of the British Merlin engine early in August, 1940, and was scheduled to begin production in the following March, but it was not until August, 1941, that the company turned out its first engine. And Ford's first contract to build R-

2800s was let November 5, 1940, but production didn't start for almost a year. For an even longer period, Allison was busy getting the "bugs" out of its operation--though for the last six months it has been performing according to sched-

## WHICH ENGINE GOES WITH WHICH PLANE

U.S. MANUFACTURERS ARE MAKING SOME 11 MAJOR-TYPE ENGINES TO POWER THE 45-ODD COMBAT PLANE TYPES IN SERVICE WITH THE ARMY AND NAVY TODAY. PRATT & WHITNEY'S R-2800, FOR EXAMPLE, IS USED IN THE "THUNDERBOLT" FIGHTER AS WELL AS IN TWO ARMY BOMBERS AND IN A NAVY TORPEDO BOMBER; WRIGHT'S

R-2600 POWERS THE ARMY'S "BILLY MITCHELL" MEDIUM BOMBER, THE NAVY'S "HELLDIVER," AND SO ON. SOME INTERCHANGEABILITY OF ENGINES IS POSSIBLE, PARTICULARLY IF THEY HAVE THE SAME WEIGHT AND HORSEPOWER, BUT THE FOLLOWING TABLE REPRESENTS THE MOST COMMON COMBINATIONS.

Engine	Manufacturer	Plane
R-2800 "Double Wasp" (1-stage) (18 cyl., 2-row, 2,000 hp.)	{ Pratt & Whitney Ford	C-46 (Commando); P-47 (Thunderbolt); B-26 (Marauder); A-26; B-34 (Ventura); TBU
R-2800 "Double Wasp" (2-stage) (18 cyl., 2-row, 2,000 hp.)	{ Pratt & Whitney Nash-Kelvinator Ford	F3A, F4U, FG-1 (Corsair); F6F (Wildcat II); P-61; P-60
R-1830 "Twin Wasp" (1-stage) (14 cyl., 2-row, 1,200 hp.)	{ Pratt & Whitney Buick Chevrolet	C-47 (Skytrain); C-62; C-76 (Caravan); PBV-1, PBY (Catalina); PB2Y-3R (Coronado); B-24 (Liberator)
R-1830 "Twin Wasp" (2-stage) (14 cyl., 2-row, 1,200 hp.)	Pratt & Whitney	F4F, FM-1 (Wildcat); PB2Y-3 (Coronado)
R-1820 "Cyclone" (9 cyl., 1,200 hp.)	{ Wright Studebaker	A-24 (Dauntless); B-17 (Flying Fortress); FM-2 (Wildcat); C-60 (Lodestar); SC-1; J2F.
R-3350 "Cyclone 18" BA (18 cyl., 2-row, 2,250 hp.)	{ Wright Dodge	B-29; C-69 (Constellation); B-32
R-3350 "Cyclone 18" BB (18 cyl., 2-row, 2,250 hp.)	{ Wright Dodge	SB2D; P4Y; PBM-4 (Mariner); C-69B (Constellation)
R-2600 "Cyclone 14" A (14 cyl., 2-row, 1,700 hp.)	Wright	A-20 (Boston); SB2A (Buccaneer); A-31, A-35 (Vengeance)
R-2600 "Cyclone 14" B (14 cyl., 2-row, 1,700 hp.)	Wright	A-30 (Baltimore); B-25 (Mitchell); PBM (Mariner); A-25, SB2C (Helldiver); TBF (Avenger)
V-1710 (12 cyl., liquid cooled, 1125-1425 hp.)	Allison	P-39, P-63 (Airacobra); A-36 (Mustang Dive Bomber); P-38 (Lightning); P-40 (Warhawk)
V-1650 "Merlin" (12 cyl., liquid cooled, 1520 hp.)	Packard	P-40 (Warhawk); P-51 (Mustang); British Mosquitos & Lancasters.



ule and horsepower has been up to specification.

At the close of 1942, government-financed airplane-engine plant awards to all manufacturers amounted to almost \$1,500,000,000, of which automobile manufacturers received about half:

Companies	Estimated Cost
Chrysler (and Dodge).....	\$157,048,000
Ford.....	71,250,000
General Motors (Allison)..	64,358,000
General Motors (Buick)....	101,403,000
General Motors (Chevrolet)	86,085,000
Packard.....	62,444,000
Studebaker.....	72,541,000
Nash-Kelvinator.....	32,283,000
Total.....	\$647,412,000

The converted or newly built automotive plants--with the exception of Chrysler and a branch of Ford where work is progressing on experimental types--are for the most part engaged in mass production of the basic Wright and Pratt & Whitney engines. For example, Pratt & Whitney plants accounted for less than 40% of the 1942 output of their R-1830 "Twin Wasp" engines--used in three Navy patrol bombers and in the B-24 "Liberators." Of total production, valued at around \$325,000,000, Buick was responsible for more than 40% and Chevrolet, 20%. And under 1943 schedules--with the production of "Twin Wasps" increasing to around \$888,000,000--Buick will produce about 45% of the value, Chevrolet, 42%, and Pratt & Whitney only 13%.

#### FORD'S SHARE UPPED

Similarly with the Pratt & Whitney R-2800 "Double Wasp" (1-stage)--an 18 cylinder, 2,000 hp. engine that powers the B-26 "Marauder," and also the P-47 "Thunderbolt": In 1942, Ford turned out about \$173,000,000 worth of these engines--almost 70% of the total value--

and in 1943, when production will soar to around \$679,000,000, Ford will account for more than 90%.

In other instances, automotive plants are in the process of gradually taking over the bulk of production from the originating manufacturers. Wright developed the R-3350 "Cyclone 18" engine and produced around \$2,000,000 worth of them in 1942. But the Dodge Motor Company at Chicago is getting facilities to make these engines and is to be in production by the early fall of this year. In the first nine months of 1944, when production of the engine is scheduled to exceed \$445,000,000 in value, Dodge is slated to produce more than 60%.

#### NASH MOVES IN

Then, there's the case of the 2-stage "Double Wasp" engine, which powers several Navy fighters (including the fast Vought-Sikorsky "Corsair") and the Army P-60 and P-61. Pratt & Whitney carried the ball by itself on this one until last December, when the Nash-Kelvinator plant at Kenosha, Wis., got into production with a few engines slightly ahead of schedule. Though Pratt & Whitney will step up its own production to around \$223,400,000 in 1943, Nash-Kelvinator will turn out motors valued at about \$108,000,000. Ford, also, will start production on this model in the fall and is scheduled to produce engines valued at \$25,000,000 before the year is out. Thus, the auto companies' proportion will run around 37% this year.

Meanwhile, Allison and Packard have been producing in quantity. Value of the 1942-1943 program for Allison V-1710s amounts to about \$643,000,000.

This is the 12-cylinder, liquid-cooled, 1125-1425 hp. engine that powers the P-39 Bell "Airacobra," the P-38 Lockheed "Lightning," and the P-63. Also, Allison will produce this year its V-3420--a

## KEY STATISTICS OF THE WEEK

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War program Checks paid (millions of dollars)-----	1,431	1,527	1,531	1,136	567
War bond sales (millions of dollars)-----	273	212	378	151	124
Commodity prices (August 1939=100)					
28 Basic commodities-----	176.0	175.3	174.4	166.9	165.2
Controlled-----	162.2	162.1	162.0	161.4	162.0
Uncontrolled-----	210.6	r208.3	205.9	181.1	173.5
Nonferrous metal scrap-----	117.5	117.5	117.5	118.3	132.5
Textile scrap-----	172.2	170.7	172.5	170.8	175.0
Petroleum carloadings (no. of tank cars)					
Total-----	52,239	51,986	50,631	53,748	51,759
Movement into East-----	26,592	26,152	25,879	27,266	10,162
Exports (no. of freight cars unloaded for export Friday)					
Atlantic Coast ports-----	1,406	1,226	1,306	1,635	1,811
Gulf Coast ports-----	448	398	330	320	456
Pacific Coast ports-----	883	980	769	724	331
Unused steel capacity (% operations below capacity)-----	1.8	1.1	0.5	2.4	2.8
Department store sales (% change from a year ago)-----	26	33	0	-13	19

liquid-cooled, 24-cylinder Double-Vee motor of 2300-2450 hp.

Packard's production of V-1650s in 1942 was valued at \$155,896,000; will step up to around \$325,000,000 this year. These liquid-cooled 12-cylinder "Merlins" go into the P-40 Curtiss, and the P-51 North American "Mustang," as well as the British "Lancaster" bomber. And "Merlin" engines power fast British "Mosquitos" of the type which timed their bombing of Berlin last month to break up Goering's radio address celebrating the tenth anniversary of Hitler's accession to power.

## War Progress Notes

### MANPOWER MOVES

EVER SINCE 1939, the United States has been heading into a manpower crisis (chart, page 12). War has stimulated production of all types of goods--non-durable as well as durable; and employment has increased accordingly.

Today, however, new trends are in the

making. The squeeze on nonwar industries has begun. Thus, employment in trade is down 5% from January, 1942; construction is down 12%; mining is down 9%, due largely to the sharp drop in oil well drilling and to the lure of other war industries. Durable goods employment is up 29%.

These changes are even more strikingly indicated in terms of percentages of the total nonagricultural working force. Today 24 out of every 100 non-agricultural workers are engaged in durable goods industries as against 21 a year ago. The proportion of federal employment has likewise gone up, from 5% to 8%. But nondurable goods employment has dropped from 18% to 17% (bottom chart, page 12).

### STORE SALES SOAR

ONE EFFECT of the Office of Price Administration's overnight order rationing shoes was to send America's ultimate consumers on a clothes-buying spree. Department store sales soared, as the

to a new high of \$108,000,000,000, almost 40% more than in 1929 and 2½ times as much as in 1932 or 1933. The tendency of people to save a larger proportion of their income as income rises was augmented last year by the payroll deduction and other war bond sales drives, and savings rose to 24% of income payments, compared with 14% in 1941. (A part of this is temporary savings only, accumulated in anticipation of heavy income tax payments in March.) The proportion of income spent therefore declined, but actual dollar expenditures rose almost 10%, forcing the cost of living up about 10% (chart, page 12).

**TEXTILES, MACHINERY, AND TULIPS**

MONTHLY imports from the United Kingdom are down to about \$7,000,000--from \$11,000,000 early in 1942. Textiles and textile machinery constitute around 55% of the total; whisky about 25%. The

rest are mainly tulip bulbs--once obtained chiefly from Holland--leather, fur, cut diamonds, china, and printed books.

**CONTROLLING PRICES**

BEFORE the General Maximum Price Regulation went into effect, the theory of price control for the United States ran something like this: Keep down the prices of basic commodities and machinery, such as steel, coal, copper, lead, zinc, and machine tools, and then costs in basic along-the-line manufacturing will be held down; if these basic costs are held down, then wholesale and retail prices ought to stay in check.

What happened to the theory can now be told. Prices of producers' durable goods have been held in check--at least comparatively. They have not risen nearly so sharply as prices of consumers' goods in general. And that is sig-

**KEY STATISTICS OF THE WEEK**

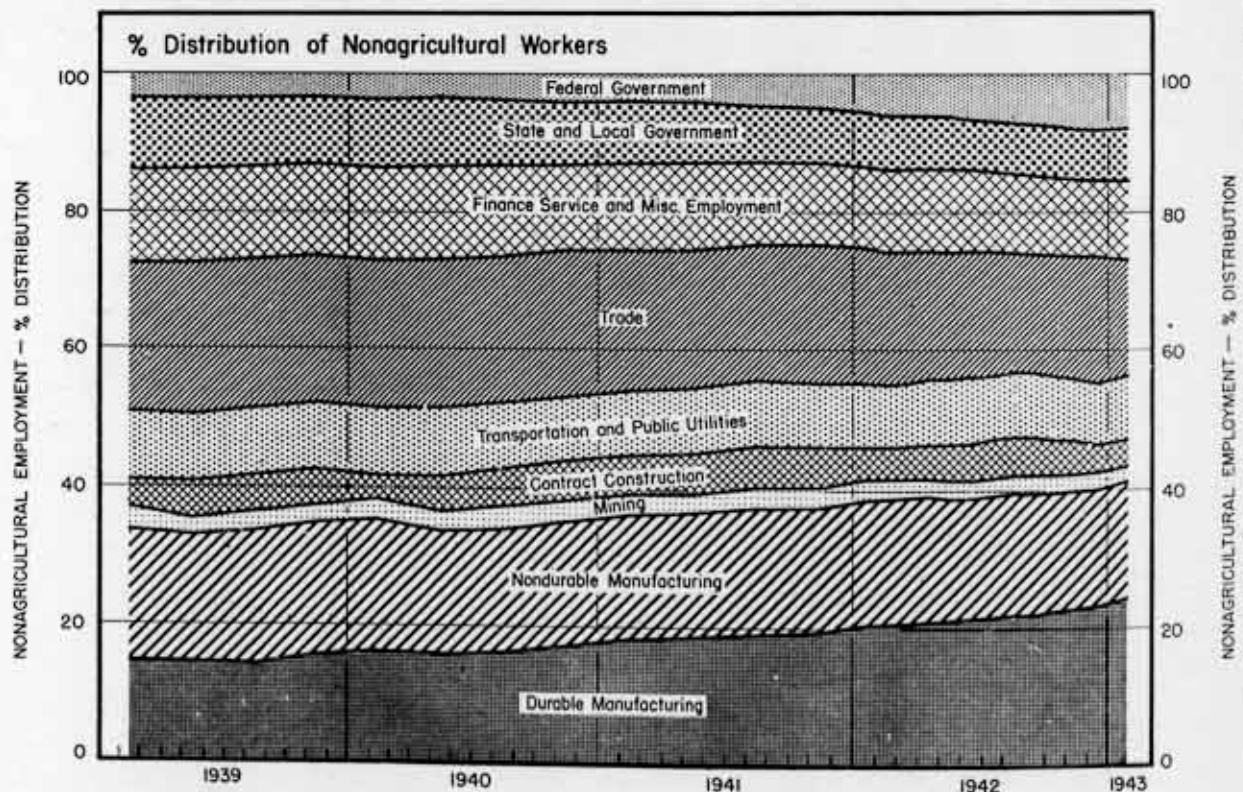
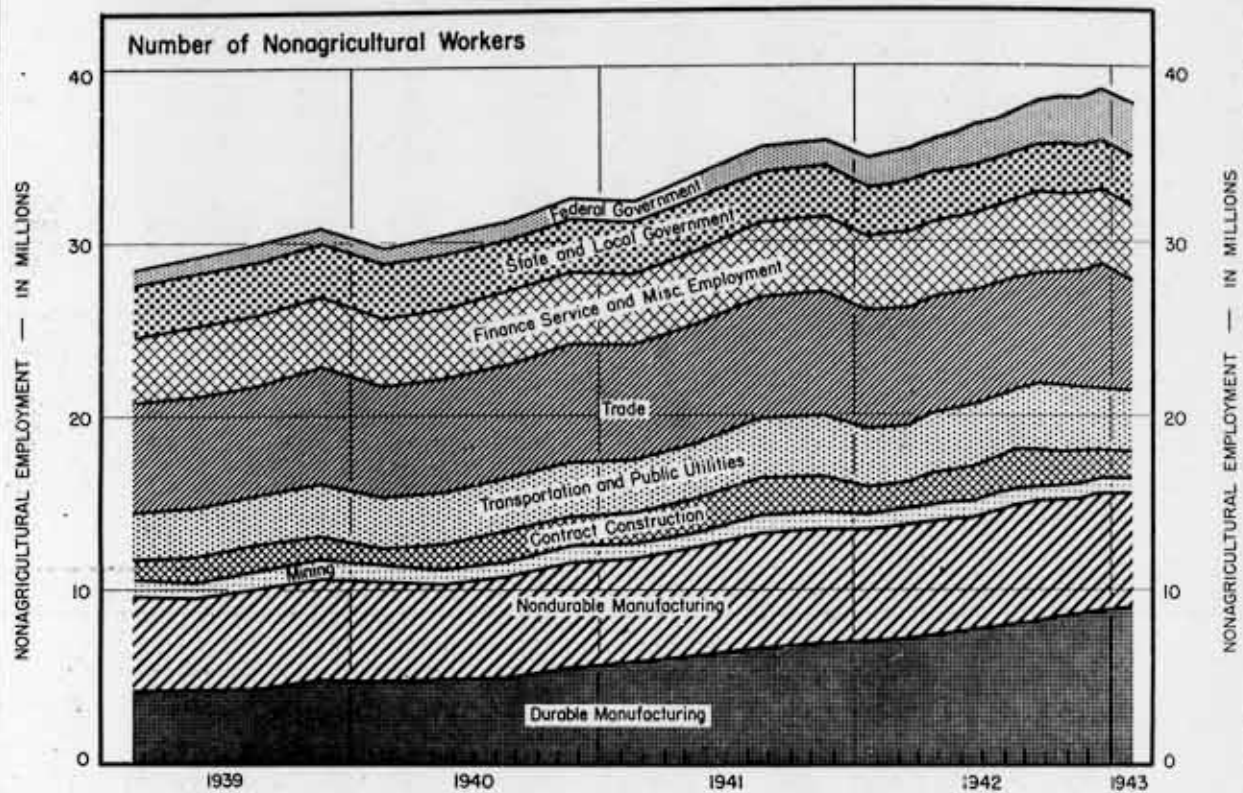
	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War program - Checks paid (millions of dollars) -----	1,418	1,176	1,348	829	385
War bond sales (millions of dollars) -----	297	216	184	139	166
Commodity prices (August 1939 = 100)					
28 Basic commodities -----	172.9	172.7	170.5	167.2	119.0
Controlled -----	162.1	162.2	162.0	162.6	117.7
Uncontrolled -----	200.0	199.1	191.8	179.9	122.1
Nonferrous metal scrap -----	117.5	117.5	117.5	124.3	131.5
Petroleum carloadings (no. of tank cars)					
Total -----	46,157	50,058	51,342	54,691	42,267
Movement into East -----	22,712	24,224	25,358	24,024	1,901
Exports (no. of freight cars unloaded for export Friday)					
Atlantic Coast ports -----	963	926	1,144	1,360	1,517
Gulf Coast ports -----	271	343	431	607	367
Pacific Coast ports -----	723	805	1,021	600	177
Strikes affecting the war effort					
Number in progress -----	7	9	10	15	n.a.
Man-days lost -----	10,470	12,756	9,470	46,165	n.a.
Unused steel capacity (% operations below capacity) -----	3.0	1.8	1.4	3.0	3.6

n.a. Not available.



### WARTIME EMPLOYMENT SQUEEZE

Durable goods manufacturing and the federal government are still expanding. Shrinkage in trade now discernible.





newly introduced series in "Key Statistics of the Week" (page 11) indicates. Recent gains over a year ago have run as high as 45% and 33% but each successive week shows a smaller per cent rise. The latest week is only 26% above a year ago. From now on, it will be interesting to watch for the point at which sales fall below a year ago. Not only have department store stocks been whittled down by record sales volume, but replacements are more difficult; so with less goods to sell, a decline is inevitable.

**STEEL DRUMS ABROAD**

THE STEEL DRUM is the sine qua non of the modern army. Tremendous numbers are needed to carry the petroleum for the motorized equipment and planes. But

steel drums are expendable. Not only bullet holes, but also rust and dirt put these barrels "out of action"—a tiny particle in aviation gasoline could stall an airplane in mid-air.

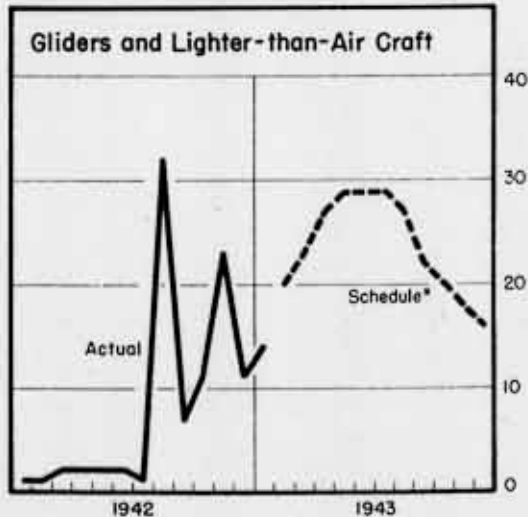
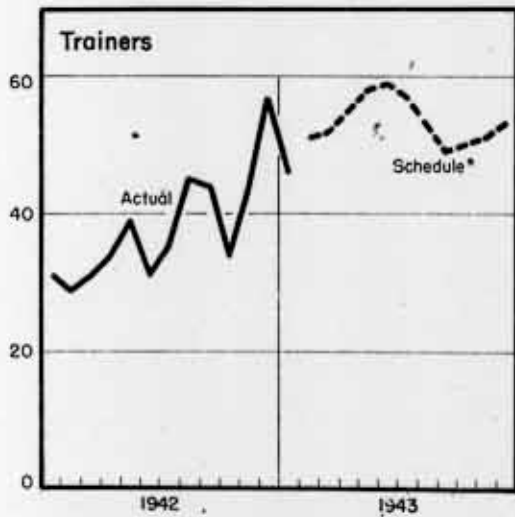
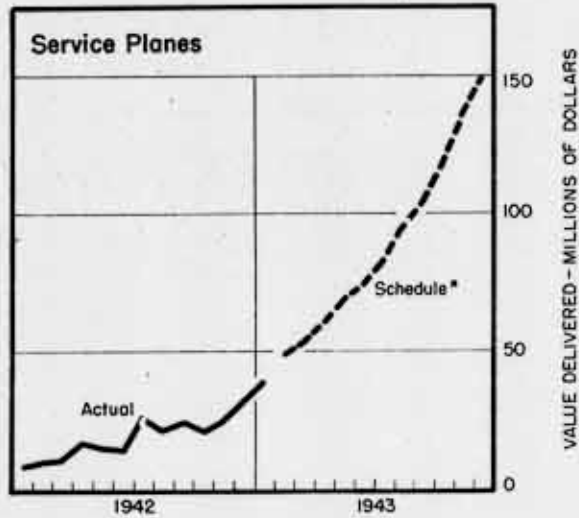
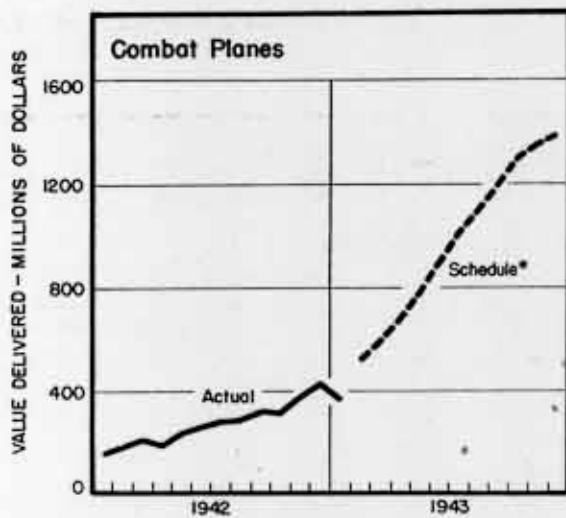
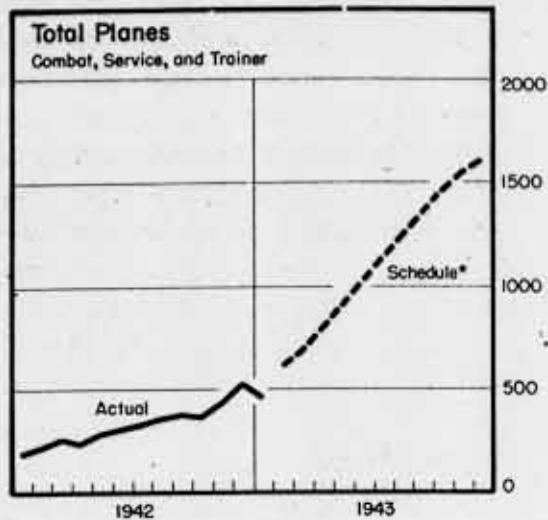
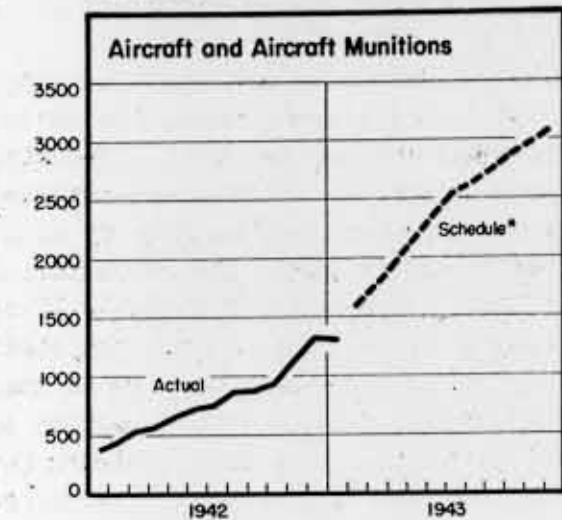
To get the tremendous numbers needed by the Allied armies abroad, the United States has arranged to build drum-making plants overseas. This plant-building program is prompted largely by cargo space considerations. The raw material for these plants—steel sheet—will be supplied by American mills, and steel sheet takes less shipping space than empty drums. Nor is it efficacious to ship drums filled with petroleum; not when the Near East—lying between the major battle areas—contains some of the richest petroleum reserves in the world.

SELECTED MONTHLY STATISTICS							
Federal Employment - Federal Finance - Retail Sales							
	Latest Month*	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Same Month 1940	Same Month 1938
FEDERAL CIVILIAN EMPLOYMENT (thous)	p2,925	2,923	r2,780	r2,422	1,734	948	817
War	p2,165	2,028	r1,928	r1,554	903	n.a.	n.a.
War Department	p1,394	1,280	r1,235	r959	524		
Navy Department	p580	560	548	476	328		
Other War agencies	p191	188	145	119	51		
Nonwar	p760	895	r852	r868	831	n.a.	n.a.
FEDERAL FINANCE (GENERAL FUND)							
Expenditures - Total (billion dollars)	6.1	6.4	6.5	5.2	2.6	.7	.5
War	5.8	6.0	5.8	4.9	2.2	-	-
Nonwar	.3	.4	.7	.3	.4	.7	.5
Revenues - Total	1.0	.8	2.7	.6	.8	.4	.3
Income taxes	.4	.3	2.0	.2	.3	-	.1
Other	.6	.5	.7	.4	.5	.4	.2
War bond sales	.9	1.2	1.0	.7	.7	n.a.	n.a.
"E"	.6	.8	.7	.5	.4	n.a.	n.a.
"F" and "G"	.3	.4	.3	.2	.3	n.a.	n.a.
Net debt	108.6	103.3	97.6	78.5	58.8	40.0	34.7
RETAIL STORE SALES-TOTAL (million dollars)	p4,481	5,983	4,893	4,433	4,355	3,249	2,838
Durable goods	p652	944	776	813	793	758	566
Nondurable goods	p3,829	5,039	4,116	3,620	3,562	2,491	2,271

\* January, except federal finance, February. p Preliminary. r Revised. n.a. Not available.

## PRODUCTION PROGRESS

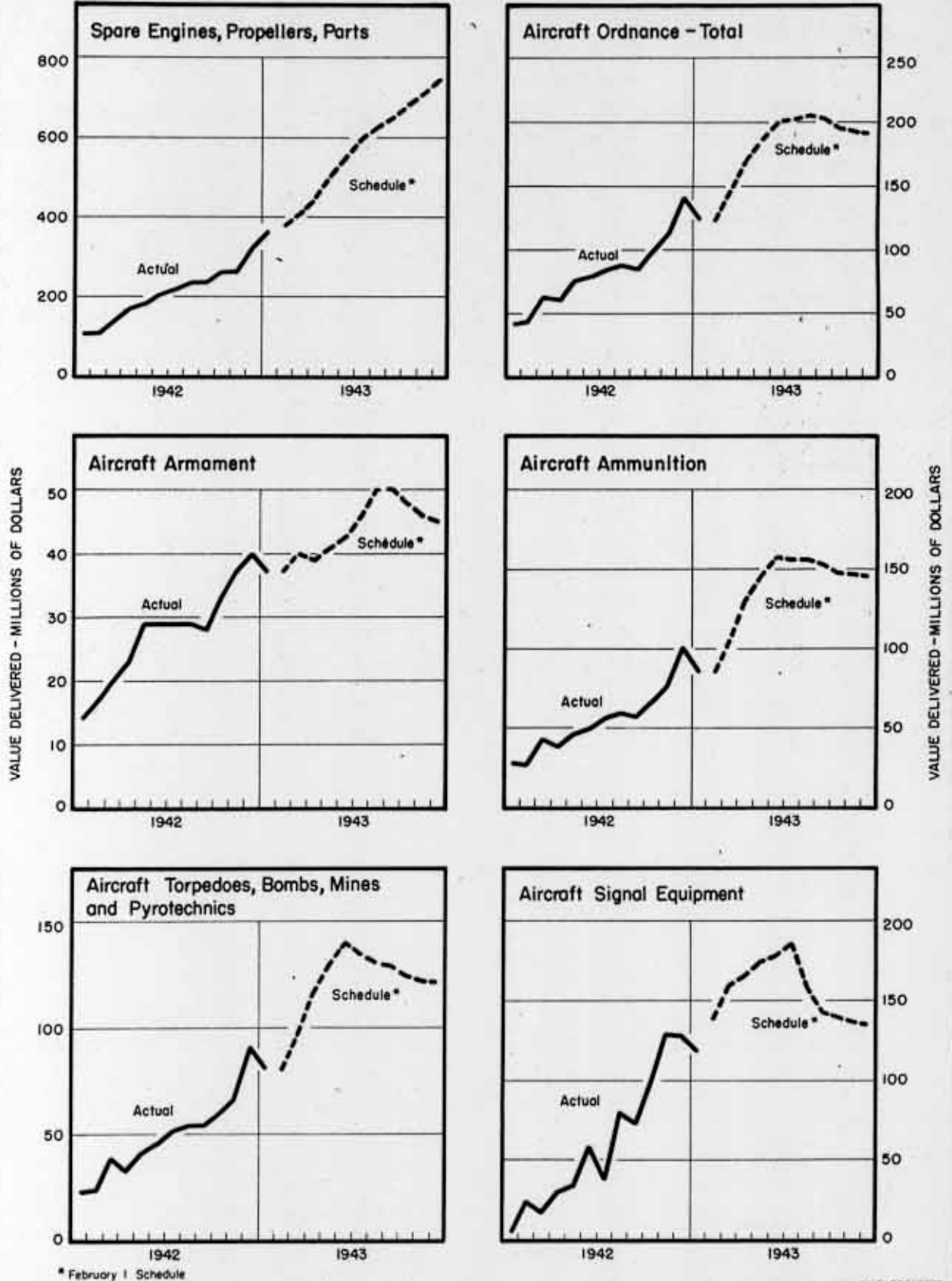
### Aircraft and Aircraft Munitions



\* February 1 schedule.

### PRODUCTION PROGRESS

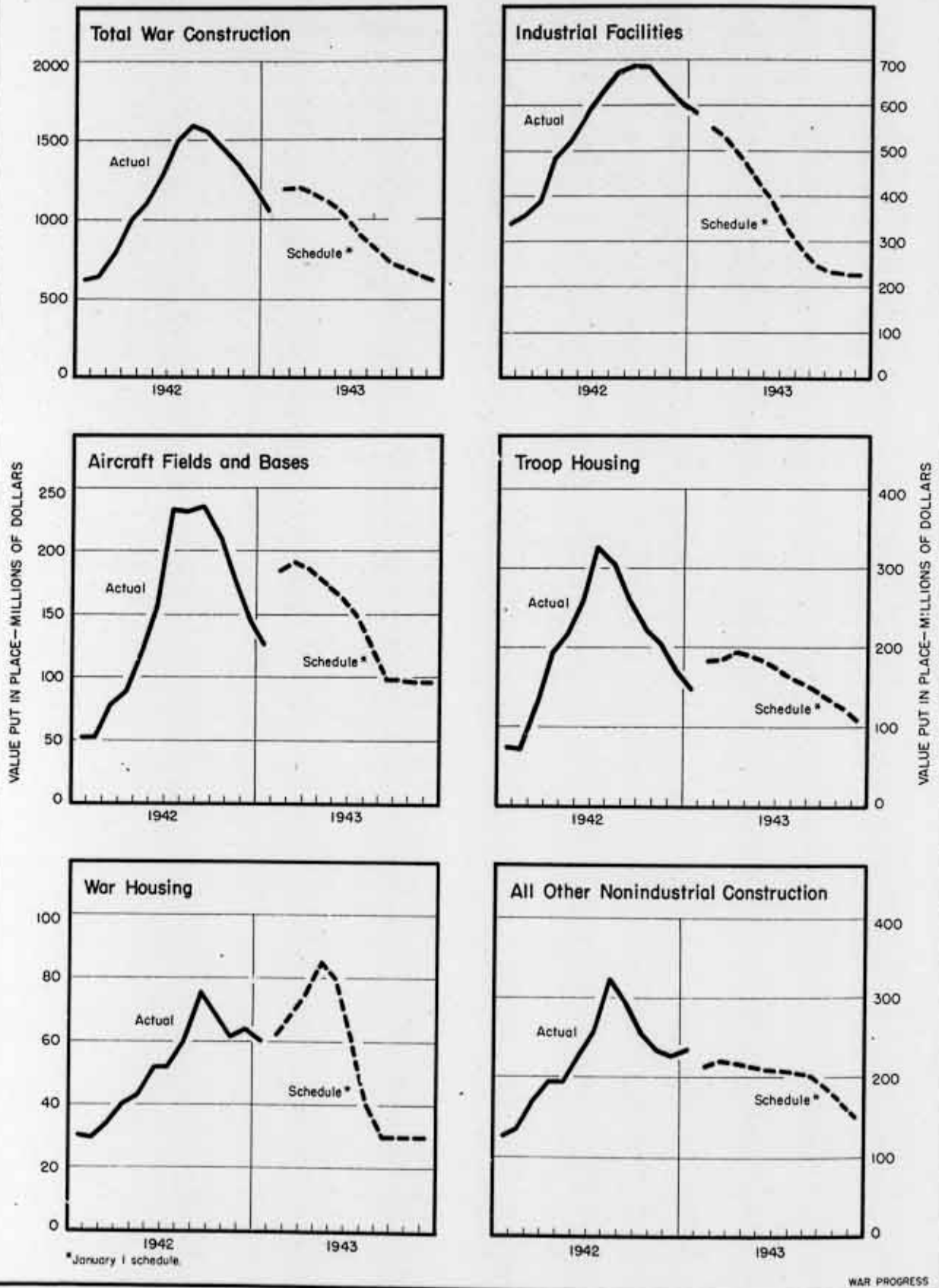
Aircraft and Aircraft Munitions (Continued)





# PRODUCTION PROGRESS

## War Construction



The President

# WAR PROGRESS

*Confidential*  
*(British Secret)*

DECLASSIFIED  
EO 11652, Sec. 1.4(c) and 1.4(d) of GJ  
Executive Dept. Order 11652-12  
By ISIP, 1968 MAR 29 1973

War Production in February  
One-Third of a Nation's Steel

Number 130

March 12, 1943

## Munitions Resume Upward Climb

But it is insufficient to carry total value above the December level. Airplanes, antisubmarines are assuming increasing importance in total program. Construction down.

**WAR PRODUCTION** last month resumed the rise that was interrupted in January, and almost—but not quite—took up where December left off.

Total munitions delivered and put in place amounted to \$4,330,000,000 (preliminary), an 8% increase over January, but January totals suffered from the end-of-the-year borrowing during December. Thus, the January-to-February gain is misleading.

### RECORD DAILY AVERAGE

On the other hand, relative to December's all-time record performance, the February showing is good; output was down less than 1% from the December total. Moreover, February was a 28-day month, as against January's 31 days. Taking that into account, February production ran 10% above December—\$155,000,000 as against \$141,000,000 per day. The January daily average was \$129,000,000.

Despite this new high in output per day, February munitions production lagged behind the first-of-the-month schedule by 7%.

### AIRCRAFT TOPS BOTH MONTHS

Construction continued to decline, as per plan. As a result, war output as a whole—munitions plus war construction—at \$5,400,000,000, was up only 4% over January and was 3% under December. Again, on a daily average basis the showing improves considerably. Feb-

ruary munitions and war construction ran 7% per day above December.

Deliveries of aircraft and related items rose 10% over January, although 5% behind schedules, and were a primary factor in lifting munitions output for the month. Indeed, aircraft production topped December's (chart, page 4).

### BOMBERS SET PACE

Outstanding were combat planes, up 23%, though 13% under 8-L (WP-Mar5'43, -pl). Bombers set the pace in the combat group, climbing 27% (11% behind schedule), while fighters and naval reconnaissance planes were up 8%, though 19% behind 8-L.

As in January, planes which recently got into production fell further behind the 8-L schedule set for them than planes which had been in production for more than six months. The same lag of new models was marked throughout 1942, when such types fell short of the first-of-the-year schedule by 40%, and older models by only 4%.

### ORDNANCE BEHIND DECEMBER

Ground army munitions (ordnance and signal equipment), at \$995,000,000, ran 4% ahead of schedule and 11% above January, but lagged behind December's record-breaking total of more than \$1,100,000,000. Combat vehicles, though 21% ahead of January, account for this group's lag behind December. At \$255,000,000, they were \$144,000,000 below December. Guns and equipment were up 9% and just about on schedule. Ammunition equaled January output and exceeded schedule by 9%.

Aircraft bombs, up 12%, were among



ammunition items to rise significantly over the preceding month. Production of the biggest U.S. bomb--the one-ton block-buster--is approaching 10,000 per month. The junior block-busters--one-half ton each--are running at more than 50,000 per month.

**TONNAGE RECORD SET**

Naval ships, plus equipment and ordnance, rose 3% over estimated value put in place in January, but in terms of schedule were short 21%. Tonnage actually delivered was the highest on record, amounting to 180,000 tons. In all, some 900 vessels were delivered, of which 12 were major combat ships with an aggregate displacement of 57,000 tons.

**ANTISUB CRAFT LAG**

Deliveries of antisubmarine craft continue to lag. Destroyer escort (DE) vessels are still held up, apparently by complications of materials as well as of small but crucial fittings and equipment items (WP-Feb5'43,p5). Though 14 DE's were scheduled for last month, only three were delivered. Two of these go to the British; the other has been

taken over by the U.S. Navy. Still scheduled for future delivery are more than a thousand DE's.

Building of regular combat destroyers is proceeding far more rapidly in terms both of schedules and month-to-month increases, than building of the smaller, simpler, less heavily equipped DE vessels. The regular destroyers, in general, are being built in shipyards with a substantial background of experience with them. Most of the DE's are being built in yards with little experience on that particular type of vessel.

Partly because of the DE lag, the minor combat group, as a whole, came to only half its schedule in value, even though deliveries were about double those of January.

**NEW HIGH FOR MERCHANTMEN**

Merchant vessels, though reaching their highest total to date, also fell behind schedule (WP-Mar5'43,p6).

A summary of individual items, comparing February with the January actual and the February schedule (ranged in order of monthly gain) follows:

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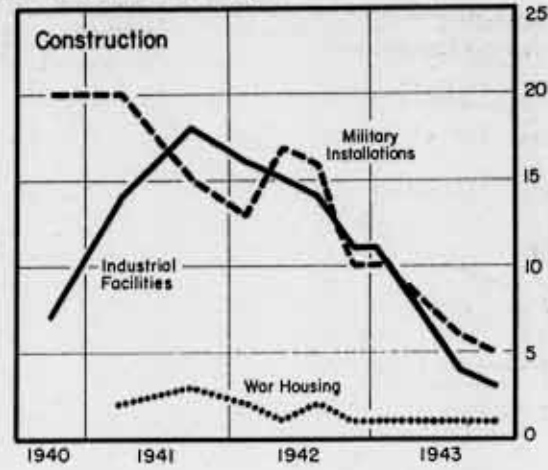
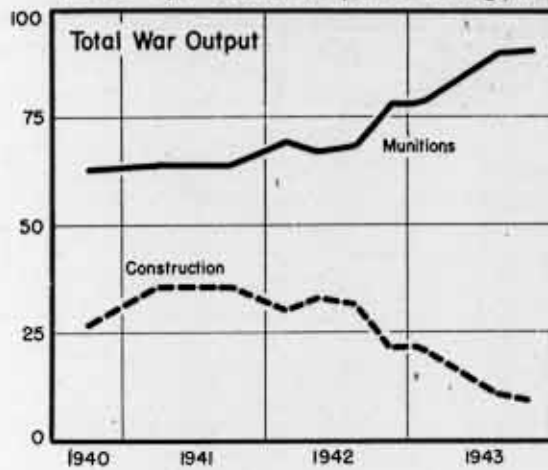
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**February Deliveries**  
As % of January    As % of Schedule

Total tanks.....	133%	98%
Medium tanks.....	127	108
Combat planes.....	123	87
Merchant vessels....	122	84
Medium wheeled art. (155mm. howitzer)..	119	81
Major combat vessels	118	90
Self-propelled art..	114	110
Heavy wheeled art. (115mm. gun).....	112	100
Landing vessels.....	105	93
Trainer planes.....	104	94
Amm. for small arms & infantry weapons.	100	106
Direct fighting items continued to		

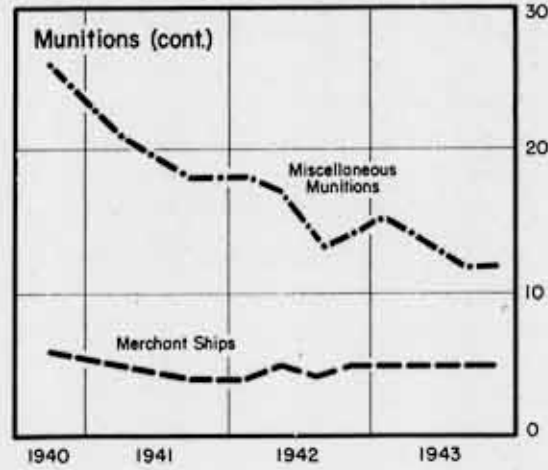
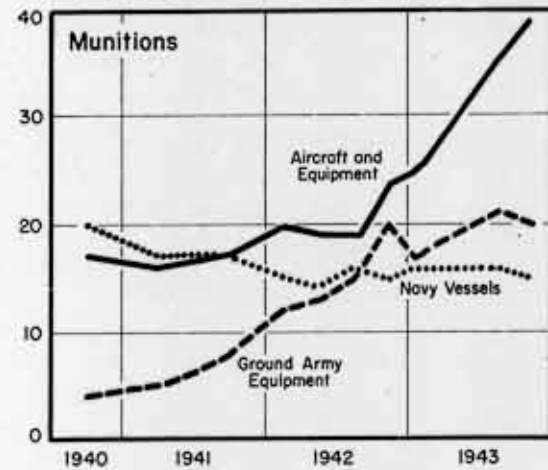
## SHIFTING PROPORTIONS IN WAR OUTPUT

Tooled Up: Munitions production gains, while construction drops.



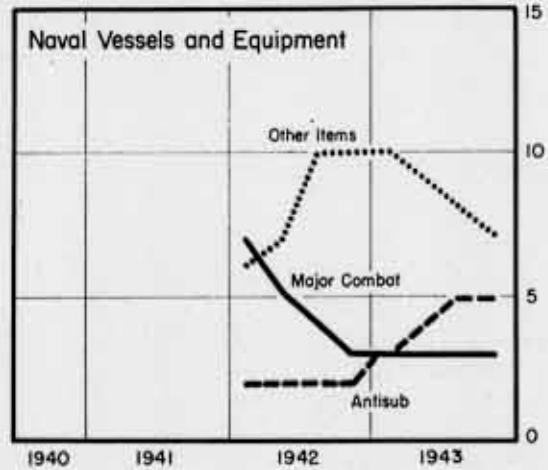
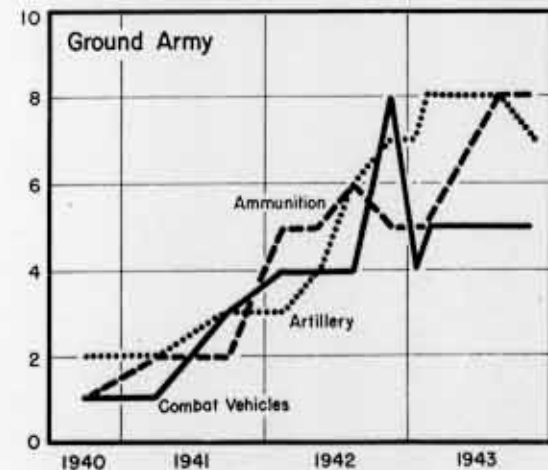
Aircraft is a rapidly rising percentage; miscellaneous munitions down.

% OF TOTAL WAR OUTPUT ( MUNITIONS AND WAR CONSTRUCTION )



% OF TOTAL WAR OUTPUT ( MUNITIONS AND WAR CONSTRUCTION )

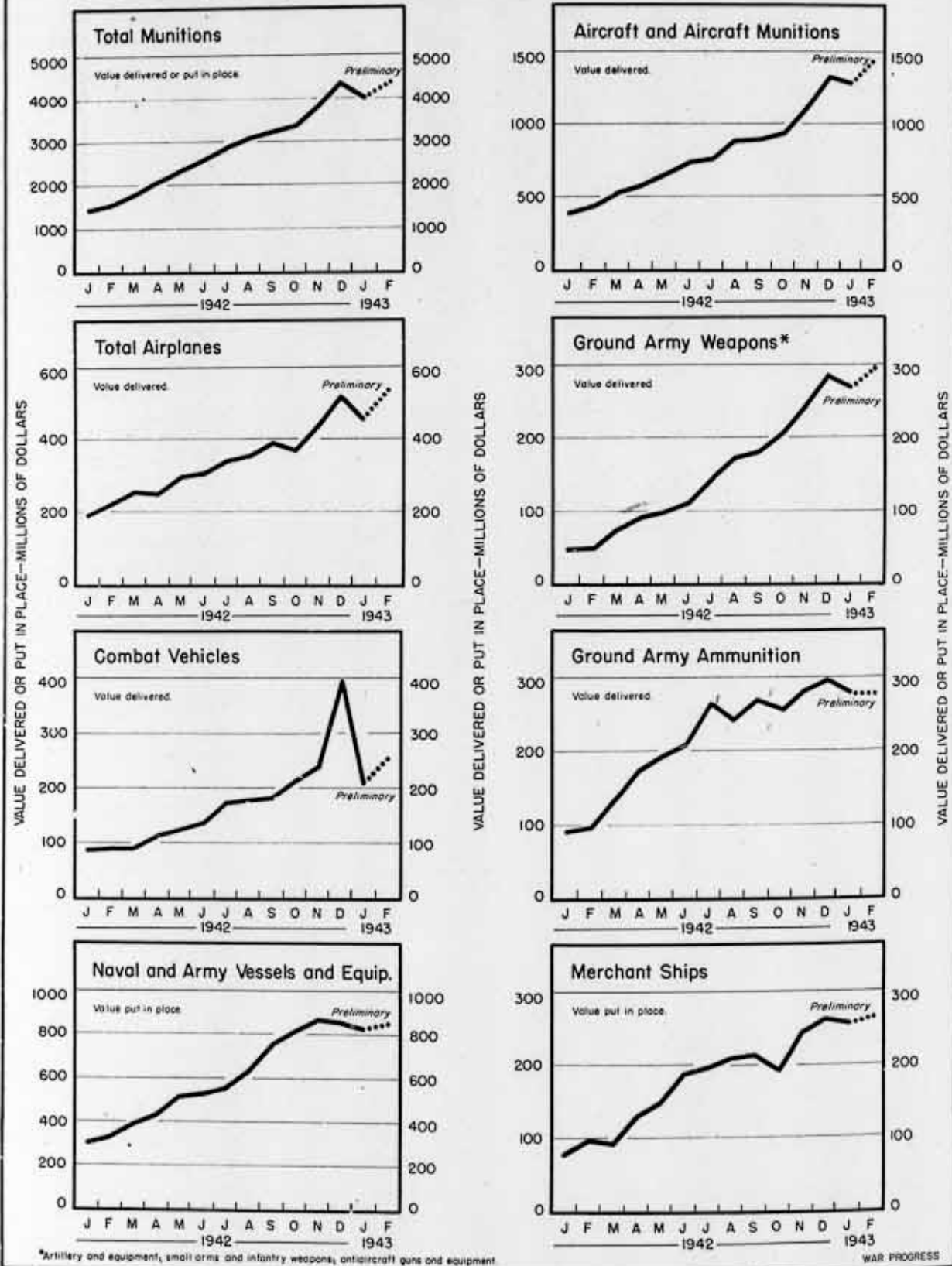
Combat vehicles, ammunition, antisub program rise, big ship percentage drops.



Actual through February; 3rd and 4th quarter schedules for 1943.

## WAR OUTPUT RECOVERS FROM JANUARY DROP

But some major groups are still below December.





nificant. For, in any period of industrial expansion, producers' goods go up with the best of them. During the 1935-37 production boom, producers' goods increased 17%, consumers' goods only 9%. But in the war-created expansion from January, 1940, to date, the relationship was reversed: Consumers' goods rose 36%, producers' goods 23%.

Thus the early theory of OPACS (before it became OPA) seems only partially justified. Though producers' goods have been held in rein much more sharply than consumers' goods, the rise in prices did get through to the retail counter. For this, however, there is an explanation: farm prices, which for so long were virtually uncontrolled.

## SELECTED MONTHLY STATISTICS

### Employment - National Income - Federal Finance

	Latest Month	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Same Month 1939	Same Month 1937
Nonagric. employment (thousands)	p38,437	r38,478	38,348	36,346	35,926	30,932	30,270
Durable goods mfg.	p8,752	r8,591	8,439	7,702	7,107	4,922	4,961
Nondurable goods mfg.	p6,684	r6,722	6,794	6,431	6,456	5,824	5,484
Government	p5,713	r5,672	5,520	4,958	4,535	4,023	3,897
Other	p17,288	r17,493	17,595	17,255	17,828	16,163	15,928
Federal civilian employment (thousands)	p2,780	r2,726	2,600	2,098	1,560	n.a.	n.a.
War - total	p1,909	r1,837	1,693	1,243	739	n.a.	n.a.
War Department	p1,216	r1,173	1,049	731	409	n.a.	n.a.
Navy Department	p548	r531	514	416	282	n.a.	n.a.
Other war agencies	p145	r133	130	96	48	n.a.	n.a.
Nonwar - total	p871	r889	907	855	821	n.a.	n.a.
Income payments (million dollars)	10,394	r10,576	r10,243	r8,670	r8,111	5,977	5,689
Salaries and wages	7,407	r7,263	r6,984	r6,320	r5,612	4,057	3,814
Manufacturing, mining, construction, agriculture	5,948	r5,866	r5,725	r5,279	r4,769	3,379	3,200
Government	1,435	r1,369	r1,229	r983	r764	545	495
Other	24	28	30	58	79	133	119
Other income payments	2,987	r3,313	r3,259	r2,350	r2,499	1,920	1,875
Income payments, annual rate (adjusted for seasonal, billion dollars)	124.9	r121.3	r118.2	r109.6	r98.3	73.8	70.0
Treasury gen'l fund (billion dollars)							
Expenditures - total	6.50	6.36	5.94	4.53	2.54	0.83	0.64
War	5.82	6.04	5.48	3.83	1.85	-	-
Nonwar	.68	0.32	0.46	0.70	0.69	0.83	0.64
Revenues - total	2.70	0.60	0.61	2.49	1.21	0.52	0.82
Income taxes	1.97	0.20	0.21	2.09	0.77	0.32	0.49
Other	0.73	0.40	0.40	0.40	0.44	0.20	0.33
War bond sales	1.01	.74	.94	.63	0.53	-	-
Net debt	97.63	93.03	88.01	69.43	54.38	39.47	34.31
Gov't-guaranteed obligations	4.30	4.26	4.26	4.57	6.32	5.70	4.64

\*November, except federal finance figures, which are for December. n.a. Not available. p Preliminary. r Revised.

dominate the war program as a whole during February. The tooling-up phase is definitely on the wane. Thus construction, including military installations, continues to take a decreasing share of aggregate output (chart, page 3).

**URGENCY RATING FOR PLANES**

On the other hand, aircraft continues to account for an increasingly large part of the total war program--munitions and war construction. This accords with the high wartime urgency rating accorded airplanes, especially heavy bombers.

In all cases, of course, the marked decrease in construction tends to boost the percentage levels of all direct ordnance items--as the charts on page 3 make plain. But combat vehicles rise only in line with total munitions and war construction as a whole, running along about 5% of the total.

The relatively reduced importance of major combat vessels relative to aggregate

war output is also plainly indicated; they run about 3% of the total value today and are scheduled to hold this share during the rest of the year. Antisubmarine vessels, however, are scheduled to rise until percentagewise their proportion in the total war output is almost doubled. Remaining naval items (including troop transports, equipment, naval maintenance, guns and fire control, ammunition, torpedoes, mines, etc.) have been running about 10% of all war output, but are scheduled to drop sharply later in the year.

**ANTISUBS SHARE SPOTLIGHT**

In short, both in dollar totals and in percentages, two programs are in the spotlight for rapid expansion: combat aircraft and antisubmarine vessels. But of course individual programs, not sufficiently large to be included among the major groupings analyzed in the chart on page 3, will also show up strongly in rate of increase. Among such pro-

**PRODUCTION PROGRESS - Preliminary**

Value delivered or put in place - millions of dollars.

	February Preliminary	January Actual	% Change	February Schedule *	% Change Feb. Prelim. vs. Schedule
Total munitions and construction.....	\$5,400	\$5,173	+ 4%	\$5,854	- 8%
Total munitions.....	4,330	4,025	+ 8	4,660	- 7
Combat munitions (a).....	3,529	3,266	+ 8	3,831	- 8
Aircraft and related munitions.....	1,427	1,295	+10	1,495	- 5
Ground Army munitions (b).....	995	896	+11	954	+ 4
Naval and Army vessels and equipment.....	843	820	+ 3	1,062	-21
Merchant vessels.....	264	255	+ 4	320	-17
Combat planes.....	450	366	+23	515	-13
Service combat planes.....	36	39	- 8	48	-25
Aircraft ordnance.....	119	111	+ 7	121	- 2
Combat vehicles.....	255	211	+21	272	- 6
Guns and equipment (c).....	303	277	+ 9	297	+ 2
Army ammunition.....	279	279	0	256	+ 9
Ground signal equipment.....	158	129	+23	129	+23

\*As of February 1. (a) Fighting Items: Aircraft and aircraft munitions; ground army ordnance and ground signal equipment; naval, army, and merchant vessels and equipment. (b) Ground army ordnance and ground signal equipment. (c) Tank cannon; artillery and equipment; antiaircraft guns and equipment; small arms and infantry weapons.

grams are bombs, radar, and certain types of guns and ammunition.

One overall conclusion is indicated by the February performance. A major task still lies ahead. Though munitions output, based on a 30-day month, ran at a rate of \$4,650,000,000, it still must rise considerably to attain the rate required to meet the average monthly output of nearly \$7,000,000,000 scheduled

in the final quarter of 1943.

And in individual programs, the rate of gain will have to be even greater. As noted in War Progress last week, aircraft is a particular case in point. February output must more than double by December, 1943, to attain the 8-L goal. In merchant ships, though the rise is not so great, still it is substantial (WP-Mar5'43,p6).

## Qualitative Question in Steel

Total output in '43 will exceed prewar levels by 75%, but pinch is in specially treated steels - alloys and high-grade carbon - required for munitions purposes.

BACK IN PREWAR 1939, U.S. steel mills turned out 52,600,000 tons of ingot steel. This year, output will run to 91,000,000 tons--possibly more. That 38,400,000-ton increase in itself constitutes a sizable boost--75%--in the load on steel-making facilities. Yet it hardly indicates the full magnitude of the increased load.

For back in 1939, six out of every seven tons of steel were ordinary carbon steel. Only one out of each seven tons was "high-quality." The special requirements of steel for munitions purposes has more than doubled that impact.

### ALLOY SHARE RISES

The effect is readily traceable in the rising proportion of alloy steel to total steel output, as follows:

	<u>Alloy</u> (Million tons)	<u>Total</u>	<u>% Alloy</u>
1939....	3.2	52.6	6%
1940....	5.0	66.8	8
1941....	8.2	82.5	10
1942....	11.3	86.0	13
1943....	15.0	91.5	16

Nor is that all. Output of high-grade carbon steel has just about paralleled the growth in alloy steels (though definitive statistics are not available). The result is that 30,000,000 tons of steel today are high-quality--four times the 7,000,000 tons of prewar days and one out of every three tons melted. Even so, there is not enough high-grade steel to go around.

### WAR CALLS FOR QUALITY

Quality steels are needed for a wide range of munitions products and parts--aircraft tubing, aircraft engine crankshafts, bullet cores, armor-piercing shells, etc. (table, page 8). And the rapid expansion of the munitions program as a whole from \$32,500,000,000 last year to more than \$70,000,000,000 (with extra emphasis on aircraft) this year, is itself a commentary on the demand for specially treated steel.

Special demands--for substitution--are always pressing down on the supply. Since steel is the country's greatest volume metal--91,000,000 tons as against copper's 3,000,000 and aluminum's 1,500,000--it is being called upon to serve as a replacement metal. When copper becomes scarce, engineers have looked to steel; similarly with aluminum, etc.

A particular case in point is high-



grade steel for shell and cartridge cases. In the laboratory stage for a year, this substitution is now developing into a large-scale operation: from 9,300 tons monthly in September to 22,000 tons today and to 83,000 tons in July, or 1,000,000 tons a year. And though this demand for cases constitutes only 3% of the country's estimated total high-grade steel output, it is sufficient to force a reallocation of supply. If ammunition is to get the steel, some other products will have to do without it. That's how tight the situation is.

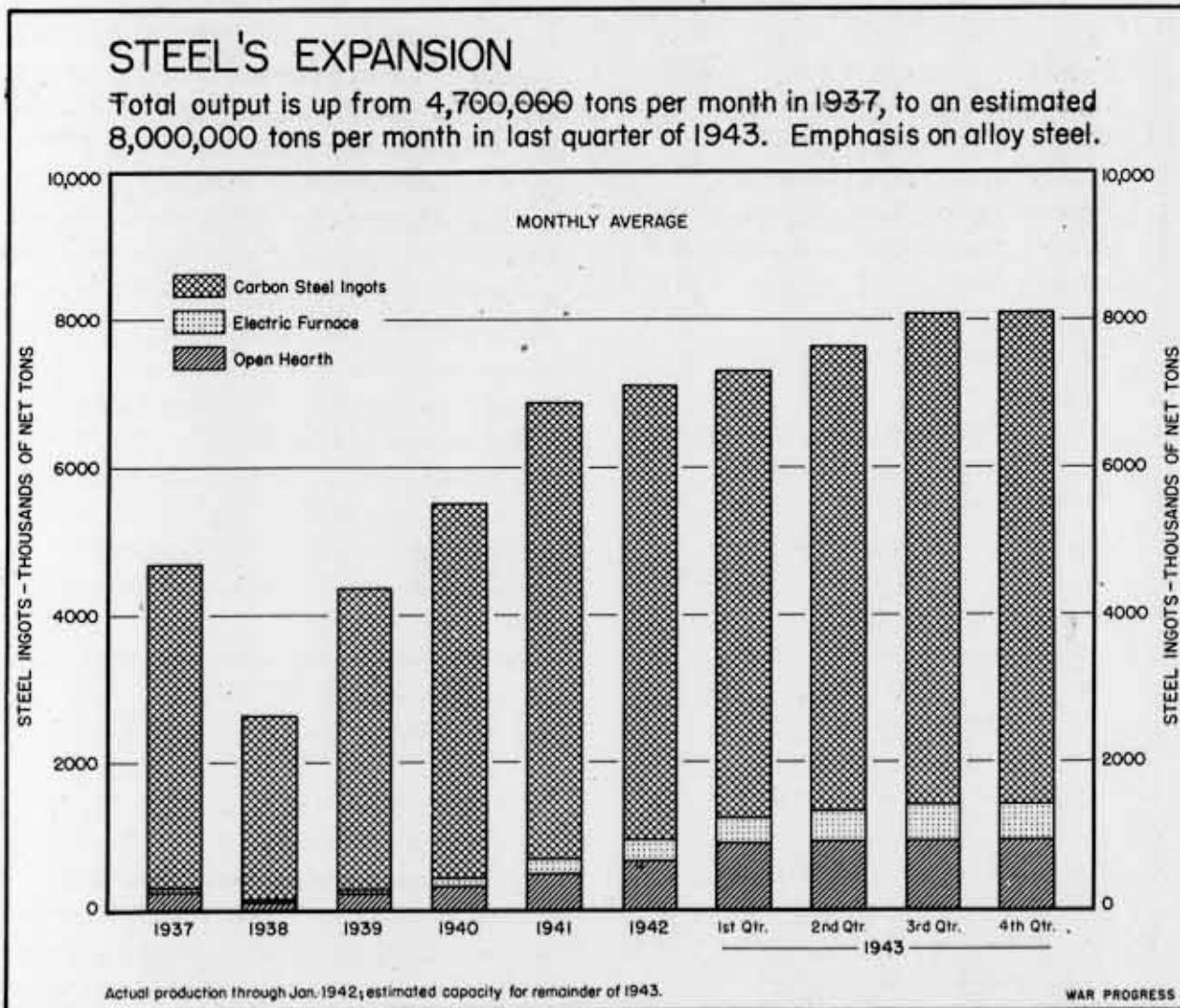
And it cannot be alleviated by construction of new facilities. Already, the country's high-grade steel capacity has been boosted sharply. Electric fur-

nace capacity for making alloy steels will more than double in less than two years--from 3,200,000 tons at the end of 1941 to 6,500,000 tons by September, 1943. Of this 3,300,000-ton increase, 2,500,000 comes from new construction and 800,000 from improved operating techniques.

CONVERTING OPEN HEARTH

Similarly, open-hearth furnaces have been converted over to alloy steels. As against 7,971,000 tons in 1942, open-hearth production of alloy steels is estimated at 11,100,000 this year.

But the problem reaches beyond alloy open-hearth and electric furnaces. All high-grade steels must be specially



treated—poured into refractory-topped ingot molds for hot-topping, which gives the steel a uniform density; outer surfaces must be cleaned through chipping and, finally, the ingots must be cooled slowly in temperature-control facilities. These facilities—hot topping,

chipping, and slow-cooling—constitute the overall bottleneck to greater production of high-grade steels.

Indeed, there is a further limit on the production of alloy steels—the alloys themselves—nickel, chromium, tungsten, vanadium. Already, the scarcity of alloys has necessitated "stretching"—using less and less alloy per ton of steel. At the same time, substitute alloys were sought. Molybdenum is a particular example.

#### MOLY NOW SHORT

At the outset of the war, molybdenum was in large supply; the tendency was to use it instead of the scarcer alloys (just as high-grade steel has replaced copper). But moly has been so aggressively pushed as a substitute that today (again like high-grade steel) requirements are outrunning supply, in this case by an estimated 15%.

To meet the early shortage of alloys, National Emergency (NE) steels were developed, using moly and other alloying elements. (However, this has not impaired the standards of usefulness: Present low-alloy armor plate takes the same ballistic tests as the old analysis did.) The average use of nickel per ton of alloy steel has dropped from 17.6 pounds in 1940 to 12.3 pounds last year and chrome dropped from 27.9 pounds to 20.6 pounds (chart, page 9). These proportions may drop even further this year; some NE steels are now being used in aircraft tubing, and aircraft landing gear may be next.

#### ORDINARY STEEL TIGHT

Ordinary steels are tight, too. Supply is inadequate to meet demand for such vital uses as railroads and industrial maintenance, although some requirements have been declining—the drop in construction, for example, is reducing de-

### WHERE ALLOY STEELS GO

OF THE 1,175,000 TONS of alloys scheduled in the January melt, 16.6% went into aircraft uses, 13.6% was used for ammunition, and the same amount went for tank and combat vehicles. Distribution of the alloy melt by uses follows:

<u>Purpose</u>	<u>% of Total</u>
Aircraft.....	16.6
Ammunition (shot steel & bombs).....	13.6
Tank & combat vehicles....	13.6
Motor transport.....	3.8
Armor plate.....	8.0
Artillery.....	3.7
Bullet cores.....	1.7
Small arms.....	1.7
Other army uses.....	1.4
Heavy armor plate (Navy)..	1.4
Other armor plate.....	1.4
Hi-tensile ship plate.....	2.6
Ships.....	2.0
Heavy forgings (Diesel, shafts, & crankshafts)...	4.3
Heavy guns.....	1.4
Other naval uses.....	.3
Bearings.....	3.6
Lend-lease (shot, aircraft steels, etc.).....	7.1
Maritime.....	.7
Exports.....	.8
Essential civilian.....	4.2
Warehouses.....	1.4
Other uses.....	3.7

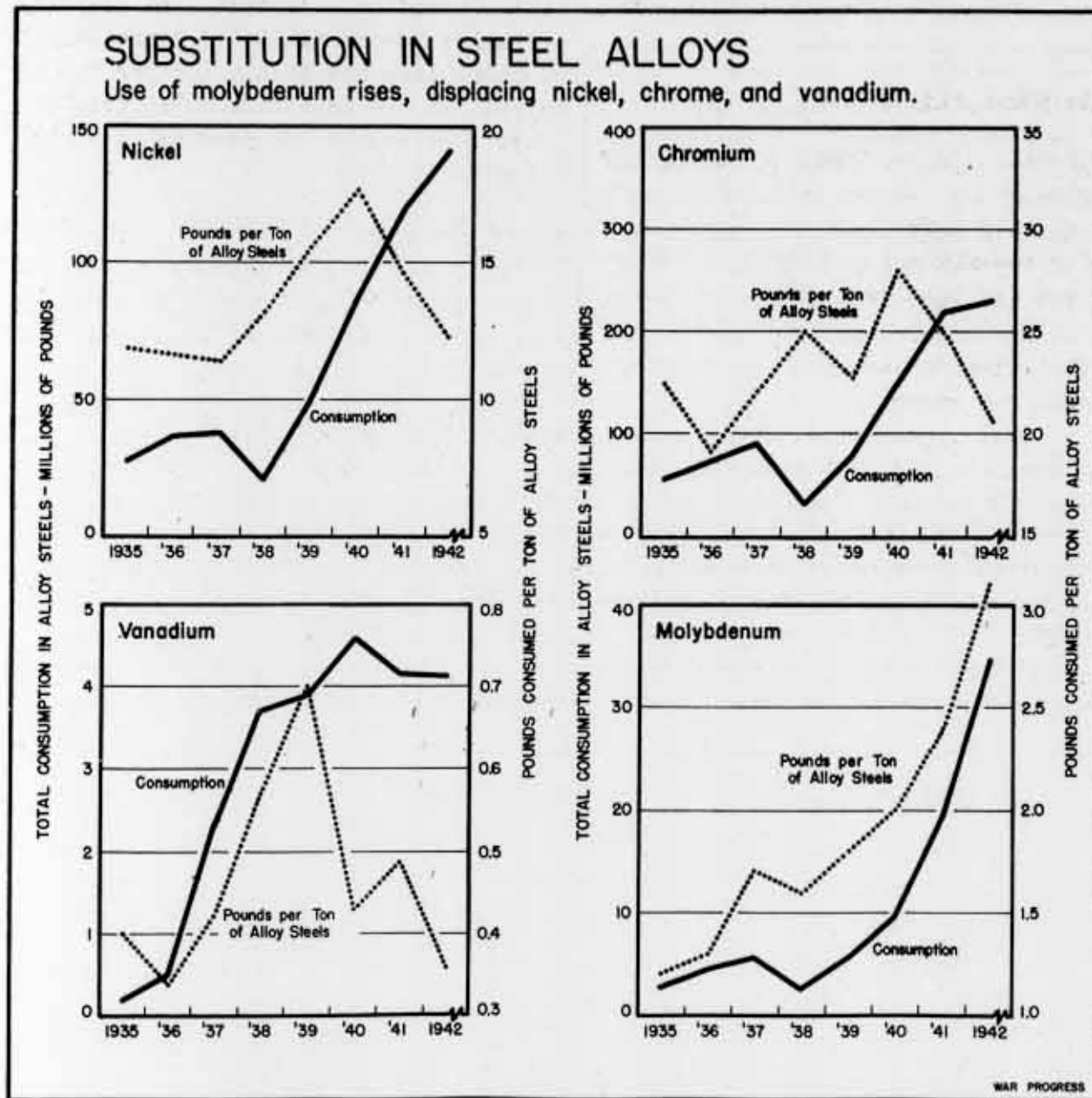
mand for structural steel and reinforcing bars. And the main problem in ordinary carbon steel is to schedule production of shapes, forms, and sizes--an extremely difficult job, since shifting quarter-to-quarter munitions require-

ments shift emphases from one product to another.

But all in all, at the outset of 1943, one-third of the nation's steel--the high-quality--is about two-thirds of the nation's steel problem.

### SUBSTITUTION IN STEEL ALLOYS

Use of molybdenum rises, displacing nickel, chrome, and vanadium.



THE SHORTAGE OF NICKEL, CHROME, AND VANADIUM IN 1940 LED TO THE SUBSTITUTION OF MORE PLENTIFUL MOLYBDENUM AS AN ALLOY IN STEEL. AS A RESULT, USAGE OF NICKEL DROPPED FROM 17.6 LBS. PER TON OF ALLOY STEEL IN 1940 TO 12.3 IN 1942, CHROME DECLINED FROM 27.9 LBS. TO 20.6, AND VANADIUM FROM .43 LBS. TO .36. NOW DEMAND FOR MOLYBDENUM IS UP SO SHARPLY THAT ESTIMATED 1943 REQUIREMENTS EXCEED SUPPLY BY

21.8%; AND THE NET STOCKPILE OF 6,000,000 LBS., EXCLUDING WORKING INVENTORIES, WILL FILL ONLY PART OF THE GAP. IT IS HARD TO REVERSE THE SUBSTITUTION PROGRAM--NICKEL, CHROME, AND VANADIUM CONTINUE TIGHT. EITHER EXPORTS, WHICH CALL FOR 30% OF 1943 REQUIREMENTS, WILL HAVE TO BE CUT, OR THE USE OF MOLYBDENUM IN MILITARY STEELS (TAKING 55% OF 1943 REQUIREMENTS) WILL HAVE TO BE REDUCED.



## Lend-Lease: More Guns, Less Butter

Early emphasis was on agricultural products, but military shipments have come up from one-fifth to more than half the total. Exports run to \$540,000,000 monthly.

ALTHOUGH the lend-lease program started in the spring of 1941, it did not develop real momentum until 1942, when British dollar balances in the United States were running low and direct purchases of munitions and goods from this country had begun to fall off. At the same time, accelerated production of munitions, metals, and machinery increased the volume of American war goods available for export.

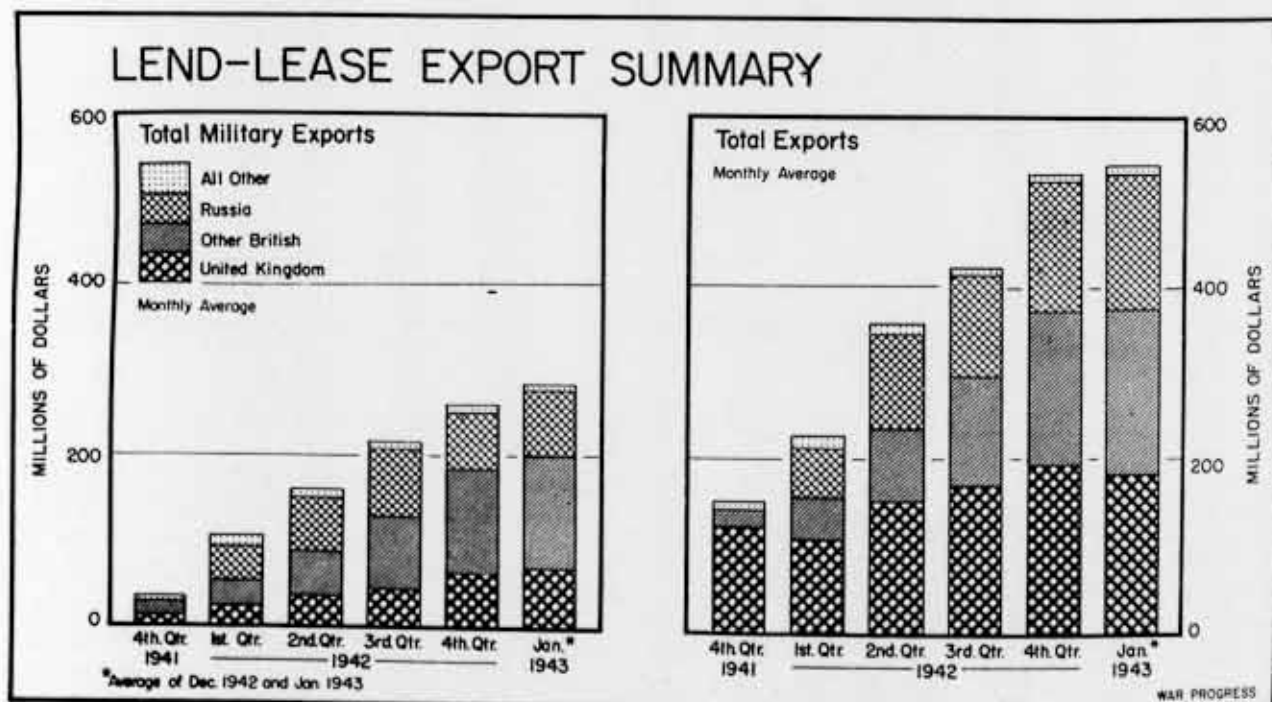
Today lend-lease exports have attained a record high and a steady level. For four months, lend-lease goods have left the United States at a rate of about \$540,000,000 monthly, three and one-half times the volume in the last quarter of 1941.

With the expansion of the program went changes in its composition. In 1941, the

United States shipped mainly "butter"-- agricultural products. In 1942, exports consisted chiefly of "guns." Thus, although all types of lend-lease shipments increased sharply (chart, below), the proportion of agricultural products dropped from 47% at the end of 1941 to 18% in January, 1943. Meanwhile, military shipments--ordnance, combat and other vehicles, and aircraft--jumped from about one-fifth to more than one-half the total. Industrial goods and watercraft as a proportion of the total have stood still--29% at the end of 1941 and 31% today.

### RUSSIA'S SHARE CLIMBS

In 1941, lend-lease helped the British, Dutch, Chinese, and others fighting the Axis; exports to Russia, which began late in the year, were negligible--only \$500,000. The bulk--77%--went to the United Kingdom. Last year, 28% of all lend-lease exports went to Russia. The United Kingdom's share fell to 40%; however,



## KEY STATISTICS OF THE WEEK

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War program - Checks paid (millions of dollars)-----	1,516	1,431	1,417	1,254	641
War bond sales (millions of dollars)-----	152	273	182	167	160
Commodity prices (August 1939=100)					
28 Basic commodities-----	176.7	176.0	174.6	157.5	165.9
Controlled-----	162.4	r162.5	162.1	161.2	162.2
Uncontrolled-----	213.2	210.6	206.7	183.5	175.5
Nonferrous metal scrap-----	117.5	117.5	117.5	115.8	132.5
Textile scrap-----	172.6	172.2	172.8	171.1	175.3
Petroleum carloadings (no. of tank cars)					
Total-----	52,475	52,239	52,721	55,234	50,768
Movement into East-----	25,870	26,592	25,812	27,442	10,073
Exports (no. of freight cars unloaded for export Friday)					
Atlantic Coast ports-----	1,327	1,406	1,223	1,612	1,630
Gulf Coast ports-----	459	448	335	287	478
Pacific Coast ports-----	1,003	883	888	626	360
Unused steel capacity (% operations below capacity)-----	0.9	1.8	0.7	3.6	2.6
Department store sales (% change from a year ago)-----	14	26	19	26	28
r Revised					

the portion going to other parts of the British Empire jumped from 19% to 29%. Russian shipments amounted to \$1,315,000,000 during 1942, compared with \$2,440,000,000 for the United Kingdom, \$1,495,000,000 for other parts of the British Empire, \$63,000,000 for China, and \$70,000,000 for all other countries. The current order of lend-lease countries in volume of monthly shipments follows:

	Dec. '42-Jan. '43 Average (Millions)
United Kingdom.....	\$184.8
Russia.....	159.2
Egypt.....	51.6
India.....	43.9
Australia & New Zealand	39.2
Iraq & Iran.....	18.0
Union of South Africa..	9.6
Brazil.....	2.8
Turkey.....	1.9
Nigeria.....	1.8
Belgian Congo.....	1.2
China.....	0.7

In the last two months, Great Britain and Russia have been getting mainly industrial products and foodstuffs, though large amounts of watercraft, ordnance, and other munitions are being sent to both countries. In December and January, for example, Russia obtained five merchant vessels, 200 fighter planes, many bombers, 80 tanks, in addition to over 20,000 trucks, 1,700 motorcycles, and about 1,800 scout cars.

The bulk of exports to British territory in Africa and the Far East consists of industrial products and combat munitions.

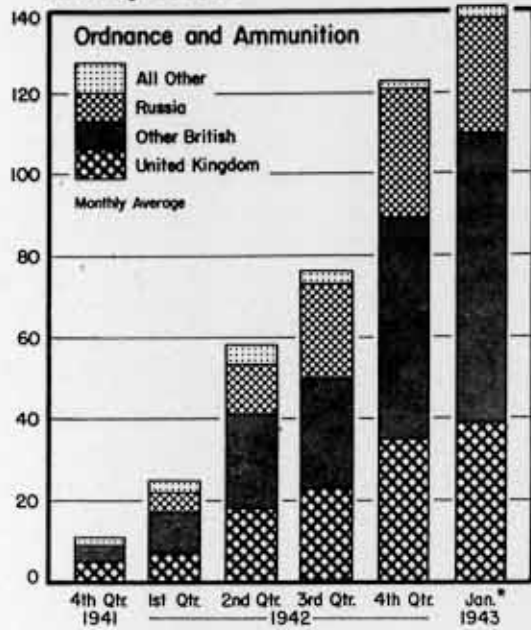
In December and January, British forces in Egypt, India, Australia, and New Zealand received nearly 400 fighter planes and more than 750 tanks.

Varying quantities of lend-lease goods are sent to Latin American republics. Brazil, however, has been getting about \$1,500,000 per month, almost as much as all the rest combined.

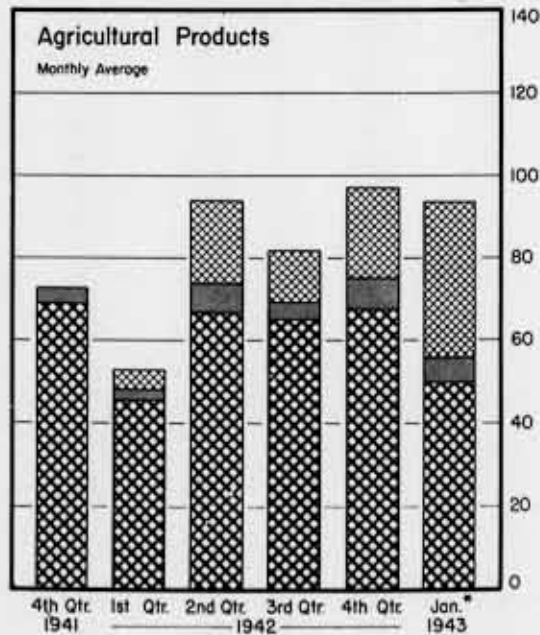
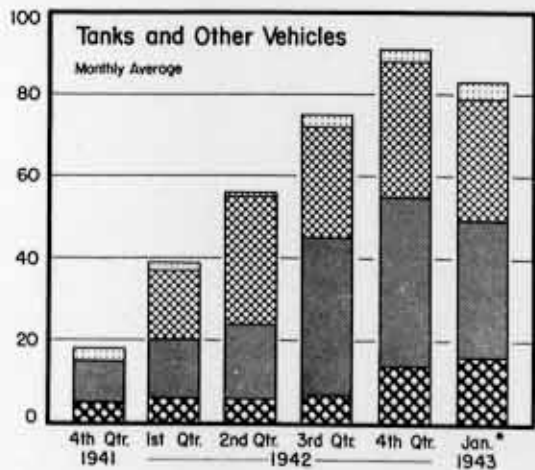
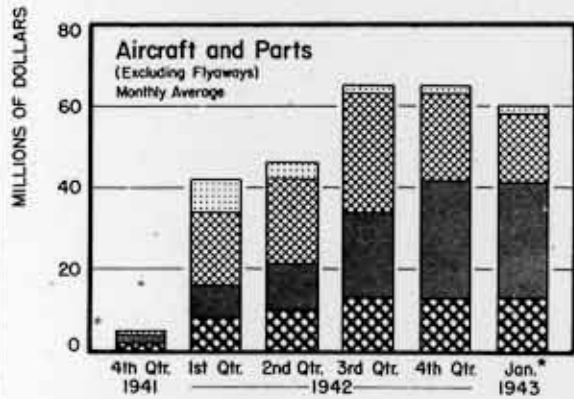
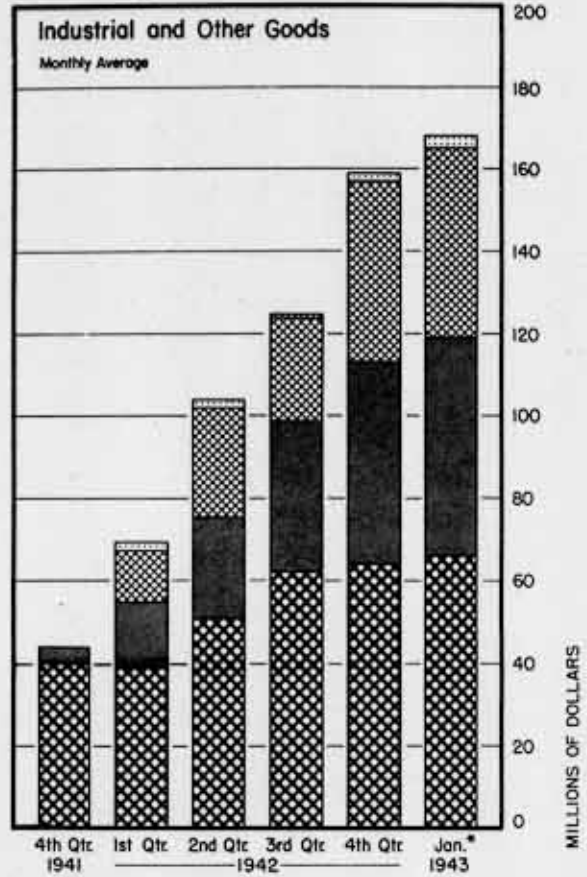
Exports to Turkey, averaging \$1,900,000 per month, have trebled since last

## WHERE THE LEND-LEASE SHIPMENTS GO

### Military Goods



### Nonmilitary Goods



\*Average of Dec. 1942, and Jan 1943.



autumn, while shipments to China are at the low level of \$700,000 monthly.

From the start of lend-lease through January this year, exports amounted to \$5,900,000,000 (excluding certain planes flown away and ships sailing under their own power). Services, such as ferrying bombers, training pilots, repairing, outfitting, renting and chartering ships, amounted to \$1,200,000,000. All told, the British Empire has received two-thirds of the goods and three-quarters of the services; Russia, about 25% of the goods and 12% of the services; China slightly more than 1% of each.

## War Progress Notes

### FOR STATISTICIANS

WHICH LASTS LONGER, a suit of clothes or a tank? That question was raised last week by a writer in the New York Times, and it's a serious question requiring a statistical answer. For years, statisticians have designated clothing, food, etc. as "nondurable goods," and planes, tanks, steel plates, motor vehicles, etc. as "durable goods." But war-time changes ideas of durability. A suit on a civilian is apt to outlast a tank in combat.

### CIRCLE IN SUBSTITUTION

LAST SUMMER, bed manufacturers substituted wood for metal in bedspring frames. Since that time, the swing to lumber--plus the loss of forest labor--has been so great that wood is now difficult to obtain, but temporarily at least, re-rolled steel rails are actually in over-supply. So bed builders are now asking WPB to substitute steel for wood.

### BOND SALES AT TAX TIME

DESPITE the approaching income tax deadline, reported sales of war bonds for the week ending March 6, though far below the

preceding week's sales (Key Statistics of the Week, page 11) were only 16.5% below the first week of February. Redemptions of Series E bonds were \$28,000,000, against \$17,000,000 the first week in February.

## REPORTS ON REPORTS

### Europe's Food

European production of crops and livestock, by countries is analyzed in *The Food Situation 1942-43 in Continental Europe, the Soviet Union, and North Africa* (confidential; pp.78).

(U.S. Department of Agriculture, Office of Foreign Agricultural Relations)

### Phenol

Reduction in civilian requirements and a corresponding cut in the phenol expansion program would result in considerable savings in "1- and 2-degree" benzene, of which a shortage is anticipated in 1943. *Phenol* (confidential; pp.32) reviews sources, substitutes, and allocation.

(War Production Board, Office of Civilian Supply, Chemicals Branch)

### Germany's War Economy

Measures recently taken to boost Germany's industrial output will be ineffective, according to *Changes in Germany's Industrial Organization, 1941-42* (restricted; pp.70). The report analyzes the German labor supply, pricing system, profit legislation, rationalization, cartellization, and administrative organization.

(Board of Economic Warfare, Enemy Branch)

### Axis Locomotives

How Germany husbands rolling stock is the subject of *The Locomotive Position of Axis-Dominated Europe* (secret; pp.335); it gives statistical and other data on European locomotives, workshops, and roundhouses in 17 countries (including Switzerland) as of the middle of 1942.

(Office of Strategic Services, Research and Analysis Branch)

### British Price Control

*Observations on Rationing and Price Control in Great Britain* (confidential; pp.48) gives comments on various administrative, economic, and social aspects of rationing, food distribution, utility clothing, selective price control, etc.

(Dexter M. Keezer, Deputy Administrator, Office of Price Administration)

### Ethyl Alcohol

Long-time demands for Ethyl Alcohol (confidential; pp.93) will exceed the estimated supply unless

civilian allocations are reduced. But in the short run, alcohol production is taxing available storage facilities. The storage problem won't be alleviated until the rubber program begins to take much larger quantities of alcohol.

(War Production Board, Office of Civilian Supply)

#### Die Luftwaffe

*German Aircraft Production, Losses, and Strength* (secret; pp.57) estimates German aircraft production by types and models, and destruction and wast-

age of planes through combat and other losses. (Office of Strategic Services, Research and Analysis Branch)

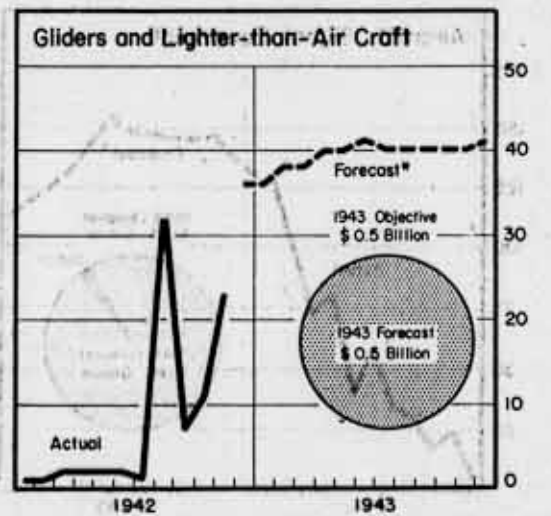
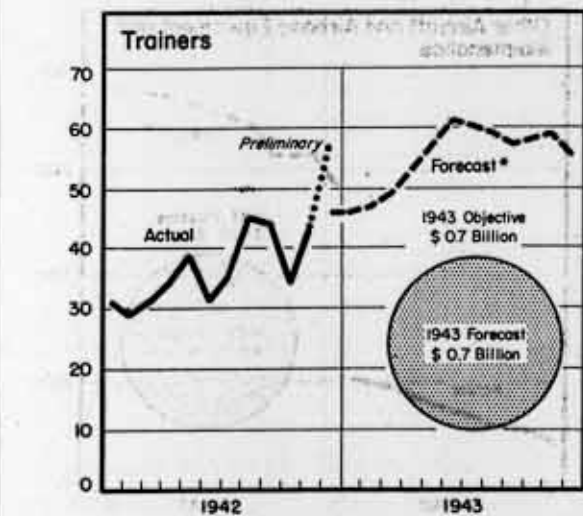
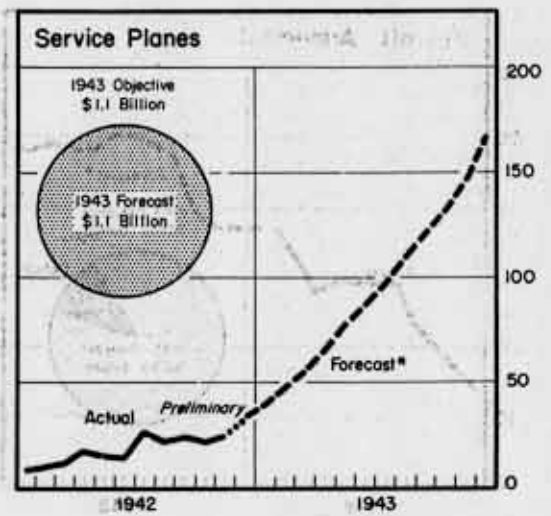
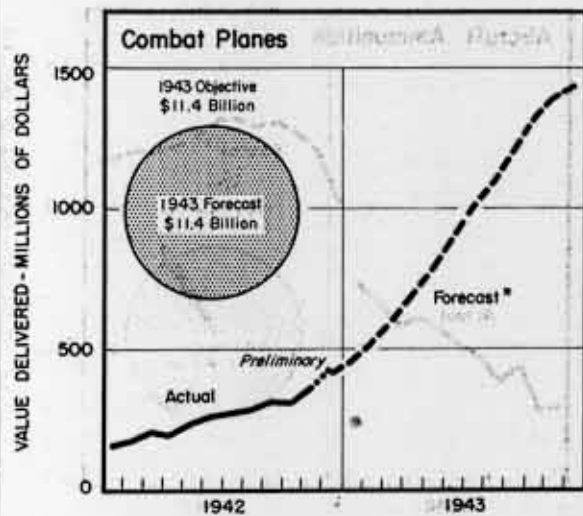
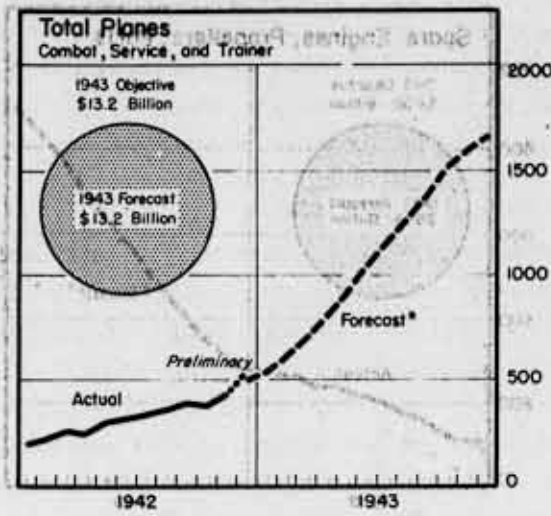
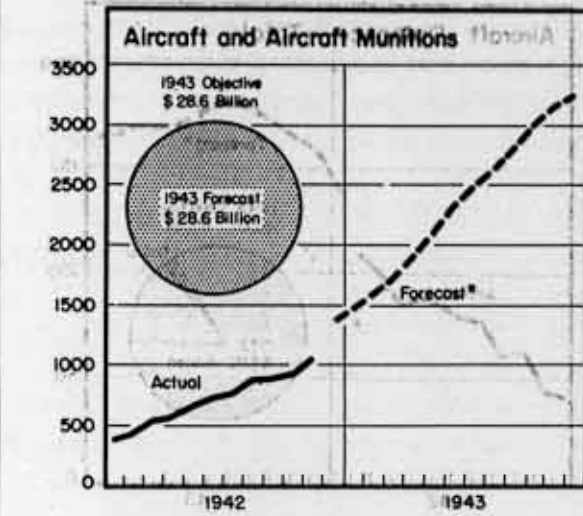
*This record is an attempt to select from the many documents coming to WAR PROGRESS those studies which would be of most interest to readers. The list is by no means comprehensive, and no attempt has been made to evaluate reports for accuracy. Whether reports are available depends on the policy of each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

SELECTED MONTHLY STATISTICS							
Labor Force—Labor Turnover—Income Payments—Consumer Expenditures							
	Latest Month*	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Some Month 1939	Some Month 1937
LABOR FORCE—TOTAL (millions)	52.3	52.4	53.4	56.2	53.4	n.a.	n.a.
Employment	50.9	51.0	51.9	54.0	49.4		
Male	35.9	36.3	37.0	39.7	37.2		
Female	15.0	14.7	14.9	14.3	12.2		
Unemployment	1.4	1.4	1.5	2.2	4.0	n.a.	n.a.
LABOR TURNOVER IN MFG. INDUSTRIES† (rate per hundred employees)							
All manufacturing:							
Accessions	8.28	6.92	8.14	8.28	6.87	4.09	4.60
Separations—Total	7.11	6.37	7.09	6.73	5.10	3.19	3.38
Quits	4.45	3.71	4.21	4.02	2.36	0.85	1.27
Military Separations	1.26	1.29	1.55	0.93	0.67	n.a.	n.a.
Aircraft:							
Quits	3.86	3.69	3.93	3.76	2.82	0.72	1.83
Military Separations	1.70	1.78	2.22	1.34	1.04	n.a.	n.a.
Shipbuilding:							
Quits	6.98	4.49	5.41	4.67	3.25	0.50	0.84
Military Separations	1.80	1.95	2.43	1.07	0.70	n.a.	n.a.
INCOME PAYMENTS—TOTAL (million dollars)†	10,769	11,524	10,593	9,685	8,487	5,763	5,867
Salaries and Wages	7,627	7,635	7,463	6,723	5,719	3,663	3,649
Manufacturing, mining, agriculture, constr.	5,957	6,084	5,998	5,630	4,838	2,951	3,005
Government	1,651	1,528	1,441	1,048	804	524	484
Military	738	673	606	409	163	35	31
Nonmilitary	913	855	835	639	641	489	453
Other	19	23	24	45	77	188	160
Other income payments	3,142	3,889	3,130	2,962	2,768	2,100	2,218
Income payments, annual rate (adjusted for seasonal, billion dollars)	132.0	130.1	127.2	115.9	104.5	68.8	70.9
CONSUMER EXPENDITURES (million dollars)	p8,326	7,187	7,499	6,571	7,557	6,152	n.a.
Goods	p5,966	4,830	5,178	4,277	5,335	4,220	n.a.
Services	p2,360	2,357	2,321	2,294	2,222	1,932	n.a.

\*Labor Force, February; Labor Turnover and Income Payments, January; Consumer Expenditures, December. † Revised back to January, 1939. n.a. Not available. p Preliminary.

PRODUCTION PROGRESS

Aircraft and Aircraft Munitions

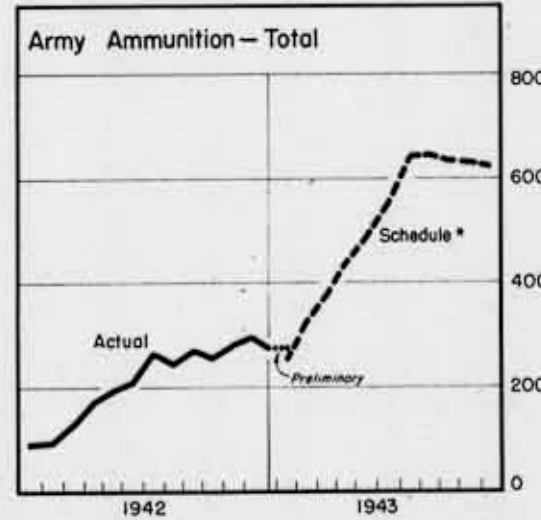
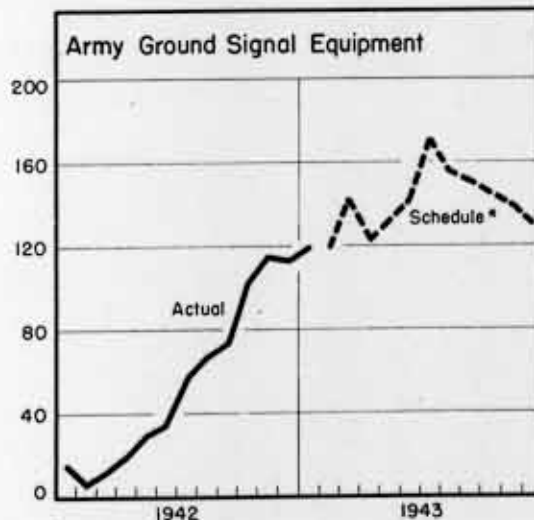
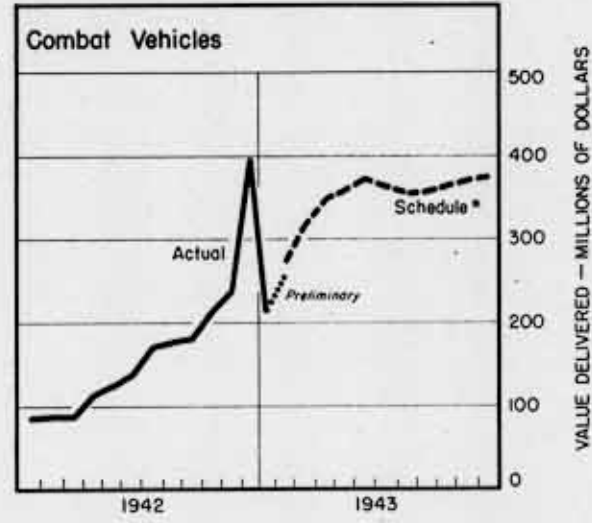
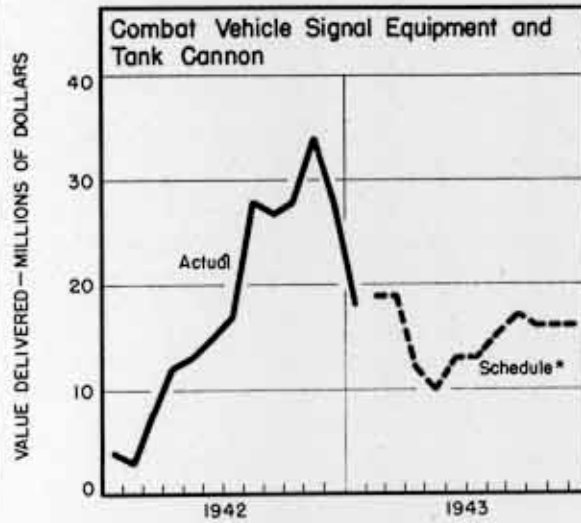
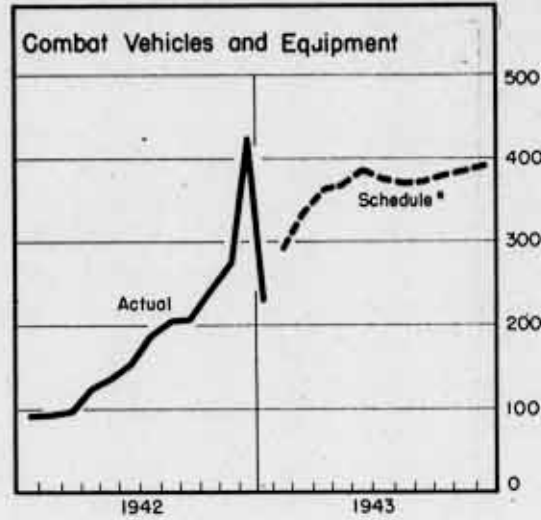
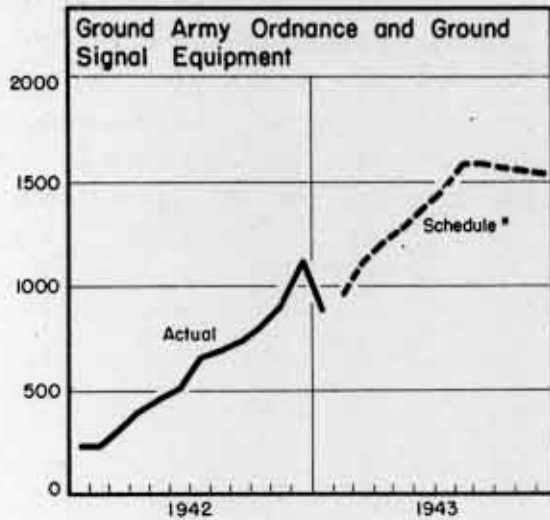


\*Based on December 1 procurement schedules.



# PRODUCTION PROGRESS

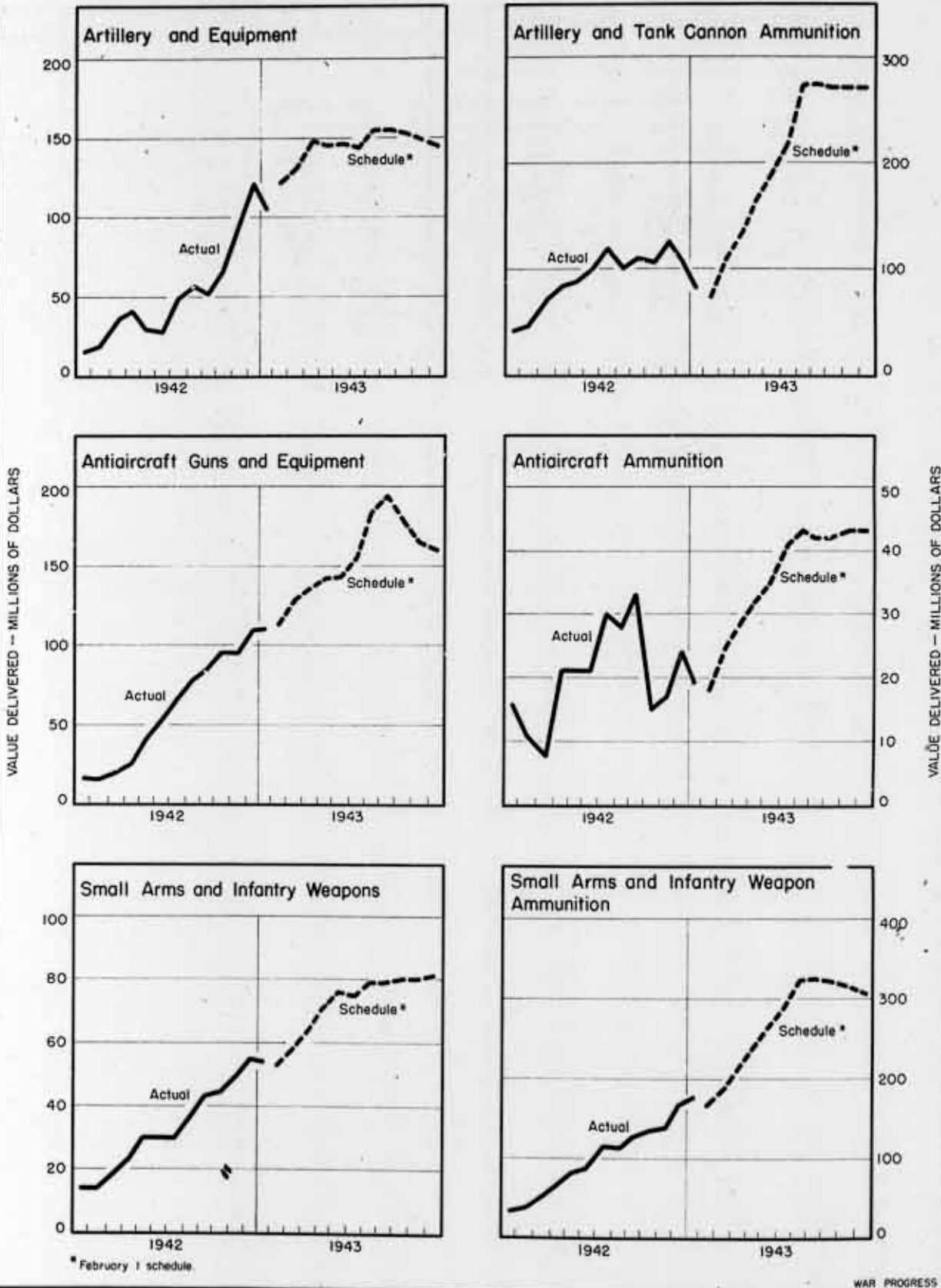
## Ground Army Munitions



\* February 1 schedule.

### PRODUCTION PROGRESS

Ground Army Munitions (continued)



The President

# WAR PROGRESS

*Confidential*  
*(British Secret)*

DECLASSIFIED  
EO 11652, Sec. 1.4 and 1.5 of DR  
Comares Dept. Letter, 11-18-73  
By 2127, 2429 MAR 29 1973

## Housing—A Production Problem

Number 131

March 19, 1943



## For Want of a Home, Production...

Is lost. Housing for in-migrant workers in crowded war-plant areas is a major problem. Dwellings built for newcomers go to local residents, upsetting NHA plans.

SIX MONTHS before the fall of France, slightly more than four out of every 100 urban dwelling units in the United States were unoccupied, but today--after more than three years of arms expansion--average vacancies have dropped below the 2-per-100 mark, the lowest point in 20 years.

### NO VACANCIES

Just as raw materials, machines, and manpower have run short, so has housing gone from abundance to scarcity. Here's how vacancies in about a dozen representative war production areas have shrunk since April, 1940:

Area	% Gross Vacancy	
	Apr. '40	Today
Baltimore.....	3.7%	1.4%
Birmingham.....	2.4	1.6
Bridgeport.....	2.1	0.3
Chicago.....	3.8	1.8
Detroit.....	3.5	1.1
New Haven.....	3.5	1.4
New Orleans.....	3.5	0.4
Norfolk.....	3.0	1.0
Oklahoma City.....	7.7	2.1
Portland (Ore.).....	5.8	1.2
San Diego.....	6.3	0.8
Seattle.....	5.8	2.1
Springfield (Mass.).....	4.5	0.9
Tampa.....	4.0	0.9
Wichita.....	4.4	1.8

In many cases, vacancies are not va-

cancies at all, for the empty dwellings may be either substandard or unfit for habitation. And with the swift undoubling of families, a record marriage rate, and a flood of war workers stimulating demand, new building has not been able to keep pace with requirements--despite the fact that the yearly supply of new units (including trailers and conversions) has been holding at around 80% of 1941, the peak year since 1925.

### DECLINE OF THE DORMITORY

To stretch critical materials, single worker dormitories--which take from one half to one-fourth less metal than is required for family units--comprised 13% of all new dwellings (around 635,000) started last year. But as the armed services grow larger and single men are drawn out of civilian activities, the usefulness of dormitories declines. The 1943 housing program calls for only 3% fewer dwelling units than a year ago; dormitories will be off 30% (chart, page 3).

### PRICE IN PRODUCTION

Various--but by no means exceptional--effects of the tight housing conditions follow:

Repair of warships has been delayed.

Construction workers have had to sleep in automobiles.

Troops, instead of longshoremen, have had to load ships at embarkation ports.

Recruitment of out-of-town labor for merchant shipyards has frequently been deferred.

Munitions plants have often lost as many workers as they have been able to hire.

Many war workers must travel from 50 to 100 miles daily to and from their jobs.

And 2,000 war-worker families on the West Coast are living in converted chicken coops.

Shortages in critical materials are directly related to housing undersupply, despite war standards which have cut the average amount of metal used in new family dwellings some 70%—from around 9,300 pounds to 2,500 pounds. Delayed deliveries of such hard-to-dispense-with metal items as copper wire and steel water pipe have repeatedly lengthened construction periods, thus delaying occupancy on well over half of all public housing projects. In many individual instances, scheduled building times have been doubled.

Because of constantly shifting war requirements, scheduling new housing accommodations has been a particularly

tough job. Thus, when the Army cut its ordnance program late last year, estimates of peak labor needs at one Indiana ordnance works were slashed from 8,000 to 2,300—and 500 family units planned for the vicinity last summer were cancelled. Local conditions also may affect housing requirements. Last year, 300 family units were programmed for a powder plant in Missouri. But when the supply of resident local labor (already housed) began to increase unexpectedly, the program was revised and almost half of the dwellings were discontinued.

IM-MIGRANT OCCUPATION

But the war-worker housing problem reaches beyond the programming, priorities, and building-time stages. The big question is: Once new homes are built, how can it be assured that in-migrant war workers will occupy them?

Priorities assistance was originally given to homes for "war workers," including servicemen. But the fact is that out of 68,000 families occupying priority-built dwellings (completed between May 31 and October 31, 1942) in 137 war production areas, only 18,700, or 28%, were in-migrant war-worker families.

LOCAL WORKERS FIRST

The following table indicates the work status of the occupants of these homes:

Local war workers.....	47%
Local nonwar workers.....	19
In-migrant nonwar workers.....	6
In-migrant war workers.....	28

In other words, 66% of the homes were snagged by local residents seeking better accommodations at regulated rentals and selling prices. Moreover, as a measure of the housing going to new-

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comers employed in munitions industries --and industries related to the production of fighting stuff--the 28% occupancy by in-migrant war workers is overstated. For at least one out of four dwellings was actually taken by men in the armed forces.

Agency, since early 1942, has made no provision for them in programming war-worker developments. Yet occupancy by Army and Navy men and their families is geographically widespread, though percentagewise variations are large--from 1% to as high as 84%:

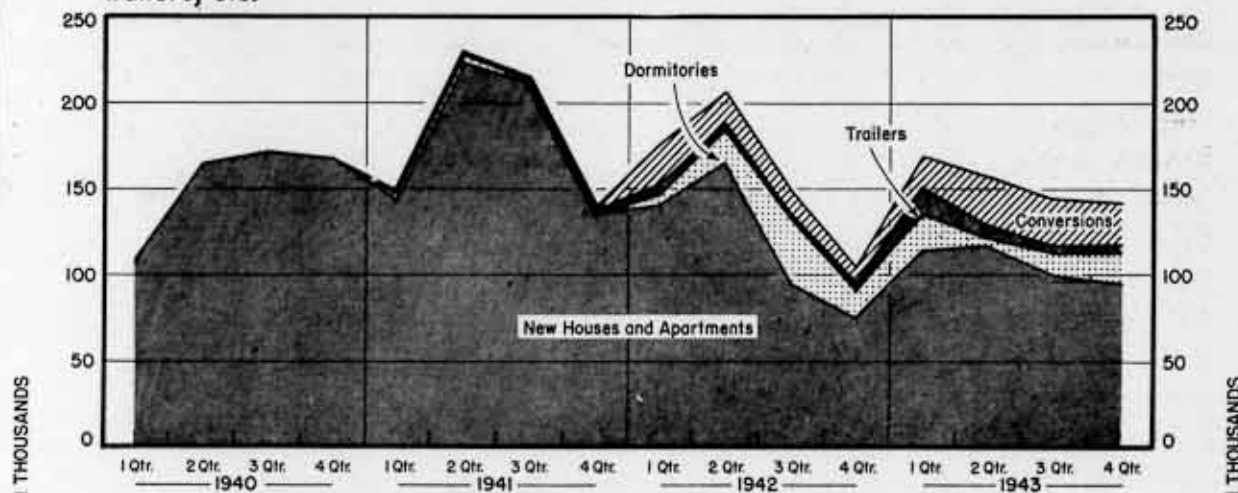
**NEEDS OF SERVICEMEN**

This has introduced an unplanned-for pressure on the housing market. While servicemen have been "eligible" for priority-built homes, the National Housing

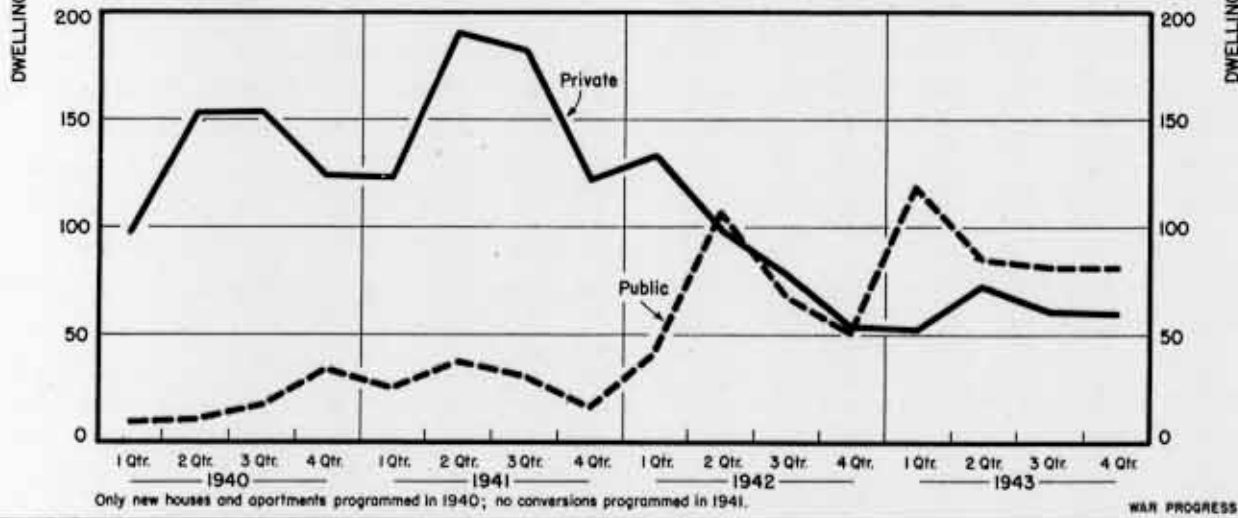
Durham, N.C.....	84%
Leesville, La.....	79
Joplin-Neosho, Mo.....	59
Columbus, Miss.....	47
Norfolk-Portsmouth, Va.....	35

**WAR HOUSING IS DOWN BUT NOT OUT**

Plans for 1943 call for 614,000 additional dwelling units - including dormitories, trailers, etc.



Six out of every ten will be publicly-financed, as against less than two out of ten in 1940.



Only new houses and apartments programmed in 1940; no conversions programmed in 1941.



### KEY STATISTICS OF THE WEEK

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War program - Checks paid (millions of dollars)-----	1,771	1,516	1,395	1,123	585
War bond sales (millions of dollars)-----	239	152	220	151	124
Commodity prices (August 1939 = 100)					
28 Basic commodities-----	176.4	176.7	174.6	168.0	166.1
Controlled-----	162.4	162.4	162.0	161.2	162.0
Uncontrolled-----	212.2	213.2	206.8	185.2	176.8
Nonferrous metal scrap-----	117.5	117.5	117.3	115.8	132.5
Textile scrap-----	173.7	172.6	172.9	171.0	175.7
Petroleum carloadings (no. of tank cars)					
Total-----	50,364	52,475	52,197	54,312	54,737
Movement into East-----	25,832	25,870	27,168	27,495	13,536
Exports (no. of freight cars unloaded for export Friday)					
Atlantic Coast ports-----	1,440	1,327	1,514	1,664	1,553
Gulf Coast ports-----	351	459	335	244	393
Pacific Coast ports-----	970	1,003	906	653	293
Unused steel capacity (% operations below capacity)-----	0.7	0.9	0.5	2.8	2.1
Department store sales (% change from a year ago)-----	3	14	45	-3	24

Montgomery, Ala.....	20
Jacksonville, Fla.....	17
Charleston, S.C.....	12
Dayton, Ohio.....	10
San Diego, Calif.....	7
Dallas, Tex.....	6
Memphis, Tenn.....	5
Wilmington, Del.....	4
Kansas City, Kan.....	3
Portland, Me.....	1

The Army and Navy have taken due note of this competition for homes and have specifically agreed that the National Housing Agency shall program only for "indispensable in-migrant civilian war workers." What's more, priorities now being issued are only for homes that will be confined to this group. But that doesn't solve the overall problem of congestion in war production areas.

#### BURDEN MERELY SHIFTED

Experience shows that when new accommodations are not made available to

the families of migrating servicemen or nonwar workers, the burden of housing them is merely transferred to existing structures--and, invariably, some of these structures have been planned to house a specified proportion of incoming civilian war workers.

#### MARGIN OF NEW HOMES

This year, for example, it is estimated that in-migrant war workers will approximate 1,400,000 persons (after allowing for Selective Service demands, utilization of local labor, etc.). But new accommodations--family units, dormitories; conversions, and trailers (including relocations)--are being planned for 614,000 persons, or 44%. In other words, 56 out of every 100 workers are expected to find quarters in existing facilities. (Last year, the estimated proportion was 75 out of every 100.)

Thus to the extent that migrating members of the armed forces and nonwar workers rent or buy existing dwelling

units this year in war production areas, they will unbalance the program as planned.

It is true that one of the major administrative jobs of the NHA is to see that builders dispose of their priority-built homes as called for in the new priorities agreements: to in-migrant civilian war workers, and not to local residents, nonwar workers, or servicemen. However, even if these priorities agreements are enforced, that will not end the correlative problem of competition for existing dwellings between in-

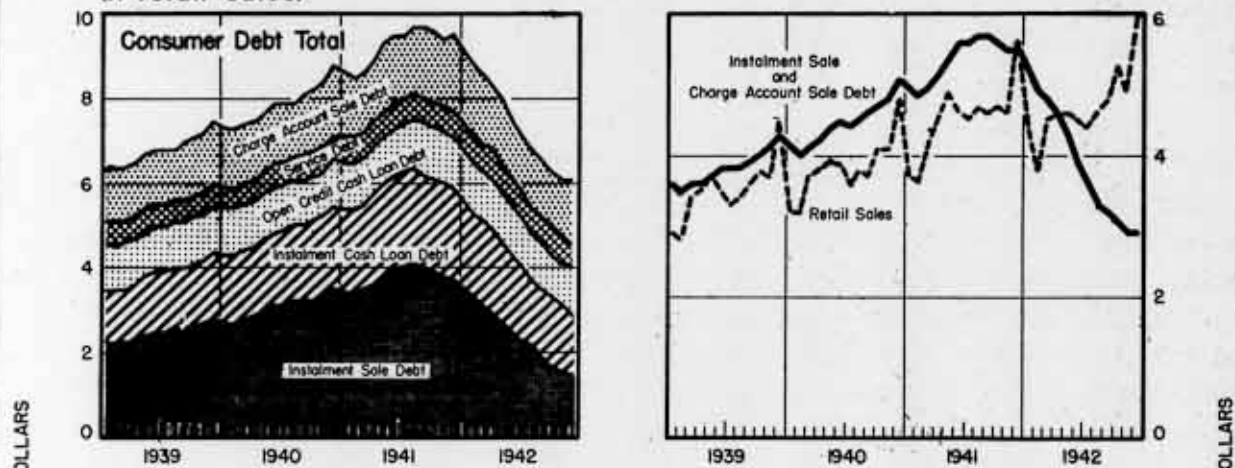
migrant war workers on the one hand and those for whom no housing is being programmed—incoming servicemen and nonwar workers—on the other.

**INCREASING SERIOUSNESS**

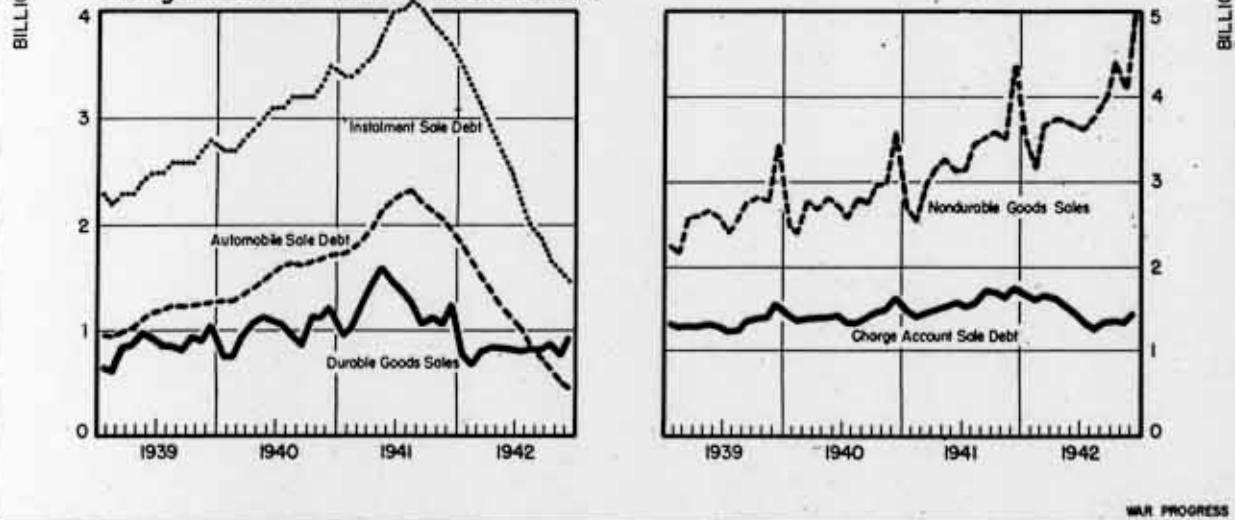
The crux of the matter is this: there is an inverse relationship between the concentration of war work and the availability of homes; housing is shortest where manpower needs are greatest. And as the manpower problem becomes more acute, so will the war housing problem.

**WAR ON CONSUMER CREDIT**

Regulation 'W' and cut in civilian output cause total debt to fall, despite rise in retail sales.



Biggest drop has been in instalment sale debt, led by automobiles, but charge account volume also is off.



## Way of Most Metals in Wartime

Once-plentiful molybdenum—used as a substitute for nickel, chrome, vanadium—now in undersupply. U.S. studies ways to cut its use in alloy steels.

TERSELY, the 1943 molybdenum situation is this: Some 43,000,000 pounds are needed in alloy steels; another 9,000,000 pounds are needed by foundries; and foreign requests run to 21,000,000 pounds—a total of 73,000,000 pounds.

Supply, up 40% from 1941 (chart, page 7) is figured at 69,000,000 pounds; 57,000,000 pounds are from new production and imports; the rest—some 12,000,000 pounds—constitutes the nation's stockpile, excluding the working inventories of processors and consumers.

### FROM OVER TO UNDERSUPPLY

Moly has gone the way of most metals in wartime—from oversupply to undersupply. When the war broke out, American steel mills used largely nickel, chrome, and vanadium for alloying purposes, and about two-thirds of American molybdenum output was shipped abroad. But as demand for alloy steels for munitions mounted, and as nickel, chrome, and vanadium became scarce, more and more molybdenum was called on to substitute. As a result, molybdenum requirements (in millions of pounds) have gone up like this:

	Domestic Consumption	Exports	Total Demand	Lbs. of Moly in Alloy Steels	Lbs. of Moly Per Ton of Alloy Steels	
1939.....	11.4	21.0	32.4	1939..	5,670,000	1.8
1940.....	18.7	6.6	25.3	1940..	9,740,000	2.0
1941.....	34.7	7.1	41.8	1941..	19,600,000	2.4
1942.....	45.7	15.9	61.6	1942..	34,859,000	3.1
1943(Est.)	51.7	21.2	72.9	1943..	42,000,000	2.9

And today, to cover the impending 1943 deficit of at least 4,000,000 pounds,

conservation measures have been introduced.

Initially, in order to utilize molybdenum in place of nickel, chrome, and vanadium, National Emergency (NE) steels were developed—with moly a principal alloying element. But now NE analyses are undergoing a change: wherever possible, NE steels with low moly content are being used; indeed, certain analyses calling for large amounts of moly have been dropped altogether.

### CUTTING MOLY CONTENT

In high-speed tool steels, a saving of 250,000 pounds of moly monthly will be effected by switching from high moly content to a lower analysis. In bomb tubing, moly content has been dropped from 8 pounds per ton to 3 pounds, saving 300,000 pounds per month. By eliminating moly from .30-caliber bullet cores, 30,000 pounds monthly are being saved. And so on.

### BUT CONSUMPTION RISES

But these economies have already been taken into account and do not go far enough, as the following table suggests; though molybdenum content per ton of steel is slated to drop this year, consumption will rise sharply:

The problem in molybdenum is to preserve at least part of the U.S. stock-



pile--above the working inventories of processors and consumers. That means that estimated requirements of 73,000,000 pounds will have to be pared perhaps by 10,000,000 pounds. And even that 14% cut in requirements would mean a severely depleted stockpile--from 12,000,000 pounds down to 6,000,000 pounds.

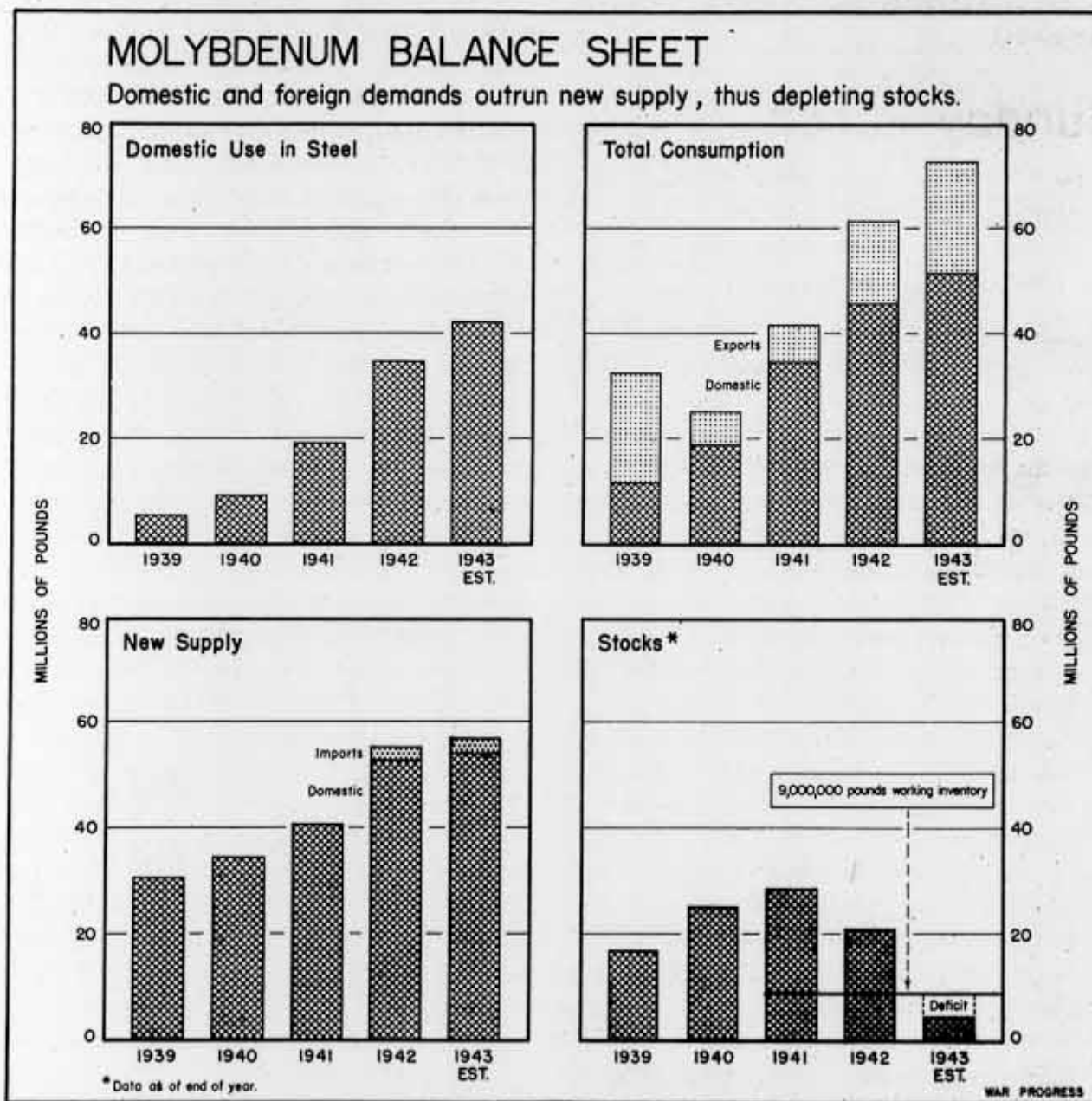
**FORCED TO STRETCH**

Moreover, getting molybdenum requirements down to 63,000,000 pounds will be a major task. Nickel, chrome, and va-

nadium are already tight, so it is not readily feasible to substitute any of them for molybdenum. Conservation and stretching are the necessary orders of the day for moly.

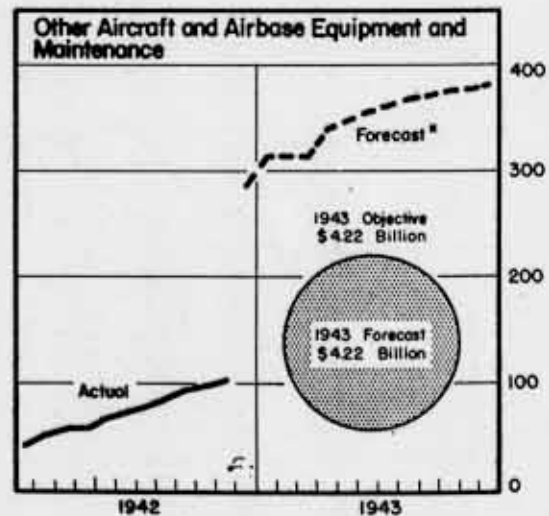
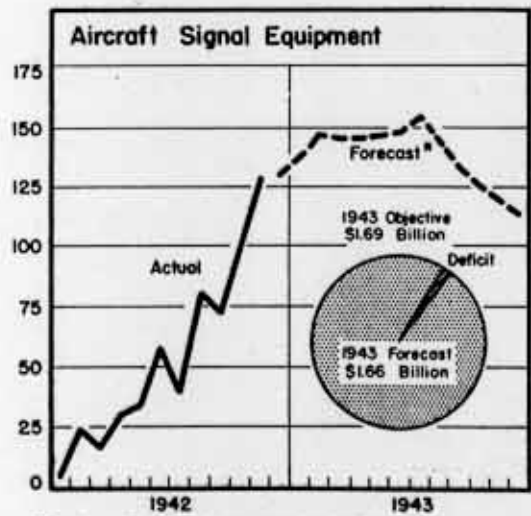
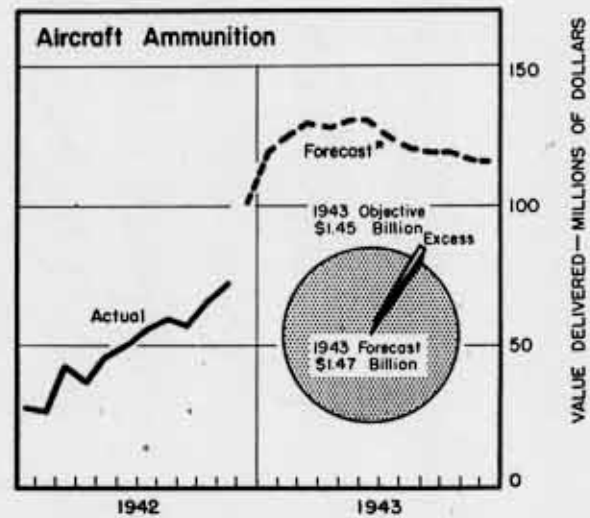
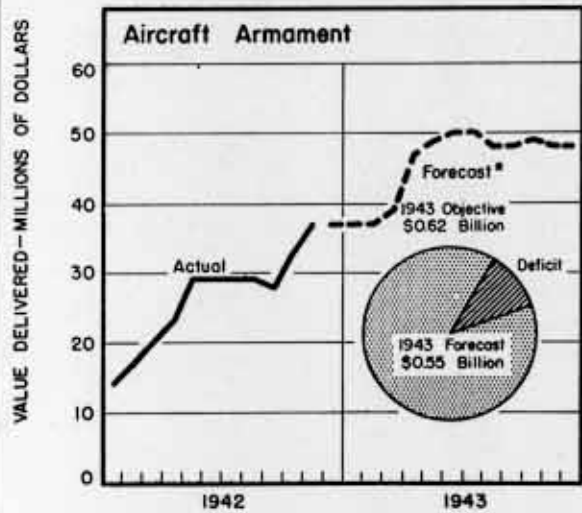
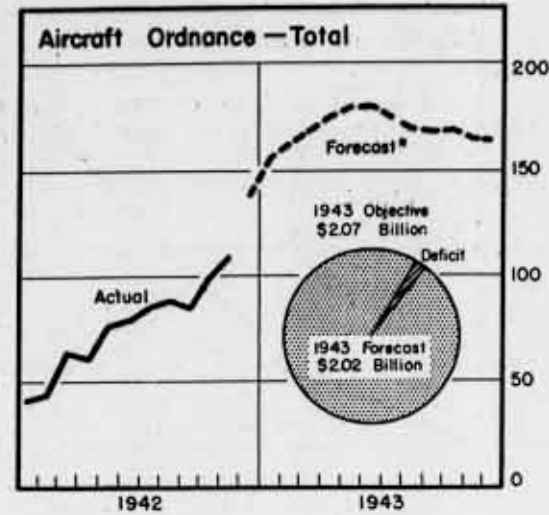
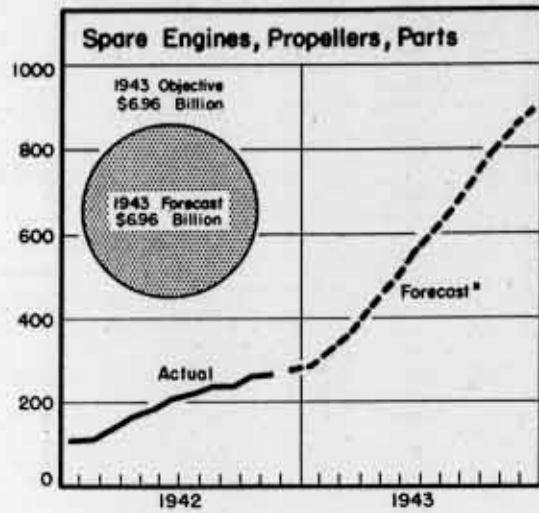
**EXAMINING THE EXPORTS**

Experiments are being conducted to reduce the molybdenum content of armor-piercing shot; reducing moly content in .50-caliber bullet cores, if possible, would save 145,000 pounds per month. And numerous other types of munitions items



## PRODUCTION PROGRESS

Aircraft and Aircraft Munitions (Continued)



\* Based on December 1 procurement schedules.

will have to get along with less moly-bearing steel, or with carbon steel.

Exports of ore, concentrates, and even molybdenum-alloy steels may also be reduced. British and Russian aircraft steel analyses melted in American furnaces call for more molybdenum than U.S. aircraft alloy steels. Also British shot steel bears a higher moly content than American shot steel. A metallurgical mission from Great Britain is now investigating the possibility of reducing the moly content in its analyses.

All in all, moly has become a precious war metal.

## Sunday Punch

Little PT boats - hitting power proved in the Pacific - get boost in program. But deliveries lag as urgency ratings go to landing craft, destroyer escorts, etc.

IN THE 17 months preceding Pearl Harbor, fewer than 50 motor torpedo boats had been delivered to the U.S. Navy. But six of them were in Philippine waters when the Japs struck, and before the last of the squadron was expended early in April, 1942, the score against the enemy read something like this:

One cruiser damaged and beached.  
Two cruisers damaged by torpedo hits.  
Two 5,000-ton ships sunk.  
One 10,000-ton tanker set afire.  
Two landing barges bearing troops sunk.  
Three bombers and one seaplane destroyed by machine-gun fire.  
Delivery of one general--MacArthur--and 20 members of his staff from Corregidor.

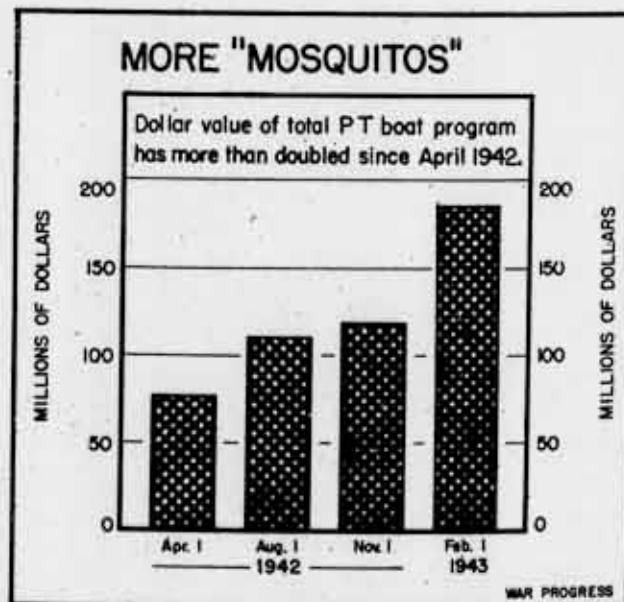
So the Navy began to step up its schedules on PT boats. From a total program

of some 200 boats, valued at around \$77,000,000 on April 1, 1942, it was pushed up to about \$110,000,000 in August, and to \$118,000,000 in November. And on February 1, 1943, the total program stood at \$185,000,000, or well over 600 boats.

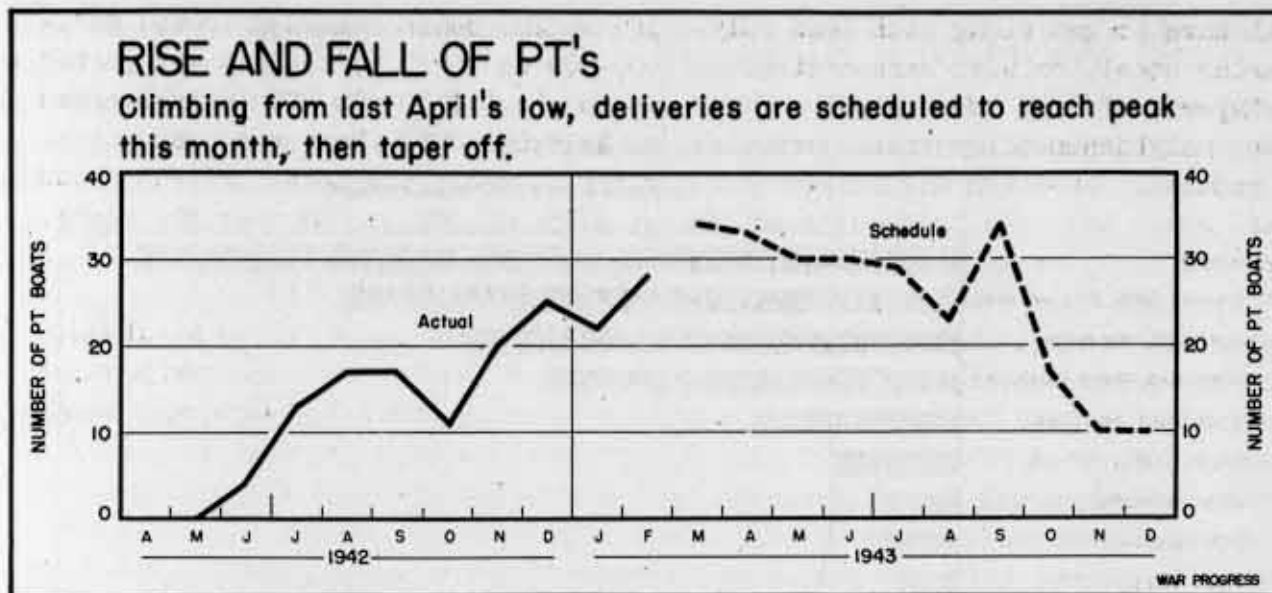
### LANDING CRAFT PRIORITIES

As with other phases of the naval ships program, PT boats were required to stand aside for the onrushing strategic landing craft program (WP-Dec 11 '42, p6) and deliveries have consistently lagged behind schedules. In May, 1942, for example, the Navy didn't get a single vessel of this type, though seven were scheduled, and in June only four were delivered. In July, deliveries rose to 13--but that was 10 fewer craft than called for by the April 1 schedule.

In August, 1942, deliveries of PT boats were stepped up to 17 and thereafter (except for October--a slack month in naval construction generally) the curve of deliveries ascends with some consistency (chart, page 9). In February of this year 30 PTs were delivered, more than in any month since the program began and three times the number delivered in February, 1942. Even so, February was about 17% below schedule.







Present schedules for the balance of the year call for stabilized deliveries—at slightly higher levels than have yet been attained—running through September, when the schedule turns down abruptly to 17 PTs in October and 10 each in November and December. If schedules are realized, the year's output will be almost two and a half times that of 1942.

Although motor torpedo boats can be used in antisubmarine warfare—they are equipped with depth charges—their exploits off the Philippines (during which the squadron in action sank 100 times its tonnage) and since then in the South Pacific suggest that their most distinctive use is in direct attack against enemy warships. Their hulls are of wood construction and they have practically no protective armament. Offensively, they pack four torpedo tubes and four .50-caliber machine guns. Powered by three Packard marine engines they are able to make more than 40 knots, and can easily outrun any warship on the water. Quoting They Were Expendable: "They're designed to roar in, let fly a Sunday punch, then speed out, zigzagging to dodge the shells."

Thus, in the currently spotlighted

antisubmarine program (WP-Mar12'43, pl) emphasis is placed on destroyer escort vessels which now constitute more than half the value of the group that includes aircraft escort vessels, minesweepers, minelayers, subchasers, Coast Guard cutters, etc., besides PT boats.

## War Progress Notes

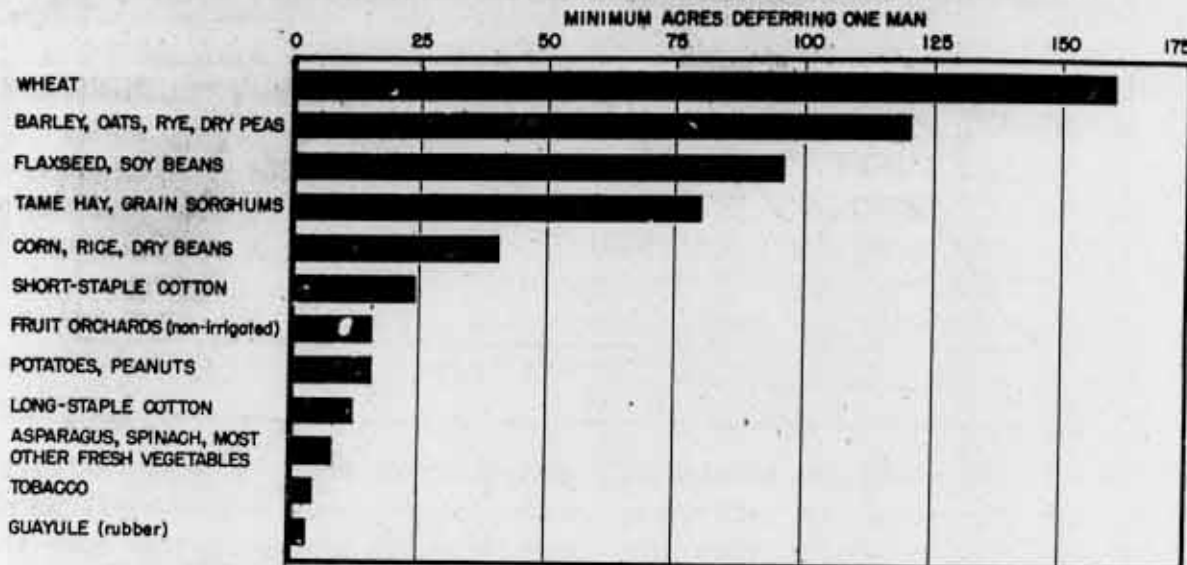
### ONE COW, ONE "WAR UNIT"

SOME 500,000 farm owners or workers have been granted occupational deferments under standards worked out by the Department of Agriculture and approved by the War Manpower Commission. Another 2,500,000 cases await action by local Selective Service Boards.

The Department of Agriculture "deferment" standards are somewhat along the line of point rationing (chart, page 10). The importance of the product (long staple cotton is more important than short staple cotton) as well as the time required in cultivation are taken into account. An acre of spinach counts as one "war unit" toward deferment, as against 20 acres of wheat. Eight war units constitute the standard for deferment; thus it's eight acres of spinach (and most other fresh vegetables),

### FARM MANPOWER STANDARDS SET FOR DRAFT

Department of Agriculture grades crops and livestock for draft boards. Deferment minimum set at 8 acres for asparagus, spinach; etc., 40 for corn; 160 for wheat, and so on.



WAR PROGRESS

as against 160 acres of wheat, or four acres of spinach and 80 acres of wheat.

Livestock also counts toward deferment. One milk cow equals one unit, eight milk cows deferment, but it takes 75 laying hens and ducks to amass one unit, and 600 to get a deferment rating. The following table shows the number of farm animals necessary to earn one deferment unit:

Milk cows.....	1
Sows.....	3
Milk goats.....	3
Beef cattle in farm herds...	10
Beef cattle on the range....	15
Beef cattle in feedlots.....	20
Feeder pigs (bought & sold during the year).....	30
Sheep & goats in farm flocks	30
Sheep & goats on the range..	45
Turkeys & geese.....	40
Laying hens and ducks.....	75
Beef cattle grazed in fields	100
Lambs in feedlots.....	160
Broilers & ducks for market	600

Some crops are regarded as "less essential" and do not count as war units: they include cantaloupes, watermelon, popcorn, artichokes, celery (bleached), eggplant, lettuce (iceberg), kohlrabi, cucumbers, horseradish, okra, radishes, rhubarb, garlic, leeks, squash, pumpkins.

The "war unit" is not absolutely rigid. Draft boards can, in their discretion, defer farm workers who do not amass eight units.

Incidentally, the Senate has passed the Bankhead Bill which would defer all men devoting substantially full time to agriculture.

#### STATIC UNEMPLOYMENT

TWO YEARS AGO, the nation's unemployed numbered 7,200,000, but by February, 1942, this had been pulled down to 4,000,000. Since then unemployment has continued to decrease but at a much slower rate--the figures for the past two months remaining static at 1,400,000 (WP-Mar12'43,pl4). This suggests that the United States is getting down to

the bottom of its unemployment stockpile. While the workers currently listed as unemployed are not strictly speaking "unemployable," a good percentage of them may be regarded by employers as undesirable for one reason or another--age, infirmity, poor health, lack of energy or training, etc.

#### HELIUM SHORT

TO MEET the expanding antisubmarine patrol program for Navy blimps (WP-Jan15 '43,p11), monthly capacity for producing helium will have to rise from 8,000,000 to 20,000,000 cubic feet by the end of the year. New helium-producing facilities, now under construction, are behind schedule and are competing with the rubber and high-octane gas programs for plant equipment. The Bureau of Aeronautics has requested higher priority ratings for the equipment involved.

#### CARIBBEAN BOTTLENECK

THE PLAN to relieve the critical shipping shortage in the Caribbean area through building wooden sailing vessels has been abandoned in favor of immediate construction in Brazil of 20 motor-driven wooden cargo vessels (500 deadweight tons capacity). Lumber, metal fastenings, and paint can be obtained in Brazil, but engines must come from this country. The design calls for a heavy-duty 450 hp Diesel engine; U.S. manufacturers of this sized engine are tied up until the end of 1943 on work for the Navy, Army, lend-lease, etc. However, a 600 hp model can apparently be obtained; but if this bigger motor is used, the cargo vessels must be redesigned.

#### SCARE BUYING ABATES

WAVE OF "SCARE BUYING" that followed the shoe rationing order (WP-Mar5'43,p11) is abating. Whereas weekly department

store sales (Key Statistics of the Week, page 4) increased 45% in the week immediately following the order, they have dropped steadily since, and, in the week ending March 13, they were only 3% above last year's sales.

#### SALES UP, DEBT DOWN

CUSTOMARILY, consumers go into debt when their incomes are rising. They feel secure in their jobs; they are willing to buy this auto or that piano on the installment plan. On the other side of the counter, merchandisers and finance companies are more willing to extend credit to people whose incomes are rising.

Anticipating a consequent big jump in buying on time, the Reserve Board as far back as September, 1941, promulgated Regulation "W." Not only did it shorten the time of payments on installment sales, but also it increased down payments. In addition, the regulation called for prompt payments of charge accounts.

#### LIMITATION ORDERS

The effect of Regulation "W" is readily discernible in the chart on page 5. Consumer debt began to decline almost immediately. But another factor was involved. Shortly thereafter, the production of automobiles, refrigerators, and other consumers' durable goods sold largely on time was curtailed by limitation orders.

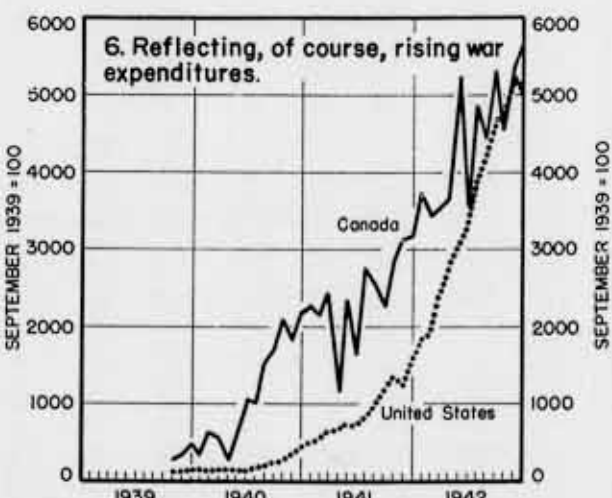
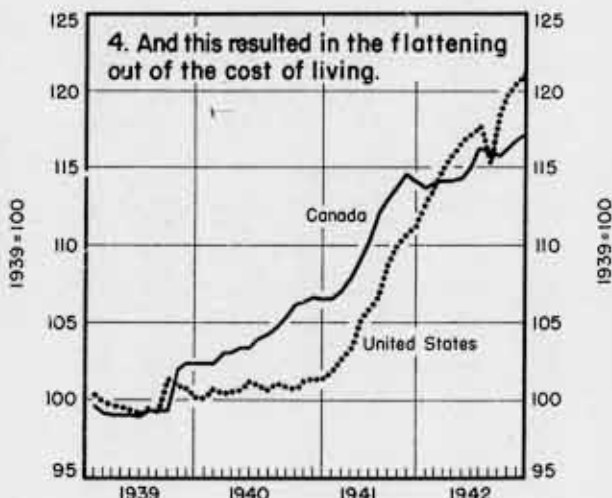
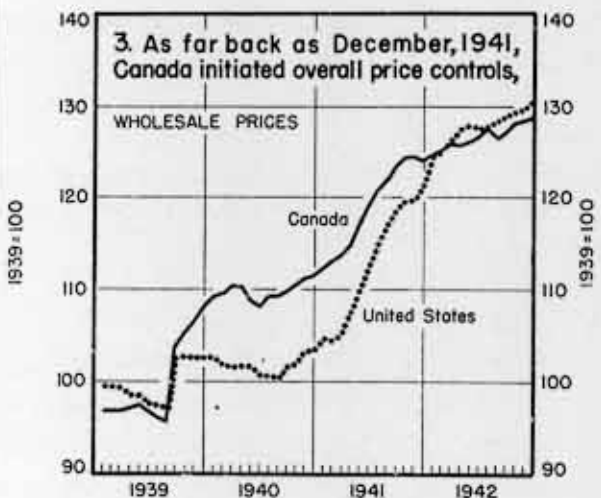
The net effect has been a 27% drop in outstanding consumer debt, despite a sharp rise in retail sales. The drop in automobile debt was 78%. Charge account debt dropped 15%.

Installment cash loans (primarily through personal-loan companies), open credit cash loans (personal loans from commercial banks), and service debt (owed to doctors, lawyers, etc.) have



## WAR ACROSS THE BORDER

A belligerent since September 1939, Canada got ready for battle sooner than the United States.



also declined. As incomes rise, people invariably get around to cleaning up old obligations; also they are inclined to pay current bills more promptly. (Regulation "W" and the scarcity of consumers' durable goods have militated against an offsetting expansion in consumer credit.)

**REPORTS ON REPORTS**

**Shipyard Labor**

Employment in shipyards must rise 300,000 to 1,653,000 in October, if production schedules are to be met, according to *Estimated Labor Requirements for the Shipbuilding Industry* (confidential; pp.26). It treats absenteeism, turnover, plant utilization, and the problems connected with the recruitment of women, especially the need for caring for their children.

(U.S. Department of Labor, Bureau of Labor Statistics)

**Formaldehyde**

*Formaldehyde* (confidential; pp.45) outlines supply and demand prospects in 1943, makes quantitative recommendations on how the short supply should be distributed among such variegated industries as agricultural poisons, drugs and pharmaceuticals, dyes, plastics and resins, pulp and

paper, natural and synthetic rubber, and so on, and analyzes possibilities for finding substitutes. (War Production Board, Office of Civilian Supply)

**Public Opinion**

A survey of public opinion, *Attitudes toward Peace Planning* (confidential; pp.23), indicates that a majority of Americans believe peace planning should begin now. Opinions were more definite among the well educated; as many as a third of those with only grammar school educations gave "don't know" answers.

(Office of War Information, Bureau of Intelligence)

**"Austerity" Models**

*The "Utility" Program of the British Board of Trade* (confidential; pp.36) describes British experience in producing and distributing "austerity" clothing—how profits are controlled, raw materials allotted, etc. It also discusses the manufacture of utility furniture, china, linens, and pots and pans.

(Dexter M. Keezer, Deputy Administrator, Office of Price Administration)

(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.)

**SELECTED MONTHLY STATISTICS**

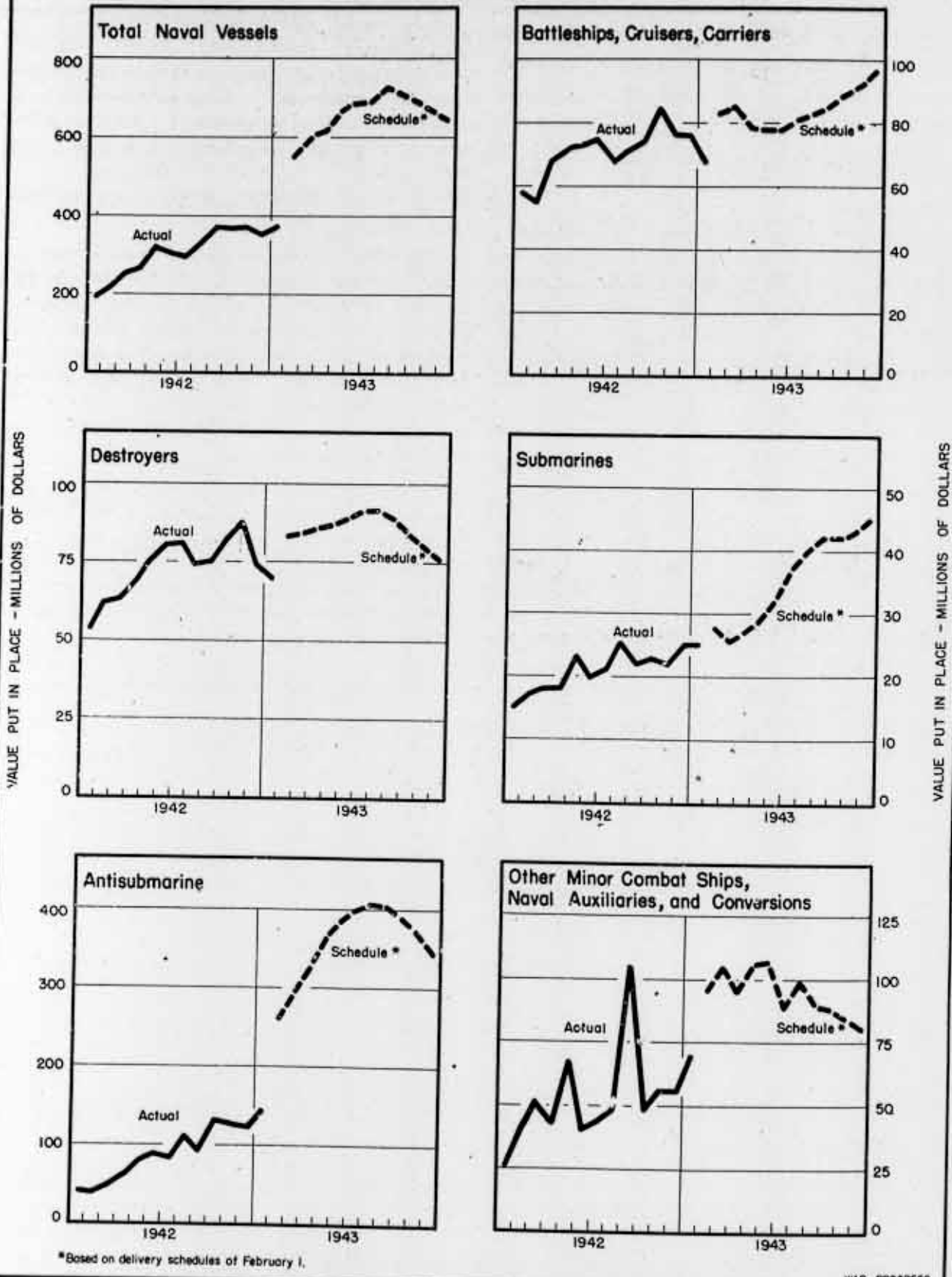
**Transportation - Prices - Cost of Living**

	Latest Month*	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Same Month 1939	Same Month 1937
TRANSPORTATION - COMMODITY AND PASSENGER (1935-39=100) †	p193	193	r199	189	149	96	106
Commodity	p184	183	195	188	151	96	106
Passenger	p221	224	209	193	141	97	108
WHOLESALE COMMODITY PRICES ALL COMMODITIES (1926=100)	p102.5	p101.9	101.0	99.2	96.7	76.9	86.3
Farm products	119.0	117.0	113.8	106.1	101.3	67.2	91.4
Food products	105.8	105.2	104.3	100.8	94.6	71.5	87.0
Other than farm products and foods	p96.2	p96.0	95.9	95.6	94.9	80.2	84.1
COST OF LIVING - ALL ITEMS	120.9	120.6	120.4	117.5	112.9	99.3	101.0
Food	133.6	133.0	132.7	126.1	116.8	94.8	103.6
Other than food	114.4	114.2	114.1	113.2	110.9	101.7	99.7

\* February except for Transportation, January. † Unadjusted. p Preliminary. r Revised.

# PRODUCTION PROGRESS

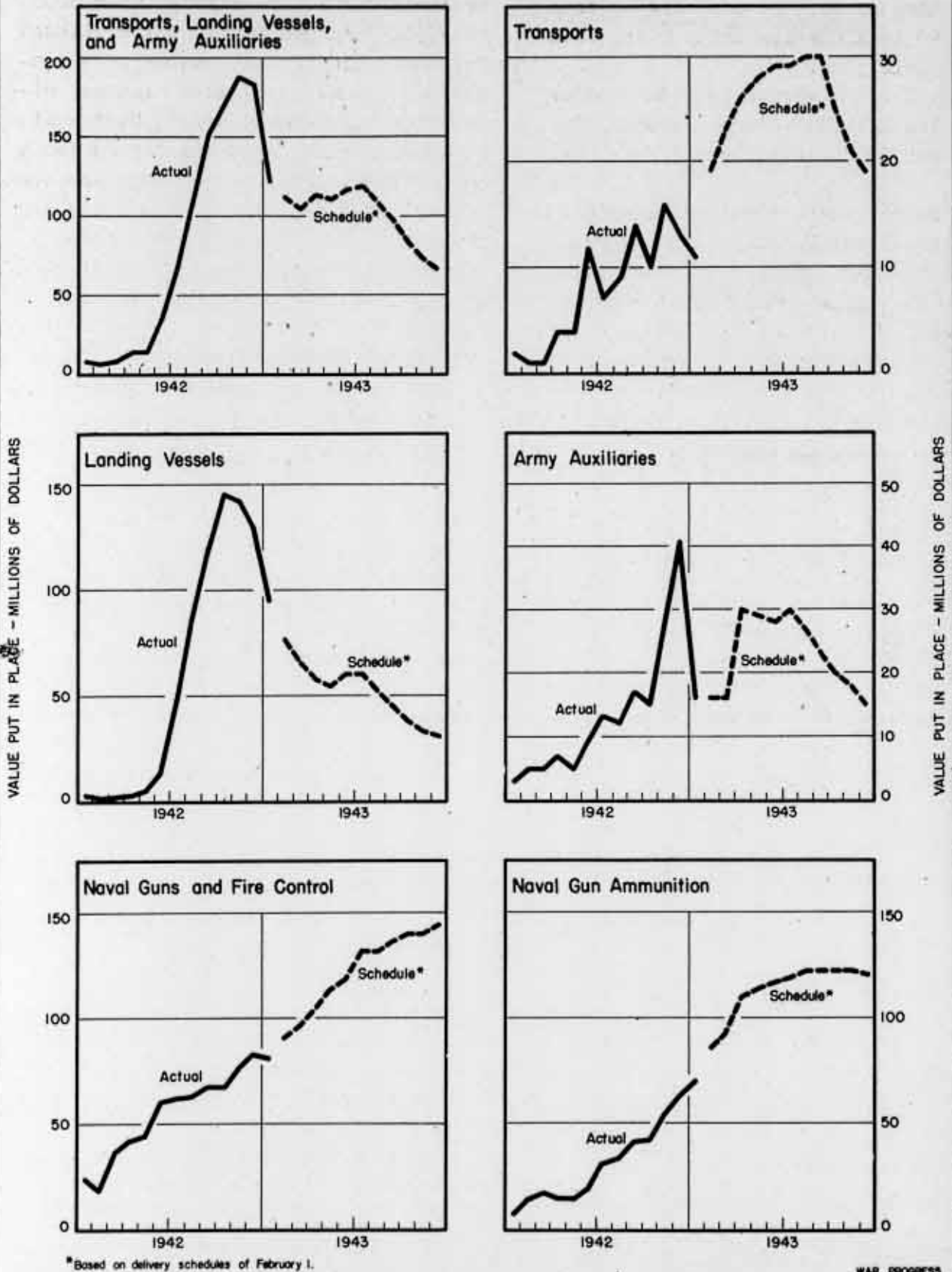
Naval, Army, and Merchant Ships and Equipment





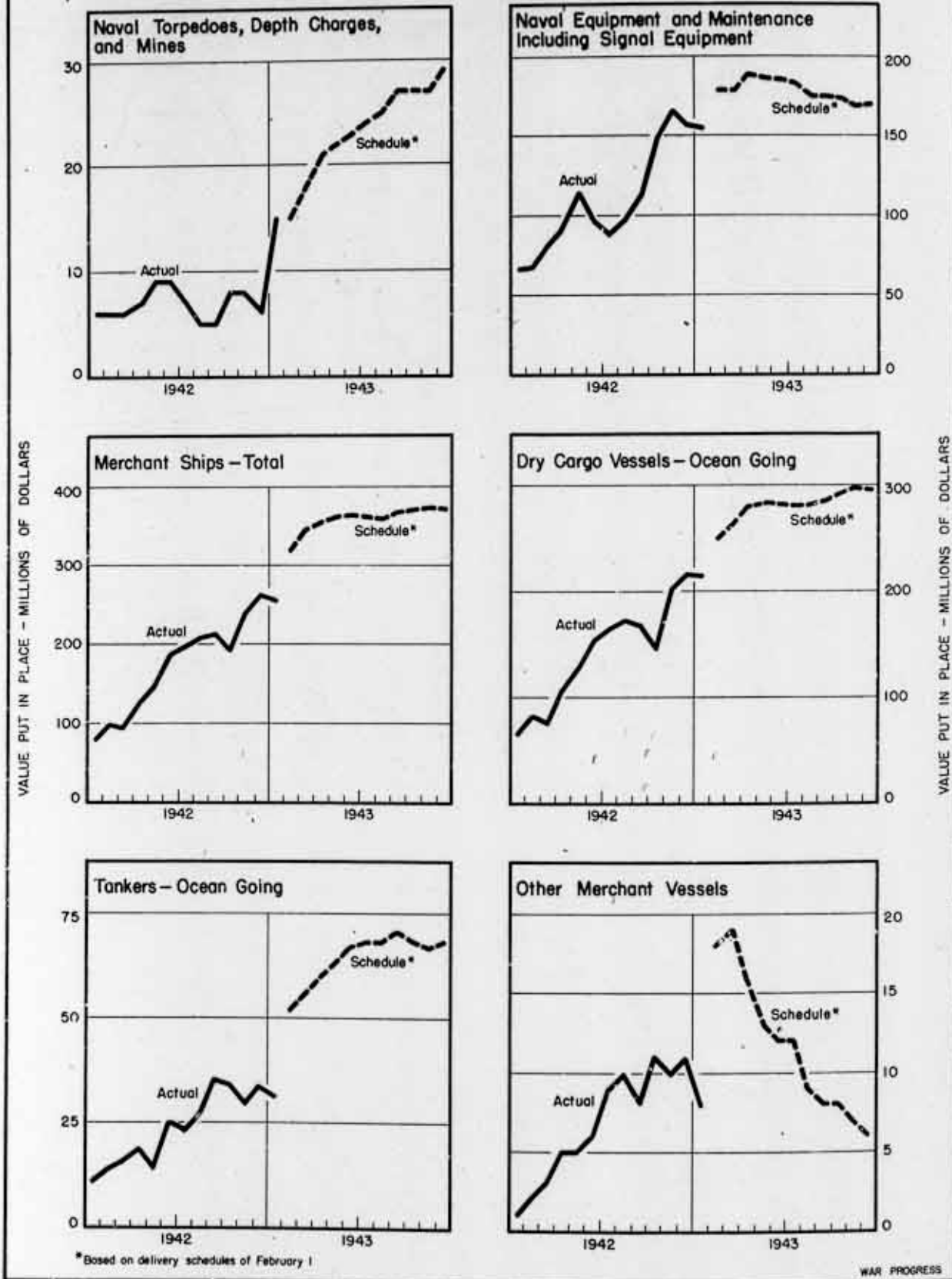
### PRODUCTION PROGRESS

Naval, Army, and Merchant Ships and Equipment (continued)



### PRODUCTION PROGRESS

Naval, Army, and Merchant Ships and Equipment (continued)



The President

# WAR PROGRESS

*Confidential*  
*(British Secret)*

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COMBINED COPY NUMBER 220-10

1942 Production Roundup  
Problems in CMP Debut

Number 122

January 15, 1943



# WAR PROGRESS

*Confidential  
(British Secret)*

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Looking Ahead into '43's Problems

Scorecard on Merchant Shipping

Aircraft Production - 1942

Number 121

January 8, 1943

## Year Ends with War Production Spurt

December munitions output up 14% over November, but there may have been some borrowing from the future. Most '42 results fall short of objectives.

MUNITIONS PRODUCTION climbed to a new monthly high in December—\$4,330,000,000 (preliminary), up more than \$500,000,000 from November's \$3,813,000,000 (revised). This was the largest dollar monthly gain on record, and it brought the total for 1942 to \$32,000,000,000, or almost four times 1941 output of \$8,400,000,000.

Percentagewise, the December gain was the best since April:

	<u>% Gain</u>
Jan.-Feb.....	5%
Feb.-Mar.....	17
Mar.-Apr.....	19
Apr.-May.....	13
May-June.....	12

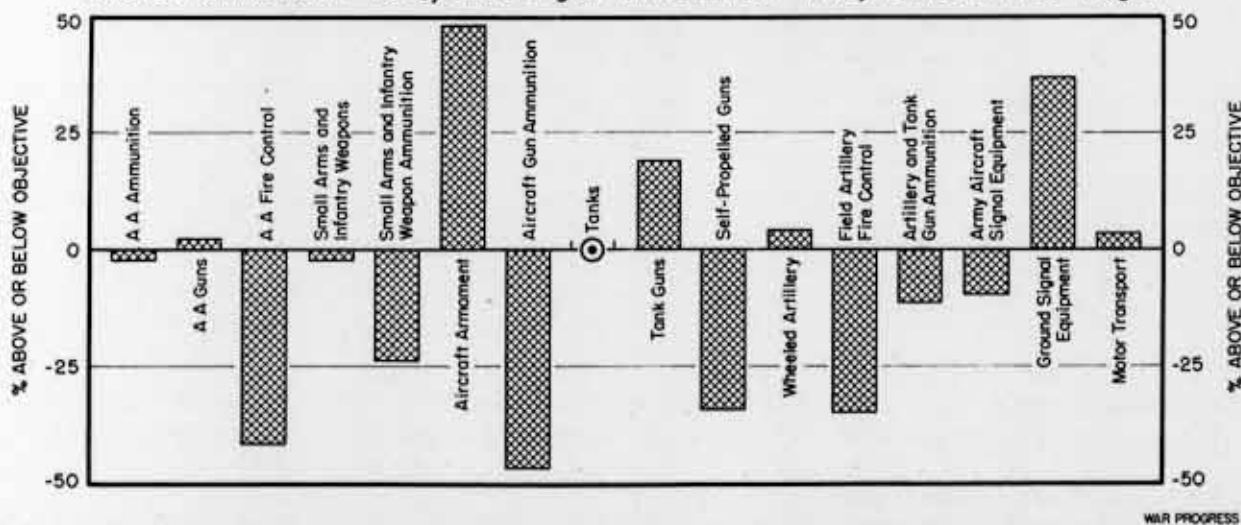
	<u>% Gain</u>
June-July.....	10%
July-Aug.....	8
Aug.-Sept.....	5
Sept.-Oct.....	3
Oct.-Nov.....	12
Nov.-Dec.....	14

Part of December's good showing was attributable to accelerated acceptances of important munitions items, particularly planes and tanks, which increased sharply over November. The dollar value of plane acceptances was up 18% (WP-Jan 8 '43, p10); combat vehicle deliveries were up 66% (yet November was not a bad month for tanks and self-propelled guns). There may have been some year-end borrowing from assembly lines, and acceptances may level off next month.

In keeping with plans to put smaller quantities of essential materials into brick and mortar and more into planes,

### ACTUAL PRODUCTION VS. OBJECTIVES IN 1942

Output of many munitions items in 1942 missed goals by wide margins — aircraft armament +48%, aircraft gun ammunition -47%, tanks hit the target.



tanks, and shells, war construction was down to \$1,246,000,000 last month, as against \$1,331,000,000 in November. This reduced the overall gain in war output, and total munitions production and war construction at \$5,576,000,000 (preliminary) were up 8% over November's \$5,144,000,000. Though war construction will continue to decline in the future, increases in munitions will more than compensate. The following table suggests what is in prospect:

	1942 Actual	1943 Objective	% Change
	(in billions)		
Munitions.....	\$32.5	\$72.2	+122%
Construction..	13.9	9.5	- 32
Mun. & con....	46.4	81.7	+ 76

The nearly \$40,000,000,000 boost in munitions output presents an imposing task. To get it, 1943 output of planes, tanks, guns, ammunition, naval and merchant ships, etc. will have to average \$6,000,000,000 per month. And by December, 1943--since output starts the year off at a much lower level--monthly production will have to get up to \$7,-

	December Preliminary	% Change from November
Total munitions .....	4,330	+14%
Combat munitions (a) .....	3,545	+15
Aircraft and aircraft munitions .....	1,303	+17
Ground army munitions (b) .....	1,050	+24
Naval and Army vessels etc .....	910	+ 4
Merchant vessels .....	272	+13
Combat planes .....	425	+15
Aircraft armament .....	41	+11
Aircraft ammunition .....	94	+24
Artillery and equipment .....	115	+19
Antiaircraft guns and equipment .....	110	+16
Small arms and infantry weapons .....	55	+12
Artillery and tank cannon amm. ....	106	-16
Antiaircraft ammunition .....	24	+41
Small arm etc. amm. ....	168	+22
Combat vehicles .....	398	+66

(a) Fighting Items: Aircraft and aircraft munitions; ground army ordnance and ground signal equipment; naval, army, and merchant vessels and equipment. (b) Ground army ordnance and ground signal equipment.

000,000,000 to \$7,500,000,000. And that compares with the record high to date of \$4,330,000,000 last month--a mark that was probably attained by a year-end "beat-the-deadline" inflation in deliveries. To realize the striking gains called for next year will require maximum efficiency in distributing raw materials and common industrial and munitions components, as well as a substantial increase in workers in war industries (WP-Jan8'43,pl).

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**GAIN UNEVEN**

December's impressive gain was not evenly distributed. Among the major groups, combat vehicles made the best showing; and this was due in large part to tanks, up 73%.

Other big increases were in landing craft, antiaircraft ammunition, merchant vessels, and trainer planes. But the month had its share of decreases, too: gliders, naval reconnaissance planes, ground signal equipment. Naval fighters, which had usually been excellent



performers in terms of month-to-month gains, were down slightly. As an indication of production imbalance, artillery, including cannon for tanks, was up 19%, while corresponding ammunition was off 16%.

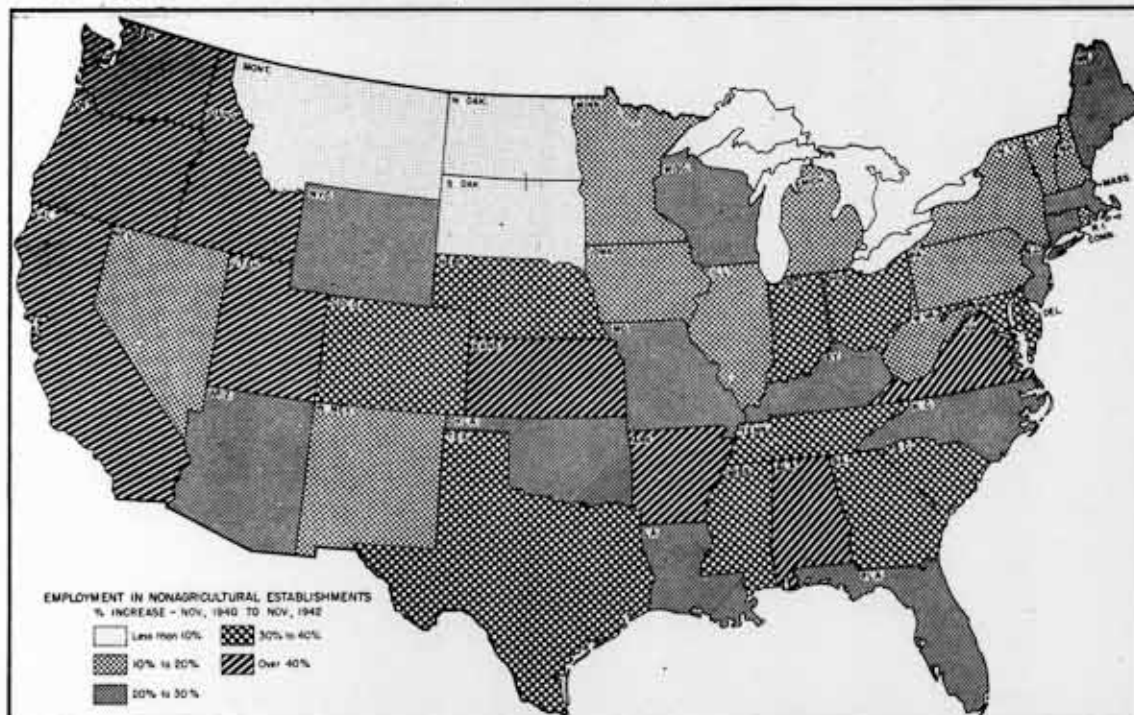
**6% UNDER FORECAST**

Munitions as a whole came within 6% of the first-of-the-month forecast, one of the closest monthly showings of the year. Again, however, there were marked deviations among items, as the following table (ranged in order of gain over November) shows:

	December Deliveries	
	As % of	As % of
	November	Forecast
Heavy wheeled art'y...	190%	100%
Total tanks.....	173	120
Medium wheeled art'y..	145	61
Landing craft.....	143	100
Medium tanks.....	139	113
Merchant vessels.....	138	92
Trainer planes.....	132	124
Service combat planes.	126	92
Amm. for small arms		
& inf. weapons.....	122	98
Total planes.....	118	103
Major combat vessels..	108	174

**DRAWING IN THE MANPOWER**

War effort reaches out from industrial East; and nonfarm employment increases most sharply in such agricultural states as Kansas, Arkansas, Idaho, and Utah.

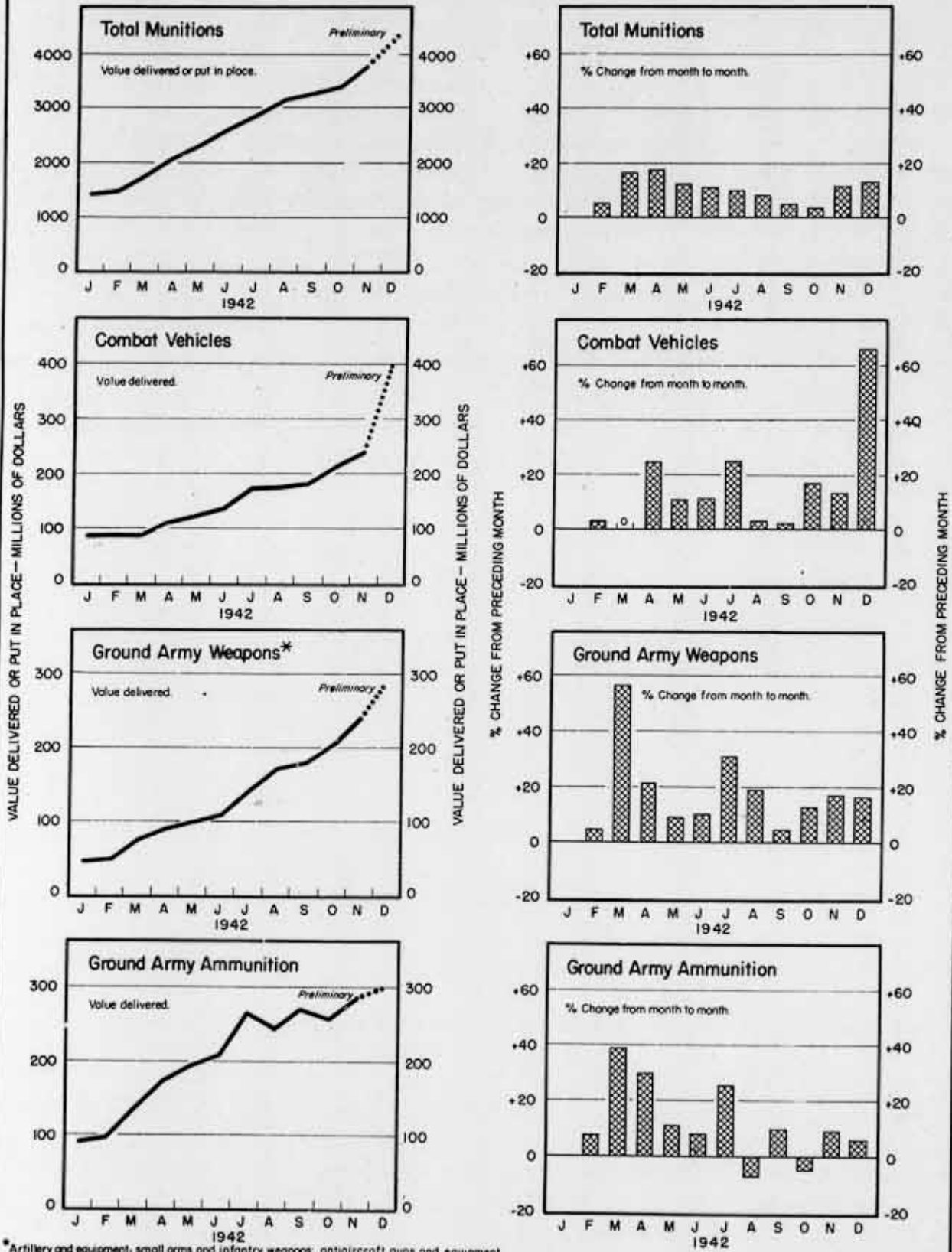


THE SHARP RISE IN NONFARM EMPLOYMENT IN THE WEST AND SOUTH IN THE PAST TWO YEARS REFLECTS NOT ONLY NEW WAR PLANTS IN SUCH PLACES AS HOUSTON, WICHITA, SALT LAKE CITY, AND SAN DIEGO, BUT ALSO THE EFFORTS TO INCREASE MINE OUTPUT TO FEED THE WAR MACHINE.

EMPLOYMENT IN THE OLDER MANUFACTURING CENTERS IN THE BELT FROM NEW ENGLAND AND NEW YORK TO ILLINOIS HAS ALSO INCREASED, BUT BY A MUCH SMALLER PERCENTAGE IN MOST CASES; OHIO, CENTER OF THE MACHINE-TOOL INDUSTRY, IS A NOTABLE EXCEPTION.

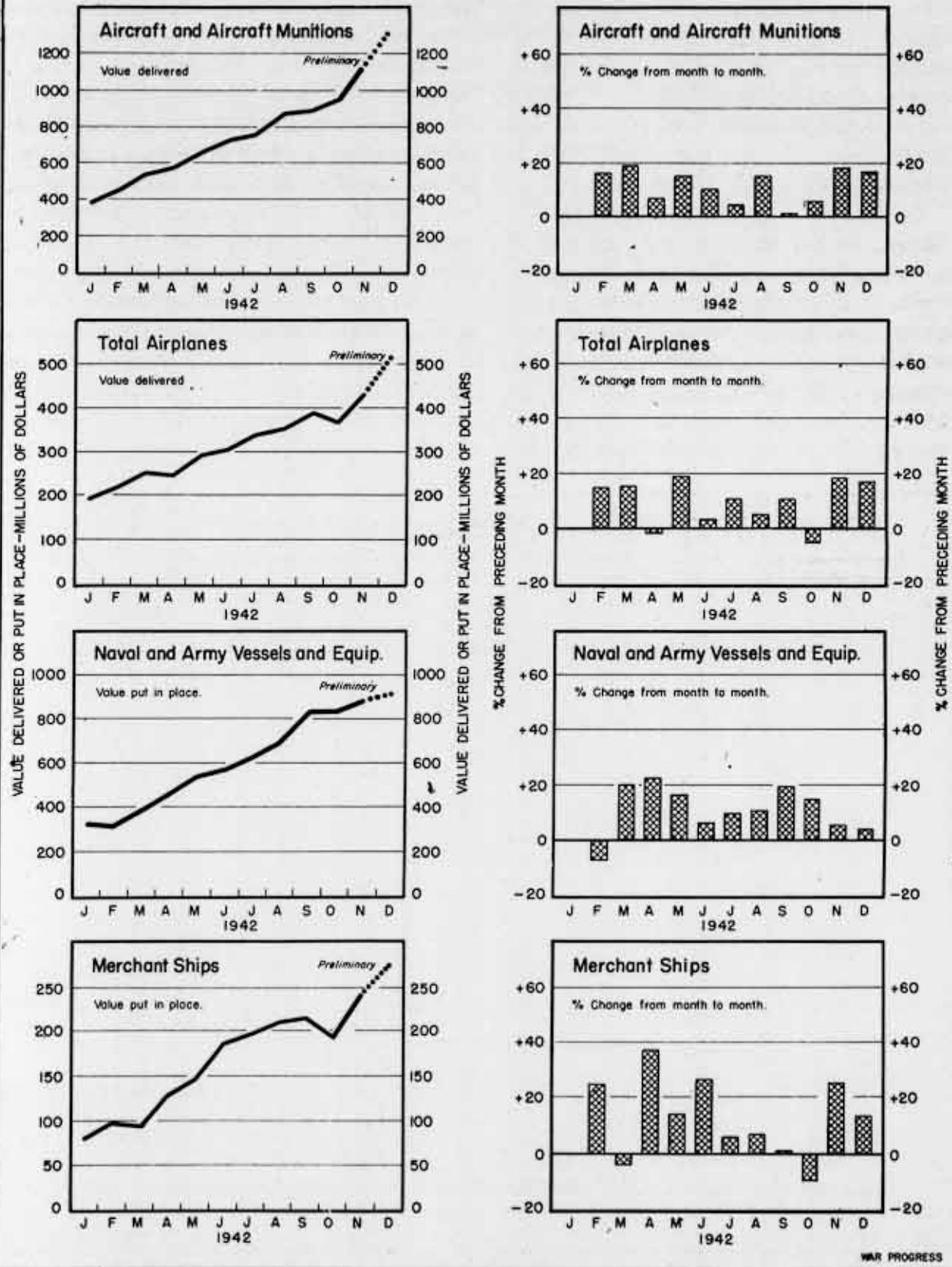
### MUNITIONS PRODUCTION SPURTS AT YEAR END-

Rise of 14% over November is widest month-to-month gain since April,



\* Artillery and equipment, small arms and infantry weapons, antiaircraft guns and equipment

**-AND DECEMBER'S OUTPUT TRIPLES JANUARY'S**  
with ground army and airforce equipment outpacing ships.



	December Deliveries As % of November	As % of Forecast
Self-propelled guns...	101%	124%
Minor combat vessels..	91	92
Artillery & tank gun ammunition.....	84	88
Ground signal equip...	72	90
Naval reconnaissance planes.....	49	63
Gliders.....	29	46

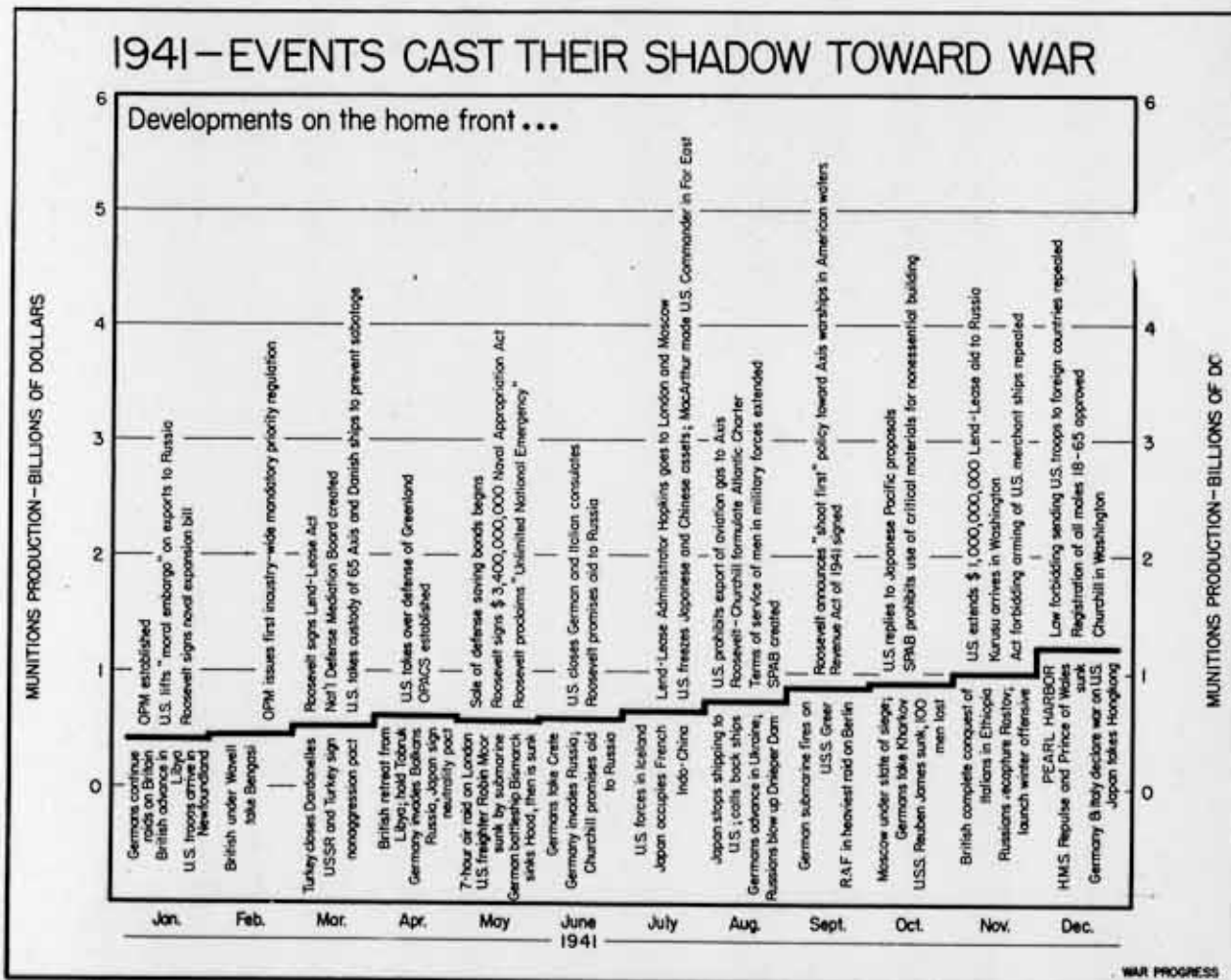
Naval ships did not keep pace with the general increases in December. For example, deliveries of minor combat vessels were down from November. And though they were not far off from the forecast—only 8%—this is attributable primarily to a recent reduction in the December forecast, not to a high rate

of deliveries. Major combat vessels ran 74% above forecast; this good record was heavily weighted by the delivery of a 27,000-ton aircraft carrier on December 31, delivery of which had been scheduled for January.

**WEAPONS STEPPED UP**

Ordnance generally was higher, primarily because of a stepup in deliveries of weapons—combat vehicles, artillery, small arms. But ammunition for artillery and tank guns was off 16% from November.

The speedup in light-tank deliveries—up almost 300% and 35% ahead of schedule—explains in large part the increase in tank output. (In November, light-tank deliveries were 48% behind schedule.) December saw the last M-3 medium





tank roll off the assembly line, two months before output was scheduled to stop. That means that henceforth medium-tank production efforts will be concentrated on the far superior M-4 (WP-Nov20'42,pl).

Full-year results for 1942 re-emphasize the lack of balance in production. In a number of cases, output of one item ran ahead of requirements whereas the complementary item ran behind the objective (chart, page 1).

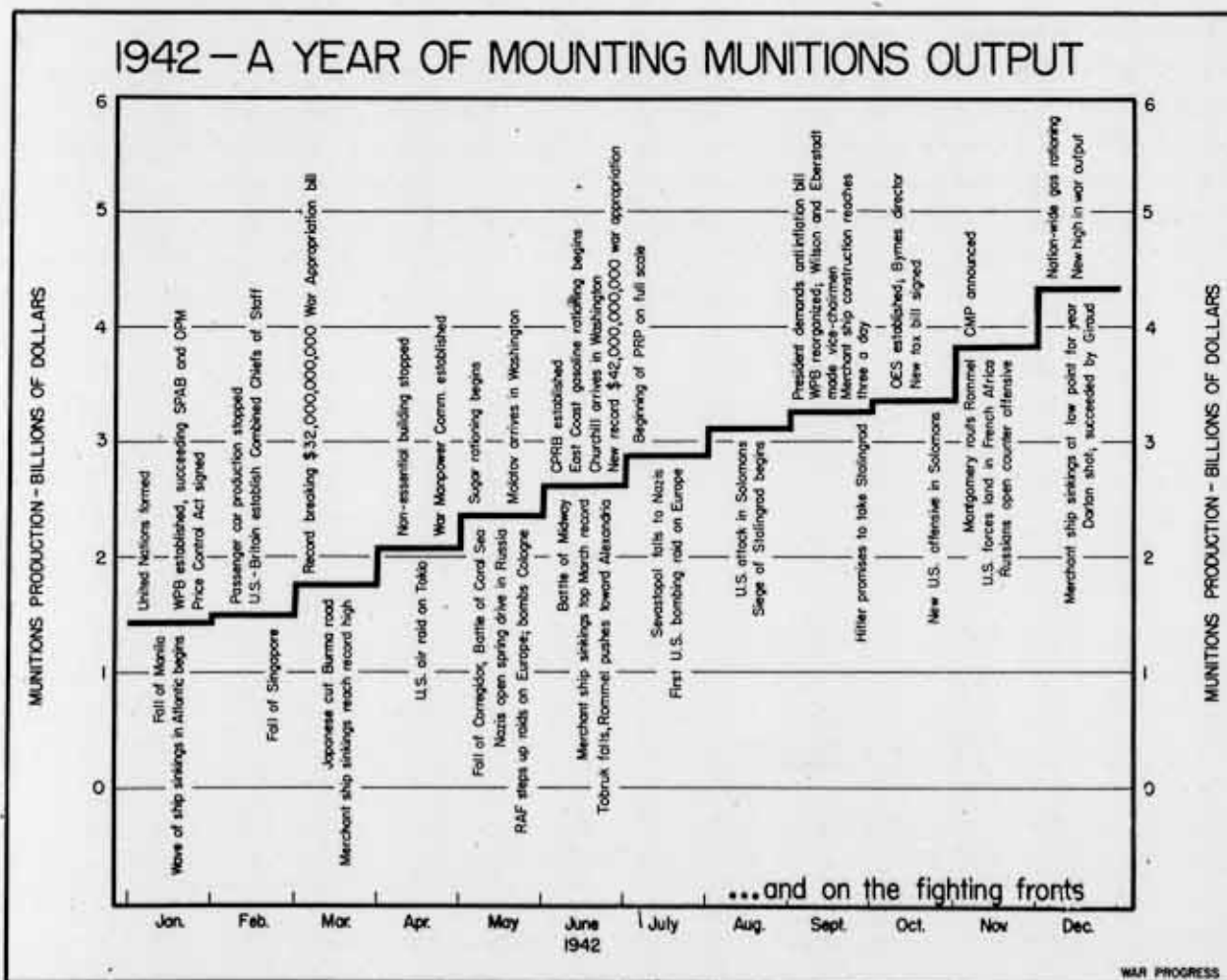
**FIRE CONTROL FALTERS**

In anti-aircraft guns and anti-aircraft fire-control equipment, production of guns was just about on the objective, up 2%; but the fire-control equipment needed to make those guns really effective was 42% below the objective. In

wheeled artillery, similarly, production was 4% above the objective, but again fire-control equipment was short of the goal, this time by 35%.

**TANKS REACH GOAL**

Certain other items, however, moved in step toward objectives: Tanks actually hit the objective on the nose (the objective for tanks was lowered late in the year), and tank guns exceeded it by 19%; anti-aircraft ammunition was 2% below the objective, as against the 2% excess for anti-aircraft guns, as noted above. Lack of overall balance in the program, however, is suggested by the slow progress in armored car output--only 20% of objective; also by self-propelled guns, which came to only 66% of the year's goal.



## CMP Debut Has Its Problems

Time too short to develop all bills of materials for second quarter requirements; so claimants had to make estimates, using PRP data. "B" list changes an obstacle.

SECOND QUARTER REQUIREMENTS for steel, copper, and aluminum are now under review by the Controlled Materials Divisions and the Program Bureau of the Vice Chairman, as a preliminary to making final allotments to claimant agencies--the Army, Navy, Maritime Commission, etc.--on February 1. As submitted, requirements reflect the fact-finding difficulties encountered by claimant agencies in preparing for the first round of CMP operations in the second quarter.

In just 58 days--from November 2 (when CMP was announced) to January 1 (when requirements had to be submitted)--claimant agencies had to familiarize themselves with the task of preparing their future demands on materials supplies by programs, monthly periods for one year ahead, and in aggregates for the succeeding six months; by two groups of products, divided into Class A and Class B; and by various metal forms and shapes. As expected, such detailed requirements were too exacting for full compliance in the time allowed prior to the second quarter.

### NOT ENOUGH TIME

Bills of materials--which should underlie the materials awards on each procurement item--could not be obtained, analyzed, and translated into requirements for every one of the hundreds of thousands of procurement items needed by the services and the other claimants.

Hence, where detailed statements on materials needed in the production of specific items had not previously been

obtained or could not be obtained in the short time available (it often requires many months to develop bills of materials), estimates had to suffice instead of accurate computations of requirements. Such estimates were made on the basis of either PRP data on metals consumption in previous quarters or other information often less reliable.

### "A" LIST INFLATED

Furthermore, in order to prepare requirements by two categories--Class A products (munitions and other products not sold on the open market but specified by claimant agencies) and Class B products (mostly components and parts such as valves, bearings, motors, etc., and civilian-type end products)--it is necessary to have a clear and final list of all Class B products. That list was not definitely decided upon until December 21. Meanwhile, however, claimants had to proceed with the preparation of requirements, and they used, for Class B products, the tentative and incomplete list issued on November 14. This procedure led to the inclusion in requirements for Class A products of materials destined to be used for what finally became Class B products.

In short, Class A requirements became inflated and, in many cases, duplication occurred because some requirements for components and machinery were not only included in the Class A tabulation but in the Class B tabulation also.

### GAPS IN CLASS "B" DATA

Because of this inflation, revisions are now being worked out jointly by the Controlled Materials Divisions, Industry Divisions, and claimant agencies. However, while deflation of requirements

is under way, requirements for Class B products will of necessity--because of gaps in the basic information--remain inaccurate. In these instances, claimants will have to make allotments to prime consumers on the basis of applications for controlled materials (Form CMP-4) without a prior check on bills of materials and computed program-by-program requirements.

a catalyst in chemical processing, and in alloys with other metals such as brass, copper, and bronze.

DOMINION PRODUCES

Canada is the world's biggest producer. Over the past 30 years, it has accounted for almost 85% of world output; and with Canadian mines operating at a wartime peak in 1942, Canada furnished some 95% of United Nations production.

## Once Plentiful Nickel

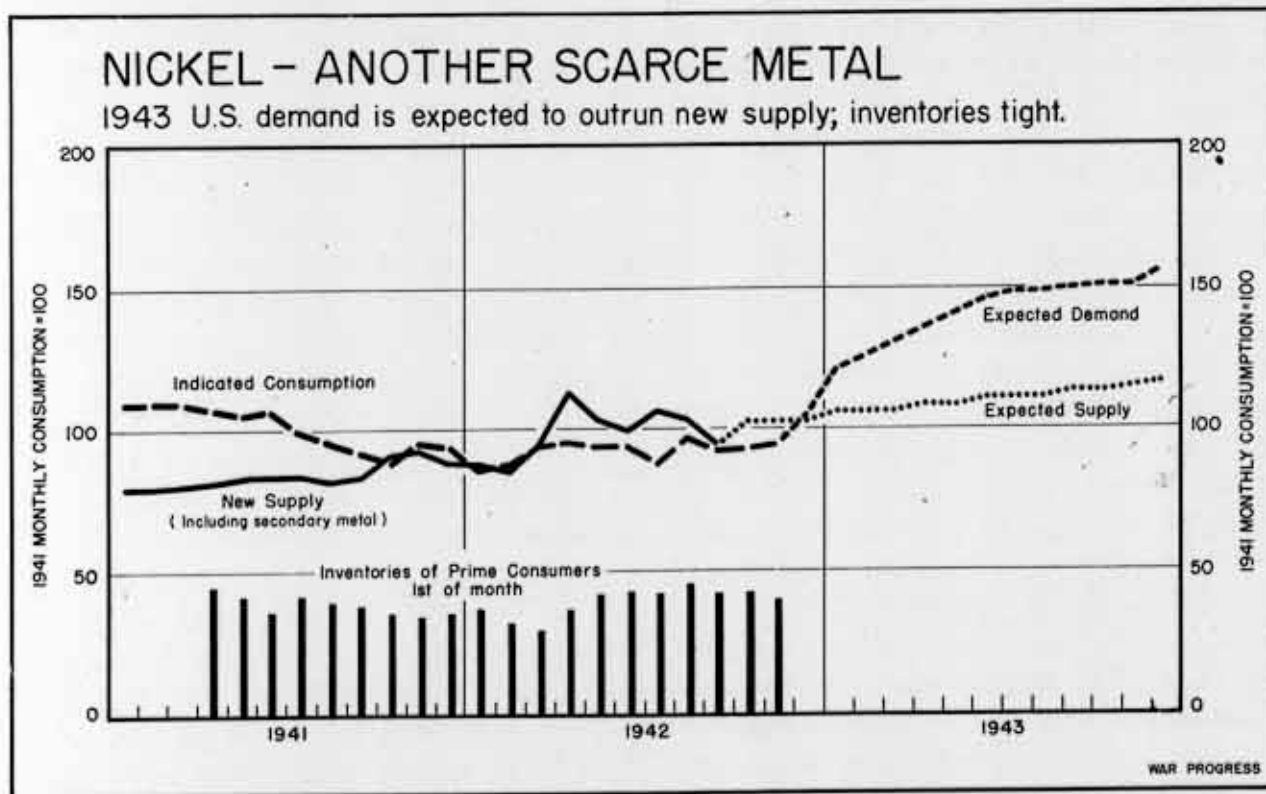
Canadian mines work at wartime speed to furnish metal for armor plate. And U.S. primary consumers carry on with a two-weeks' working supply.

U. S. CONSUMES

The United States is the big user. Consumption, including lend-lease, has doubled since 1939 and last year amounted to about 75% of total United Nations output. Virtually all of the U.S. supply comes from Canada--although, beginning in 1941, New Caledonia (now occupied by U.S. troops) became an additional source for the United Nations.

FOR EVERY POUND of nickel used in the closing months of the last war, the U.S. today needs five pounds to satisfy the needs of our Army, Navy, and allies. Nickel imparts hardness, toughness, and strength to steel. It is also used in plating, for building up worn parts, as

So great has been the demand for nickel that primary consumers (steel mills,





## KEY STATISTICS OF THE WEEK

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War program - Checks paid (millions of dollars) -----	1,414	1,418	1,387	1,075	453
War bond sales (millions of dollars) -----	219	297	203	245	225
Commodity prices (August 1939 = 100)					
28 Basic commodities -----	173.8	172.9	171.4	167.9	162.4
Controlled -----	161.9	162.1	162.1	163.5	160.0
Uncontrolled -----	203.4	200.0	194.8	179.5	168.5
Nonferrous metal scrap -----	117.5	117.5	117.5	120.3	130.5
Petroleum carloadings (no. of tank cars)					
Total -----	49,045	46,157	51,190	51,161	45,324
Movement into East -----	25,129	22,712	24,974	24,017	2,005
Exports (no. of freight cars unloaded for export Friday)					
Atlantic Coast ports -----	1,262	963	1,088	1,457	1,431
Gulf Coast ports -----	363	271	319	563	390
Pacific Coast ports -----	1,027	723	925	694	241
Strikes affecting the war effort					
Number in progress -----	6	7	8	19	n.a.
Man-days lost -----	15,973	10,470	29,616	26,503	n.a.
Unused steel capacity (% operations below capacity) -----	0.7	3.0	1.6	1.6	4.9

n.a. Not available.

brass mills, foundries, etc.) have been unable to build their stocks of raw nickel above a two weeks' supply (chart, page 9). This reflects the institution of an allocations system in nickel in April, 1941.

## END-PRODUCT USE SMALL

Inventories of end-product manufacturers--chiefly munitions builders--ran to about a 22-weeks' supply on June 30 last, as disclosed in the processing of PRP applications for the fourth quarter (WP-Oct30'42,p6). Consumption by these firms, however, is only 5% to 7% of the total.

Since these manufacturers consume the bulk of their needs in the form of nickel-bearing alloys such as steel (WP-Oct30'42,p7), etc., the raw nickel they use is largely incidental to their fabricating processes. Indeed, compared with total U.S. consumption, their June

30 inventories represented about a three- or four-days' supply. What's more, a preliminary survey of latest PRP reports indicates that there has been a drop since then in the stocks of end-products manufacturers.

The steel industry is the outstanding consumer of nickel. Because of the increasing demand for armor plate for tanks, guns, ships, planes, etc., demand for nickel in steel has increased from 60% of U.S. consumption in 1939 to 75% in 1942.

## CUBAN SOURCES

This year, steel mills are expected to take more than 80% of our estimated supply; and on this basis--together with other demands--monthly nickel needs would average 2,910,000 pounds more in 1943 than in 1942. Most of this increase could be made up by operation of a new nickel development in Cuba. Following



## Six Major Problems for 1943

Last year the aim was to get war production started at any cost; need in 1943 is to intensify the effort and get the most out of limited resources.

THE YEAR 1942 was a year of organization for war--of taking up slack in our economy, of converting plants to munitions production, of gearing up to a maximum war effort. The year 1943 will be different.

During 1942, munitions production and war construction rose from a \$2,000,000,000-a-month level in January to an estimated \$5,500,000,000 last month. That's a gain of \$3,500,000,000. This year, the dollar gain will not be quite so great. Scheduled output for December, 1943, is around \$7,500,000,000 to \$8,000,000,000: Thus, an increase of about \$2,000,000,000 to \$2,500,000,000

from last month's rate is called for this year. But because the war economy is at an advanced, close-to-capacity stage, the job of getting that boost will be just as hard, if not harder, than the job of getting a \$3,500,000,000 increase last year. There's little slack to draw upon.

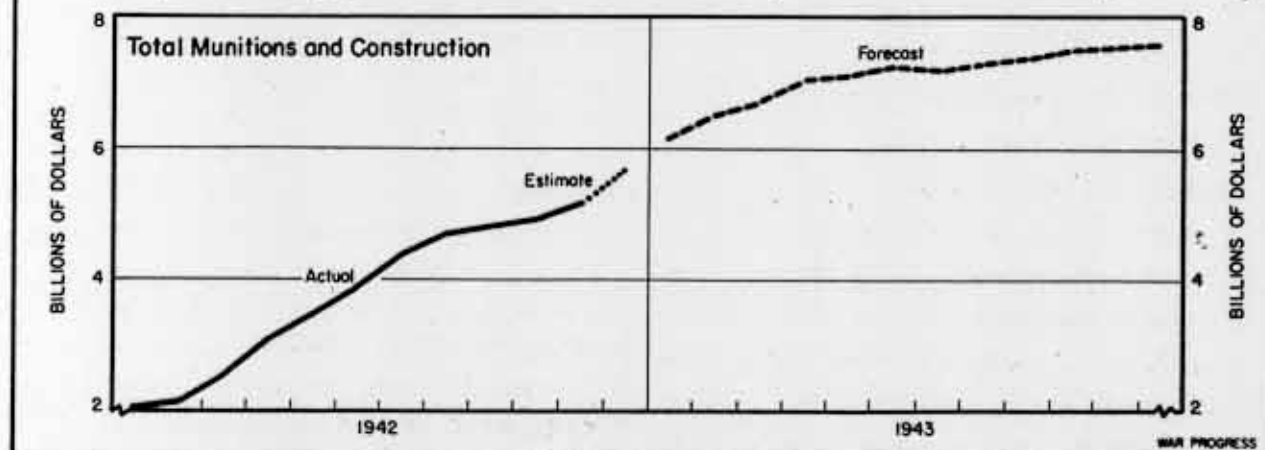
### ABUNDANCE TO SCARCITY

In 1942, the urgent need was to raise "sights"--to develop a program which would make fuller use of America's capacity to produce for war (WP-Dec4/42, p1), to use more manpower, more machines, and more materials in war production. And it was more important to get things going than to economize on the use of resources.

But now the country is entering a new phase. Already, war production has been held back by machine-tool bottlenecks,

### NEARING CAPACITY

As production approaches limits of U. S. resources, the rate of rise slows up.



DURING 1942, THE AMERICAN ECONOMY WAS TOOLING UP FOR WAR, AND GAINS IN OUTPUT WERE SHARP--NEARLY 200% FROM JANUARY TO DECEMBER. THIS YEAR, THE INCREASE, PERCENTAGEWISE, WILL NOT BE NEARLY SO STEEP, AS THE CHART CLEARLY INDICATES. BUT BECAUSE THE COUNTRY

IS NEARING CAPACITY--IN MATERIALS, MACHINES, AND MANPOWER--GAINS WILL COME HARD. INCREASES IN MUNITIONS OUTPUT AND WAR CONSTRUCTION WILL HAVE TO BE DERIVED LARGELY FROM INTENSIFIED UTILIZATION OF RESOURCES, NOT SO MUCH FROM EXPANSION.

initial shipments next summer, such volume is slated for a peak rate of 2,500,000 pounds monthly by the end of the year.

Such new production, however, won't necessarily be earmarked for the United States. For, beginning with the second quarter of 1942, the entire United Nations' supply of nickel has been apportioned among users, according to needs, by the Metals Controller of Canada, and by the Combined Raw Materials Board.

THE WAY OF A WAR

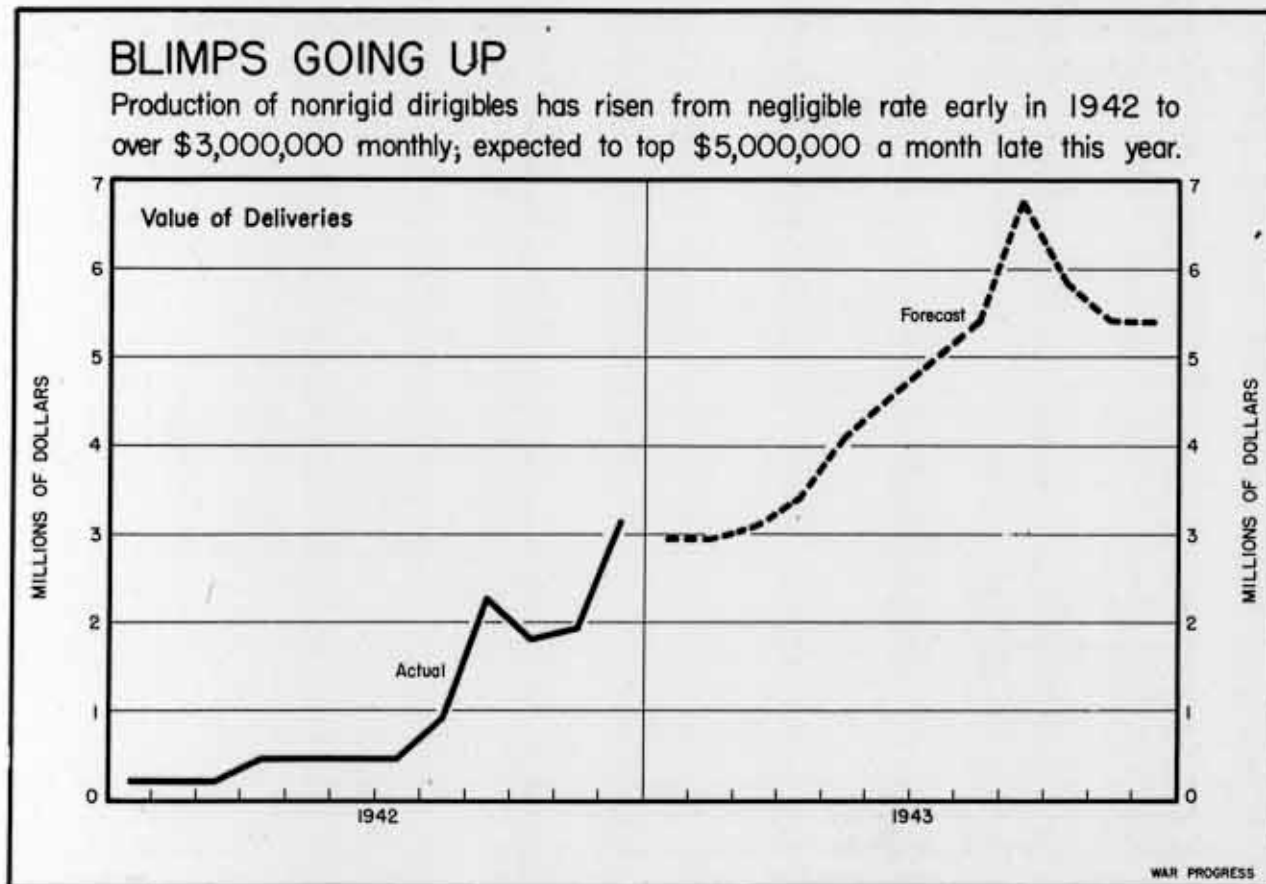
And the conclusion is an old story. Nickel has gone the way of all metals in wartime. Once plentiful--nickel mines were operated at only 50% of capacity during the depression--it's now scarce. And despite conservation and the elimination of civilian demand, the United States and its allies now must pool and husband available supplies.

0.06% of the Program

Blimps are a minor item in the overall war cost but do a major job in spotting subs. Unlike planes, they can cruise in adverse weather and at low speeds.

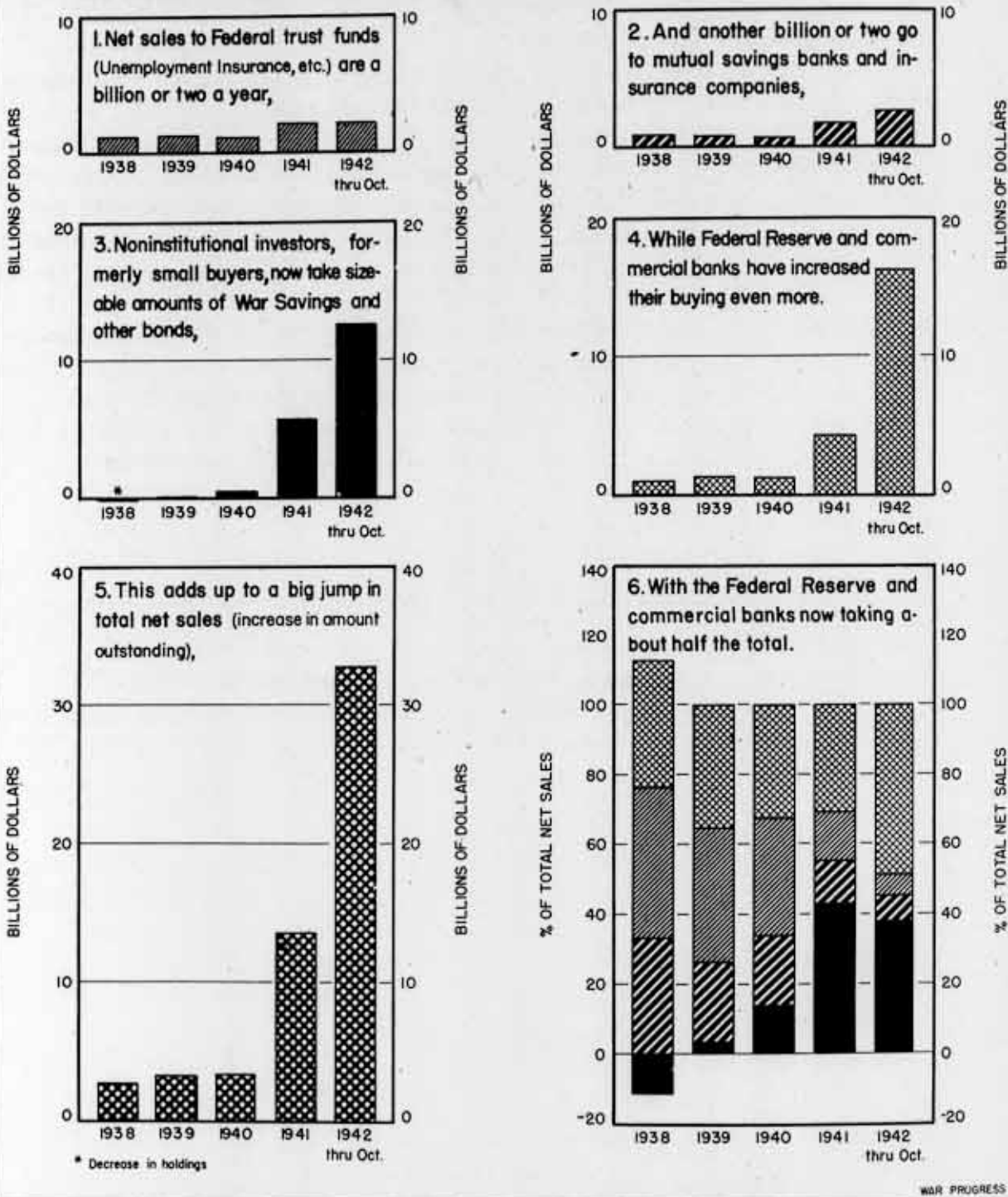
AS PROGRAMS GO, the blimp program is small: \$66,000,000 in 1942-43, or only 0.06% of munitions production scheduled. But the cost is no measure of the significance. Blimps have a specific function: to protect coastwise and convoy shipping against submarines; also to spot enemy-laid mines.

The program calls for 164 airships and is just beginning to approach volume production. So far about 30 have been delivered. From a level of one or two per month last spring, deliveries reached a high of seven in December (four of these being delivered though uninflated). Output is concentrated in the Goodyear



## WHO BUYS GOVERNMENT BONDS

"Inflationary" sales of government and government-guaranteed issues to Federal Reserve and commercial banks have risen more than sales to investors and investment institutions.



THOUGH THE TREASURY HAS BEEN NOTABLY SUCCESSFUL IN PROMOTING SALES OF WAR SAVINGS BONDS, IT STILL HAS HAD TO DEPEND INCREASINGLY ON COMMERCIAL BANKS TO FINANCE THE WAR EFFORT. WHEN THE GOVERNMENT BORROWS MONEY FROM INDIVIDUALS OR FROM MUTUAL SAVINGS BANKS

AND INSURANCE COMPANIES AND THEN SPENDS IT, THE NET EFFECT IS A TRANSFER OF BANK DEPOSITS. BUT WHEN IT BORROWS MONEY FROM THE RESERVE OR COMMERCIAL BANKS AND SPENDS IT, THE EFFECT IS TO EXPAND BANK DEPOSITS, THUS INCREASING INFLATION POTENTIALITIES.



plant at Akron and is expected to rise gradually to a peak of 15 blimps a month by next September and stay near that level.

**RUBBER REQUIREMENTS.**

Production could be expanded 50% further if the Goodyear plant at Phoenix, Ariz., were utilized. But transportation of raw materials and labor to that point presents a problem. Each blimp takes about 3,000 pounds of rubber, 3,500 pounds of aluminum, 2,500 pounds of alloy steel (engines not included). Lift is provided by 425,000 cubic feet of helium--about one-sixteenth of the capacity of the huge navy dirigible, "Macon." Power comes from two 550 hp. Wasp engines.

**SIGNS OF SUBS.**

Blimps are usually used in submarine coastal patrol duty; they have a maximum range of 2,000 miles and a cruising speed of 50 knots; top speed is 75 knots. In these patrol operations, blimps have certain distinct advantages over airplanes. They can take off and land in low ceiling weather. Their speed can be throttled down to that of a convoy or they can hover over a spot. Thus, better than a fast-flying plane, they can observe such submarine telltales as oil slicks, lines of bubbles, seagulls following a periscope, perhaps an orange crate (concealing a periscope) moving against the tide.

**War Progress Notes**

**COST OF EATING**

BETWEEN mid-November and mid-December, the average family food bill wriggled up another 1.2% (same as in previous period) even though foods under price control advanced only 0.5%. Prices of foods not under direct control of OPA

rose 7%, largely because of fresh fruits and vegetables. Obviously, as supplies of many of the controlled foods become short--beef, butter, coffee, etc.--the relative weight of the uncontrolled foods in the family diet tends to increase. For example, the food cost index on December 15, 1942, stood 9% above May, 1942; but items included from the start in the general maximum price regulation have risen only 1.2% since May, while uncontrolled foods climbed 30%, as the table shows:

	% Increase May 12 to Dec. 15
All foods.....	9.1%
Under OPA control on Dec. 15.....	6.9
Under control on May 18...	1.2
Placed under control after May 18.....	17.5
Not under OPA control.....	29.8

**CANADA'S DRAW**

TOTAL CANADIAN requests for U.S. supplies --chiefly raw materials and munitions components--are estimated at \$587,600,000 in 1943. But only half is destined for Canada itself; 32% will go to the United Kingdom, 18% will be sent back to the United States (after processing). Reflecting rapidly expanding Canadian war output, the 1943 requirement is 37% above a year ago, and 150% higher than 1941.

**BENCH TECHNOLOGISTS**

ONE WORKER'S suggestion recently (on a reaming operation) increased his plant's capacity for producing Thompson sub-machine guns by 100%. Thousands of such ideas are flowing regularly into labor-management committees in 1,900 war plants. Thirty of the best submitted last month will save over 112,000 man-hours annually. Typical example: designing of a



machine to set gaps for aircraft spark plugs enables even a beginner to operate it and turn out 800 correctly gapped plugs per day instead of former top production of 300.

#### PEAK MINERAL OUTPUT

THE VALUE of U.S. mineral production in 1942 reached a new high of about \$7,-525,000,000--10% above 1941. Of the total, metals (steel, iron, copper, lead, zinc, aluminum, etc.) accounted for \$2,-330,000,000; mineral fuels (petroleum, coal, and coke) for \$4,060,000,000; and nonmetallic minerals (cement, sand, gravel, stone products, lime, and gypsum) for \$1,135,000,000.

About 106,000,000 tons of iron ore were mined last year, compared with 93,-000,000 tons in 1941. Blast furnaces produced 59,000,000 tons of pig iron,

contrasted with 55,000,000 in '41. Output of ferroalloys was up about 11%.

Other warmetals--aluminum, magnesium, copper, chromite, molybdenum, tungsten, vanadium, and cadmium--hit all-time peaks. Petroleum output at 1,385,000,-000 barrels (held down because of transportation difficulties) was off 1%. Bituminous coal production of 576,000,-000 tons was up 13%.

#### CUTTING THE CUTLETS

MEAT for our armed forces overseas used to be shipped in whole sides or full carcasses. Now the carcass is completely boned and carved into edible cuts, is then quick frozen, paraffin coated, packed in cartons and shipped. This reduces space a third and weight a fifth. And the meat arrives ready cut for the chef.

## SELECTED MONTHLY STATISTICS

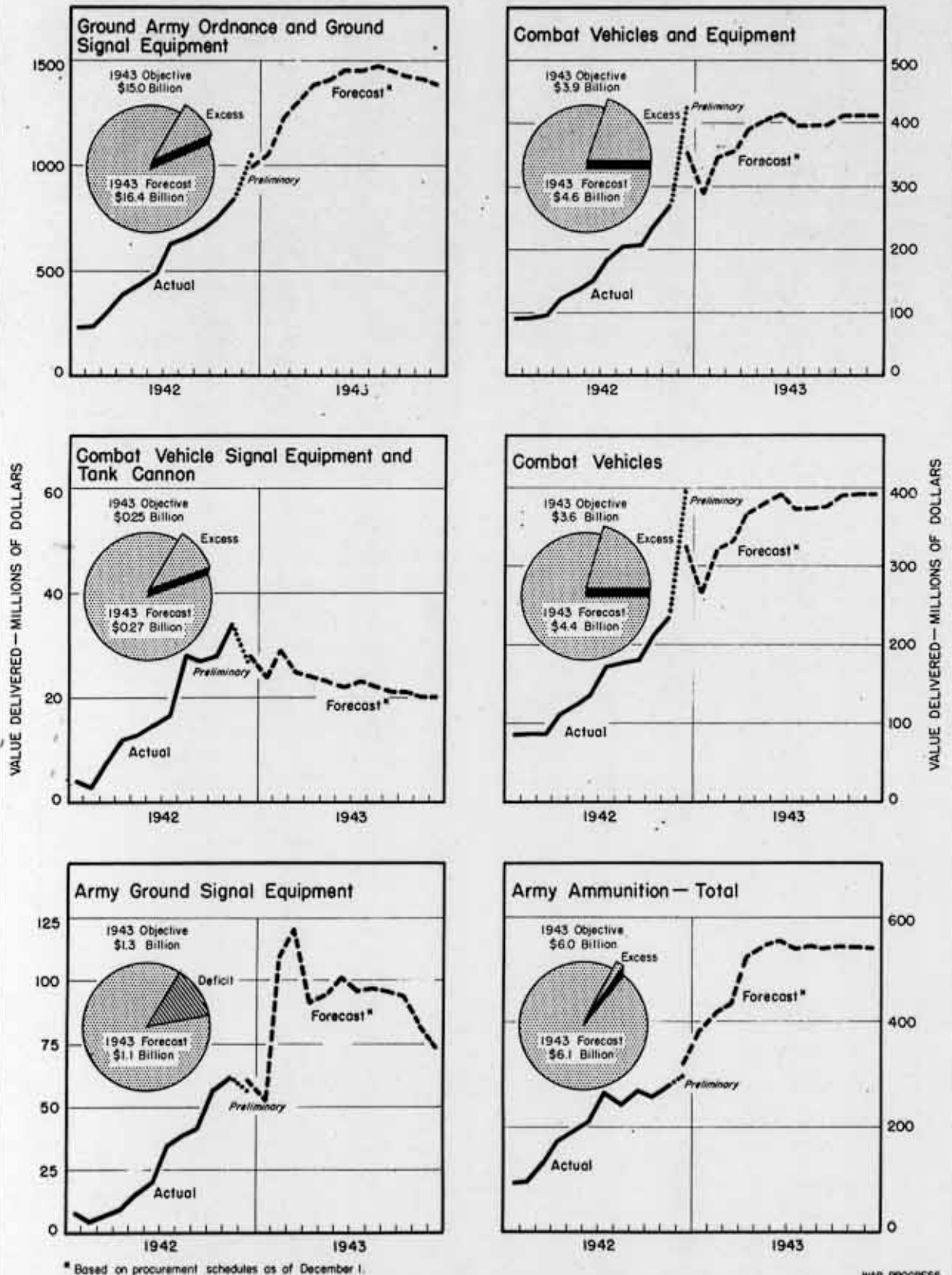
### Labor Force - Labor Turnover

	Latest Month	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Same Month 1939	Same Month 1937
Labor Force (millions)	53.4	54.5	54.0	56.1	54.0	n.a.	n.a.
Employment - total	51.9	52.8	52.4	53.3	50.2	n.a.	n.a.
Male	37.0	37.5	38.1	39.4	37.6	n.a.	n.a.
Female	14.9	15.3	14.3	13.9	12.6	n.a.	n.a.
Unemployment	1.5	1.7	1.6	2.8	3.8	n.a.	n.a.
Labor Turnover in Mfg. Industries (rate per hundred workers)							
Accessions	8.14	8.69	9.15	7.29	3.91	4.10	1.79
Separations - total	7.09	7.91	8.10	6.54	3.51	2.95	6.87
Quits	4.21	4.65	5.19	3.77	1.57	0.83	0.72
Military Separations	1.55	1.71	1.48	0.68	0.15	n.a.	n.a.
Aircraft - Quits	3.93	4.41	4.72	4.06	2.20	1.06	0.59
Aircraft - Military Separations	2.22	2.82	2.41	0.85	0.15	n.a.	n.a.
Shipbuilding - Quits	5.41	5.39	6.66	5.20	2.39	0.69	0.93
Shipbuilding - Military Separations	2.43	2.60	2.39	0.91	0.13	n.a.	n.a.

\* Labor force, December; labor turnover, November. n.a. Not available.

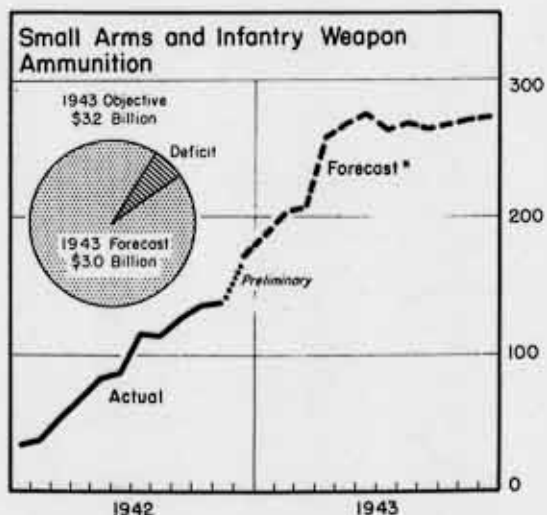
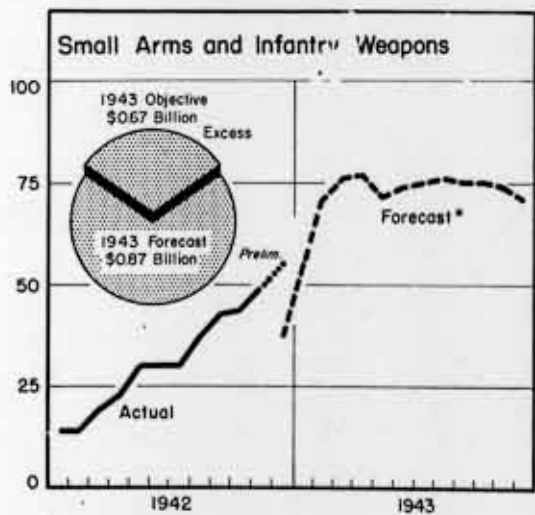
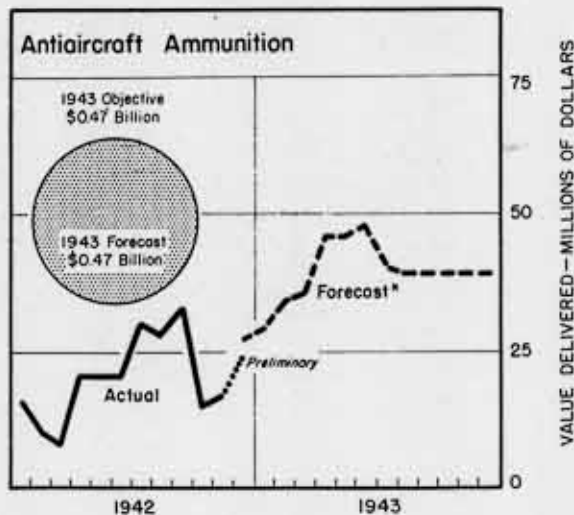
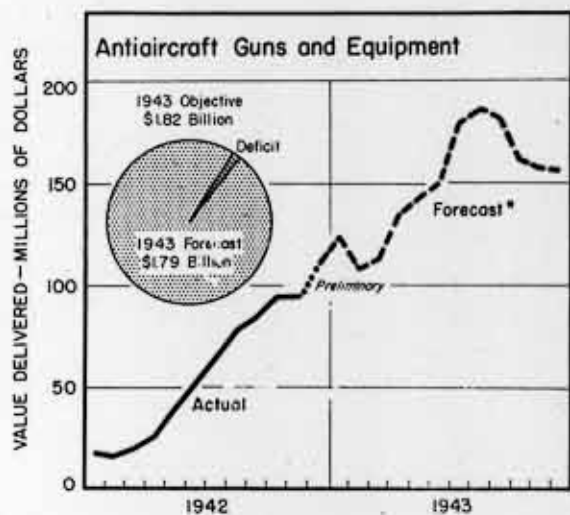
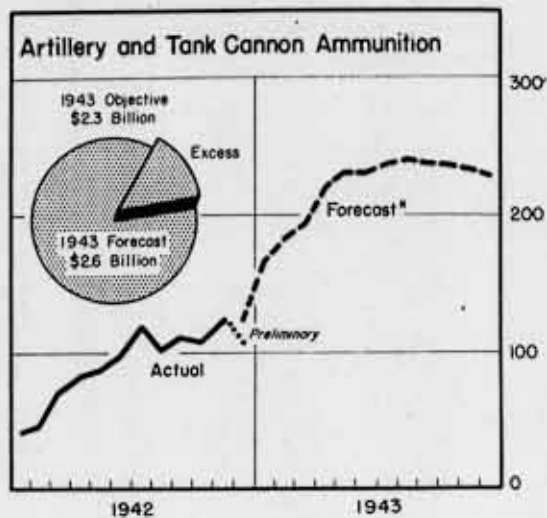
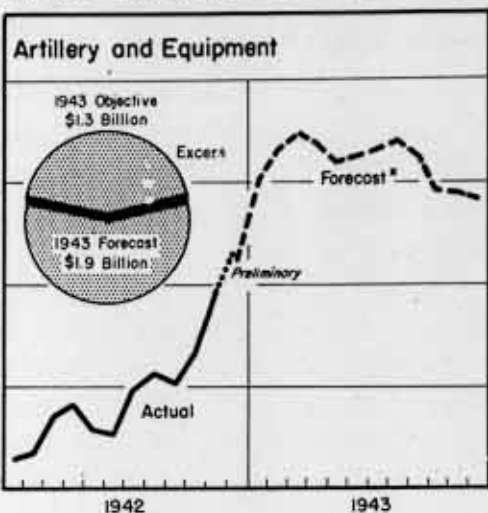
# PRODUCTION PROGRESS

## Ground Army Munitions



# PRODUCTION PROGRESS

Ground Army Munitions (continued)



\*Based on procurement schedules as of December 1.

# WAR PROGRESS

*Confidential*  
*(British Secret)*

RECEIVED  
GENERAL INVESTIGATIVE  
DIVISION  
24 MAR 1943

## Guns with Greater Fire Power

Number 123

January 22, 1943



## More Versatile and Powerful Guns

Heavier armament favored for planes, tanks; and ground artillery tends to increased mobility. Dual-purpose naval weapons are directed at the new enemy, the airplane.

LAST YEAR, the value of guns and related equipment--both Army and Navy--ran to \$2,859,000,000; this year, production is scheduled to reach \$6,600,000,000, a rise of nearly 130%. In relation to total munitions, 1943 gun production will show no perceptible increase, but technological and strategic shifts toward improved types are making our guns more versatile and more powerful.

### AIRCRAFT CANNON UP

In aircraft armament, the heavy .50 caliber machine gun is increasingly crowding out the smaller .30 caliber type, with production of the latter due to stop altogether in April. And aircraft cannon (ranging from 20mm. to 37mm. and even heavier) are displacing part of the total aircraft machine-gun output; from zero production in the second half of 1940 and 6% in 1941, the proportion of cannon to the value of total aircraft guns is expected to rise to 28% in 1943 and 37% in 1944.

### HEAVIER TANK GUNS

Tank guns are also becoming more powerful. We produced only 37mm. tank guns in 1940 but in the light of battle experience we have slowly shifted output to heavier types, principally the high-velocity 75mm. gun. This model is scheduled to comprise 71% of the value of 1943 tank gun production and 74% of the total in 1944.

In ground artillery, more and more

guns are being mounted on self-propelled carriages for greater mobility. This country did not get into production of self-propelled guns until February, 1942. Output was then boosted so sharply that, for 1942 as a whole, about 26 out of every 100 pieces produced were self-propelled; and the proportion will rise to 38 out of 100 in 1943. Our own and the Russian armies are beginning to lead in the self-propelled field.

### AFRICAN ACE

Antitank guns constitute the bulk of the self-propelled program. These weapons, also employed for other purposes, range from the 37mm. model mounted on a light truck up through the 3-inch antitank gun (already used with devastating effect in Africa, and expected to be production leader in 1943 and 1944) and the 105mm. antitank howitzer, both the latter mounted mainly on medium-tank chassis.

### FEWER BIG FIELD PIECES

In wheeled artillery and antitank guns, production emphasis is shifting slightly away from extremely heavy field pieces, including the 240mm. howitzer, the 8-inch field gun and howitzer, and the 155mm. gun. (None of these except the 155mm. has yet been made in a self-propelled model, although Russia has self-propelled guns in these large sizes.) Light artillery, also, will fail to expand perceptibly its share of the total. The big gain will come in medium artillery (including the 155mm. howitzer and the 4.5-inch field gun). Output of wheeled antitank guns will fall off as a per cent of the total because more

and more will be self-propelled models.

Output of the 37mm. wheeled model (which was found to be too light as early as the Spanish Civil War) is being drastically reduced. From over three-fourths of all antitank gun production, numerically, in 1940-41, this type will drop to 41% in 1943. The 57mm. wheeled type, which the British have found useful in Africa, will (along with self-propelled models) largely take its place.

#### DOUBLE THE 40mm. BOFORS

In ground antiaircraft guns there will be less emphasis on antiaircraft machine guns with more attention given to heavy guns, principally the 90mm. and 4.7-inch types. Output of the 40mm. Bofors model will double in 1943, but the 37mm. type (including self-propelled) will show practically no increase.

#### AIR-COOLED MACHINE GUNS

Typical of the basic change in emphasis in the small arms and infantry weapons field is the shift from water-cooled machine guns, almost universally used in the First World War, to lighter-

weight air-cooled types. This yields greater fire power per pound of gun and increases the effectiveness of infantry.

Among the rifles, the semiautomatic .30 caliber Garand has been basic in our production since 1940. But from over 90% of the total value of rifle production in 1940-41, Garand production will drop to about 20% in 1943. The semiautomatic .30 caliber carbine--much like the Garand but lighter in weight--will be a strong newcomer, rising from zero production in 1940-41 to 36% of total rifle output in 1943 and 39% in 1944.

#### SIDEARMS

The carbine is superseding pistols and other sidearms and is extensively used by paratroopers and combat vehicle crews. Production of certain older single-shot rifles--the .303 caliber Lee-Enfield, and the venerable Springfield--is being boosted largely for export purposes.

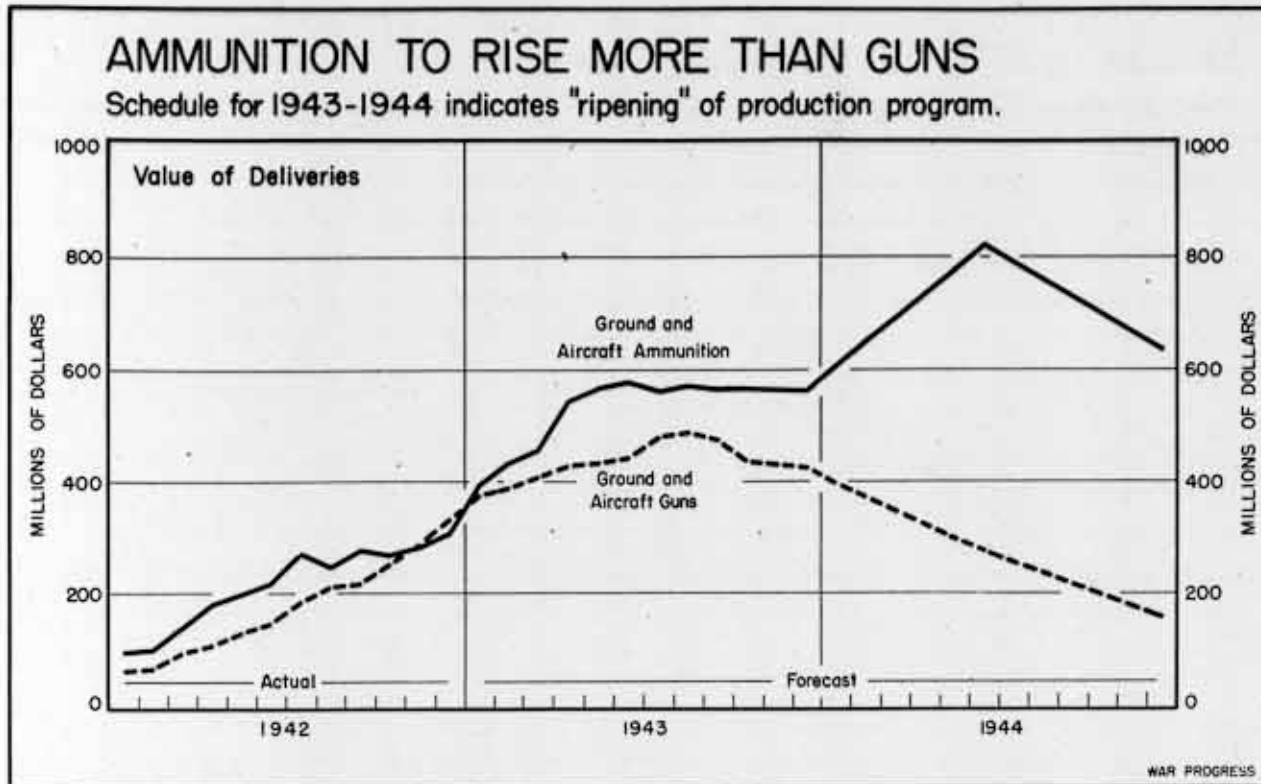
This country has no antitank rifle comparable to the Canadian .55 caliber Boys rifle, or the two-man antitank rifle used by the Russians. On the other hand, U.S. output of antitank rocket launchers (handled by two men and throwing a rocket shell over 2 inches in diameter) was numerically almost three times our production of mortars and bomb throwers in 1942.

#### ROCKETS AND FLAME-THROWERS

A 4.5-inch antitank rocket projector is in trial stages. We have small (21-ounce) antitank rifle grenades in production but none comparable to a heavier Russian type. While production of portable flame-throwers is considerable, we do not as yet produce this weapon for installation in tanks. British production of sub-machine guns--"tommy guns"--will increase much more

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DIVERGENT TRENDS IN GUN AND AMMUNITION SCHEDULES SUGGEST A DEVELOPING MATURITY IN THE MUNITIONS PROGRAM. BEGINNING THIS YEAR, OUTPUT OF GROUND AND AIRCRAFT AMMUNITION (AS WELL AS GUN SPARE PARTS) WILL FORGE AHEAD FASTER THAN PRODUCTION OF THE GUNS

THEMSELVES. THIS IS A NATURAL SEQUENCE DURING THE SHOOTING PHASE OF WAR. FIRST YOU HAVE TO BUILD WEAPONS, THEN AS THEY ARE BUILT AND PUT IN THE FIELD, YOU HAVE TO PRODUCE A MOUNTING SUPPLY OF AMMUNITION TO FEED THEM.

than U.S. output in 1943. And the British have recently expanded their mortar program.

#### FASTER-FIRING NAVAL GUNS

Naval armament is changing even more than air and ground types. Although naval guns are as a whole getting lighter in terms of size of shell fired, greater fire power is being achieved through (1) increased rapidity of fire, (2) improved armor piercing and thin-walled super-explosive shells, and (3) added mobility of speedier ships (with emphasis on the lighter types), on which the guns are mounted.

The main trend is toward guns capable of maximum fire power against the new enemy: the airplane. As a result, deliveries of surface fire guns (now lim-

ited to triple turret broadside types, 6 inches and over) was only 5% of total naval gun value in 1942, and will be hardly more in 1943. In the future, only battleships and the heavier cruisers will mount surface fire guns.

Dual purpose naval guns include the 5-inch and 3-inch types, which can fire horizontally at surface and shore targets or low-flying torpedo bombers and yet can be elevated for throwing up high altitude "flak." It is literally true that a modern warship can combat planes with nearly every weapon on board.

Naval guns specifically for anti-aircraft work are getting heavier: More attention will be given the 5-inch, 3-inch, and 40mm. types, with the 1.1-inch model rapidly dropping off the production line. The 20mm. Oerlikon gun, which



by materials shortages. Limits to the vast resources of the United States are clearly in view. And today it becomes necessary to intensify the war production effort--to maximize it to get the most out of limited materials, and not, as last year, to start using seemingly unlimited resources.

**OLD PROBLEMS AND NEW**

And some half dozen major problems are bound to dog the production trail through the new year. Some are familiar: materials control and manpower. Others are rapidly developing: synchronization of production of end products and industrial components (bearings, engines, fans and blowers, compressors, etc.); meeting the squeeze on the civilian economy; and finally the coordination of the management of our own resources as well as the integration of U.S. production with that of the other United Nations, especially Great Britain.

How these problems will develop and the form they will take deserve further consideration:

1. Materials.

Until now, the principal problem in raw materials was to increase supply

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and get demands of the Army, Navy, Maritime Commission, Lend-Lease, and other claimants down to supply. That has been more or less accomplished. Introduction of the Controlled Materials Plan helped to force revision of the overall munitions production and war construction program down from about \$93,000,000,000 to \$82,000,000,000 (WP-Dec18'42,p7), and this brought the program within the compass of the maximum raw-material supply.

**SYNCHRONIZED PRODUCTION**

That, however, does not mean that the raw-materials problem has been licked. It still is necessary to see that the raw-materials flow is directed into the right products at the right time. Since 1943 is a year of intensification--requiring the maximum use of limited resources--it will not do to tie up raw materials in industrial facilities which cannot be used immediately. Nor will it do to tie up raw materials in idle inventories; for example, producing tanks ahead of tank guns or aircraft armament ahead of airplanes; or producing fuses ahead of cartridge cases; or overproducing on any end product, thus forcing curtailment of production of some other end product. In short, balanced--synchronized--production is called for.

But the big raw-materials job--of cutting demand down to supply, of doing away with the inflation of priorities--has been achieved. So raw materials are not likely to become an outstanding, overall problem next year.

**COMPONENT BOTTLENECK**

Indeed, the production bottleneck problem is in the process of transformation. It's shifting from raw materials to...

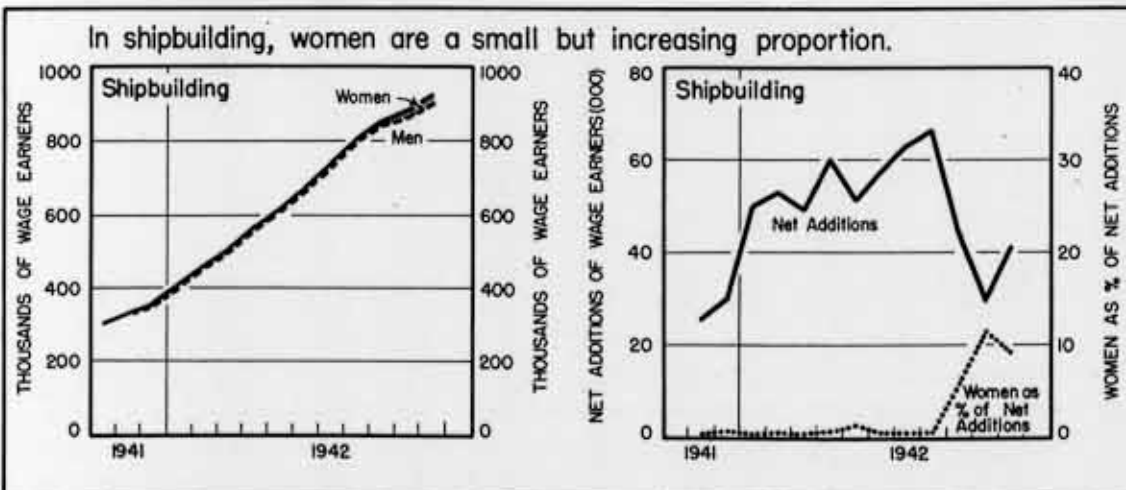
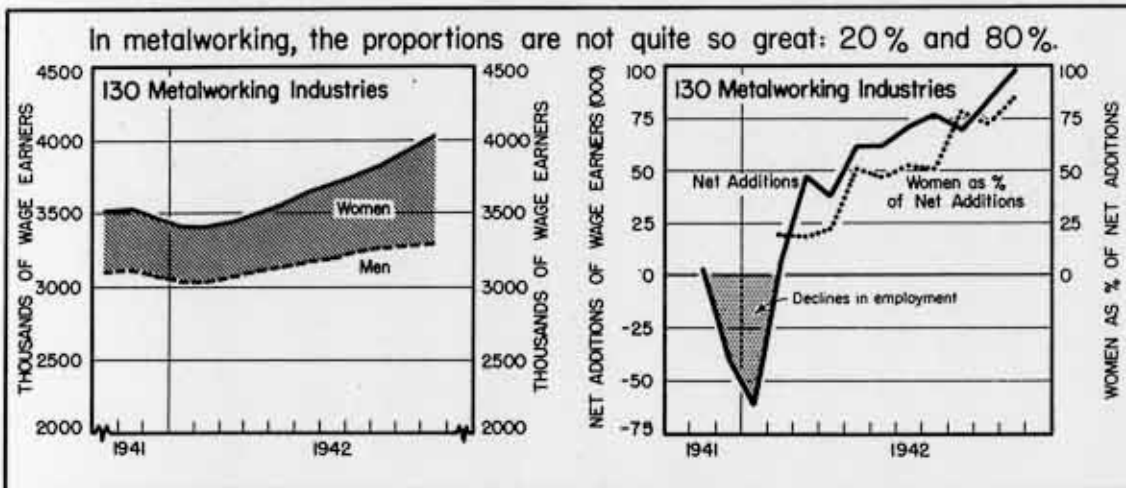
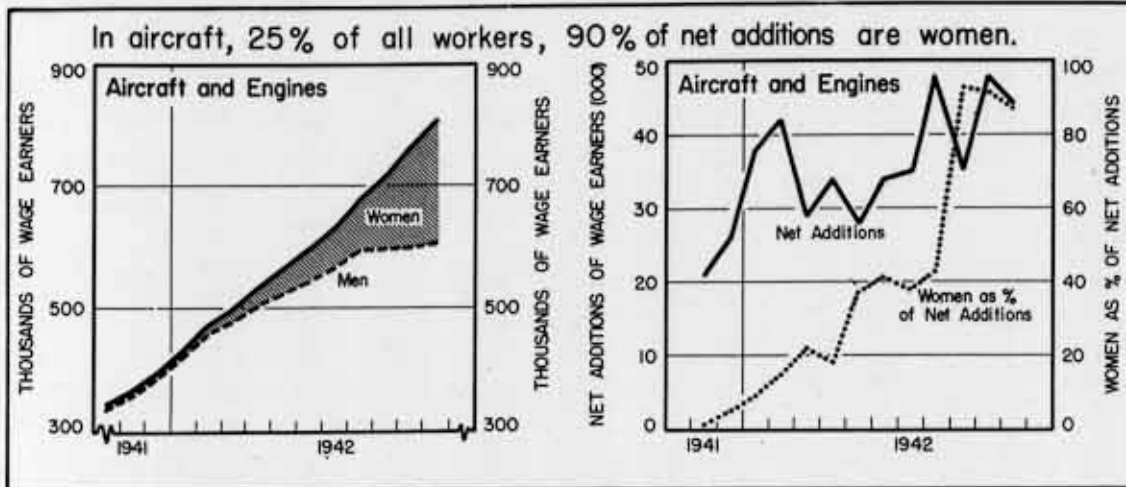
2. Industrial components.

Throughout 1942, output of end products has been held up sporadically by



## FROM SKIRTS TO OVERALLS

Women today constitute a rising percentage of workers in war plants, shipbuilding included.



because of its flexibility and quick aiming is the most effective weapon against dive bombers, is replacing .50 caliber machine guns both on warships and armed merchant vessels. The efficiency of the Oerlikon has been further increased with a new optical-electric sight; and schedules have been drastically boosted in the last few months.

#### FIRE CONTROL PROBLEM

To date, the production of fire-control equipment has not kept pace with guns. As noted in War Progress last week, fire-control equipment for both anti-aircraft guns and wheeled artillery were far behind 1942 objectives. And in many cases, ship and ground anti-aircraft batteries have had to function without a full complement of radar and other modern types of fire control. And the problem today is to produce fire-control equipment not only for guns currently being turned out but also for guns already in use.

The result is that ground anti-air-

craft schedules are giving increasing emphasis to fire control: From 37% of the value of total deliveries of ground anti-aircraft materiel last year, fire control is scheduled to rise to 51% this year (WP-Jan 1 '43, p8). Output of naval gun fire control is also scheduled to increase considerably faster than production of guns. Ground artillery is an exception to the rule of more fire control relative to output of guns. This is because self-propelled guns increasingly dominate the ground artillery program; used for short-range combat, they employ less complicated fire-control equipment.

#### NOT ENOUGH TO GO AROUND

But in any event, fire control this year presents a problem: It greatly enhances the fire power of guns, but because there will not be enough of the most modern types to go around, it will also be a limiting factor on the effectiveness of our guns.

### AIRPLANE OUTPUT LAGS BEHIND NEW SCHEDULE

AIRPLANES worth \$173,000,000 were accepted during the first 15 days of January--\$12,000,000 less than in the comparable period of December. The largest part of the decline was in the trainer category, off nearly \$10,000,000. Pursuit plane acceptances were down \$7,000,000, but other groups, including bombers, increased slightly over their December 1-15 levels.

In a typical month, about 38% of total acceptances occur during the first 15 days. The indication is that production for the full month of January will fall short of the 8-L schedule of \$540,000,000 for the month. This schedule--the new official plan

for the airplane industry--was met during November and December.

The pool of accepted but undelivered planes, which hit a new high of about 1,950 units at the end of December (WP-Jan 18 '43, p10), has receded to about 1,300. Part of the expenditure of productive energy early in January was necessarily devoted to making flyable a portion of the incomplete planes accepted last month.

Thus, although the 15-day statistics are by no means conclusive, they would seem to suggest that the high level of acceptances during December constituted in part a loan from this month's output.

## Railroad Prospects for 1943

With limited additions to equipment, the carriers face a record wartime haul; will have to get maximum utilization out of existing facilities. Oil is dramatic example.

IN 1942, U.S. railroads hauled the largest volume of freight in their history—at 635,000,000,000 ton-miles it was 33% above the 1941 total. And, despite misgivings earlier in the year, they got over the fall hump with something to spare. Carloadings in the peak week ending October 10 reached 910,000, a decline of 13,000 carloads from the peak in 1941; yet the ton-miles carried during the 1942 peak month were actually 30% greater than in the previous year.

To a large extent this difference in carloadings was the result of:

1. ODT order No.1, which stepped up the minimum weight on less-than-carload freight to six tons in May, eight tons in July, and 10 tons after September 1 (L.C.L. loadings dropped from 8,000,000 in 1941 to 5,600,000 in 1942).

2. Similarly, the railroads voluntarily undertook a campaign for tighter loading of boxcars (and the ODT, through order No.18—effective November 1—made the practice official by calling for loading of all boxcars to their marked limit or full visible capacity; savings of an additional 35,000 to 40,000 cars a week were realized by the order).

3. Earlier shipping contributed to a marked flattening out of the fall hump.

### SOME TIGHT SPOTS

However, 1942 was not so simple as the overall statistics make it seem. There were sporadic delays in furnishing particular types of cars—gondola, hopper, and tank cars especially. And, this year, the railroads are expected

to carry a freight burden 12% higher—and they're going to get less than 2% more cars to do it. The answer, as last year, is increasing efficiency—utilizing freight cars and locomotives already on the line at a maximum.

### THIS YEAR'S NEEDS

For their 1943 needs, the railroads sought 80,000 new freight cars and 900 locomotives before October 1, but steel for rolling stock and motive power in such quantities probably cannot be diverted from planes and tanks and ships—and it is doubtful if the railroads would follow through on a program of that extent even if it were granted.

At any rate, WPB has authorized material for the construction of 20,000 cars—mostly for the critical gondola and hopper cars—in the first half of the year, and for 286 locomotives in the first eight months. Also approved is the construction of 100 switching engines in the first six months to relieve congestion in the yards. No program has been established as yet for construction of cars in the last half of the year.

### PEAK WEEK PROBABILITIES

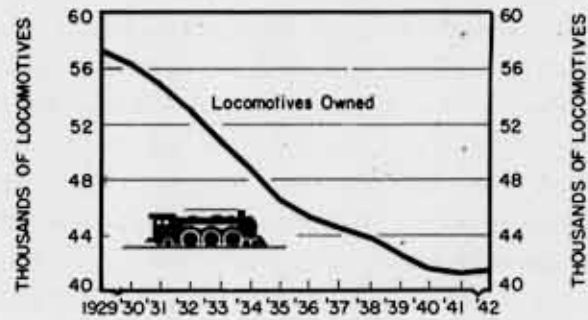
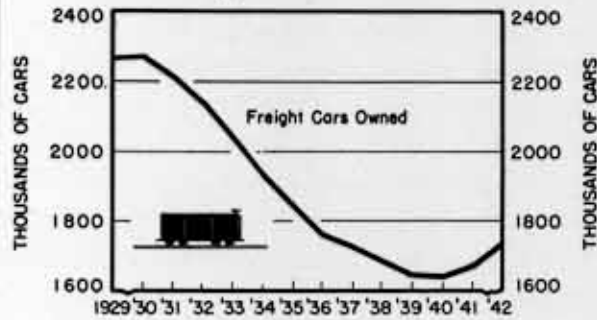
It is now estimated that net additions—new cars, plus bad-order cars repaired, minus cars destroyed—during the year will bring the number of cars available for the fall peak of 1943 up to about 1,693,000. And it is estimated that carloadings in the peak week of this year will run to perhaps 935,000. Last year, at the peak of operations, it took 1.81 cars to move one carload of freight, and at the same rate of utilization in 1943, maximum weekly carloadings possible would be just about



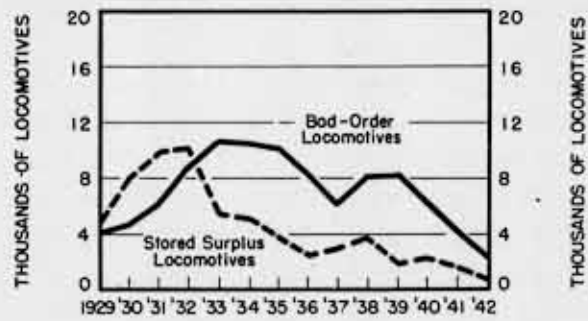
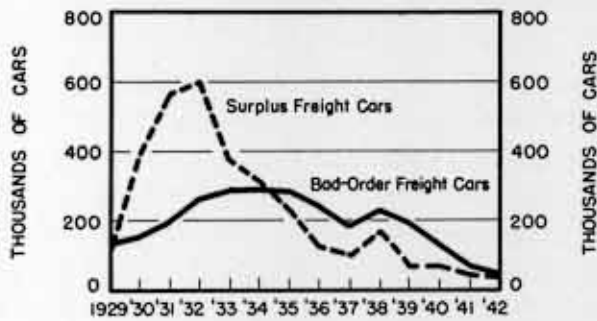
## MORE TON-MILES WITH LESS EQUIPMENT

Freight cars and locomotives work harder than they used to in hauling record loads.

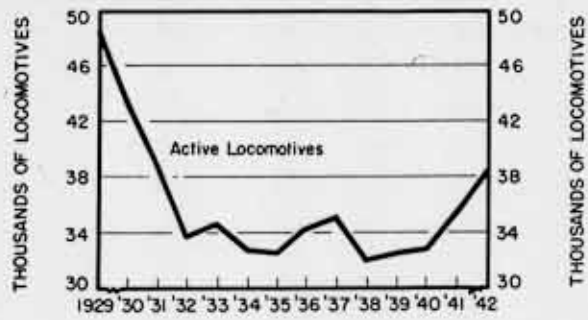
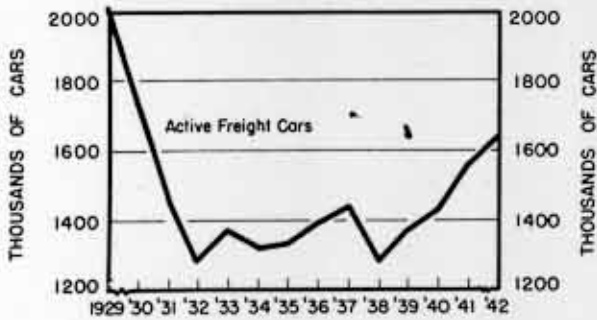
1. Although railroad equipment owned has dropped sharply since 1929, and has only begun to rise moderately,



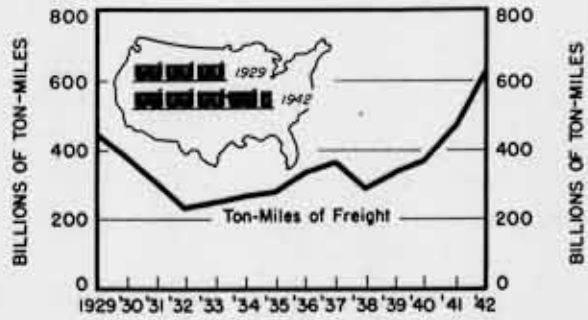
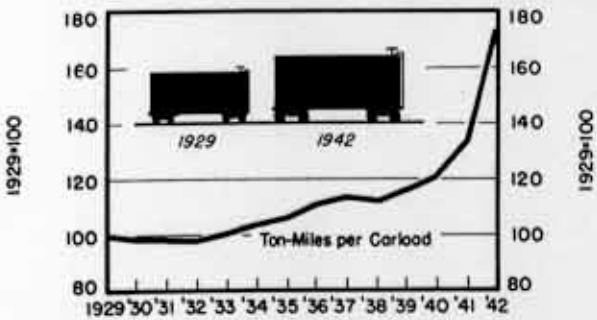
2. Bad-order and surplus equipment has been reduced and put into active service;



3. And this has boosted rolling stock in active use considerably in the last few years.



4. Furthermore, because we're getting 75% more ton-miles per carload than in 1929, the railroads have managed to handle a record volume of traffic.





equal to the estimated requirements, viz.:  $1,693,000 \div 1.81 = 935,000$ .

But this ratio, which really represents turn-around time, was up in 1942 from the preceding year as a result of longer hauls—it took only 1.69 cars to move a carload of freight in the peak week of 1941. Should turn-around time continue to rise in 1943, a slight shortage would be indicated at the peak, but no major difficulty in handling war shipments is foreseen. And at the moment, manpower shortages are regarded as a greater threat to railroad performance in 1943 than equipment shortages.

#### LOAD vs. FACILITIES

But, ever since the war began, there has been a constant pull of expanding load against facilities. Retirements of equipment have been relatively small, indicating an accumulating obsolescence that might break through at any point in the future to discredit the "arithmetical" balance of carrying and tractive capacity against load. On January 1, 1942, only about 18% of the freight car inventory represented purchases made in the preceding decade, and about 80% of the steam locomotives were over 16 years old. Additional new equipment has been small in comparison to the sharp rise in traffic:

	New Equipment		Ton Miles (Billions)
	Freight Cars	Locomotives	
1929	94,946*	1,229*	447
1937	69,118	441	361
1939	23,236	298	333
1940	60,455	421	373
1941	76,392	620	475
1942	63,000p	700p	630

\*Installed  
pPreliminary

In this situation, the railroads have "maintained" facilities by repairing and

taking bad-order cars off the bad-order list, and by putting back on the line cars normally kept in storage for emergency use. During the last two years, bad-order cars were reduced 65% to a total of 46,000 on October 1, 1942, and during the same period, the number of locomotives in bad order came down from 6,332 to 2,446, a drop of 61% (chart, page 7). And surpluses are falling rapidly to a point where they are really not surpluses but bare minima. On October 1, 1942, there were only 39,000 surplus freight cars, and only 5,000 of these were of the critical gondola and hopper type. And locomotive reserves were down to 705.

Can the railroads wring even greater utilization out of existing facilities in the months ahead? Perhaps the dramatic exploits in the transportation of petroleum suggest that they can.

In peacetime, less than 1% of the 1,500,000 barrels of oil daily consumed in the East move by tank cars. But once the submarine checked tanker deliveries of oil, after Pearl Harbor, the railroads increased their haulage of oil more than tenfold to an average of 760,000 barrels daily by the end of 1942—and now they're shooting at a minimum of 900,000 barrels a day.

#### "SYMBOL" SHIPMENTS

To do the job, ODT has directed some 70,000 tank cars—about half the total owned—into exclusive eastern petroleum service. If any of them are taken off for any reason, they must be replaced at once with cars of at least equal capacity (7,000 gallons is the established minimum).

ODT is also channeling an increasing amount of petroleum shipments into "symbol" trains—so-called "oil pullmans" reminiscent of the famous "silk train" that raced from Seattle to New York in

prewar days carrying interest-bearing silk loads. Operating on through schedules and on specified through routes, the symbol trains move in solid lots--the empties on the return trip to the oil fields, as well as the loaded cars on the run east. And railroads must abide by the routes laid out by ODT; when shippers' instructions conflict with the symbol schedule, carriers are ordered to ignore them.

Today, 85% of the petroleum traffic eastward is moving in symbol trains as compared with 65% last fall, and it is hoped to raise this ratio to 95%.

**SHORTER TURN-AROUNDS**

Maximum symbol train operation greatly facilitates the policy of shorter turn-around time--it's come down from 25 to 19 days for the average 3,600 mile round trip. To bring this about, ODT ordered (1) a limit of seven hours for loading and unloading of tank cars, with

a requirement that they be released in no more than 15 hours after delivery; (2) a limit of four hours for switching cars at points of origin and termination; (3) immediate repair of defective cars without need of authorization from the owner.

**CENTRAL ROUTING**

Also, ODT now requires a permit to move any commodity in a tank car for a distance of less than 200 miles. This encourages truck-hauling of oil for short runs and has already released over 10,000 tank cars for longer hauls.

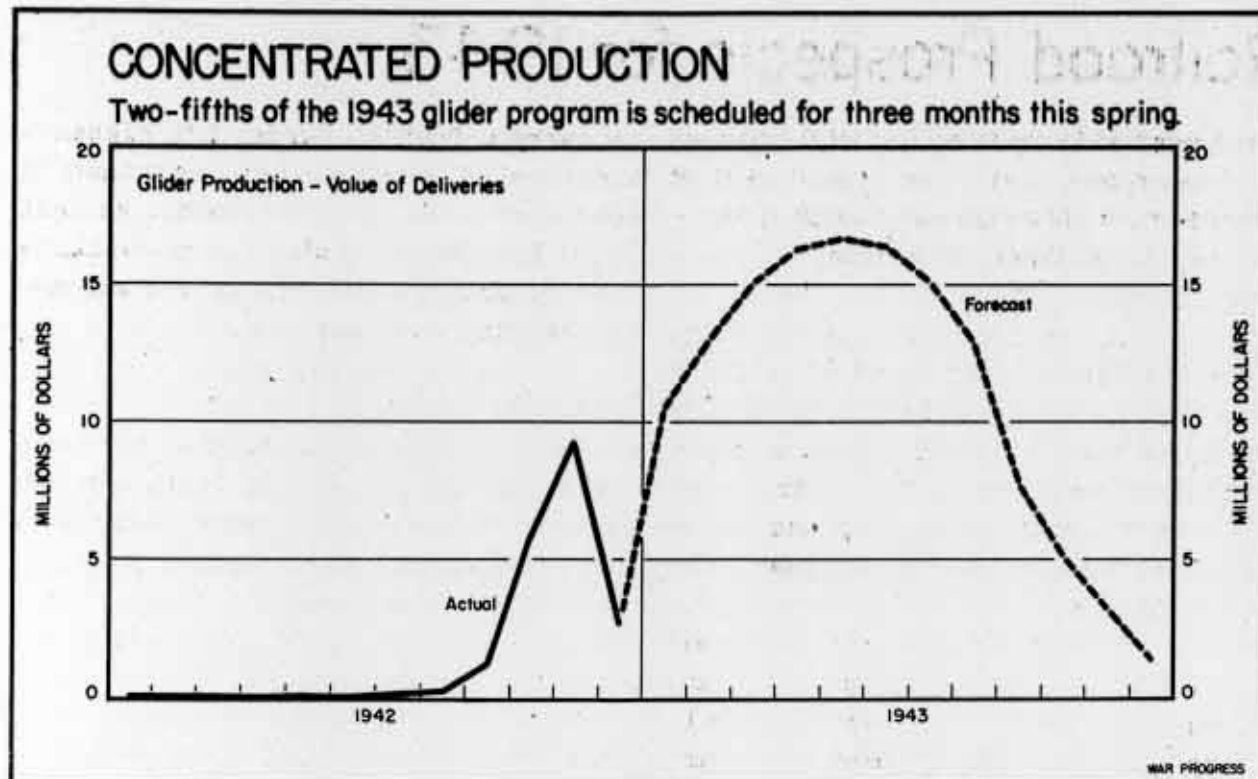
Beauty of the symbol train is its central routing: In making up its schedule, known temporary bottlenecks, manpower shortages, etc. are avoided and the train takes the fastest route east, although in mileage it may appear circuitous. Furthermore, the symbol train gives force and precision to utilization orders in yards and terminals. In short,

**KEY STATISTICS OF THE WEEK**

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War program - Checks paid (millions of dollars) -----	1,446	1,414	1,237	968	509
War bond sales (millions of dollars) -----	344	219	213	202	250
Commodity prices (August 1939 = 100)					
28 Basic commodities -----	173.6	173.8	172.0	167.3	164.1
Controlled -----	161.8	r162.0	162.2	162.8	161.6
Uncontrolled -----	203.4	r203.7	196.4	179.0	170.3
Nonferrous metal scrap -----	117.5	117.5	117.5	120.3	130.5
Petroleum carloadings (no. of tank cars)					
Total -----	53,156	49,045	49,974	56,184	51,840
Movement into East -----	26,666	25,129	23,966	26,285	1,827
Exports (no. of freight cars unloaded for export Friday)					
Atlantic Coast ports -----	1,156	1,262	1,066	1,289	1,646
Gulf Coast ports -----	370	363	351	531	408
Pacific Coast ports -----	926	1,027	909	589	165
Strikes affecting the war effort					
Number in progress -----	13	6	8	17	n. a.
Man-days lost -----	82,995	15,973	19,930	26,502	n. a.
Unused steel capacity (x operations below capacity) -----	0.2	0.7	1.9	2.0	5.0
n. a. Not available      r Revised					







perience. For example, a furniture company in Arkansas and a refrigerator company in Michigan are making gliders. Design changes have also held up production.

#### CARRIERS AND TRAINERS

The program breaks down into troop carriers, cargo carriers, and trainers. Troop carriers are heavily concentrated in the 15-place type, but 30-place (experimental), 24-place (exclusively for the Navy), 12-place, nine-place and eight-place (experimental) types also have been or will be turned out.

#### TRAINERS DISPLACED

The much bigger 8-K schedule for troop-carrying gliders in 1943 was cut 58% in the new 8-L program, in part to balance production against the number of tow-planes available. And output of trainer gliders has been almost eliminated—down from over 6,000 (three- and two-place units) to only about 300 (two-place) units. The 800-odd trainer

gliders made available in 1942 stood up much better than expected; and glider pilots can train as readily in light power planes as in gliders.

All the three-place trainer gliders "produced" in 1942 were converted light (two-place) power planes, such as Aeroncas, Piper Cubs, Taylorcraft, with engine removed (its weight replaced by a third passenger) and some extra bracing added. But it has now been decided that the engine—weighing about 150 pounds—may as well remain and one less passenger be taken up. Gliding characteristics are not changed, but expense, time, and materials necessary to convert these planes are saved. And the planes, merely by turning the motor switch, can be used as communications planes, for which they were originally designed.

#### EASY TAKE-OFFS

Gliders have special advantages over heavily laden transports. Pulled by a tow plane, they do not need to take off from long, smooth runways, as do such



transports. Nor do they require as large fields for landing.

Indeed, it may not even be necessary for gliders to take off from airfields

at all. Experiments are going forward with a mechanism by which a tow-plane would swoop down and pick up a glider tow cable without landing.

## War Progress Notes...

### PREPAID TAXES

BEST SALESMEN for Tax Savings notes (applicable against income, gift and estate taxes) have been rising personal and corporate tax rates. Cumulative sales since the initial offering in August, 1941, had climbed to almost \$9,000,000,000 by the end of 1942, and monthly sales since the passage of the Revenue Act of 1942 last September have averaged \$1,000,000,000 a month (chart, page 10). Last March about one-sixth of the income and inheritance tax collections were in the form of redemptions of these notes. By December, the proportion had risen to a third. Thus, cash to the Treasury in the past means "paper" to the Treasury in the present.

### CORPORATION EARNINGS

DESPITE A RISE of 40% in income and excess-profits taxes, corporation earnings last year were only 6.2% lower than in 1941--\$6,760,000,000 against \$7,200,000,000.

A few industries--agriculture, communication, transportation, metalworking, retail trade--reported gains, contrary to the general trend:

	Profits 1942		
	1941 (in millions)	1942	% Change
Total.....	\$7,206	\$6,762	- 6.2%
Agriculture...	25	35	+40.0
Mining.....	220	216	- 1.8
Manufacturing.	4,275	3,508	-17.9
Metalworking industries..	1,610	1,065	+24.5

### Profits 1942

	Profits 1942		
	1941 (in millions)	1942	% Change
Trade.....	\$800	\$ 712	-11.0%
Retail.....	470	565	+22.2
Construction..	77	97	+26.0
Transportation	881	1,286	+53.9
Power and gas.	391	322	-17.6
Communications	210	223	+ 6.2
Finance.....	455	445	- 2.2
Service.....	82	95	+15.7

Out of every \$100 earned before taxes, manufacturing industries paid \$67 in taxes; in 1941, the ratio was 52%. In mining, \$44 out of every \$100 earned before taxes went to the tax collector last year, against \$29 in 1941; in trade, the ratios were 56% and 39%.

Though the major factor, taxes were not the sole factor cutting into 1942 profits. Accumulation of special reserves (often postwar), amortization plans, and the increased use of the "last-in first-out" inventory method, curtailed book profits. These last factors are likely to operate again this year.

### FEMALES IN FACTORIES

WOMEN are moving into the workbenches of aircraft and metalworking plants--and even the brawny shipbuilding industry--in increasing force. In November, female employment rose 16% in 134 war industries (chart, page 4). In fact, 70% of the net additions were women, bringing total female employment to 955,000--an increase of 133% over a year ago and 16.6% of the total workers.

Plants have had a hard time hiring men to replace those who have joined the armed services, and in more and more industries, women are the sole source of expanding rosters. In airframe plants, total employment from August to November rose 20.3%--entirely as a result of hiring 74,000 women. Only 18,000 men were taken on and they canceled out those who had left.

The metalworking industries are keeping up with expanding war demands almost entirely by recruiting women for bench jobs. Out of a net increase of 99,000 workers in November, 83,000 were women. And in the nonferrous metal products industries, women are the only new hands --18,300 men who were lost have not been replaced.

Shipyards--the last place to look for

a woman worker in normal times--didn't turn to hiring women on any appreciable scale until September, but during November, 7,900 of the 41,000 workers added to the labor force were women--a ratio of one woman to every four men. Over 20,000 women now work in shipyards --but this is only 2.2% of the total wage earners.

SWISS WATCHES

DESPITE the war, exports from European neutrals still dribble into the United States. During September and October, Switzerland led with a total of \$5,300,000--mainly watches and parts. Other United States imports were: Turkey, \$4,500,000--largely tobacco and chrome; Portugal, \$1,300,000; Spain, \$800,000; Eire, \$130,000, and Sweden, \$80,000.

SELECTED MONTHLY STATISTICS

	Latest Month*	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Same Month 1939	Same Month 1937
PRODUCTION INDEX--INDUSTRIAL †	p192	195	194	177	164	122	86
Total Manufactures	p205	206	204	185	171	124	82
Durable	p281	280	275	246	211	136	79
Nondurable	p143	146	147	136	138	115	85
Minerals	p121	132	135	132	126	112	104
AVERAGE HOURLY EARNINGS (Cents)							
All Manufacturing Industries	89.9	88.6	88.5	83.1	78.1	65.3	65.6
Durable Goods	100.3	98.8	99.5	92.3	86.5	71.5	71.3
Nondurable Goods	76.3	75.7	74.9	72.2	68.8	59.9	60.2
Bituminous Coal Mining	107.3	107.5	106.5	106.0	105.1	88.8	87.8
Metalliferous Mining	92.8	90.6	89.7	87.6	84.8	73.6	69.9
AVERAGE HOURS PER WEEK							
All Manufacturing Industries	44.0	43.6	42.3	42.6	40.3	38.5	35.4
Durable Goods	46.0	45.7	44.6	45.0	41.8	39.6	36.2
Nondurable Goods	41.1	40.6	39.5	39.7	38.6	37.6	34.7
Bituminous Coal Mining	34.4	34.2	33.5	32.7	31.3	31.4	26.9
Metalliferous Mining	44.4	46.3	45.4	43.8	42.1	41.5	43.1

\* Production indexes, December; hours and earnings, November. † Unadjusted. p Preliminary.

shortages of compressors or propulsion machinery and other industrial and munitions components. And toward the end of the year, more and more such components--heat exchangers, pumps, turbines, gears, etc.--threaten to become production bottlenecks (page 7). A tank cannot go into action without roller bearings any more than a plane can fly without an ignition system.

#### BALANCE WITH END PRODUCTS.

And late last year, shortages of components--of essential parts and accessories to end products--were obscured by the overall, and larger, shortage of raw materials. Manufacturers of components blamed delays in deliveries of steel, or copper, or aluminum for failure to meet schedules; yet even had they had the necessary raw materials, they might have failed to meet due dates on their orders because of lack of capacity.

Thus, during 1943, it will become increasingly important to tie in the output of industrial components to the production of end products; it will be just as urgent to see that the output of welding rods or valves meets the overall industrial demand as it is to see that there is sufficient steel or copper to go around the munitions and war construction program.

#### COMING: A CCP?

Just as we now have a Controlled Materials Plan designed to tie raw materials into end products, so it may be necessary to develop what might be described as a "controlled components plan" to synchronize the production of industrial components with schedules of end products for maximum overall war output.

And this year, for the first time, manpower--prime resource of any nation--will become a bottleneck.

That is problem No. 3 for 1943.

Where are we to get 6,500,000 additional persons for the armed forces and for war production?

#### ARMS AND THE MANPOWER.

The Army and Navy are expected to recruit 4,400,000 men by the end of 1943. About 2,100,000 more persons will be needed for war production. Curtailment of civilian activities, a longer work week, and cuts in construction will help to solve the problem of where increased man-hours will come from (WP-Jan/43, pl). But it is little more than half the answer. If war production plans are to be met, several million women must leave the home for the work bench.

The problem of manpower is not alone a question of Who? but of Where? Can workers be induced to leave their homes for work in areas where they are most needed? Can workers be kept in overcrowded production centers when their wages are frozen and their living conditions unsatisfactory?

#### SURPLUS AND DEFICIT AREAS

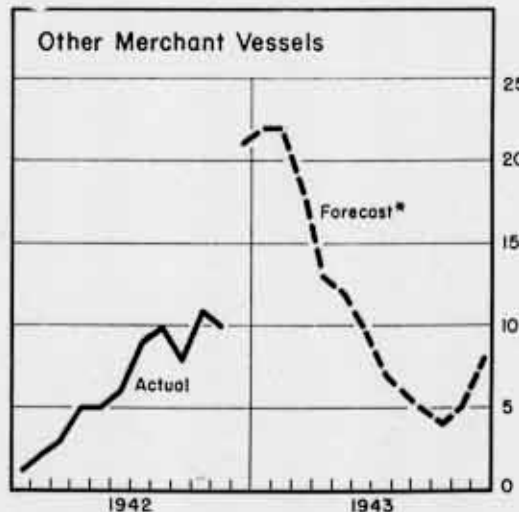
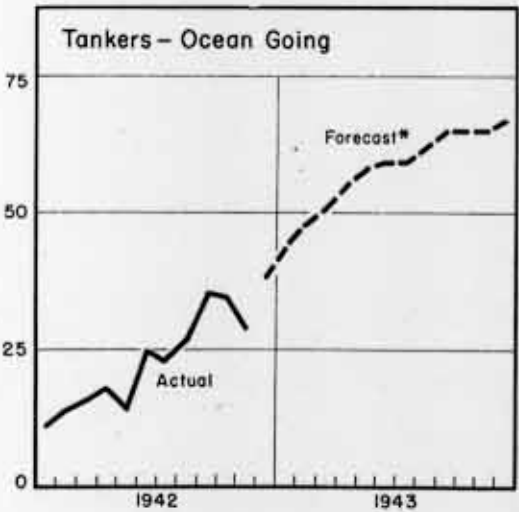
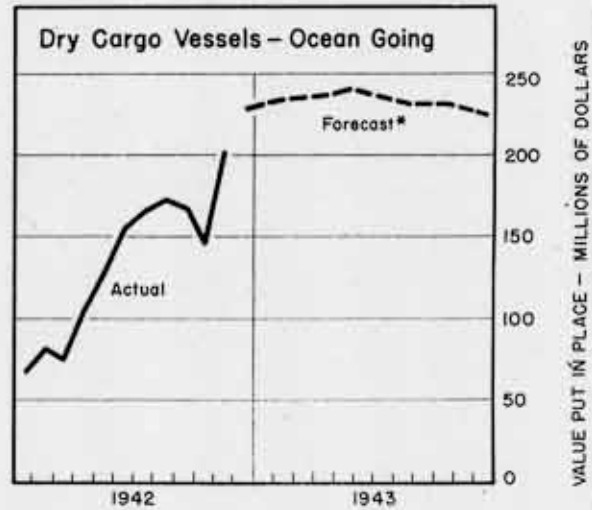
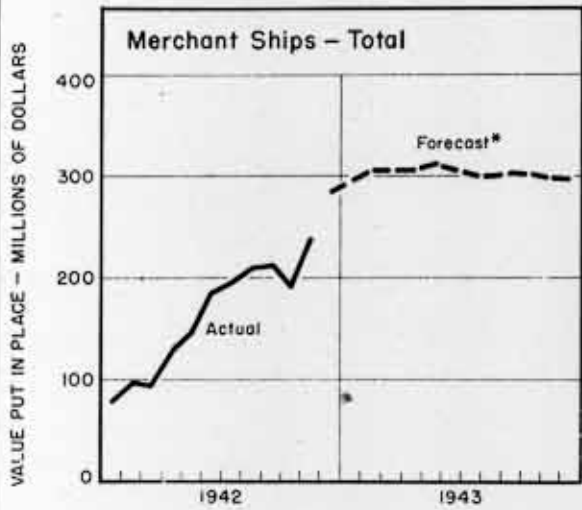
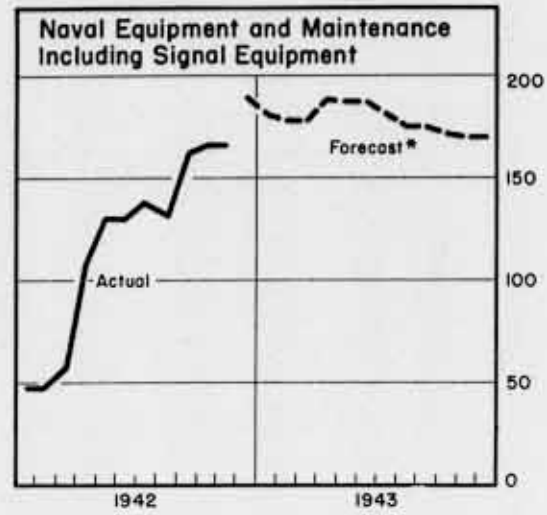
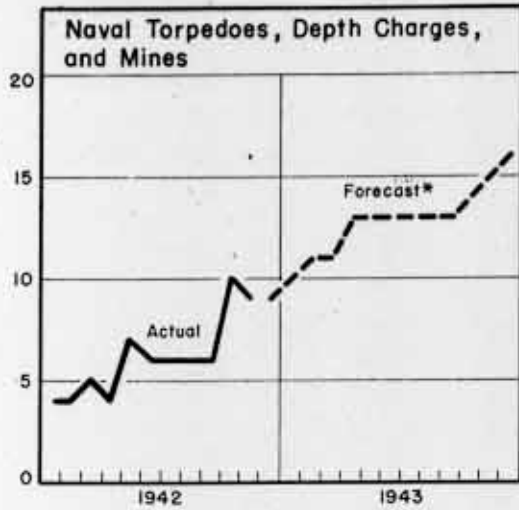
Thus, though manpower can well prove to be a major limiting factor to production on a national scale, its treatment--and its solution--cannot be met in terms of statistical totals. Manpower shortages must be met on a region-by-region, plant-by-plant basis. If a certain area cannot get workers, is it wise to transfer production out of that area; if certain plants need help, can the workers be moved to the plant? And will it be better to use less efficient factories in labor-surplus areas than more efficient factories in labor-deficit areas?

Problem No. 4 relates to the civilian economy. And this is one which contains more possibilities for confusion and dissatisfaction than any other.



### PRODUCTION PROGRESS

Naval, Army, and Merchant Ships and Equipment (Continued)

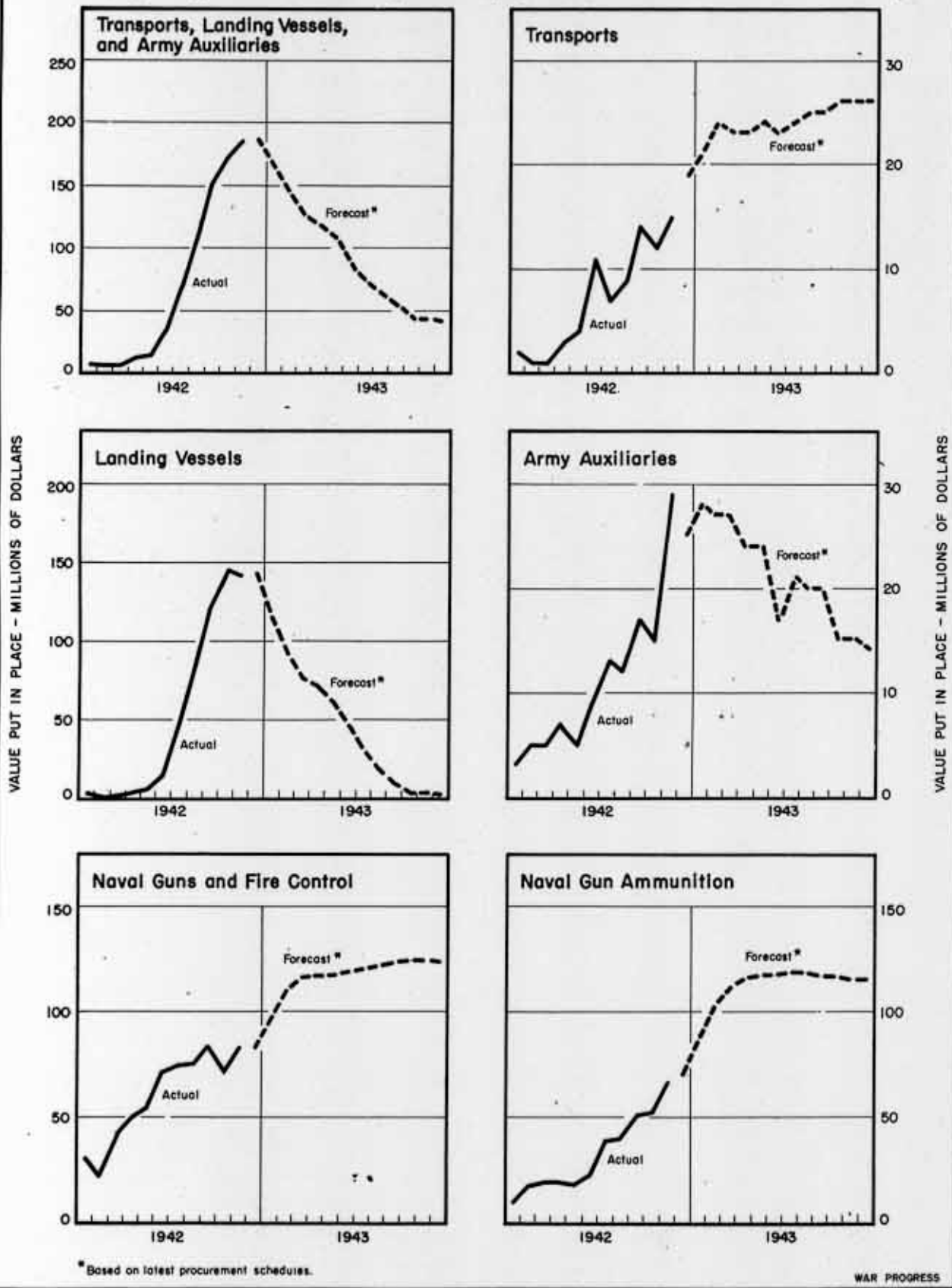


\*Based on latest procurement schedules.



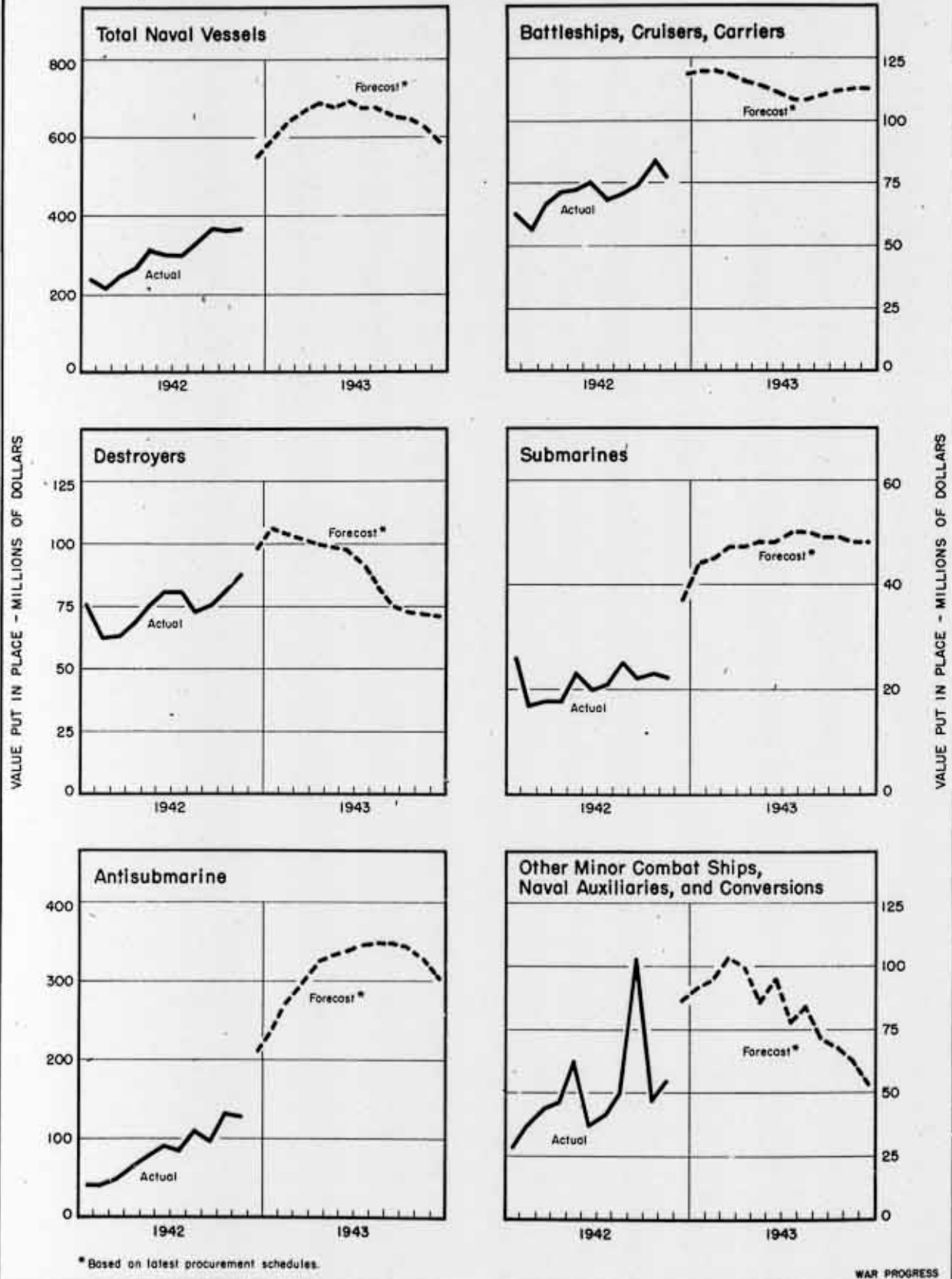
### PRODUCTION PROGRESS

Naval, Army, and Merchant Ships and Equipment (Continued)



### PRODUCTION PROGRESS

Naval, Army, and Merchant Ships and Equipment



The War Office

# WAR PROGRESS

*Confidential*  
*(British Secret)*

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Integrating U.K.-U.S. War Output  
Production Progress Tables

Number 124

January 29, 1943

## When 2-to-1 Is Not Twice as Much

Although 1943 combat munitions output of the United Nations is likely to more than double that of the Axis, lack of integration cuts down that margin.

THIS YEAR, the United Nations are expected to outproduce the Axis in combat munitions--aircraft, combat vehicles, ground and aircraft ordnance and ammunition, communications equipment, naval and merchant ships--by a margin of more than two to one (chart, page 5).

The United States alone will turn out considerably more military items than Germany, the occupied countries, Italy, and Japan combined. And, on the basis of current estimates, 1943 United Nations production will be distributed approximately as follows: United States, 60%; British Empire, around 25%; Russia, an assumed 15%.

### NAZI INTEGRATION

It can't be said, however, that the United Nations will have an actual two-to-one edge over German combat munitions production. For Nazi output may be regarded as more thoroughly integrated than that of the United Nations.

The munitions production of all Axis Europe--Germany, France, Czechoslovakia, Austria, Italy, Belgium, Holland, and other industrial areas--is planned in Berlin. The United Nations output is planned independently in Washington, London, and Moscow--often without regard for each other's needs. However, there is an allocation of raw materials by the United Kingdom and the United States through the Combined Raw Materials Board (WP-Dec4'42p9).

Yet, to make the huge United Nations

### PRELUDE TO INTEGRATION?

THE MEETING of President Roosevelt and Prime Minister Churchill at Casablanca conceivably can and will go beyond the sphere of military strategy.

If military operations are to be coordinated closely, then it follows that production of munitions ought likewise to be more closely integrated--so as to get more of the right type of weapons at the right place at the right time.

Until now, attempts to integrate the production and resources of the United States and Great Britain have been sporadic rather than consistent, and have seldom gone much beyond the allocation of raw materials and assignment of end products. The reasons for this and the benefits to be derived from closer integration are analyzed in the accompanying article.

output of combat munitions (estimated at \$80,000,000,000 for 1943) most effective in winning the war, programs should be planned on an Allied scale. Unquestionably, it is easy to exaggerate the value of integrated production among allies, but more can be done than has so far been accomplished. Each country, ideally, should produce those things--tanks, aircraft, ships, guns, etc.--for which it has the best resources and facilities. To do this fully, however, would require not only concerted action in wartime, but joint planning before the war.

So far, United Nations industrial integration has involved only British



and American production. Russia has been particularly reticent about its production, and American analysts thus far apparently have known less about U.S.S.R. munitions output than about Germany's.

#### OBSTACLES TO PLANNING

In wartime some planning among allies is automatic (WP-Jan8'43p1), but full integration is beset by economic and political difficulties, especially as the output becomes bigger. Procurement officers prefer to depend on the manufacturers of their own country; they feel that foreign producers can't always be relied on to deliver goods on schedule or that lack of shipping or a delay in fulfilling military commitments will disrupt the flow of supplies.

#### EXCHANGE OF INFORMATION

Moreover, cooperation among allies is not always so close as may be desired. Military plans are necessarily kept secret, hence full and open discussion of where munitions can be assigned most effectively is not always possible. However, Great Britain and the United

States have increasingly exchanged information, and some integration of the two economies represents an initial step toward unifying the United Nations war efforts.

Indeed, integration becomes more urgent as the two countries approach the limits of economic resources--as manpower, materials, and machines are stretched fine. Great Britain is devoting an estimated 45% of her national income to the production of war goods and services; the United States, about 40%. Thus a major part of the economic slack has been taken up in both countries--more so in Great Britain, which got started on her war effort earlier than the United States.

#### ECONOMIES CLOSER

But now that this country is fast emerging from the tooling-up stage into a full munitions production stage, actual deliveries of munitions will come closer to the taut per capita and per resource production relationship that exists in Great Britain.

#### BRITISH SHARE OF TOTAL

The United Kingdom has only one-third the population and one-sixth the steel capacity, yet in 1942 it produced more than half as much combat munitions as the United States. (This was possible partly because the United States supplied raw materials and foodstuffs to the British.) In many items the proportion was higher, and in a few cases British output exceeded ours. Thus, in November, 1942, the British produced more anti-aircraft ammunition, mortar bombs, mines and grenades than the United States. However, U.S. output will run increasingly ahead of the British, as the following table indicates, except for a few items, such as wheeled artillery (we're shifting to self-propelled), tank

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guns, and small arms ammunition:

	U.K. Production as % of U.S. Output	
	4th Quarter	
	Nov. '42	'43*
Mortar bombs, mines & grenades.....	191%	85%
Antiaircraft amm...	102	44
Aircraft amm.....	83	45
Medium bombers.....	79	36
Fighter & naval re- con. planes.....	75	34
Heavy bombers.....	74	42
Wheeled artillery..	71	72
Artillery & tank amm.....	58	36
Trainer planes.....	41	37
Aircraft ordnance..	41	32**
Aircraft engines...	39	22
Aircraft propellers	37	26
Small arms & infan- try weapons.....	36	33
Antiaircraft guns & equipment.....	32	28
Tank guns.....	30	33
Combat vehicles....	28	24
Light bombers.....	21	13
Flying boats.....	15	14
Small arms amm.....	10	12
Self-propelled guns	2	4**
Service combat planes.....	0.04	0.05

\*Forecast monthly average  
\*\*Second quarter monthly average

As recently built or converted American plants begin to operate, this country's superior resources will show up in production relationships. Thus, by December, 1943, it is estimated that the United States will turn out combat munitions at three times the United Kingdom rate.

Integration of Anglo-American output is more than the attainment of maximum production on both sides of the Atlantic.

It is up to the United States to use its resources to fill gaps in the United Kingdom's output. Thus, the British will get from this country more transports, flying boats, light bombers, and naval carrier-based aircraft than they will themselves produce. On the other hand, they will get only a small portion of their heavy and medium bombers, land-based fighters, and trainers from the United States.

INTERCHANGE OF BOMBSIGHTS

The British also depend on American producers for varying proportions of aircraft components--engines, propellers, carburetors, bombsights, radio and radar equipment. For instance, British production of Hercules and Centaurus engines depend in part on U.S. Bendix carburetors; while their turbo-superchargers--one of the devices which enable planes to fly at extremely high altitudes--are strictly American products. In bombsights, there has been a profitable interchange. One of the American designs is supplied to the British; another, originally of British design, is manufactured on both sides of the Atlantic.

Of British supplies of tanks in 1942, one-third came from the United States. About one-half the components for United Kingdom tanks have been supplied by American plants, including engines, transmissions, gun mounts, armor plate, springs, carbon-steel castings, etc. The United States also supplied components for Canadian tank production.

SMALL ARMS TO BRITAIN

The British are self-sufficient in field artillery and largely so in anti-aircraft guns, but the major portion of their supply of 20mm. weapons in 1943 must come from the United States. In small arms, a quarter of the United

Kingdom supply comes from the United States, but in small arms ammunition the proportion reaches one-half. The United States also supplies the deficit in Great Britain's capacity to produce many standard "noncommon" weapons--not used by American forces--such as the .303 caliber rifle, .38 caliber revolver, and related ammunition.

The British depend on the United States for a large number of landing craft and for many escort vessels, mine-layers, minesweepers, motor torpedo boats, etc. In addition, American-built merchant ships will be used to carry goods to the United Kingdom.

#### CONTRAST WITH LAST WAR

The position of the United States as a large supplier of its allies is in contrast to the last war. Then, half the airplanes, three-fourths of the combat engines, and five-sixths of the artillery pieces used by American forces were purchased from the Allies, notably France and Britain.

The first phase of Anglo-American integration of production--if it can be called integration--occurred during 1939 and 1940 and followed the rules of the marketplace. Within the limits set by their dollar resources, the British bought whatever munitions and other supplies they could and financed the erection of war plants, particularly for explosives and small arms ammunition. When the United States began to rearm rapidly--after the fall of France--British purchases were to some extent coordinated with U.S. procurement plans. This was the second phase of integration.

#### BRITISH BATTLE LESSONS

In this phase, marked by America's preparation for war, rather than large-scale participation, the design of some of our munitions was altered to accord

with British battle experience. An outstanding example is the M4 medium tank. The M4's predecessor, the M3, was designed by British and American tank experts after the fall of France.

#### HOW M4 EVOLVED

British contributions to the M3 were (1) the cast steel turret; (2) the hydroelectric power traverse; and (3) the basket attached to the turret which enables the commander and gun crew to move with the gun. When combat experience showed that the M3 had grave deficiencies, an improved model was designed in Canada. This tank had a cast steel and welded hull, the sidemounted sponson gun was removed, and a 6-pounder (or 75mm. gun) was placed in the turret. The U.S. Ordnance engineers then modified the Canadian tank--principally by enlarging the turret--to produce the current M4.

#### CASE OF THE LIBERTY SHIP

The Liberty ship is also an American adaptation of a British model. Similarly, the British are supplying technical data for the building of corvettes in American shipyards. In aircraft, an important example of Anglo-American coordination is the new Mustang fighter. The R.A.F. and U.S. Army Air Force conducted experiments which have resulted in the decision to equip the American Mustang with a Packard-Merlin engine (an American version of a British engine). The result is an all-purpose plane that in some respects has advantages over the famous Spitfire. The United States has now raised the Mustang to a prominent position in its pursuit program.

The actual entry of the United States into the war introduced a third phase into Anglo-American production relations by broadening the area of cooperation.



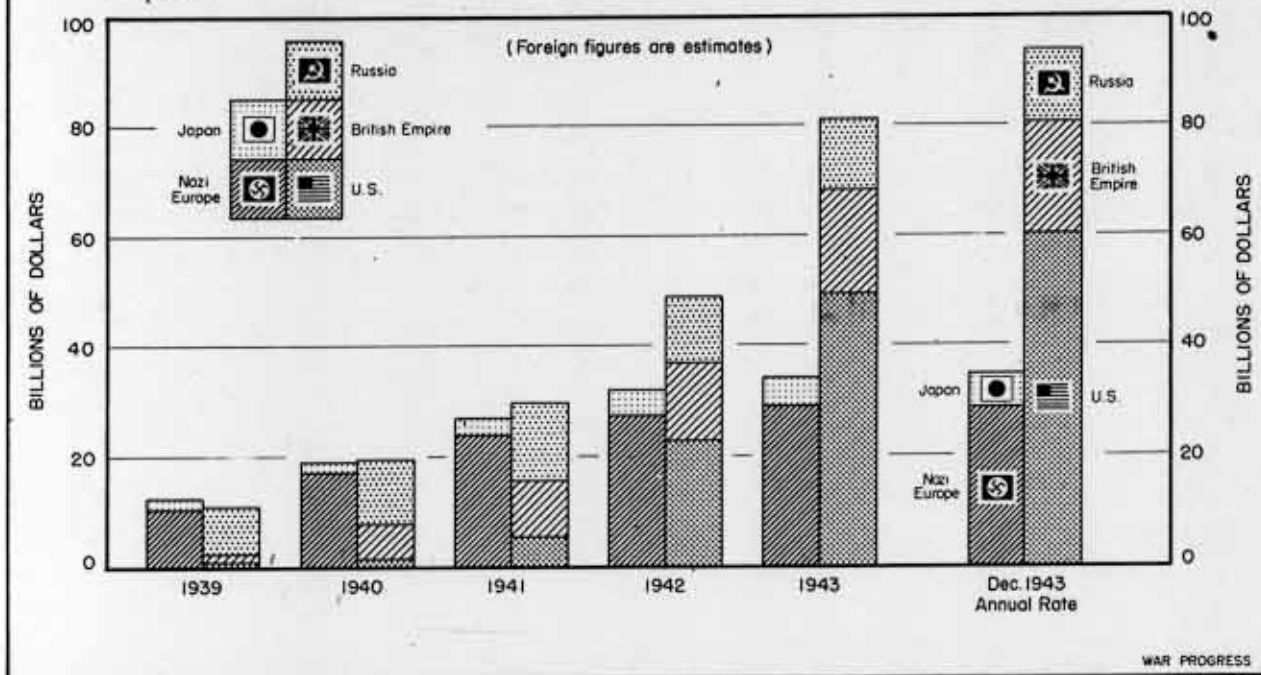
Concurrently, since this country was rapidly approaching the limits of its resources and tighter controls over raw materials were instituted, the need for increased joint planning was emphasized. This week's meeting between President Roosevelt and Prime Minister Churchill undoubtedly will give a further impetus

to this phase of economic integration. If the master plan of military strategy conceived by the two leaders is to be most effectively carried out, it will have to be backed up by a master plan of munitions manufacturing.

But the overall problem of integration is much more than tying in British

### AXIS VS. UNITED NATIONS WAR OUTPUT

American production of combat munitions is destined to rise to nearly 50% of world total and tips balance in favor of Allies; German, Japanese volume at peak.



AT THE OUTSET OF THE WAR IN 1939, GERMAN AND RUSSIAN PRODUCTION OF COMBAT MUNITIONS—AIRCRAFT, COMBAT VEHICLES, GROUND AND AIRCRAFT ORDNANCE, COMMUNICATIONS EQUIPMENT, AND NAVAL AND MERCHANT SHIPS—WERE ABOUT EQUAL. BUT SOON, WITH ITS SUPERIOR INDUSTRIAL RESOURCES, THE REICH'S OUTPUT FAR OUTRAN THE U.S.S.R.'S, ESPECIALLY SINCE, IN 1940 AND 1941, GERMANY HAD ACCESS TO THE FACTORIES AND RAW MATERIALS OF CONQUERED COUNTRIES PLUS ITALY'S RESOURCES AS AN ALLY.

GREAT BRITAIN WAS SLOWER TO GET INTO FULL ARMS PRODUCTION THAN EITHER GERMANY OR RUSSIA. IN 1940, HER OUTPUT WAS HALF THE ESTIMATED RUSSIAN AND ONLY 40% OF THE GERMAN VOLUME. AXIS PRODUCTION (INCLUDING GERMANY, THE OCCUPIED COUNTRIES, AND JAPAN) CONTINUED TO EXCEED THAT OF RUSSIA, BRITAIN, AND THIS COUNTRY COMBINED.

BUT IN 1941, THE MOUNTING WEIGHT OF ALLIED OUTPUT TURNED THE BALANCE AGAINST THE AXIS, THOUGH AXIS STOCKPILES STILL HAD TO BE OFFSET. AND LAST YEAR, AS UNITED STATES PRODUCTION WAS STEPPED UP SHARPLY, THE UNITED NATIONS ARE ASSUMED TO HAVE HAD A FIVE-TO-THREE EDGE.

MOST COUNTRIES HAVE ALREADY APPROACHED THEIR PEAK. MUNITIONS OUTPUT. INDEED, BECAUSE OF A SHORTAGE OF MANPOWER AND MATERIALS, THE DETERIORATION OF EQUIPMENT, AND CONSTANT AERIAL BOMBINGS, NAZI FACTORIES ARE HARD PUT TO MAINTAIN CURRENT LEVELS. RUSSIAN ARMS MANUFACTURE HAS ALSO PROBABLY REACHED ITS PEAK. BUT THE UNITED STATES OUTPUT IS STILL ON THE RISE, AND BY THE END OF THIS YEAR WILL ACCOUNT FOR AN ESTIMATED 65% OF UNITED NATIONS PRODUCTION AND ALMOST HALF THE OUTPUT OF COMBAT MUNITIONS IN THE ENTIRE WARRING WORLD.



and American munitions production lines. What about raw materials? Great Britain depends on the U.S. for about one-sixth of her supply of copper, one-fourth of her T.N.T. and carbon steel, and one-third of her alloy steel.

The question is: Can we make the largest volume of supplies available to the United Nations armies by exporting to the British materials or end products? Since there may not be enough critical materials to keep all British and American facilities going at full speed, we must decide between idle capacity in Great Britain and in the United States.

#### INTEGRATION FACTORS

In solving this problem, some of the considerations which have to be weighed are:

1. Shipping. The availability of cargo space obviously determines the amount of U.S. supplies (materials or finished munitions) that can be sent abroad. This factor influences all decisions in integrating Anglo-American production.

2. Security. Because British plants are within the enemy's bombing range, some of them--like shipyards--can only operate on daylight shifts. Hence, the United States must produce enough of the critical items (like merchant vessels) to leave a margin of safety.

3. Efficiency. In determining which fabricating capacity will be most fully utilized, tests of efficiency must be applied, though the most obvious tests will not always be decisive. Thus, in some cases, facilities that require least man-hours per unit of end item should receive priority, but in other cases--where speed is most vital--it may be better to concentrate production in plants that can turn out end products quickly, even though they are wasteful

of manpower. Relative consumption of critical materials must also be considered. For many items, American plants offer greater scope for mass production than the British, but in others the British have more experience and, therefore, can produce more efficiently.

4. Proximity to Theatre of Operations. Since the fighting is worldwide, production should be integrated on the basis of proximity to the theatre of operations. This policy is already in force to some extent. Thus, the United States is sending more supplies than the United Kingdom to the Pacific area. The United Kingdom is supplying our forces in Europe with foodstuffs (particularly perishables and bulky things like potatoes and flour), some munitions (fighter planes, anti-aircraft guns, bombs, grenades, etc.) and were to a large extent responsible for transporting them to North Africa. Repair of ships also offers a good example of the cooperative use of facilities. American yards repair British naval vessels operating in the Pacific, while British yards service American ships operating in European waters.

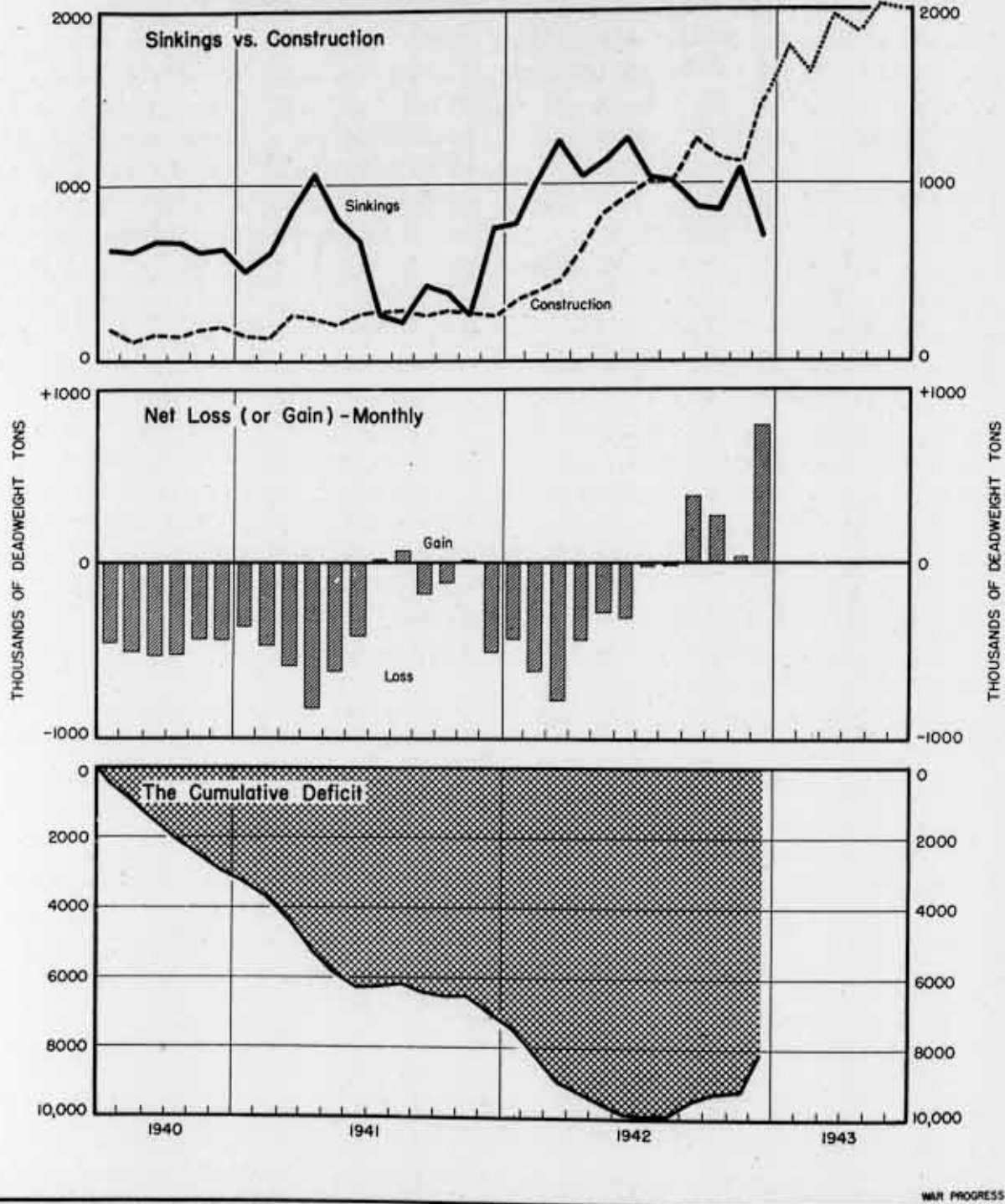
#### TIME ELEMENT

Also, there is the question of impact on the enemy. The British have industrial equipment which can immediately produce munitions for use against the Nazis, provided certain essential components (tank parts, for example) are obtained from the United States. If American industrial components are shipped abroad, the presumption is that they will be used more quickly against Axis forces than if they were retained in the United States for assembly into finished munitions.

5. Manpower. The availability of labor for a given job is a basic factor in coordinating the production of the

### SCORECARD ON MERCHANT SHIPPING

United Nations tonnage in December scores sharpest gain since war started as construction rises and sinkings fall off sharply.



SINCE MID-1942, THE UNITED NATIONS HAVE SHOWN SUBSTANTIAL GAINS ON BOTH SIDES OF THE MERCHANT SHIP LEDGER: NEW VESSELS ARE COMING OFF THE WAYS MORE RAPIDLY AND FEWER SHIPS ARE BEING LOST TO AXIS SUBMARINES AND PLANES. IN JULY AND AUGUST, CONSTRUCTION

ALMOST KEPT PACE WITH LOSSES; SINCE THEN, THE FLEET HAS SHOWN A NET INCREASE EACH MONTH, WITH THE DECEMBER ADDITION AT A NEW HIGH. SINKINGS HAVE BEEN IN AN IRREGULAR DOWNTREND SINCE THE DOUBLE PEAK OF MARCH AND JUNE.

## KEY STATISTICS OF THE WEEK

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War program - Checks paid (millions of dollars) -----	1,123	1,446	1,176	1,068	472
War bond sales (millions of dollars) -----	279	344	216	183	250
Commodity prices (August 1939 = 100)					
28 Basic commodities -----	174.0	173.6	172.7	166.4	164.7
Controlled -----	162.0	161.8	162.2	161.9	161.9
Uncontrolled -----	204.5	203.4	199.1	178.3	171.7
Nonferrous metal scrap -----	117.5	117.5	117.5	119.0	131.3
Petroleum carloadings (no. of tank cars)					
Total -----	53,631	53,156	50,058	54,682	51,989
Movement into East -----	26,520	26,666	24,224	24,971	2,410
Exports (no. of freight cars unloaded for export Friday)					
Atlantic Coast ports -----	1,212	1,156	926	1,379	1,301
Gulf Coast ports -----	328	370	343	460	464
Pacific Coast ports -----	848	926	805	572	181
Strikes affecting the war effort					
Number in progress -----	11	13	9	18	n.a.
Man-days lost -----	114,913	82,995	12,756	34,801	n.a.
Unused steel capacity (% operations below capacity) -----	1.4	0.2	1.8	3.7	5.4

n.a. Not available

two countries. If, for instance, the United States has the trained manpower to turn out a certain type of tank or gun in large quantities, and the British have not, then it is better to make the tank or gun in the United States.

6. Condition of Plants. The newer and better plants require less maintenance and repair, thus saving manpower, machine tools, and materials.

7. Standardization. Finally, the whole problem of integration hinges in large degree on greater standardization of the weapons used by the allied armies. At present, British, American, Fighting French, and Russian armies use many non-common items, thus hampering maximum efficiency. In the past, for example, British forces in Egypt using American-made guns have run out of ammunition at a critical stage of a campaign and have had to wait for a supply from the United States. If standardization were effected, the United Kingdom might produce

ammunition for American-type as well as British-type guns, and armies would be supplied from the nearest source. However, standardization means changing established military practices as well as production lines, tools, dies, etc. --a job that would involve so much disturbance that it cannot be readily undertaken. In this connection, the big opportunity was missed at the beginning of the war.

## UNIFIED COMMAND

These are not the only factors involved in the integration of Anglo-American production, but they indicate the complexity and extent of the problem. In the long run, integration depends on things beyond the authority of production planners--on such controversial issues as centralized shipping control, joint determination of military requirements, and a unified military command.



## Jeeps, Peeps, Etc.

Army's program for military transport will reach maturity relatively early in the war effort. Nearly half U.S. output in 1942 went to our allies.

LAST YEAR, U.S. output of military motor transport amounted to about \$1,294,000,000, well over double the value of deliveries in the preceding year and a half. This year, however, production is scheduled to rise only 19% (compared with a scheduled increase of 126% in munitions as a whole), suggesting that the motor transport program is approaching maturity relatively early in the war effort. Meanwhile, other media for moving troops and supplies will be pushed along much faster this year, as the following table shows:

	% Increase 1943 over 1942
Motor transport.....	19%
Merchant vessels.....	151
Transport planes.....	416

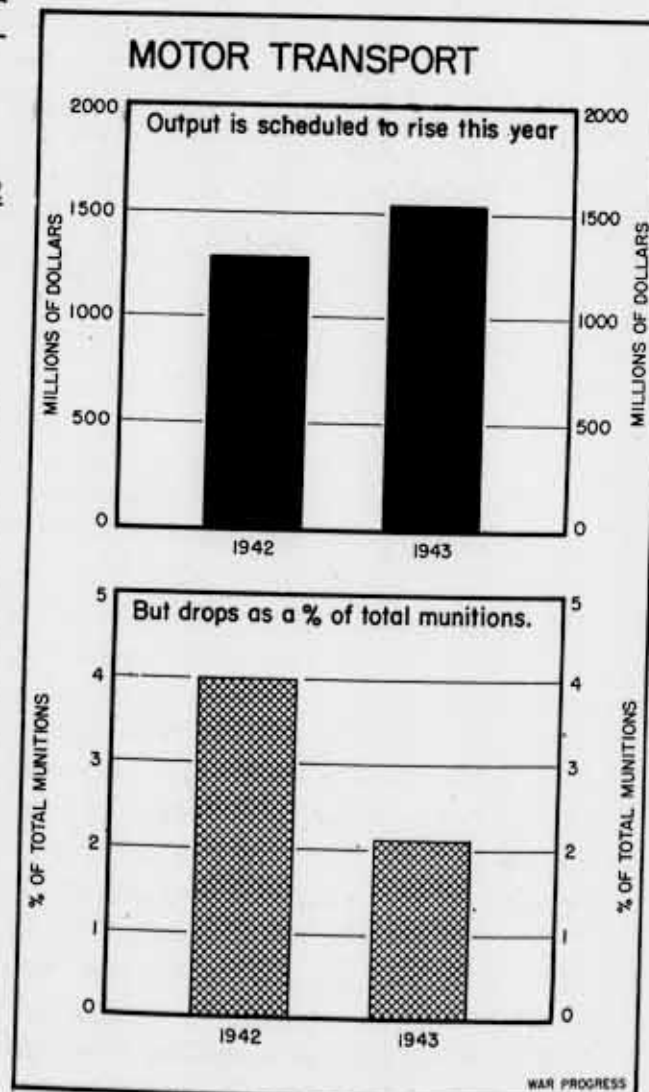
To move a modern army into battle, it takes a wide range of motor vehicle equipment: 40- and 20-ton tank transporters--indispensable (as African experience has shown) for saving wear and tear on tanks over long hauls, and for salvaging wrecked tanks; heavy trucks of from about 6 to 10 tons, including wreckers, cargo types, gasoline carriers, etc.; medium trucks in sizes carrying anywhere from one and one-half to five tons, including ammunition, dump, cargo, tractor, and other types; light trucks loading one-quarter to three-quarters tons; and trailers, semitrailers, ambulances, motorcycles, and various special vehicles.

Most publicized of motor transport vehicles are the swashbuckling jeeps

and peeps which comprise most of the light trucks. The peeps--often mistakenly lumped with jeeps--are the light quarter-ton, 4-wheel-drive type that are seen everywhere and perform a wide miscellany of chores: They carry three men--more in emergencies--and can negotiate the most difficult terrain. Lately they have taken to the water in large numbers: Production of amphibian types was numerically over one-fifth the total in December.

### JEEPS ARE HEAVIER

Slightly heavier are the half-ton jeeps, used mainly as command cars, but also serviceable as carryalls, telephone maintenance trucks, weapon carriers,





etc. Some of these are also amphibians.

Heavy trucks will be turned out in larger proportion in 1943, and the schedule calls for more trailers and semi-trailers. On the other hand, relatively fewer ambulances will be produced; jeep and motorcycle output will show an absolute drop this year.

**AMPHIBIAN TRACTORS**

Also significant in the motor transport picture are the Roebing amphibian tractors procured for the Army by the Navy, and already in use overseas. Other special vehicles include tractor cranes and truck cranes, bomb-lifting trucks, track-laying trailers, armored ammunition trailers, and a number of experimental snow-tractors (mostly mounted on skis with caterpillar drive).

Finally, armored combat vehicles are used partially as motor transport. Most armored half-track cars are designated as personnel carriers; scout cars and Bren gun carriers are often used for similar purposes. Infantry troops, particularly Russian forces, frequently ride into battle astride tanks. And self-propelled guns carry heavy loads of ammunition to the front.

**EXPORTS TO BRITAIN AND RUSSIA**

Motor transport is a case in which peacetime capacity went into almost immediate wartime use after Pearl Harbor; 1942 output was up to the year's objective—and the objective was sufficiently ample to permit the transfer of nearly half of U.S. output to our allies, with the British Empire and Russia sharing about evenly. The British took principally tank transporters, heavy trucks, and motorcycles, while the Russians were more interested in medium trucks and in jeeps. By far the bulk of the 1942 transfers were through lend-lease rather than direct purchase.

# War Progress Notes

**RISING C. OF L.**

DESPITE inflationary controls, the cost of living for the average U.S. citizen has risen 3.8% since the General Maximum Price Regulation went into effect last May, and about 19% since June, 1940,

**BORROWED PRODUCTION**

ARMY ORDNANCE SCHEDULES for January suggest that the high level of munitions output in December was obtained—at least in part—by borrowing from this month's output (WP-Jan15'43pl).

For ordnance as a whole, the January forecast runs to only 81% of reported December output. Such a sharp overall month-to-month drop is unheard of; indeed, it is customary for the forecast to rise above the previous month's production.

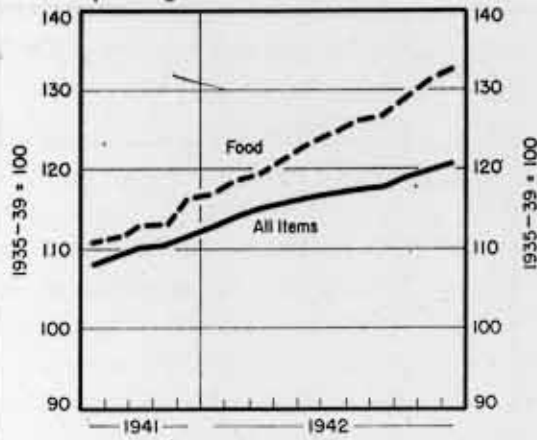
Some comparisons follow:

Item	Jan. Forecast
	As % of Dec. Actual
Tanks & guns.....	77%
Ammunition.....	93
AA guns & equipment.....	100
AA ammunition.....	89
Combat vehicles.....	59
Artillery ammunition.....	84
Aircraft armament.....	94
Aircraft cannon ammunition	47
Small arms & inf. weapons	95
Small arms & inf. weapon ammunition.....	98

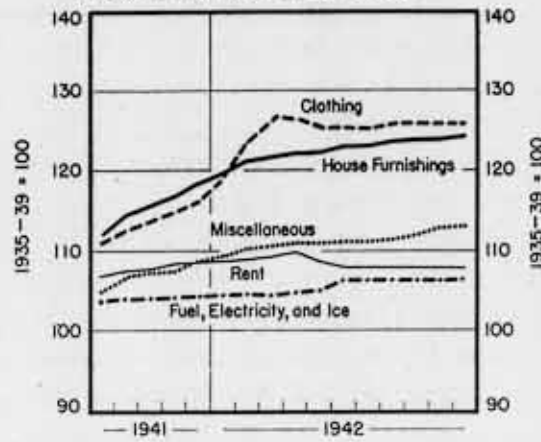
The February forecast, apart from combat vehicles, calls for a rebound in overall ordnance output to the December level. The combat vehicle gain in December, at 67%, was outstanding.

## THE SHRINKING DOLLAR, OR THE RISE IN THE COST OF LIVING

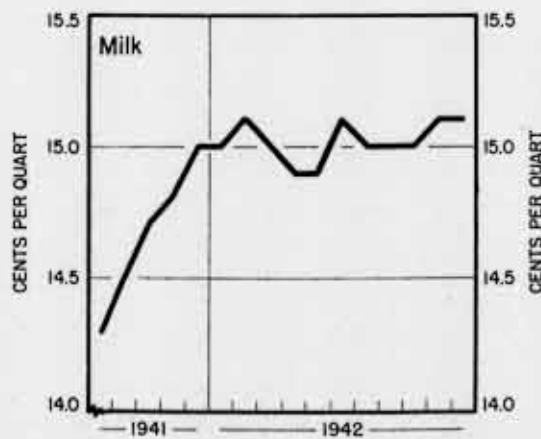
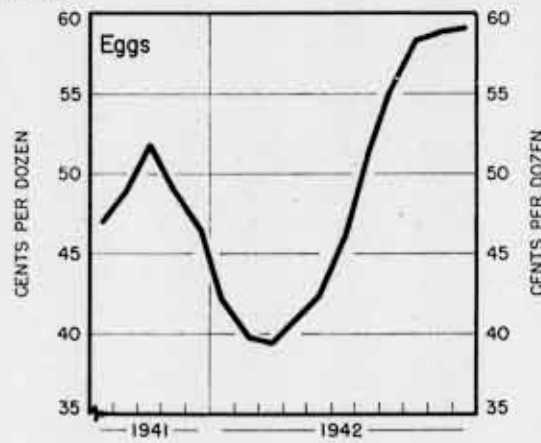
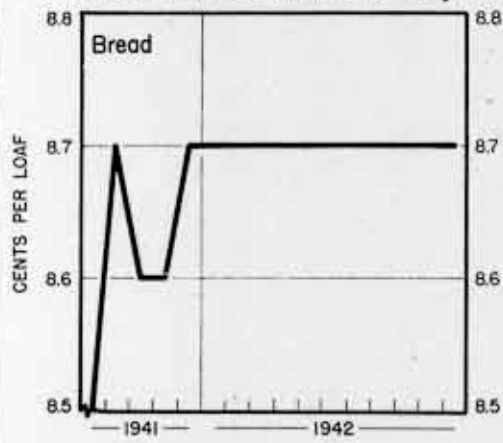
Foods have led the H. C. of L. upswing.



Clothing and house furnishings:  
Next in the line of advance.



Here's the record for four major food items.



and as the chart (opposite page) makes clear, food prices led the ascent, going up steadily for a year and a half. However, before GMPC, clothing and other items had shown sharp rises. Steep rises have been registered in many common foods such as steak, eggs, etc., and milk shows a moderate advance. The price of bread, on the other hand, has held level under the restraint of a ceiling on flour.

Store Volume	% Increase	
	Sales	Stocks
Under \$500,000.....	51%	14%
\$ 500,000-\$ 999,000...	49	36
1,000,000- 1,999,000...	44	41
2,000,000- 2,999,000...	44	42
3,000,000- 4,999,000...	52	44
5,000,000- 9,999,000...	44	50
10,000,000- 19,999,000...	35	69
20,000,000 and over.....	28	55

**SMALL STORES SHORT**

BETWEEN October, 1940, and October, 1942, sales of department stores doing a yearly business of less than \$500,000 rose around 50%, while those doing an annual volume of \$20,000,000 or more gained 28%. But in inventories the size of gains was reversed: Stocks of small units increased 14% during the period; of large outlets, 55%, as follows:

Stores with an annual volume of \$3,000,000 or less are located chiefly in towns and moderately sized cities, where consumer incomes have been boosted most sharply by war contracts; hence their comparatively larger sales gains. On the other hand, such merchandisers do not always have the cash resources nor engage in the large-scale buying which make possible the acquisition and accumulation of substantial inventories.

## SELECTED MONTHLY STATISTICS

Transportation - Prices - Cost of Living - Labor Disputes

	Latest Month*	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Same Month 1939	Same Month 1937
TRANSPORTATION - COMMODITY AND PASSENGER (1935-39 = 100)							
Commodity	196	204	201	176	149	118	102
Passenger	194	203	198	179	157	124	102
Commodity	205	208	208	169	126	98	101
WHOLESALE COMMODITY PRICES ALL COMMODITIES (1926 = 100)	p101.0	100.3	100.0	98.6	93.6	79.2	81.7
Farm products	113.8	110.5	109.0	104.4	94.7	67.6	72.8
Foods	104.3	103.5	103.4	99.3	90.5	71.9	79.8
Other than farm products and foods	p95.9	95.8	95.5	95.6	93.7	83.9	83.6
COST OF LIVING - ALL ITEMS	120.4	119.8	119.0	116.4	110.5	99.6	103.0
Food	132.7	131.1	129.6	123.2	113.1	94.9	102.7
Other than food	114.1	114.1	113.6	112.9	109.2	102.0	103.2
LABOR DISPUTES							
Number of strikes in progress	200	225	320	440	287	222	333
Workers involved (thousands)	61	65	66	117	59	37	n.a.
Man-days idle (thousands)	200	175	325	550	476	384	674

\* December, except for transportation, November. † Unadjusted. n.a. Not available. p Preliminary.

## PRODUCTION PROGRESS

### General Summary (Value of production, in millions of dollars)

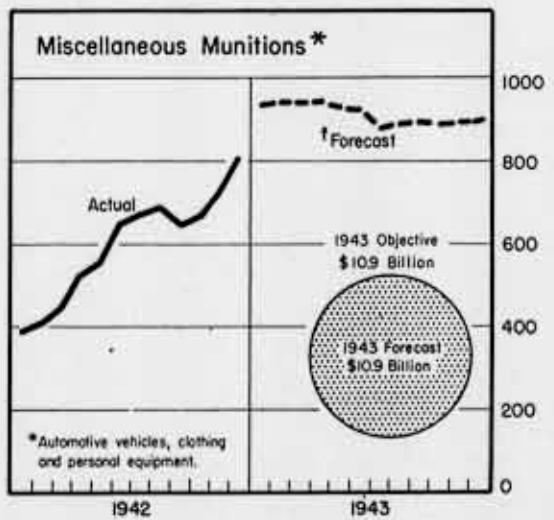
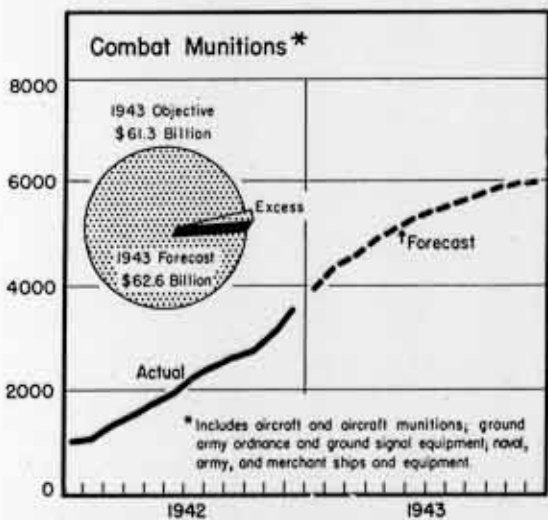
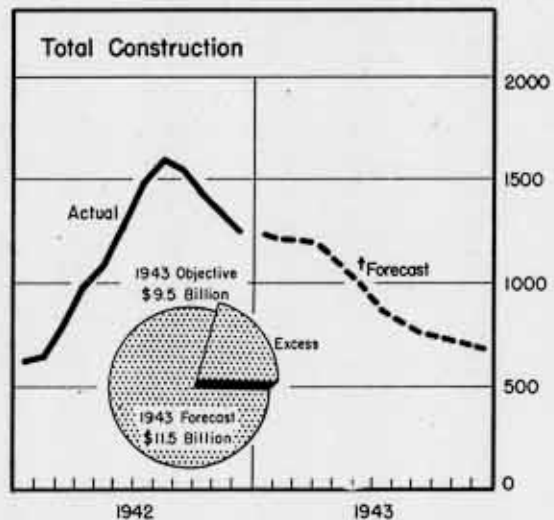
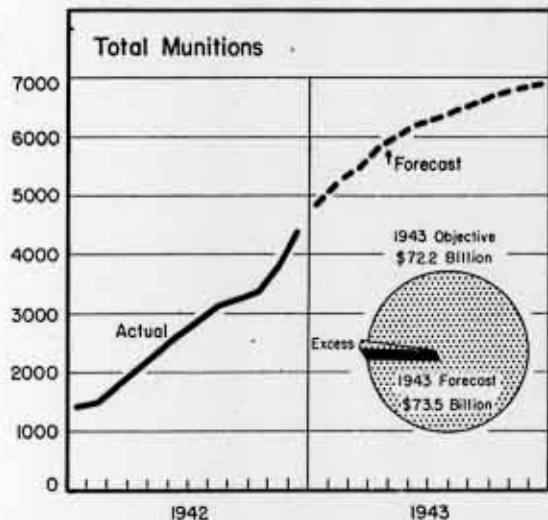
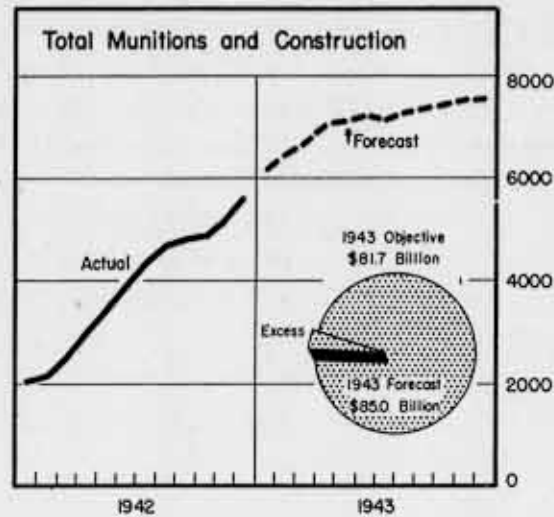
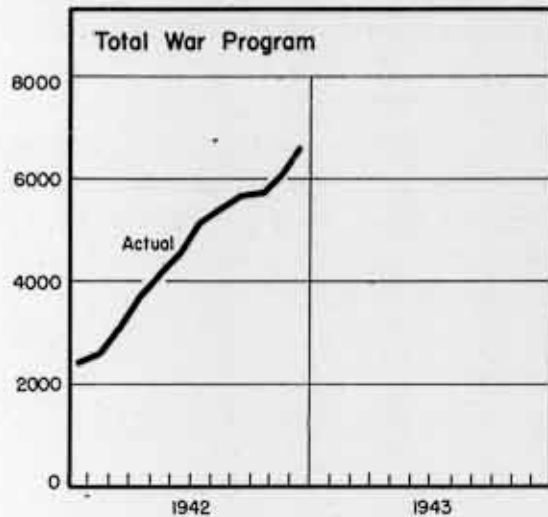
		Total Program	Total Munitions & Construction	Total Munitions	Total Construction	Miscel. Munitions		
Valuation of Actual Production ↓	1942 1st Quarter Avg.	2,703	2,242	1,556	686	410	1942 1st Quarter Avg. Valuation of Actual Production ↓	
	2nd Quarter Avg.	4,137	3,458	2,340	1,118	573		
	3rd Quarter Avg.	5,403	4,626	3,080	1,546	662		
	October	5,701	4,834	3,385	1,449	663		
	November	6,062	5,162	3,831	1,331	723	↓	
	December	6,596	5,617	4,372	1,245	802	↓	
Valuation of Scheduled Production: "Forecast" ↓	1943 January		6,140	4,902	1,238	936	1943 January Valuation of Scheduled Production: "Forecast" ↓	
	February		6,474	5,250	1,224	949		
	March		6,688	5,468	1,220	941		
	April		7,009	5,817	1,192	949		
	May		7,099	6,004	1,095	931		
	June		7,226	6,228	998	927		
	July		7,181	6,306	875	873		
	August		7,289	6,469	820	882		
	September		7,363	6,598	765	890		
	October		7,465	6,735	730	883		
	November		7,546	6,840	706	889		
	December		7,569	6,887	682	897		
		1942 Total	55,090	46,592	32,520	14,072		7,123
	1942 Objective		51,309	37,309	14,000	8,057	1942 Objective	
	1943 Forecast		85,049	73,504	11,545	10,947	1943 Forecast	
	1943 Objective		81,749	72,204	9,545	10,893	1943 Objective	
	1943 Forecast as % of Obj.		104%	102%	121%	100%	1943 Forecast as % of Obj.	
		Combat Munitions <sup>(a)</sup>	Aircraft & Aircraft Munitions	Ground Army Munitions <sup>(b)</sup>	Naval and Army Vessels & Equip.	Merchant Vessels		
Valuation of Actual Production ↓	1942 1st Quarter Avg.	1,146	453	263	340	90	1942 1st Quarter Avg. Valuation of Actual Production ↓	
	2nd Quarter Avg.	1,767	648	444	521	154		
	3rd Quarter Avg.	2,419	838	662	712	206		
	October	2,722	936	759	836	191		
	November	3,108	1,113	857	898	240	↓	
	December	3,570	1,338	1,068	903	261	↓	
Valuation of Scheduled Production: "Forecast" ↓	1943 January	3,966	1,471	1,059	1,138	298	1943 January Valuation of Scheduled Production: "Forecast" ↓	
	February	4,301	1,596	1,222	1,178	305		
	March	4,527	1,734	1,280	1,208	305		
	April	4,868	1,936	1,389	1,238	305		
	May	5,073	2,124	1,418	1,221	310		
	June	5,301	2,327	1,456	1,211	307		
	July	5,433	2,500	1,453	1,179	301		
	August	5,587	2,648	1,474	1,164	301		
	September	5,708	2,820	1,452	1,133	303		
	October	5,852	3,006	1,429	1,115	302		
	November	5,951	3,149	1,411	1,092	299		
	December	5,990	3,245	1,394	1,053	298		
		1942 Total	25,397	9,208	6,792	7,355		2,042
	1942 Objective	29,252	10,759	8,598		2,068	1942 Objective	
	1943 Forecast	62,557	28,556	16,437	13,930	3,634	1943 Forecast	
	1943 Objective	61,311	28,634	14,975			1943 Objective	
	1943 Forecast as % of Obj.	102%	100%	110%			1943 Forecast as % of Obj.	

\*Based on latest schedules of procurement agencies. (a) Includes aircraft and aircraft munitions, ground army ordnance and ground signal equipment; naval, army, and merchant vessels. Includes Misc. Munitions. (b) Ground army ordnance and ground signal equipment.



# PRODUCTION PROGRESS

## General Summary - Munitions, Construction, Miscellaneous



†Based on latest schedules of procurement agencies.

## PRODUCTION PROGRESS

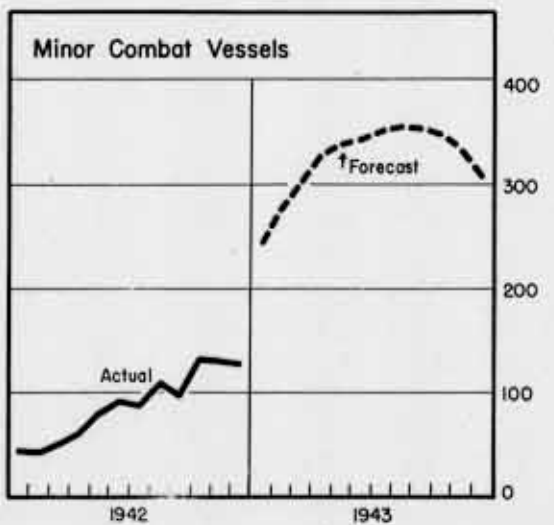
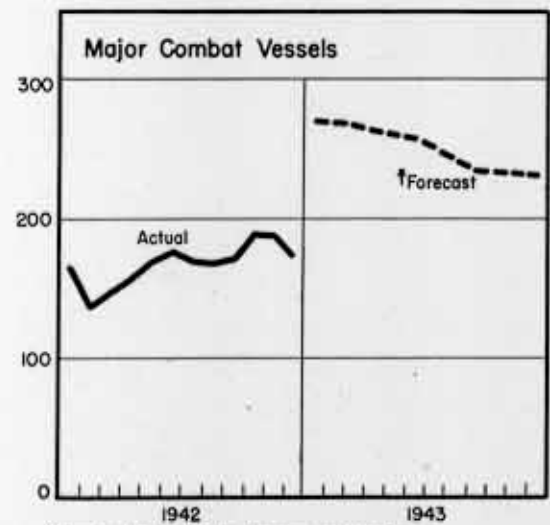
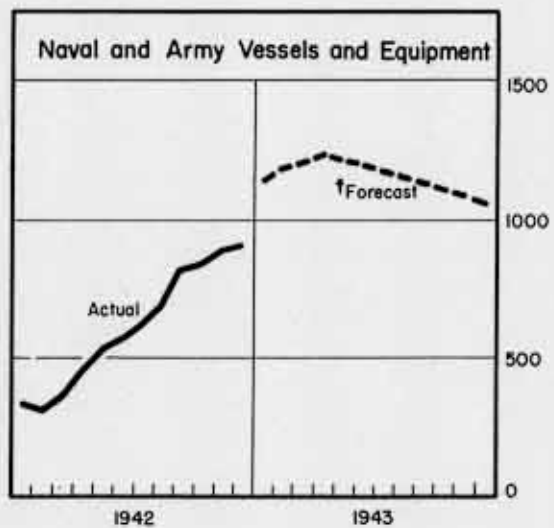
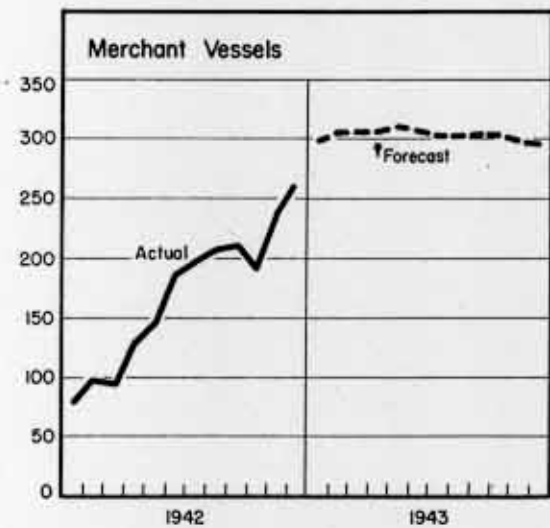
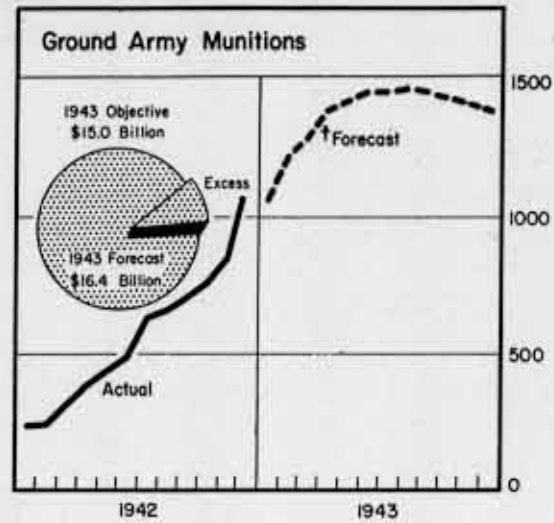
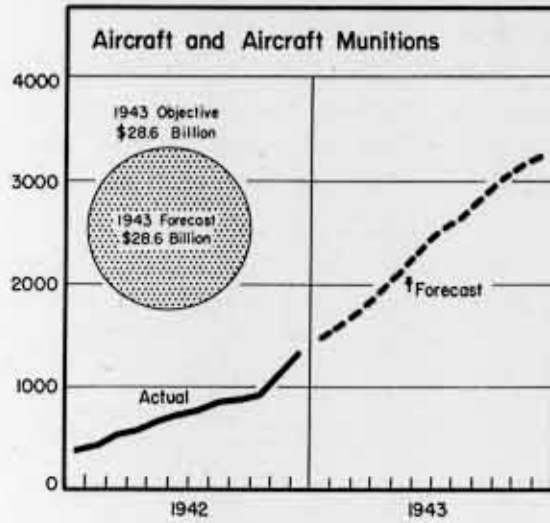
### Aircraft - Ordnance (Value of production, in millions of dollars)

		Combat Planes	Aircraft Armament	Aircraft Ammunition	Artillery & Equip.	Artillery & Tank Cannon Ammunition			
Valuation of Actual Production	1942 1st Quarter Avg.	180	17	33	23	54	1942 - 1st Quarter Avg.	Valuation of Actual Production	
	2nd Quarter Avg.	233	27	45	33	90			2nd Quarter Avg.
	3rd Quarter Avg.	294	29	57	52	110			3rd Quarter Avg.
↓	October	313	33	66	66	107	October	↓	
	November	368	37	76	97	126			November
	December	425	40	101	120	106			December
Valuation of Scheduled Production: "Forecast"	1943 January	455	37	119	151	167	1943 January	Valuation of Scheduled Production: "Forecast"	
	February	515	37	125	166	183			February
	March	595	39	129	174	194			March
	April	690	47	128	169	220			April
	May	792	49	130	160	230			May
	June	900	50	130	163	230			June
	July	1,011	50	124	166	236			July
	August	1,103	48	120	170	240			August
	September	1,207	48	119	163	237			September
	October	1,315	49	119	146	236			October
	November	1,393	48	116	145	233			November
	December	1,439	48	115	142	229			December
	1942 Total	3,227	328	648	606	1,102			1942 Total
1942 Objective	3,218	243	928	805	1,184	1942 Objective			
1943 Forecast	11,415	550	1,474	1,915	2,635	1943 Forecast			
1943 Objective	11,415	618	1,450	1,339	2,312	1943 Objective			
1943 Forecast as % of Obj.	100%	89%	102%	143%	114%	1943 Forecast as % of Obj.			
		Antiaircraft Guns & Equip.	Antiaircraft Ammunition	Small Arms & Infantry Weapons	Small Arms & Infantry Weapon Ammunition	Combat Vehicles			
Valuation of Actual Production	1942 1st Quarter Avg.	18	12	16	42	88	1942 1st Quarter Avg.	Valuation of Actual Production	
	2nd Quarter Avg.	39	21	28	81	124			2nd Quarter Avg.
	3rd Quarter Avg.	76	30	37	118	176			3rd Quarter Avg.
↓	October	95	15	44	135	212	October	↓	
	November	95	17	49	138	239			November
	December	112	24	55	168	298			December
Valuation of Scheduled Production: "Forecast"	1943 January	124	29	55	189	267	1943 January	Valuation of Scheduled Production: "Forecast"	
	February	108	34	71	202	320			February
	March	113	36	76	208	333			March
	April	134	46	77	259	368			April
	May	143	46	72	269	380			May
	June	150	48	74	277	391			June
	July	180	40	75	264	373			July
	August	187	39	76	269	374			August
	September	181	39	75	264	376			September
	October	161	39	75	267	390			October
	November	157	39	74	270	391			November
	December	156	39	71	272	391			December
	1942 Total	701	246	388	1,162	2,014			1942 Total
1942 Objective	978	241	590	1,528	2,332	1942 Objective			
1943 Forecast	1,794	474	871	3,010	4,354	1943 Forecast			
1943 Objective	1,824	470	668	3,225	3,612	1943 Objective			
1943 Forecast as % of Obj.	98%	101%	130%	93%	120%	1943 Forecast as % of Obj.			

\*Based on latest schedules of procurement agencies.

## PRODUCTION PROGRESS

Selected Items—Aircraft, Ground Army, Ships



†Based on latest schedules of procurement agencies.

# PRODUCTION PROGRESS

Ships-Construction-Miscellaneous (Value put in place, in millions of dollars)

		Battleships, Cruisers & Carriers	Destroyers	Sub- marines	Antisub- marine Vessels	Transports (Army, Navy)		
Valuation of Actual Production ↓	1942 1st Quarter Avg.	62	67	20	44	1	1942 1st Quarter Avg. 2nd Quarter Avg. 3rd Quarter Avg. ↓	Valuation of Actual Production ↓
	2nd Quarter Avg.	73	75	20	77	6		
	3rd Quarter Avg.	71	76	23	97	10		
	October	84	82	23	130	12		
	November	77	88	22	127	16		
	December	76	73	25	124	16		
Valuation of Scheduled Production: "Forecast" ↓	1943 January	120	106	44	237	21	1943 January February March April May June July August September October November December ↓	Valuation of Scheduled Production: "Forecast" ↓
	February	120	104	45	270	24		
	March	119	102	47	295	23		
	April	116	100	47	323	23		
	May	114	99	48	331	24		
	June	112	98	48	337	23		
	July	109	91	50	345	24		
	August	109	83	50	348	25		
	September	110	75	49	347	25		
	October	112	73	49	343	26		
	November	113	72	48	328	26		
	December	113	71	48	302	26		
	1942 Total	856	897	260	1,034	96		
1943 Forecast	1,367	1,074	573	3,806	290	1943 Forecast	1943 Objective	
1943 Forecast as % of Obj.						1943 Forecast as % of Obj.		
		Landing Vessels	Industrial Facilities	Aircraft Fields & Bases	Clothing & Personal Equip.	Automotive Vehicles & Equip.		
Valuation of Actual Production ↓	1942 1st Quarter Avg.	2	360	62	68	127	1942 1st Quarter Avg. 2nd Quarter Avg. 3rd Quarter Avg. ↓	Valuation of Actual Production ↓
	2nd Quarter Avg.	8	524	122	98	171		
	3rd Quarter Avg.	85	662	233	117	196		
	October	145	684	214	109	174		
	November	142	649	180	107	179		
	December	129	635	152	105	207		
Valuation of Scheduled Production: "Forecast" ↓	1943 January	115	558	190	186	223	1943 January February March April May June July August September October November December ↓	Valuation of Scheduled Production: "Forecast" ↓
	February	92	554	185	180	211		
	March	76	550	180	179	215		
	April	71	480	188	170	214		
	May	60	435	188	157	209		
	June	45	390	180	144	206		
	July	28	309	151	143	207		
	August	18	283	131	143	208		
	September	9	258	112	144	206		
	October	3	238	108	142	202		
	November	3	228	104	139	200		
	December	2	217	100	137	197		
	1942 Total	700	6,606	1,793	1,171	2,044		
1943 Forecast	522	4,500	1,817	1,864	2,498	1943 Forecast	1943 Objective	
1943 Forecast as % of Obj.						1943 Forecast as % of Obj.		

\*Based on latest schedules of procurement agencies.



If mishandled, it can seriously impede the war effort.

People have been cold this winter. Their transportation habits have been disrupted. Food annoyances have multiplied: sugar and coffee already are rationed; meat and butter cannot always be bought; and that's just a beginning. In many localities, housing is a discomfort—a shelter from the wind and rain, rather than a home. Restaurant, laundry, and other services will be curtailed. Servants will be harder to get. Such civilian dissatisfaction is apt to lead to absenteeism: Why work, if we can't use our money?

#### EQUALIZING DISCOMFORTS.

To keep civilians as happy as they can be under wartime inconveniences—to spread the discomforts as evenly as possible—it is necessary to make sacrifices seem warranted and equitable. And it may even become necessary to re-examine military requirements of civilian-type and other products to determine whether supply margins in some cases are not excessive, thus imposing unnecessary curtailments upon the civilian population.

#### POWER, FUEL AND TRANSPORT

But the civilian problem is more than an administrative task in controlling prices and distributing goods. It is also a problem in propaganda: getting the right ideas across.

As part of the job of maintaining the civilian economy, the railroads will have to be kept in running order, likewise power plants. That has a direct bearing on production as well as on civilian comfort. Planes cannot roll off assembly lines if factories do not have fuel and power and the railroads cannot carry raw materials and supplies.

Intertwined with the civilian-econ-

#### MERCHANT SHIP RECORD

DECEMBER DELIVERIES of 121 Maritime Commission vessels (as against a forecast of 135) brought the 1942 total well over the Presidential goal of 8,000,000 tons. Included in the year's output were 542 Libertyships, 62 tankers, 62 standard cargo and passenger-cargo ships (4 of them for the Army), 55 Liberty ships for the British, 10 ore carriers and coastal freighters, and 15 tank landing ships for the Navy. (The original Presidential goal included only ocean-going vessels, but it was later modified to comprise all Maritime Commission vessels.)

Over one-third of the total 1942 tonnage came out of Kaiser-operated yards.

Little difficulty is expected in doubling the 1942 record in 1943.

omy problem is the need for coordination of the operations of the various war agencies—the War Production Board, War Manpower Commission, Office of the Petroleum Administrator, Office of Price Administration, Department of Agriculture, etc. This is Problem No. 5: to unify the policies of independent agencies:

As an example, the Department of Agriculture lays out a program for raising crops.

#### COORDINATING WAR AGENCIES

Will the ODT, measuring the farm demands against all other demands for transportation, supply the freight cars to move the crops at harvest time? Will the War Manpower Commission be able to meet the seasonal labor demands of agriculture? Will the War Production Board provide tin for canning? If not, will provision be made for moving highly

# WAR PROGRESS

*Confidential*  
*(British Secret)*

DECLASSIFIED  
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DEs + Rubber + High Octane  
Airplane Output Down Sharply  
Scorecard on Merchant Shipping

Number 125

February 5, 1943

## "Big Three": A Conflict in Components

High-octane and synthetic rubber plants and destroyer escort vessels—all urgent—need the same things: valves, compressors, etc. And so do other programs.

THE AVIATION GASOLINE, destroyer escort, and synthetic rubber programs represent around 4% of the more than \$80,000,000,—000 which the United States plans to spend in 1943 on munitions production and war construction.

And 4% is about what these three programs will take of our new supply of copper and steel plate. (In other raw materials, such as lumber and lead, the proportion is substantially lower.) But requirements for components—the products between raw material and finished munitions item or industrial end product—present a different story.

Based on present gas-escort-rubber schedules, 1943 demand for eight common components will impose an indicated load of from 6% to around 44% on the capacities of the industries producing them, as follows:

<u>Common Component</u>	<u>% of Total Capacity</u>
Industrial pumps.....	6%
Compressors.....	18
Boilers.....	19
Electric motors.....	23
Industrial instruments...	31
*Turbines.....	36
Heat exchangers.....	41
Steel valves.....	44

\*Mechanical drive & auxiliary set.

For aviation gasoline and synthetic rubber plant construction, around three-

fourths of the demand for these products will come in the first half of the year. And while only one-fourth of the destroyer escort program is slated for completion in the initial six months, DE (destroyer escort) requirements for some of these components will exceed or approximate either of the two plant expansions during the period. Examples: boilers, electric motors, steel valves, and mechanical drive and auxiliary set turbines.

What's more, preliminary investigations show that the total demand of our economy this year for boilers, heat exchangers, steel valves, and several other components common to the three programs—compressed gas cylinders, steel tubing, fans, blowers, diesel engines in larger sizes, etc.—exceeds the country's existing productive capacity (chart, page 3)

### GREEN LIGHT—TO WHICH?

This raises strategic-economic questions which the President was recently called upon to decide: Should we produce destroyer escorts as scheduled instead of synthetic rubber as presently planned? Should we give the green light to 100-octane gasoline plants and retard either rubber plants or escort vessels or both? Or should we hold back an increasing number of other programs for the sake of these three?

Already, construction of chemical warfare plants, facilities to produce new explosives, and various other war projects have been delayed between 30 and 90 days, largely because of competing demands for special components.

Take the case of steel tubing, used



in boilers. A copper-mining project, a machine-gun factory, a powder plant, and an air depot were scheduled to receive their boilers last month. But a shortage of steel tubes has forced postponement of delivery dates until March; and without boilers they cannot operate.

Or consider heat exchangers. These require a certain type of steel forging which is made by only one company--but that company is also producing tank-turret rings on the same machinery. (If this unit's tank-turret-ring business were shifted to other manufacturers and its machinery devoted to full-time forgings production, the output of heat exchangers could be increased about 20%.)

**PEAK DEMANDS**

Aside from competition between the gas-escort-rubber trinity on the one hand, and programs such as chemical warfare, ordnance, and mining, on the other, the components question is intensified by the impact of demand for special products at a particular time.

In steel valves, the synthetic-rubber

program alone will reach a peak requirement of some 2,000 tons in March--equal to almost 40% of the industry's existing capacity (5,100 tons a month)--then taper off sharply, as indicated:

Month	Approx. Requirement as % of Estimated Capacity
January.....	16.5%
February.....	21.6
March.....	39.8
April.....	15.9
May.....	6.3
June.....	1.5
July.....	1.1
Aug.-Dec.....	Nil

Destroyer escort vessels alone, during the first six months, will require enough electric motor capacity (around 570,000 hp.) to supply the gas and rubber programs for the entire year and still have a 20% margin to spare. One result is that Navy DC (direct current) motors, needed to operate winches, pumps, refrigeration systems, etc., are tight and will remain so until March or April of this year.

**FIRST-HALF SQUEEZE**

Estimated capacity for turning out industrial instruments (recording and controlling devices) in 1943 is slightly above total requirements. But so great is the first-half demand from all programs plus the "big three"--aviation gasoline, destroyer escorts, and synthetic rubber--for control valves, pyrometer potentiometers (for measuring high temperatures), and flow meters and controllers (for measuring and controlling the quantity of fluids), that their recent demand-supply relationships are insecure.

Alleviating measures are possible... In steel tubing, the dropping of three

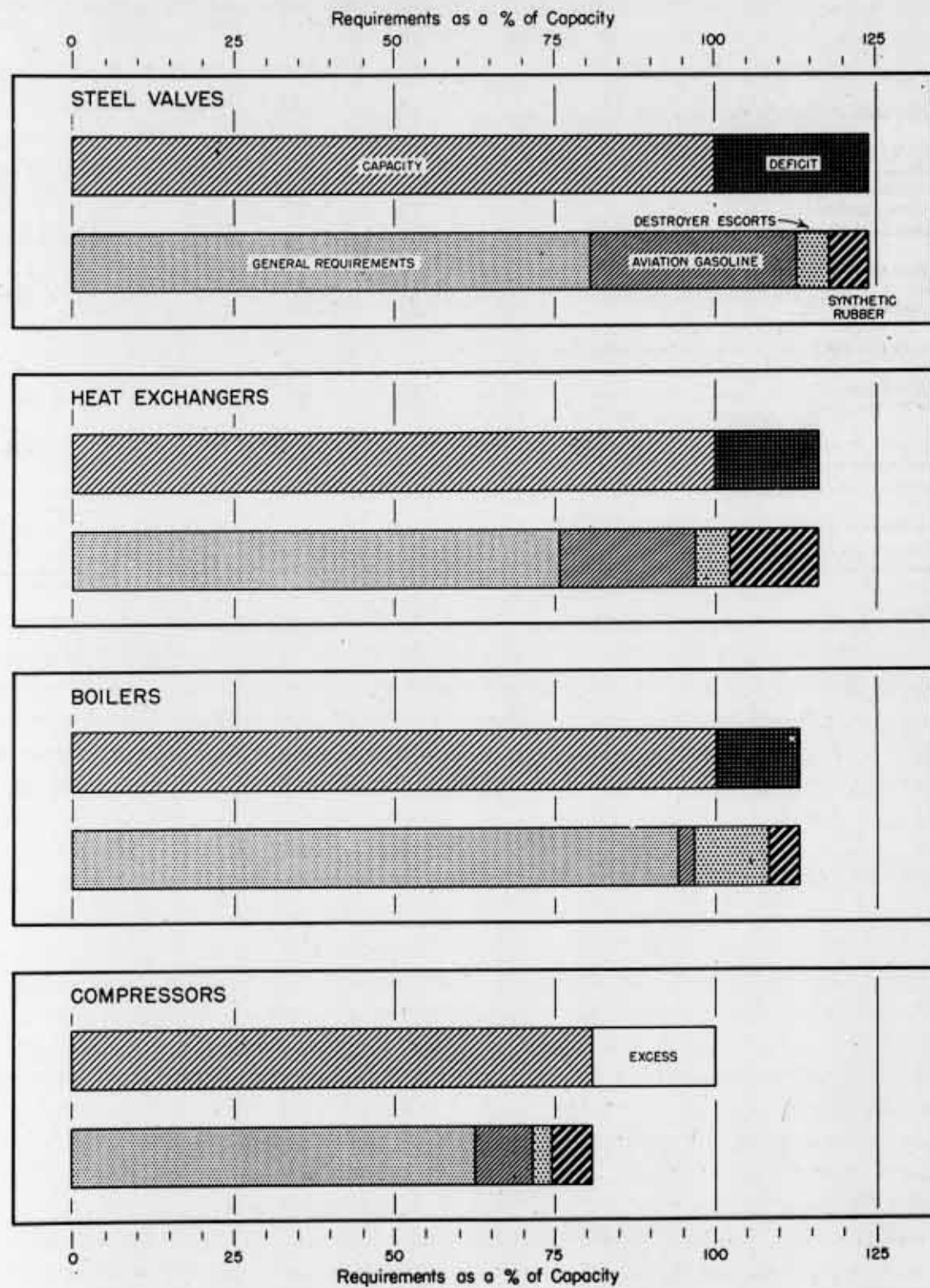
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### COMPONENTS FOR DE'S, HIGH-OCTANE, RUBBER, ET AL.

Estimated total U.S. demand tops capacity in boilers, heat exchangers, and steel valves, though not in compressors. However, figures are tentative.



## KEY STATISTICS OF THE WEEK

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War program - Checks paid (millions of dollars) -----	1,531	1,123	1,418	1,074	507
War bond sales (millions of dollars) -----	378	279	297	205	266
Commodity prices (August 1939 = 100)					
28 Basic commodities -----	174.4	174.0	172.9	166.5	165.0
Controlled -----	162.0	162.0	162.1	161.8	162.1
Uncontrolled -----	205.9	204.5	200.0	178.5	172.5
Nonferrous metal scrap -----	117.5	117.5	117.5	119.0	131.6
Petroleum carloadings (no. of tank cars)					
Total -----	50,631	53,631	46,157	53,090	49,235
Movement into East -----	25,879	26,520	22,712	26,670	3,410
Exports (no. of freight cars unloaded for export Friday)					
Atlantic Coast ports -----	1,306	1,212	963	1,468	1,750
Gulf Coast ports -----	330	328	271	483	534
Pacific Coast ports -----	769	848	723	887	307
Strikes affecting the war effort					
Number in progress -----	6	11	7	14	n.a.
Man-days lost -----	44,617	114,913	10,470	30,467	n.a.
Unused steel capacity (% operations below capacity) -----	0.5	1.4	3.0	4.2	5.0

n.a. Not available

welding machines from the production of "invasion line" (a special kind of tubing used by expeditionary forces for transporting liquids and gases) would release 2,800 tons of tubing monthly for boilers, thus making up about half of the current deficit in steel tubes for boilers.

## MACHINE TOOL BOTTLENECK

If the steel-valve industry could obtain the 90 machine tools that were promised as of this week, monthly capacity could be increased from 5,100 tons to 6,000 tons--about 18%; and if an additional 110 machine tools requested can be supplied, monthly capacity could be boosted to almost 6,700 tons, roughly 30% above the current rate.

Clamping down on the loss of skilled manpower in the boiler industry would have maintained boiler production some 10% above existing levels; and that would have almost eliminated the indicated deficiency in supply this year. (The

leading manufacturer has already lost 1,000 of his 6,000 employees and has replaced only half of these, generally with unskilled workers, including women.)

Surplus components capacity may exist in the factories of our allies. Canada, as the result of a recent cutback in certain phases of its arms program, is believed to have some idle facilities for producing special components. And this week WPB's Joint War Production Committee of Canada and the United States submitted the following preliminary list of products which Canadian industry may be in a position to supply in certain quantities to the United States:

- Boilers
- Diesel engines
- Industrial pumps
- Mechanical drive turbines
- Valves
- Valve fittings

In terms of our total production effort, however, the problem goes beyond

the competition for components. It goes back to the need for synchronizing the flow of raw materials with overall components output; for example, because materials and machines are going to other programs, production of heat exchangers and steel valves is being held up.

Is such delay according to overall plan? Do we need tanks and planes more

than we need synthetic rubber, destroyer escorts, and 100-octane gas? To answer such questions—to evaluate requirements and also supply—plans for scheduling components are already under way in the Office of Production Vice Chairman (WP-Jan 8 '43, p7). And the current gas-escort-rubber tangle epitomizes the nature of the problem.

## Ships That Fight Off Subs

To meet intensified U-boat warfare, the Navy steps up its versatile antisubmarine program. First destroyer escorts delivered in January; hundreds more scheduled.

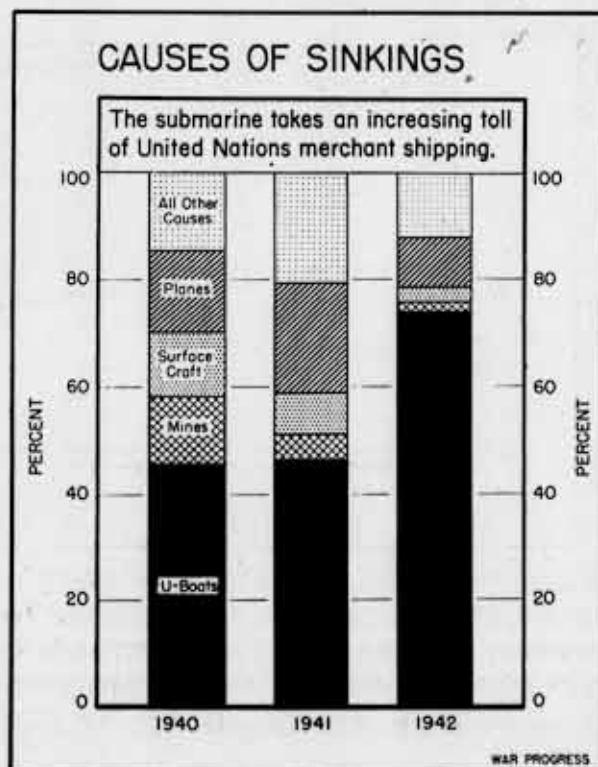
TODAY about 85% of the United Nations' ships sunk by the Axis are the victims of submarine torpedoes or gunfire, as compared with 60% a year ago and 45% in 1941, when enemy mines, aircraft, and surface raiders accounted for more than half of the vessels sent to the bottom (chart, right). And though sinkings have declined in recent months, they are still at a high level compared with a year ago (chart, page 6).

### THE NAVY ACTS

This increasing intensity of under-sea attack is reflected in the U.S. Navy's production emphasis on ships that fight off subs. In 1940 and 1941, antisubmarine-type craft comprised about 6% of the value of total naval vessel deliveries, but in 1942 the percentage increased to 22%, and in 1943 it is scheduled to rise to 44%. Thus, if this year's schedules are met, nearly half our production (in dollar-value terms) will be composed of craft to combat enemy submarines.

These figures do not include the value of destroyers built or scheduled, which are frequently used in antisub-

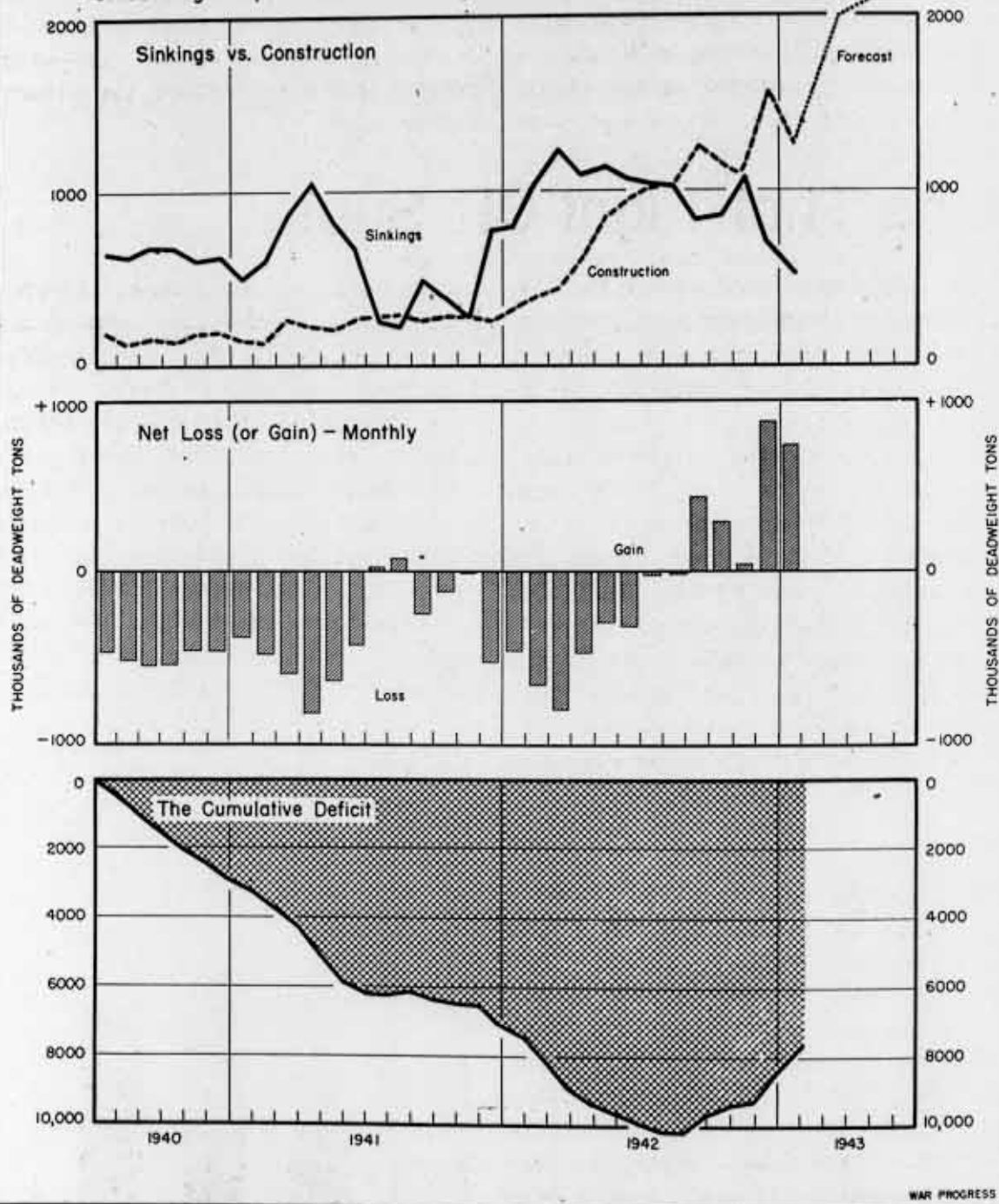
marine work, nor airplanes, blimps and armed merchantmen—also employed in the war against subs. But the classification includes small carriers (many of them converted cargo ships) known as aircraft escort vessels; destroyer escort vessels (like destroyers, but slower and more lightly armed); large subchasers and Coast Guard cutters, and gunboats, including the corvette type. And then there are the smaller coastal convoy vessels, mosquito craft (including motor torpedo boats and small sub-





## SCORECARD ON MERCHANT SHIPPING

Sinkings of United Nations vessels cut sharply in January, more than offsetting drop in new construction. Result: cumulative loss is down.



ANOTHER ROUND IN THE BATTLE OF SHIPPING WENT TO THE UNITED NATIONS IN JANUARY. TONNAGE LOST TO AXIS SUBMARINES AND PLANES WAS THE LOWEST REPORTED IN ANY MONTH SINCE NOVEMBER, 1941; AND THOUGH CONSTRUCTION OF MERCHANT SHIPS IN JANUARY FELL OFF FROM DECEM-

BER'S ALL-TIME HIGH, IT WAS GREATER THAN ANY MONTH EXCEPTING DECEMBER. THE NET GAIN IN TONNAGE, THEREFORE, CUT A SIZEABLE CHUNK OUT OF THE CUMULATIVE DEFICIT, AS DELAYED REPORTS ON SINKINGS IN PAST MONTHS DID NOT CALL FOR SUBSTANTIAL REVISION OF THE RECORDS.



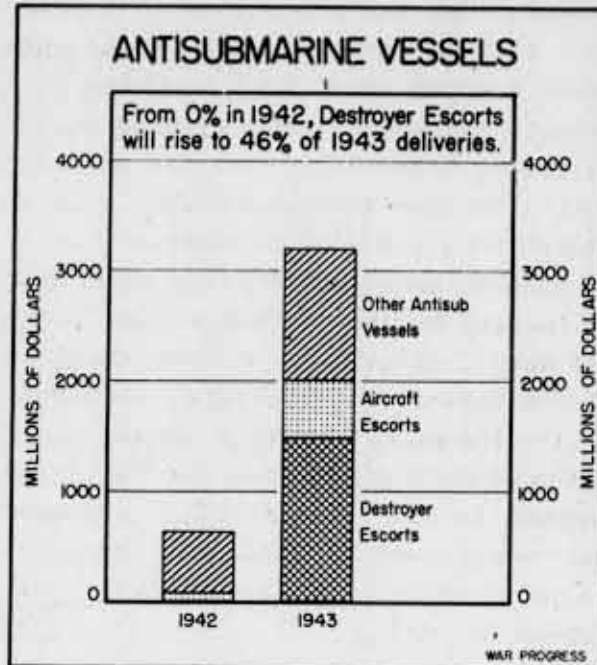
sers); mine layers and patrol craft. The destroyer escort is the key item in our expanding antisubmarine program. We didn't get a single delivery in 1942; but in 1943 the value of destroyer escort deliveries is scheduled to amount to \$1,478,880,000, or 46% of the entire antisubmarine program. And deliveries of aircraft escort vessels—which at \$88,200,000 amounted to 14% of the antisubmarine program in 1942—are scheduled to reach \$524,300,000 this year, or 16% of the value of the total antisubmarine program.

However, getting this volume is not going to be easy, though the program has at last gotten under way with two vessels delivered in January. It is particularly competitive with the high octane gasoline and synthetic rubber programs (page 1) for valves, turbines, compressors, boilers, etc. In addition, many other needed components are short.

HIGH PRIORITY

But the destroyer escort is high on the Navy's urgency list. Though top rating goes to six aircraft carriers now under construction, the completion of the first 83 destroyer escort vessels, out of 294 scheduled for 1943, comes next. Given third urgency rating are the standard destroyers; and immediately afterward the balance of the destroyer escort vessels is listed.

The problem of checking the submarine, however, goes beyond straight-line increases in naval ships. The arming of merchant ships; increased raids on German submarine bases; the use of all the arts of the technician to push antisubmarine technology ahead of submarine technology; the possible use of helicopters aboard ships; a unified Anglo-American antisubmarine command—all are part of the broad basic problem of how to cut down sinkings.



## Planes Behind Schedule

January acceptances are not only down sharply from December, but also fall below the new 8-L plan. And February, with only 28 days, calls for a 35% gain.

JANUARY ACCEPTANCES of airplanes were down from December's record high total—as expected (WP-Jan22'43,p5).

At \$451,400,000, value was off 12%. Numerically, output was off 9%, just 13 planes above the 5,000-a-month goal the President set for December. The results (preliminary), by group:

	January	December	% Change
	(in millions)		
Total.....	\$451.4	\$513.5	-12.1%
Combat.....	366.4	425.1	-13.8
Bombers....	274.6	324.5	-15.4
Pursuits...	91.8	100.6	- 8.7
Fighters,etc.	38.5	31.7	+21.5
Trainers....	46.5	56.7	-18.0

The sharp drop in dollar value was heavily weighted by a 15% decline in output of bombers, especially the larger

types. For the first time in a year, four-engined land-based bomber acceptances dropped under the rate of the preceding month--off 11%. Trainers, though exceeding schedule, were off sharply; that's because comparison was with an exceptionally high December.

Particularly poor showings were made in January by two-engined flying boats and Navy fighters. Much of the weakness in the latter category seems attributable to the shift currently taking place in the Grumman plant from the "Wildcat" fighter to the "Wildcat II," a larger and more powerful plane. Transport planes, especially the lighter types, showed up well.

#### COMBAT PLANES LAG

In terms of the 8-L planning schedule for the month, production was behind plan by 16% in value and 12% in number. Failure to meet forecast was evident mainly in combat types, which as a group fell 19% short. Service combat planes lagged only 1% behind forecast. Trainer planes exceeded the forecast by 2%.

The January setback suggests that plane manufacturers have their work cut out for them this month: The 8-L schedule calls for planes valued at \$609,200,000, an increase of 35% over last month and a gain of 19% over the December record peak. And February offers three fewer days than either January or December in which to do the job. In combat planes alone, the schedule amounts to \$514,600,000, or more than the total actual December output.

Furthermore, part of the February effort will probably go into completing planes accepted with shortages last month, since the pool of accepted but undelivered planes was unusually high at the end of January--only 40 units below the record level of 1,951 planes reached at the close of 1942 (WP-Jan8'43, p10).

## Dispersing Plane Plants

U.S. aircraft production shifts to inland factories from coastal areas. Safety, a freer labor supply, and proximity to materials and parts influence change.

AIRPLANE PRODUCTION has shifted inland--according to geographical plan. Of last year's total plane output of \$3,863,000,000, more than 75% was assembled in plants located within 200 miles of the Atlantic or Pacific. This year the dollar value of plane deliveries is scheduled to rise to \$13,206,000,000, but the coastal areas will produce only 57% of the total, while the share of the inland plants will grow to 43% from 24% in 1942 (chart, page 9).

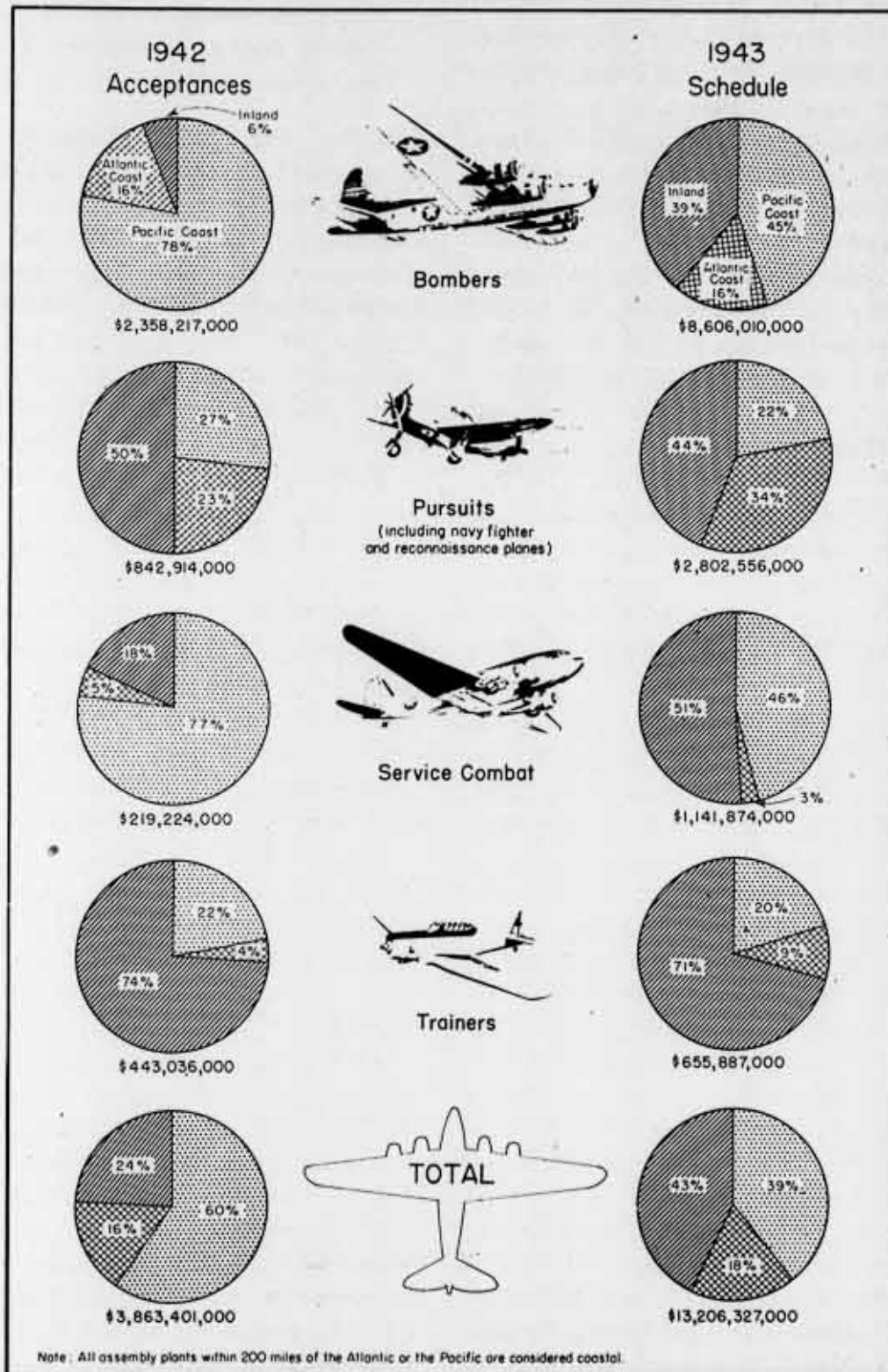
Pacific Coast plant schedules call for acceptances worth \$4,137,000,000 in 1943, more than double the \$1,841,000,000 chalked up in 1942. But these plants this year will account for only 39% of the total value of deliveries, compared with 60% last year. Atlantic Coast plants maintain their relative position--16% of the total in 1942, 18% in 1943.

#### BOMBER SHIFT PRONOUNCED

Among the major plane groups, the most pronounced shift inland occurs in bomber production (chart, page 9). Only 6% of the value of bomber acceptances in 1942 was from inland plants, but in 1943 the interior will turn out 39%. Meanwhile, Pacific Coast plants, accounting for 78% of total bomber acceptances in 1942, drop to 44% of this year's total. All the B-17 (Flying Fortress) production will continue to be concentrated in Washington and California where established facilities are available. But much of the expanded output of the newer B-24s (Liberators) and B-29s (four-engined long-range heavy bombers), as well as of the medi-

## PLANE PRODUCTION SHIFTS INLAND

From East West and from West East toward the U.S. center.



Note: All assembly plants within 200 miles of the Atlantic or the Pacific are considered coastal.



perishable crops rapidly to market?

Obviously, such questions must be threshed out before they arise; they must be determined almost as soon as the Department of Agriculture develops its food program. Similarly, if production is to be increased in a particular area, then provisions must be made for an adequate labor supply, housing and public utilities for workers, raw materials for plants in the area, transportation of materials to and from the area, etc. In short, policies of independent agencies must be coordinated to see that the right things reach the right place at the right time.

#### INTEGRATION AMONG ALLIES

Finally, as Problem No. 6, there is the coordination--the integration--of the war production efforts of the United Nations as a whole. Already, such integration takes place in some degree. The Combined Raw Materials Board, for example, recommends how the United States, Great Britain, and other United Nations distribute their raw materials--rubber, tin, etc. (WP-Dec4'42,p9).

Not so much, however, has been accomplished in directly tying in Anglo-American production and distribution of end products. It has been suggested that the United States concentrate on heavy bombers, which can be flown overseas, and cut down on production of fighter planes, and that the British concentrate on fighters and cut down on bombers. However, the difficulties of stopping production lines, of deranging programs, once schedules have been laid out have impeded execution on both sides of the Atlantic.

Some integration is semiautomatic. For example, there are insufficient basic raw materials, such as copper or steel, to satisfy United Nations production capacity. And when the United

States ships copper or steel abroad, a decision--but not necessarily a planned one--is automatically made to utilize British or Russian productive capacity instead of this country's. Such exports say, in effect: It is better for the war effort as a whole to let Russia produce its own tanks or ammunition rather than to wait for this country to produce and ship the finished product.

#### WHO'LL PRODUCE WHAT

But integration of United Nations resources ought to go beyond decisions (often political) to export raw materials or finished products; it would require centralized shipping controls and predetermined, all-inclusive plans for the division of labor and resources on a nonnationalistic basis.

What kind of products should the United States and Great Britain produce so as to get a maximum total of end products? Should the combined resources be concentrated on more ships, or more tanks, or more planes, and of what type? And what country is better fitted to produce what? Thus, integration of international resources extends into programming.

#### UNITED NATIONS STRATEGY

Indeed, carried to its logical conclusion, integration of United Nations resources would call for a unified strategic plan of military action accompanied by assignments of munitions to carry it out.

Those, then, are the pressing problems for 1943--from materials to manpower to international integration. And, in contrast to 1942, when the task was one of organizing resources for war, 1943's problems all relate to getting the most out of resources that have approached the limit of capacity.

In short, 1943 is the year of intensification.



um bombers and one-engined light bombers, will come from inland points. The same is true of one-engined pursuits and of service combat planes.

Aside from decreased danger of damage from enemy air raids, there are a number of other advantages to setting up new plane assembly plants inland, and one or a combination of several of these has usually dictated the location of new plants.

1. Proximity to labor surplus areas (now mainly in the southern and south central regions) was probably considered when locations of the new Douglas plants at Oklahoma City and Tulsa, the Martin plant at Omaha, and the Bell plant near Atlanta were decided upon. But now workers are getting scarce in the three first-mentioned cities. There are serious labor shortages in the established plane production centers of California, Washington, and around Buffalo, N. Y.

2. Proximity to necessary raw materials or cheap power. For example, the new Vultee plant at Nashville, Tenn., is placed near aluminum fabricating mills and TVA power.

3. Location of assembly plants near the center of the country cuts down on hauling time for components, made mostly in the East and the Middle West and heretofore transported mostly to the Far West. For example, all propeller plants and all but two engine plants (and those are small) are located east of the Mississippi.

4. Test flying in "target areas" (coastal regions in which final assembly plants are located) is somewhat hampered by restrictions imposed by the Interceptor Command, which limits and controls air traffic in those areas. Plants in the Los Angeles district complain that this has had the effect of slowing deliveries.

## Machine Tool Comeback

Shipments in December swing back to an all-time high and orders decline, thus biting into the backlog. Deliveries in 1942 topped previous year by 70%.

MACHINE TOOLS output staged a comeback in December. After declining in November, shipments increased 9% to an all-time high of \$132,000,000. At the same time, net firm orders (new orders minus cancellations) fell from \$76,000,000 to \$56,000,000, and backlogs dropped to \$867,000,000—the lowest level since March (chart, page 11). At the present rate of output, it will take 6.6 months to fill the backlog. Six months ago, the existing unfilled orders would have taken 9.8 months to work off at the then current level of production.

Deliveries of machine tools in 1942 totaled \$1,320,000,000, topping the previous year's output by 70% and 1940 by over 200%. This gigantic rise was initiated back in 1940 under the spur of foreign orders. In that year, about half the \$400,000,000 production of lathes, grinders, boring, broaching, drilling machines, etc. was exported, chiefly to British and French armament manufacturers.

### SHIPMENTS ABROAD

As the United States began to rearm, the proportion of exports changed drastically. In 1941, shipments abroad comprised only one-fourth of total production. Now they are running at about 12% of monthly deliveries, with Great Britain and Russia each getting around one-third and Canada one-fifth of the total exports.

As a result, American industry has greatly increased its inventory of machine tools. In December, 1939, there were an estimated 934,000 machine tools

in place. In the last three years, about 590,000 additional units have been built; of these, 150,000 were exported, leaving 440,000 for domestic use. When allowance is made for tools that have worn out since 1939, current inventory stands at around 1,200,000 units, or almost 30% more than at the start of the war.

**SOME CRITICAL TOOLS**

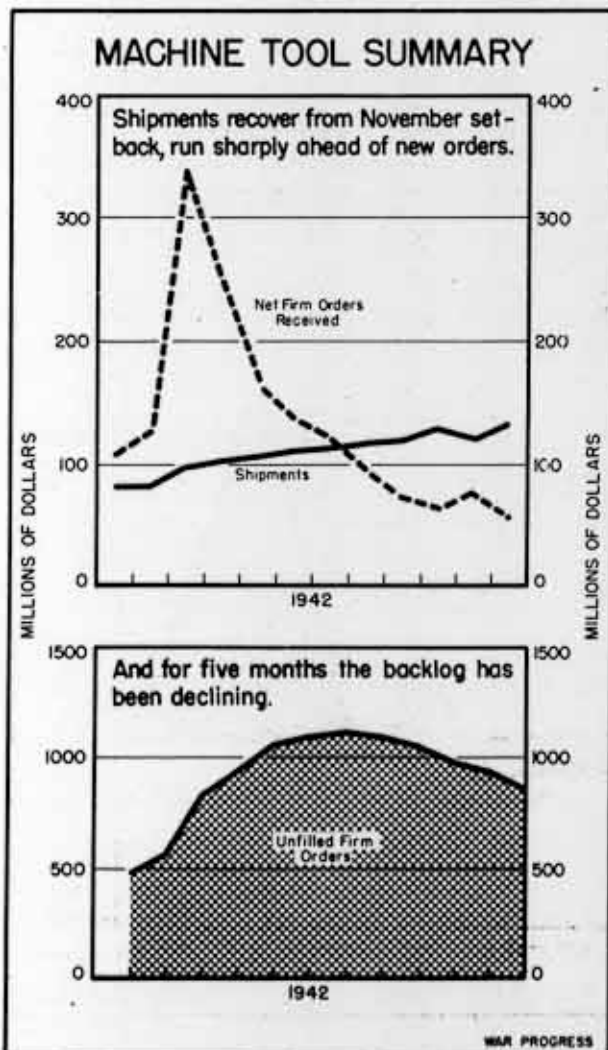
However, some types of tools--such as planers and surface broaching machines, thread millers and thread grinders, precision boring machines, small gear shapers, cylindrical grinders (20 inches and over), 7-foot arm radials, etc.--are still on the critical list. And according to present schedules, the

backlog of orders for these items will not be filled until late this year. But steps are being taken to speed up production, and meanwhile idle machines are found--whenever possible--to fill the needs of munitions manufacturers.

**War Progress Notes**

**HOURS AND EARNINGS**

**WORKERS** in durable goods industries (primarily devoted to war work) are now working more hours per week (46) than at any time during the past decade; work weeks for some industries average as high as 53 hours. Nondurable goods workers are also working longer hours to compensate for shifts of workers from nonwar to war work, as the table shows:



	Average Hours	% Change from
	Nov. '42	Year Ago

All manufacturing..	44.0	9.3%
Durable goods.....	46.0	10.3
Nondurable goods...	41.1	6.9
Machine tools.....	52.8	4.0
Locomotives.....	48.6	7.6
Shipbuilding.....	48.0	11.8
Aircraft & parts...	46.6	5.1

Overtime pay and rising wage rates account for record levels of earnings:

	Average Hourly Earnings	% Change from
	Year Ago	

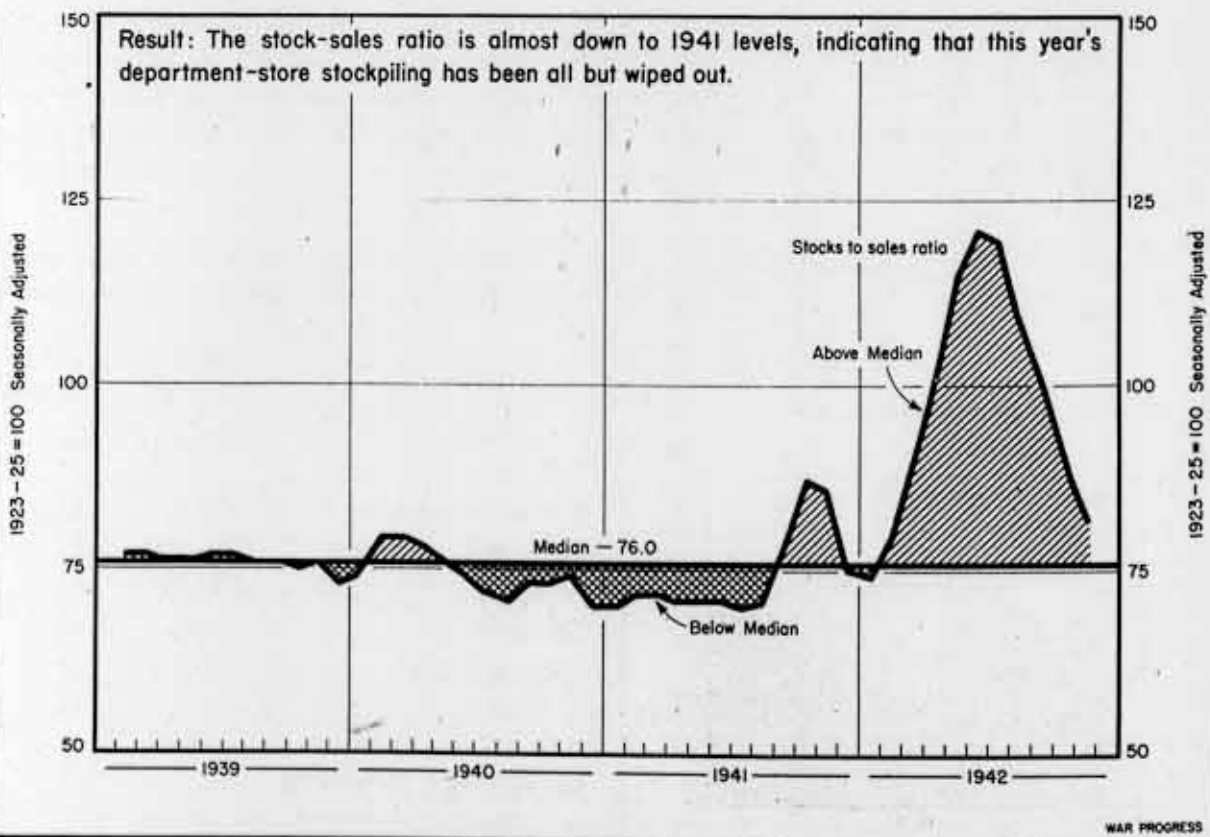
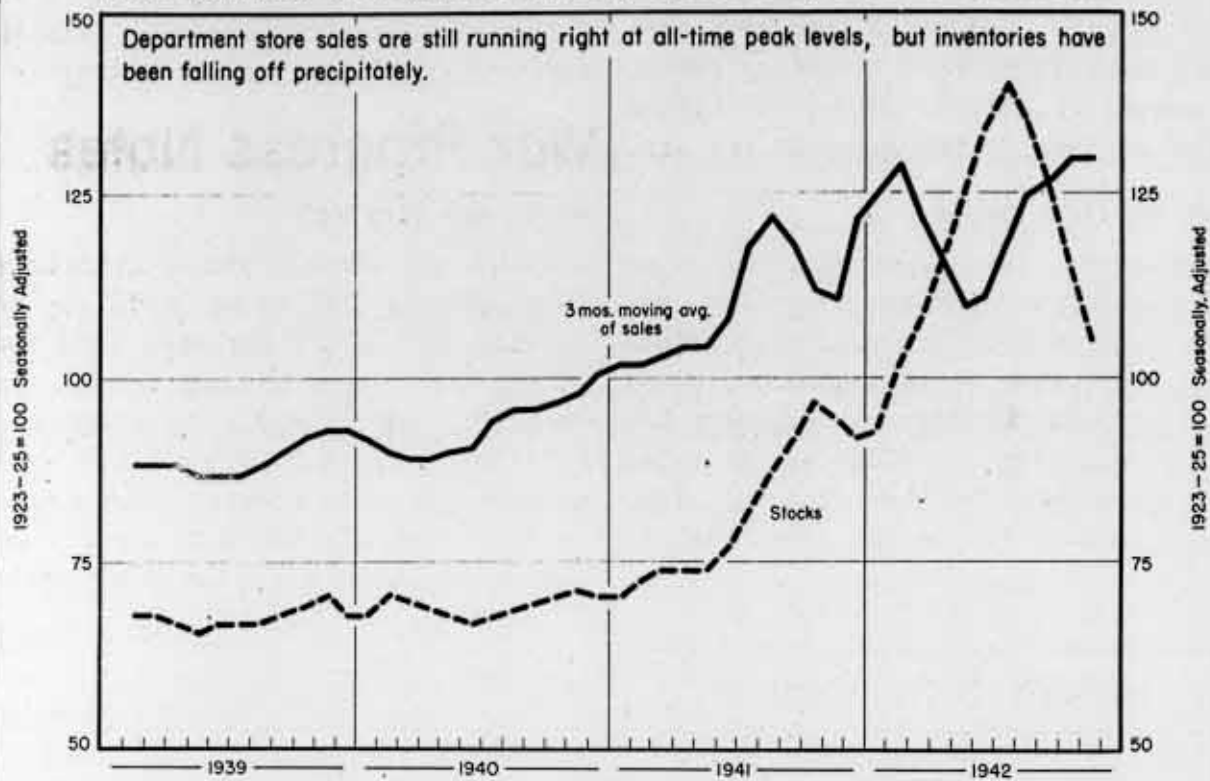
All manufacturing...	89.9¢	15.1%
Durable goods.....	100.3	16.0
Nondurable goods....	76.3	11.1
Machine tools.....	100.7	23.5
Locomotives.....	119.6	25.8
Shipbuilding.....	126.3	17.7
Aircraft & parts....	99.4	11.1

**COLDER AND HUNGRIER**

A METEOROLOGICAL study of the U.S. soldier's appetite reveals: (1) he eats

### CASTING CONSUMER SHADOWS BEFORE...

Future purchases will depend on inventory replacements, hence new production.





6% more in cold than in moderate weather; (2) 12% less in hot weather; (3) 4% more on a dark day; and (4) 5% more on the rifle range than in barracks.

**FORECAST ON STORE SALES**

DEPARTMENT STORES have been steady buyers of merchandise, anticipating (1) higher prices, (2) shortages. As a result, even though sales rose, inventories rose faster—at least for a while—and

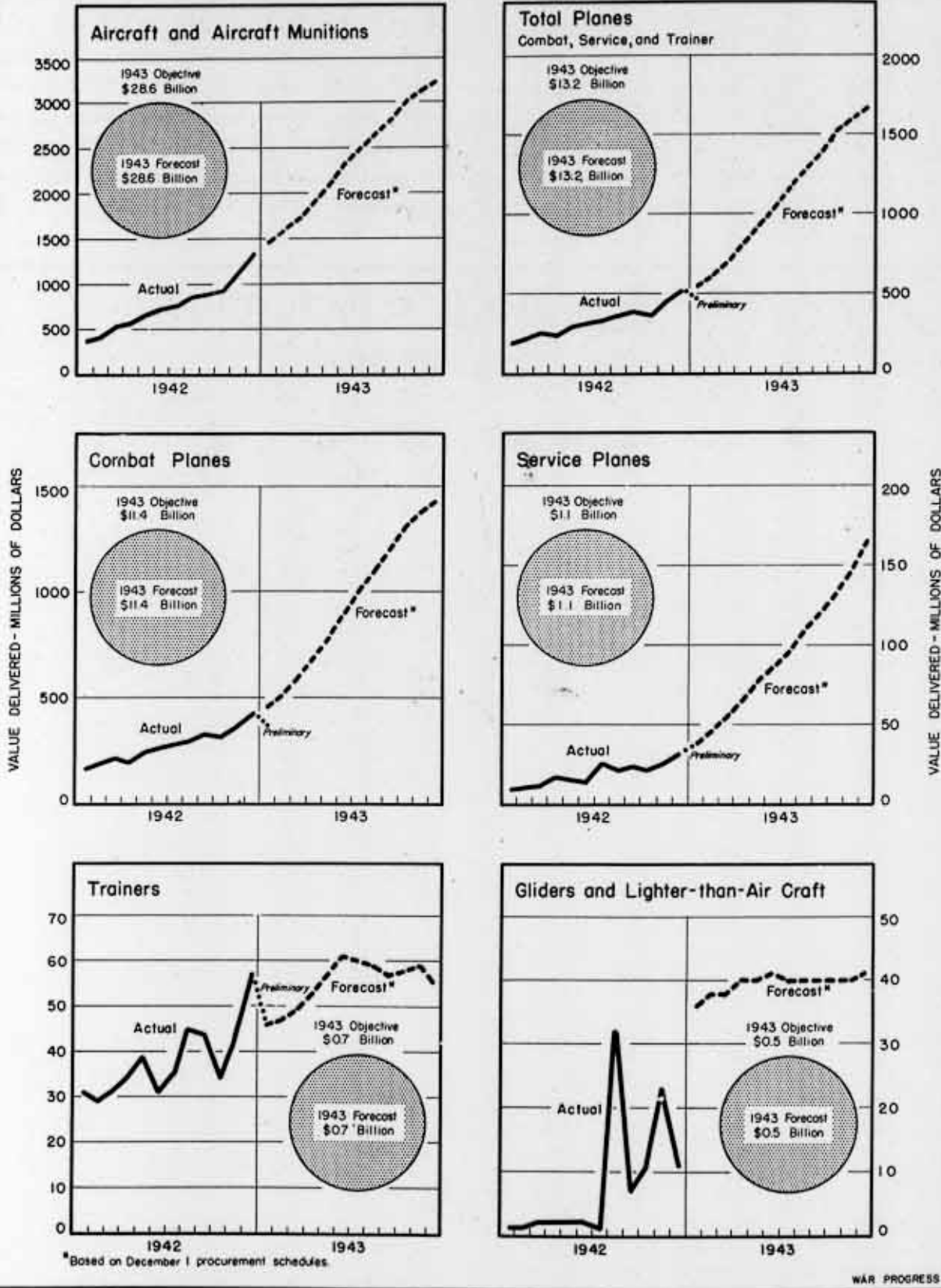
stocks on hand increased. But the accumulation stage has now passed—the stock-sales ratio at the end of 1942 was down close to the 1939-42 median level (chart, page 12). Since sales are still right up to recent high levels and merchandise is becoming hard to replace, inventories seem destined to decline. Americans will no longer be able to live off past production; purchasers will be restricted to current output.

SELECTED MONTHLY STATISTICS							
Labor Force - Employment - Federal Finance							
	Latest* Month	Preceding Month	2 Months Ago	6 Months Ago	Year Ago	Same Month 1939	Same Month 1937
LABOR FORCE - TOTAL (millions)†	52.4	53.4	54.5	56.8	53.2	n.a.	n.a.
Employment	51.0	51.9	52.8	54.0	48.9	n.a.	n.a.
Male	36.3	37.0	37.5	39.9	37.0	n.a.	n.a.
Female	14.7	14.9	15.3	14.1	11.9	n.a.	n.a.
Unemployment	1.4	1.5	1.7	2.8	4.3	n.a.	n.a.
NONAGRIC. EMPLOYMENT-TOTAL (thous.)	p38,956	38,533	38,478	36,665	36,088	31,109	29,675
Manufacturing - Total	p15,669	15,434	15,313	14,302	13,566	10,694	9,880
Durable goods	p8,963	8,767	8,606	7,880	7,109	4,983	4,555
Nondurable goods	p6,706	6,667	6,707	6,422	6,457	5,711	5,325
Government	p5,784	5,723	5,672	5,037	4,584	4,058	3,957
Other	p17,503	17,376	17,493	17,326	17,938	16,357	15,838
FEDERAL CIVILIAN EMPLOYMENT (thous.)	p2,957	2,780	2,726	2,240	1,686	n.a.	n.a.
War	p2,038	r1,958	r1,886	1,370	779		
War Department	p1,311	r1,205	r1,222	814	430		
Navy Department	p560	548	531	450	302		
Other War agencies	p167	145	133	106	47		
Nonwar	p919	r822	r840	870	907	n.a.	n.a.
FEDERAL FINANCE (GEN'L FUND)†							
Expenditures - Total (billion dollars)	6.4	6.5	6.4	5.2	2.6	.7	.5
War	6.0	5.8	6.1	4.5	2.1	-	-
Nonwar	.4	.7	.3	.7	.5	.7	.5
Revenues - Total	.8	2.7	.6	.7	.6	.3	.3
Income taxes	.3	2.0	.2	.2	.1	-	.1
Other	.5	.7	.4	.5	.5	.3	.2
War bond sales	1.2	1.0	.7	.9	1.1	n.a.	n.a.
Net debt	103.3	97.6	93.0	73.8	57.1	39.8	34.5

\*January except employment, December. †Figures in 1939 and 1937 columns represent 1940 and 1938 data respectively. p Preliminary. r Revised. n.a. Not available

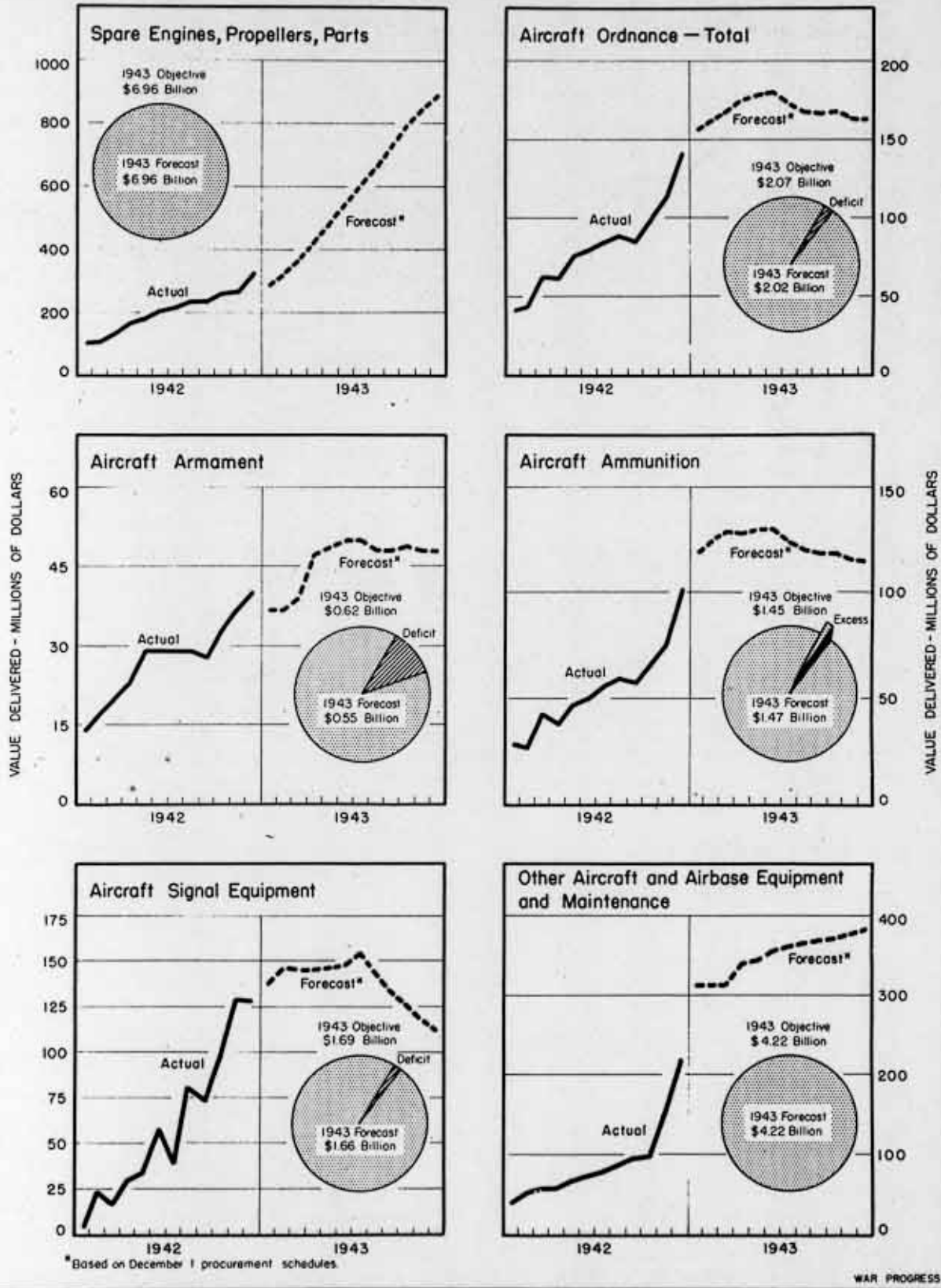
# PRODUCTION PROGRESS

## Aircraft and Aircraft Munitions



## PRODUCTION PROGRESS

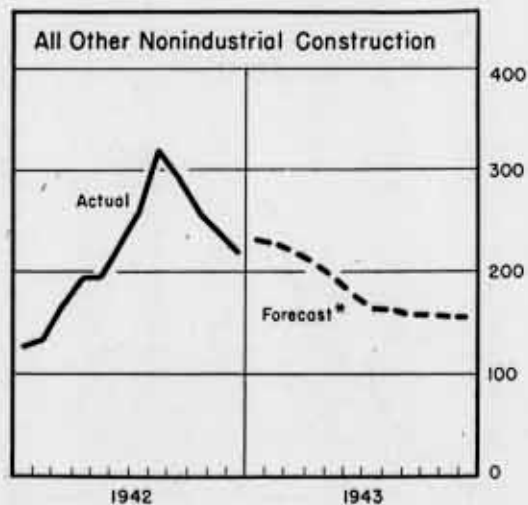
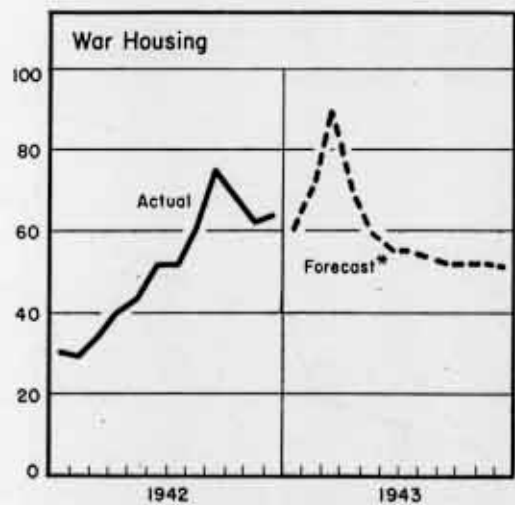
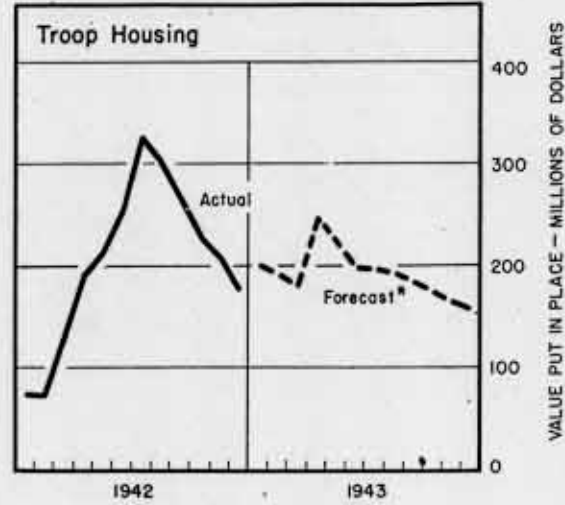
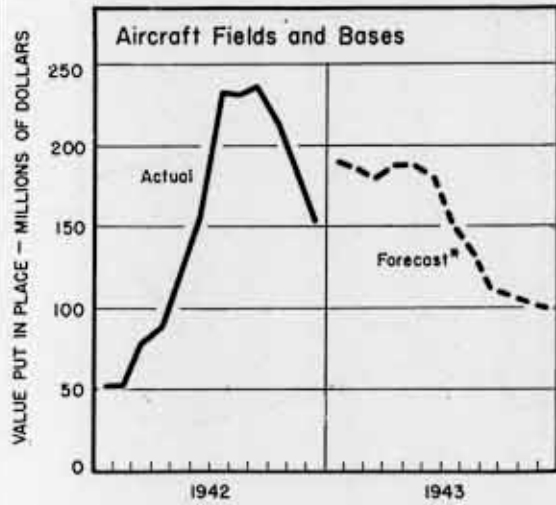
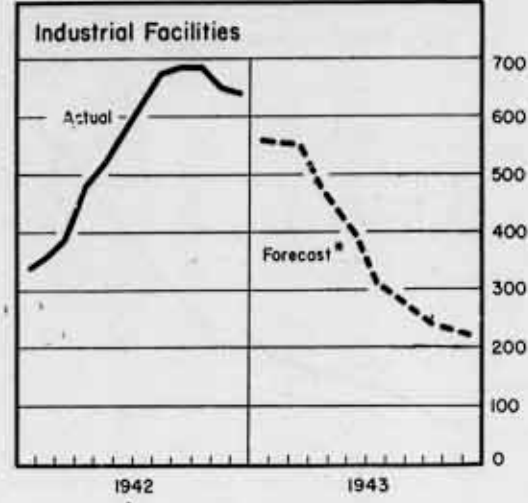
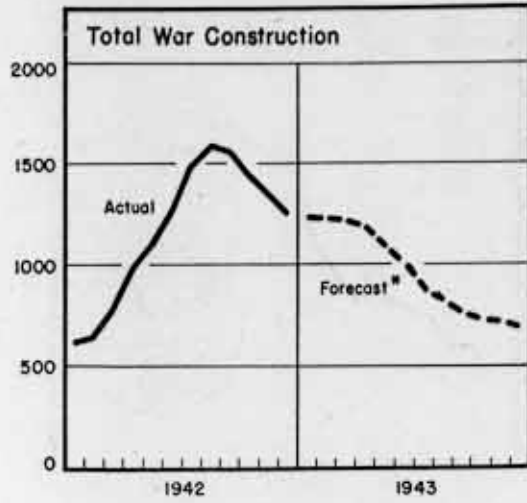
Aircraft and Aircraft Munitions (Continued)





# PRODUCTION PROGRESS

## War Construction



\* Based on December 1 procurement schedules.

THE TREASURY

# WAR PROGRESS

*Confidential*  
*(British Secret)*

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Production Relapse in January

Number 126

February 12, 1943

## Year Starts with Production Slump

January munitions output, off 8% from December, falls far short of schedule and breaks chain of monthly gains. Decline is fairly general, though ships rise.

MUNITIONS PRODUCTION dropped in January--as expected (WP-Jan15'43,pl). Not only was the value delivered or put in place--\$4,021,000,000 (preliminary)--12% below the forecast, but it was down 8% from December, bringing to an abrupt end the string of successive month-to-month increases throughout 1942.

The last 13 months divide into four fairly distinct periods:

Period	% Change from Preceding Month	
1942		
Jan.....	23%	
Feb.....	5	Post-Pearl
Mar.....	17	Harbor upsurge
Apr.....	18	
May.....	13	
June.....	11	
July.....	10	Falling rate
Aug.....	8	of gain
Sept.....	5	
Oct.....	4	
Nov.....	13	Abrupt year-
Dec.....	14	end rise
1943		
Jan.....	-8	First-of-the
		year relapse

Almost all major categories shared in the setback. Aircraft and related munitions dropped 6%; all airplanes, 12%; combat planes, 14% (WP-Feb'43,p7);

ground armymunitions, 22%; combat vehicles, 47%; army ammunition, 3%. Naval and army ships showed some gain, according to preliminary value-in-place calculations; merchant vessels were up 3% but fell 15% below forecast.

Last month's decline traces back to the record level of munitions output in December, when many procurement agents cleaned up assembly lines in a Garrison year-end finish. In effect, some production was borrowed from the future, and January's munitions total relapsed to only 5% above November's level of \$3,831,000,000. Indeed, output fell short of the November-December average by \$85,500,000.

Possibly January should not be ex-

### NOTE ON SCHEDULING

JANUARY production results re-emphasize the erratic character of procurement schedules. There seems to be lack of consistency even in the direction of deviations of forecasts from actuals. Thus, in December, army ammunition fell 7% below schedule but in January ran 5% ahead; conversely, in the case of combat vehicles, December was 22% above schedule and in January 10% below:

	% Above or Below First-of-Month Forecast	
	Jan.	Dec.
Aircraft, etc.....	-16	- 2
Combat planes.....	-20	+ 2
Ground army mun... - 3	+ 7	
Combat vehicles... -10	+22	
Guns & equipment.. - 1	+15	
Army ammunition... + 5	- 7	



amed as an isolated month; perhaps rather the performance should be averaged in with December. That would yield an average monthly rate of output of \$4,201,000,000, or 9% above November, as compared with the recorded results of first a 14% gain, then an 8% drop.

**CONSTRUCTION SLUMP SLIGHTER**

War construction did not drop quite so sharply as munitions. Value put in place, at \$1,148,000,000, was down 6% from December. Even though construction schedules are diminishing, January was a comparatively bad month here too. Value was off 5% from forecast. Total munitions and construction amounted to \$5,169,000,000. This was 8% below December and 11% below forecast (table, page 6).

**FORECAST vs. PERFORMANCE**

The disparity between the overall January performance and the forecast once again draws attention to the need for bringing schedules into closer touch with actual accomplishment--especially

if the Controlled Materials Plan is to work and if the nation is to get maximum value out of its limited capacity to produce critical common components.

As a whole, army ordnance came close to schedule--down only 3%. But this is to be taken at a discount, since ordnance schedules for January were cut about one-fifth between December 1 and January 1. In combat vehicles, though the forecast was reduced 13%, production fell a full 10% short of the reduced schedule.

**SECOND QUARTER HUMP**

In revamping schedules, the Army pushed production out of the first quarter into the second half of the year, as the charts on page 3 plainly show. And in cutting back first quarter schedules so sharply, the Army automatically calls for a stepup in production in the months of April, May, and June. The forecast gain is 44%. And this contrasts with the recent falling rate of gain in ordnance production, as follows:

% Gain from Preceding Quarter

1942 (actual)	
2nd quarter.....	59%
3rd quarter.....	39
4th quarter.....	24
1943 (scheduled)	
1st quarter.....	10
2nd quarter.....	44
3rd quarter.....	4
4th quarter.....	(d) 2
(d)-decline	

Thus, on paper, there is a tremendous hump in the rate of gain in the second quarter of this year, and then a flattening out in the rate of gain and production generally. But, in the final analysis, shortages may force a cutback

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## Of Lenses, Valves, and Amplidynes

Plans now are being made to anticipate a potential bottleneck—industrial components. Production must be timed to output of end products through scheduling.

WHEN A NATION increases its annual munitions output from less than \$1,000,000,000 to over \$30,000,000,000 three years later—and then makes plans to boost this to \$72,000,000,000—production problems are inevitable. Thus...

A roller-bearing plant in the East can't operate for lack of a stainless steel ventilating fan that should have been installed last month.

A West Coast shipyard, hasn't yet made delivery of 14 merchant ship hulls which are waiting for propulsion machinery.

A Midwestern pig-iron plant, with foundations and structural steel in place since last July, doesn't receive boilers until December—and installation will delay production another three months.

### TRACKS FOR TANKS

Airplane output in certain plants is slowed because of a shortage of instruments, accessories, and fittings.

Production of tanks has been hindered because there aren't enough cotter pins with which to attach tracks.

The fact is that we've striven hard to fit the demand for steel, copper, rubber, aluminum, and other critical raw materials into the changed pattern of supply; and we've devised schedules for war construction and munitions production. But we haven't set up any adequate control over "components"—bearings, cylinders, Diesel engines, crankshafts, lenses, meters, valves, pumps, electric motors, generators, starters, gears, and the hundreds of products used in military

or industrial end products or both.

True, there has been some scheduling of components. Production and deliveries of compressors, for example, have been planned as far back as April; this was followed by heat exchangers, mica capacitors, turbo-blowers, Diesel engines, industrial power trucks, and several other items. By far the greater number of components, however, have not been scheduled—overall coordination has been lacking. The result is that compressor deliveries have been held up because pumps weren't available, Diesel engine production has been delayed because crankshafts weren't obtainable, and so forth.

### LIKELY SHORTAGES

A basic consideration in breaking the components bottleneck is determining requirements and supply. In most cases, existing data on productive capacity and requirements are not as adequate as they might be. However, investigations just begun for purposes of working up possible scheduled production and deliveries of components, suggest certain shortages during 1943:

Compressed gas cylinders  
 Diesel engines:  
   50-150 hp.  
   150-350 "  
   Over 350"  
 Fans & blowers  
 Heat exchangers  
 Industrial power trucks  
 Power boilers  
 Tractors (track laying)

On the other hand, estimates of present production capacity for building small Diesel engines (under 50 hp.),

in the last nine months of this year.

In the broad field of ordnance production, guns once again showed up better than ammunition. Self-propelled guns, mounted on tank and half-track chassis, did well in general, except for multiple antiaircraft-gun motor carriages, which fell 62% short of January's forecast. Wheeled artillery was 6% over December.

Antiaircraft guns as a group were 7% below December, with only the 37 mm. and a 90 mm. model reaching the December level. Antiaircraft fire control equip-

ment was 18% above the December output.

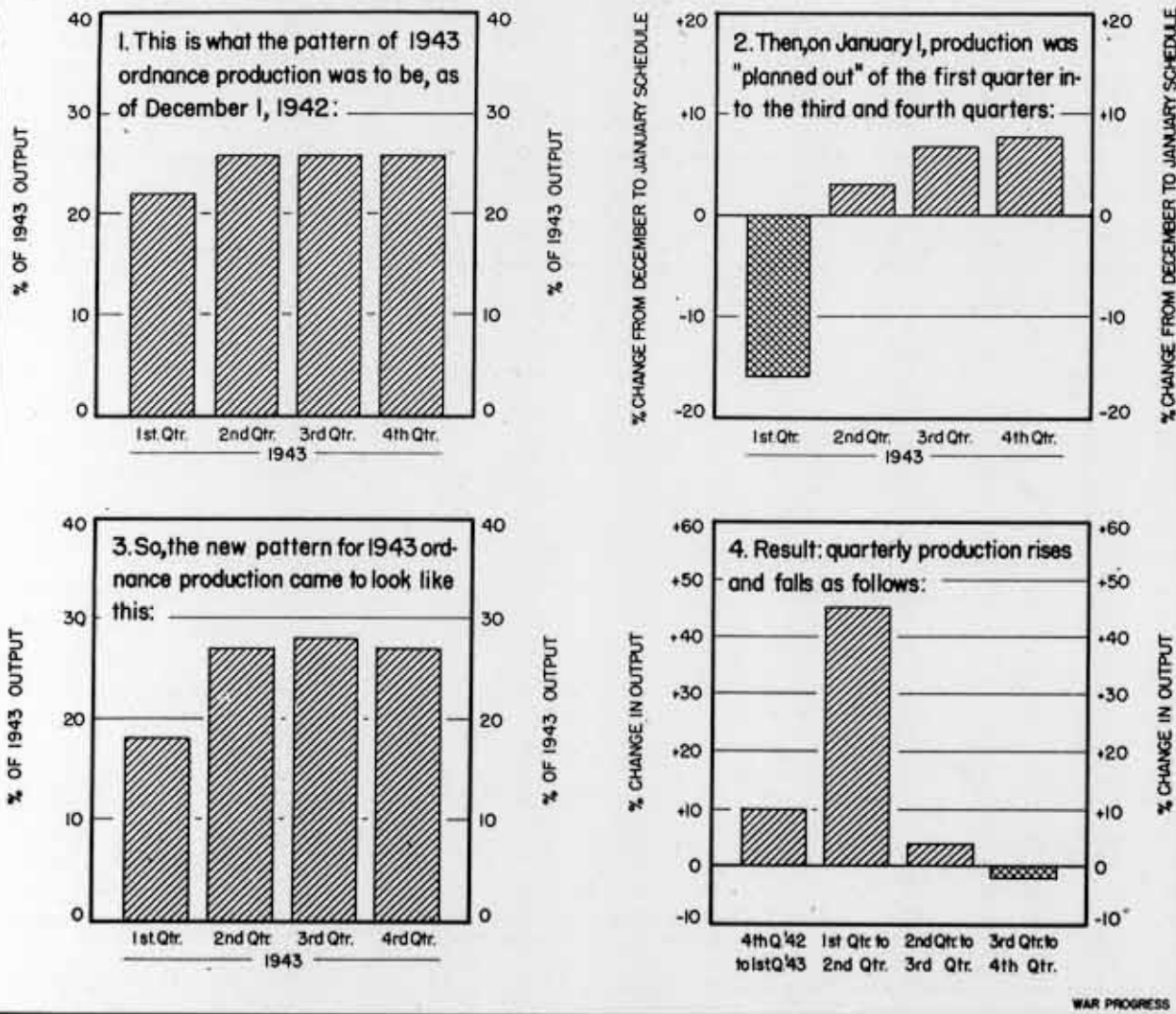
Small arms deliveries ran counter to the general downtrend, going 3% over the previous month, largely because of heavy output of the Thompson .45 caliber sub-machine gun, the .30 caliber Springfield rifle, and the .30 caliber carbine.

**HIGH EXPLOSIVE SHELLS**

Ammunition ran well below December output totals—except for small arms ammunition, which was 7% over the previous month. A decline worth mentioning and watching was that of high ex-

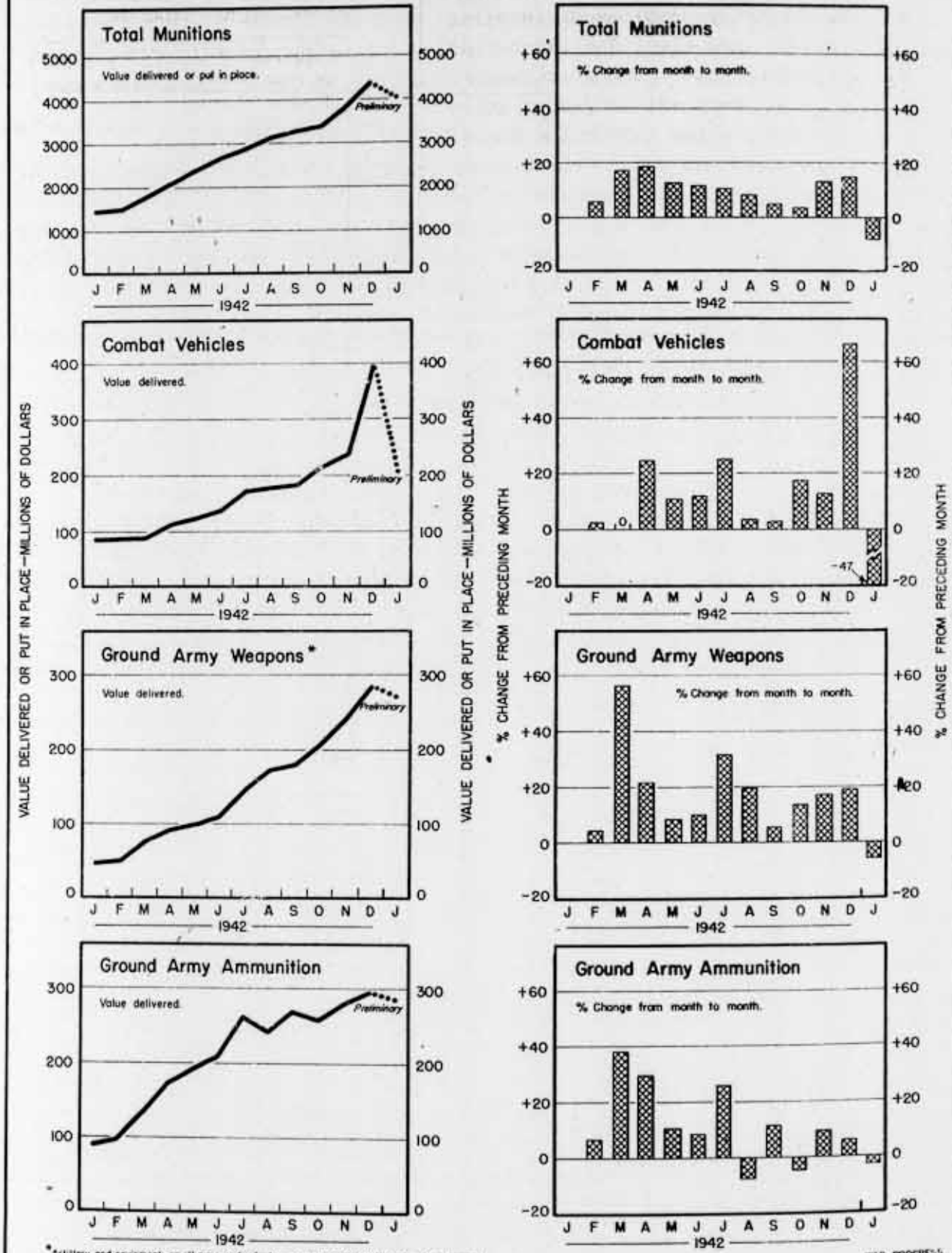
**FLUCTUATING FORECASTS**

Dramatic change in army ordnance schedules shifts production out of first quarter into second half of 1943.



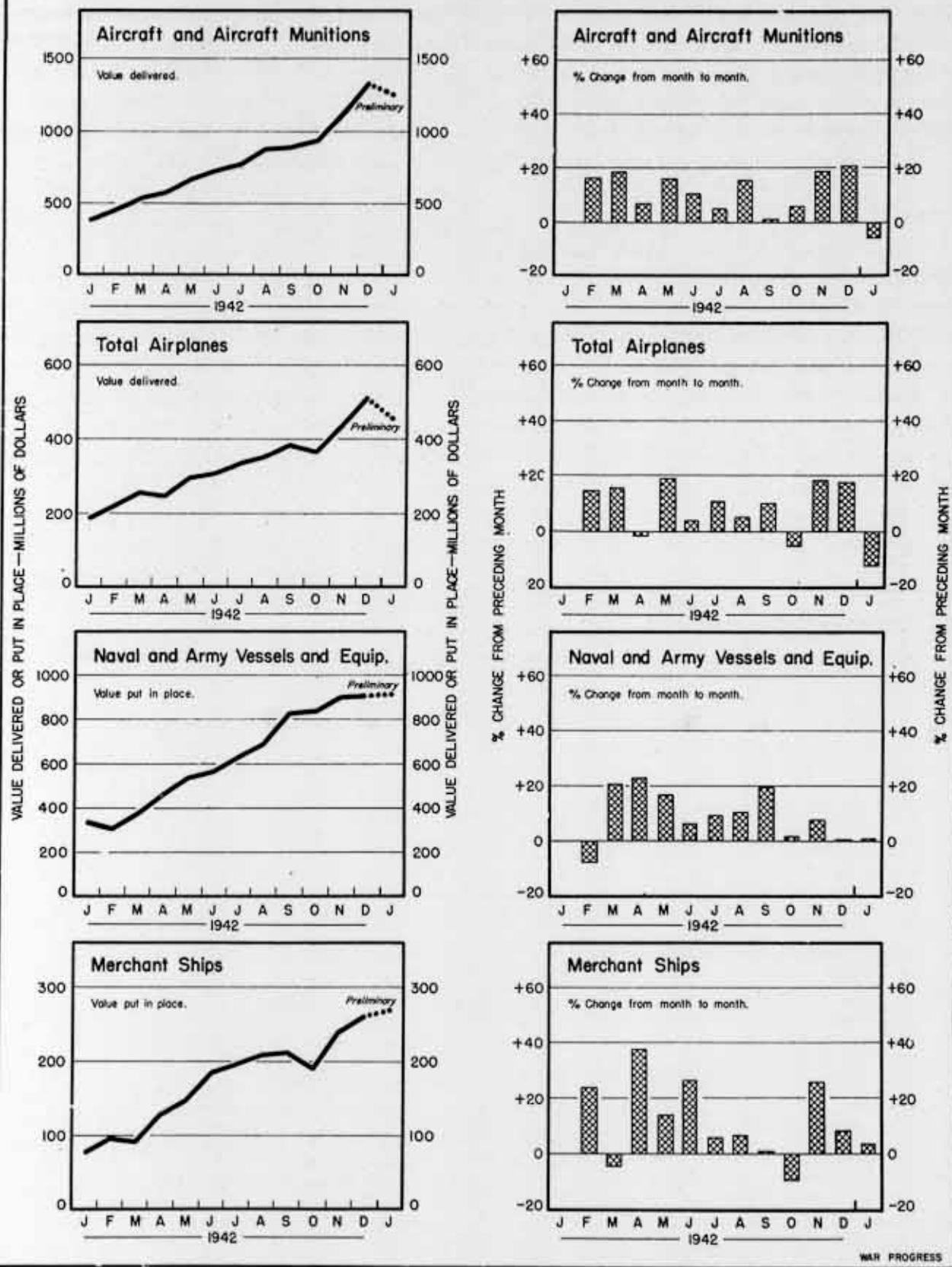


### SLUMP REVERSES RISE IN MUNITIONS OUTPUT — January, 8% below December, brings varied drops in major groups, led by





**—AND 1943 GETS OFF TO EXPECTED POOR START**  
 combat vehicles, off 47%; planes off 12%. Merchant vessels up 3%.



plosive shells, especially the 75 mm. gun and 105 mm. howitzer shells, the two dominant items in HE shell production.

Preliminary figures for general naval ship deliveries--not value put in place--ran 11% behind December and 26% below schedule, with subchasers and minesweepers lagging farthest, largely because of component shortage--particularly winches and gyroscope-compass equipment.

#### CARRIER COMPLETED

Tank-landing ships, delivered in about the same volume as in December, fell 40% behind forecast. Large infantry landing craft, however, surpassed both the January forecast and December deliveries.

Important landmark in January was the completion of the first 10,000-ton plane carrier (small combat carrier type) on a hull originally designed for a light cruiser.

Another important "first" was the

completion of the first two destroyer escorts (WP-Feb5'43,p5).

The mounting backlog of undelivered "sweepers," "chasers," and other minor combat vessels keeps the navy delivery forecasts high, relative to output; for example:

	Scheduled	Delivered
Small subchasers...	28	17
Subchasers, 173 ft.	7	2
Motor minesweepers.	28	8

The significant part of the drop in plane acceptances is accounted for by heavy bombers (WP-Feb5'43,p7), which fell 11% behind both the January forecast and December's actual output. No patrol bombers of the "Mariner" type were received in January, though several dozen were delivered in December. Lack of struts, turrets, and other parts is blamed.

#### PRODUCTION PROGRESS--Preliminary

Value delivered or put in place - millions of dollars.

	January Preliminary	December Actual	% Change	January Forecast*	% Change Jan. Prelim. vs. Forecast
Total munitions and construction.....	\$5,169	\$5,598	- 8%	\$5,786	-11%
Total munitions.....	4,021	4,382	- 8	4,575	-12
Combat munitions (a).....	3,276	3,370	- 8	3,800	-14
Aircraft and related munitions.....	1,259	1,338	- 6	1,506	-16
Ground Army munitions (b).....	836	1,068	-22	863	- 3
Naval and Army vessels and equipment.....	911	903	+ 1	1,116	-18
Merchant vessels.....	270	261	+ 3	316	-15
Combat planes.....	366	425	-14	455	-20
Service combat planes.....	39	32	+22	39	--
Aircraft ordnance.....	125	141	-11	134	- 7
Combat vehicles.....	209	398	-47	233	-10
Guns and equipment (c).....	282	313	-10	286	- 1
Army ammunition.....	289	298	- 3	275	+ 5
Ground signal equipment.....	56	59	- 5	69	-19

\*As of January 1. (a) Fighting Items: Aircraft and aircraft munitions; ground army ordnance and ground signal equipment; naval, army, and merchant vessels and equipment. (b) Ground Army ordnance and ground signal equipment. (c) Tank cannon; artillery and equipment; antiaircraft guns and equipment; small arms and infantry weapons.

Typical of the fall-off in the medium bomber field was the 37% lag of Martin "Marauders" behind schedule. One-engined light bombers continued their 1942 lag--some 30% behind schedule.

**NAVY FIGHTERS TRAIL**

One-engined pursuits did better, beating schedule by 3% and December acceptances by 4%. Navy fighters, how-

ever, were way back--70% under schedule and 65% under December. All four plants building these fighters were behind schedule.

After months behind schedule consumed in eradicating engineering "bugs," the A-36 (dive-bomber version of the "Mustang") came through with a bang, beating schedule by 64% and December output by 78%.

## The U.S. Consumer's Leaner Diet

Military and export requirements, smaller crop yields will force some changes in civilian fare in 1943. There'll be less meat and canned fruits, more poultry.

IN THE LAST TWO YEARS, farm production was at an all-time high. And despite increasing exports and military requirements, the average consumer, on the whole, ate better than he had been accustomed to. In 1941-42, consumption of meat, poultry, fish, dairy products, citrus fruits, fats and oils, etc. exceeded that of the previous five years. Only fresh fruit and sugar consumption was off.

**FEW FOODS INCREASE**

However, a leaner diet is ahead. Only a few foods will be more abundant than in the past two years. On the basis of current production goals and estimates of military and export requirements, changes in civilian consumption this year shape up as follows:

	Civilian Consumption		
	1943	1941-42	Change
	(per capita pounds)		
Fluid milk & cream.....	394.0	368.6	+ 7%
Meats.....	134.7	141.2	- 5
Poultry.....	33.3	25.0	+32
Potatoes.....	143.2	146.0	- 2

Civilian Consumption  
1943 1941-42 Change  
(per capita pounds)

Citrus fruits...	65.5	59.7	+10%
Canned citrus fruits & juices	3.4	5.0	-32
Leafy vegetables	71.8	84.8	-15
Canned fruits...	4.0	15.8	-75
Dried fruits....	4.9	6.7	-27
Fats & oils.....	36.7	34.0	+ 8
Coffee.....	9.9	14.6	-32
Tea.....	0.3	0.6	-50
Cocoa.....	3.1	4.4	-30

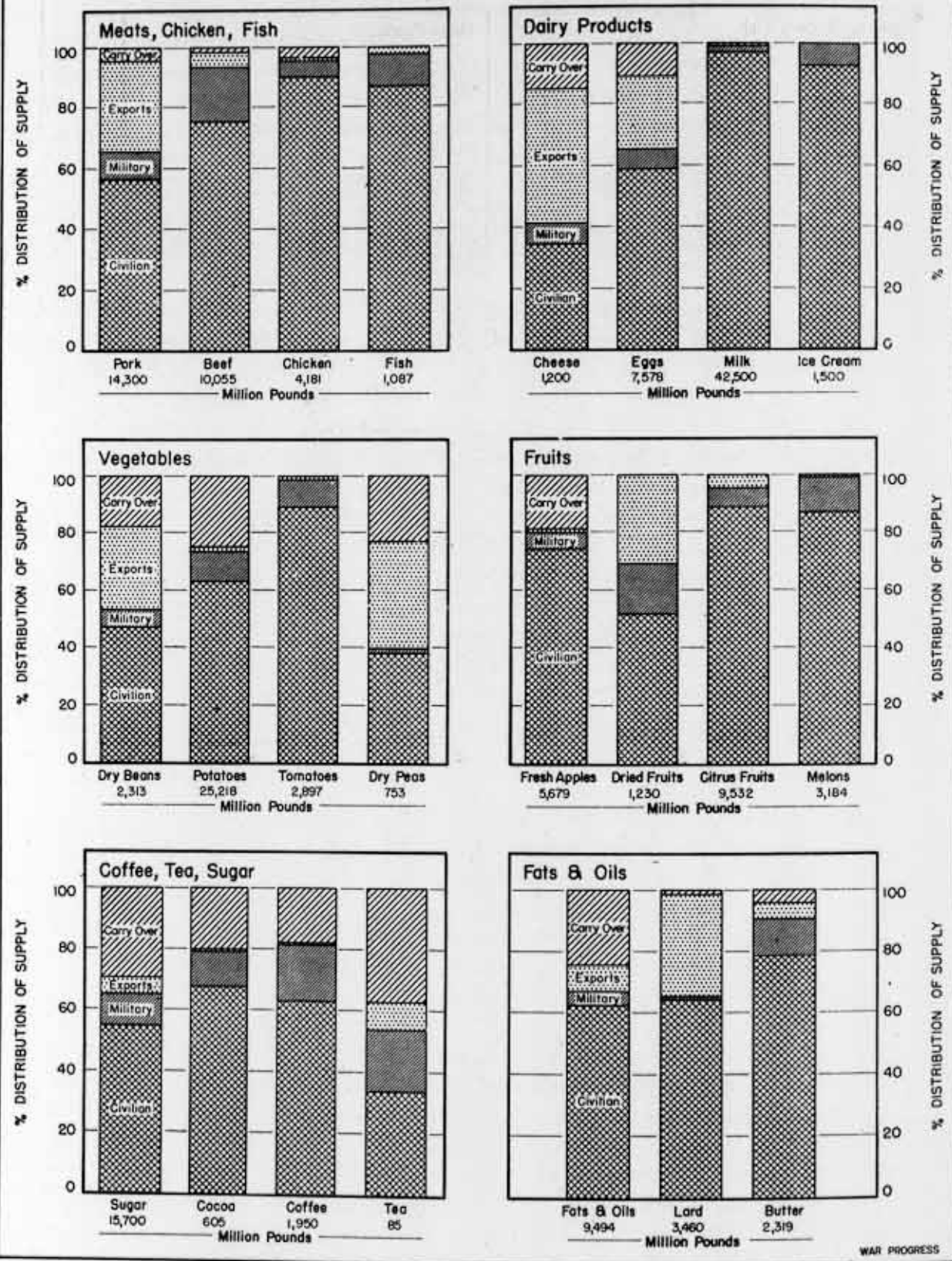
Civilians will get less meat and fish than in the last two years but more poultry; fewer fresh vegetables, eggs, and dairy products (especially cheese, butter, and ice cream) but more fresh citrus fruits (chart, page 9). The supply of canned vegetables and canned fruits and fruit juices as well as dried fruits will decrease, since the armed forces and lend-lease will take from a half to a third of these nonperishable items. On the other hand, fats and oils will be just as abundant as in recent years. Imported beverages will be drastically curtailed: tea, by half of last year's civilian supply; coffee and cocoa, by a third.

Smaller expected crop yields partially explain the projected decline in



## WHAT WILL HAPPEN TO THE U.S. FOOD SUPPLY IN '43

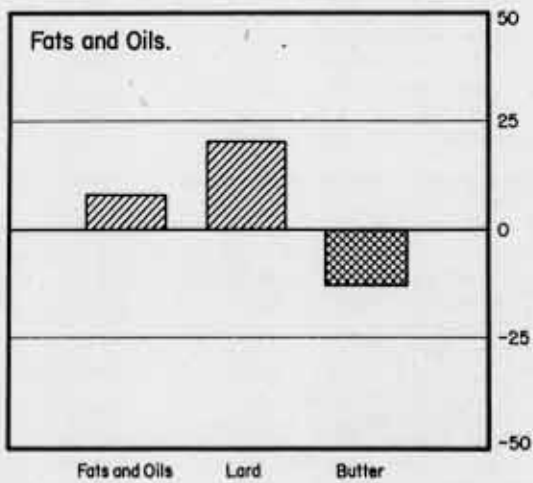
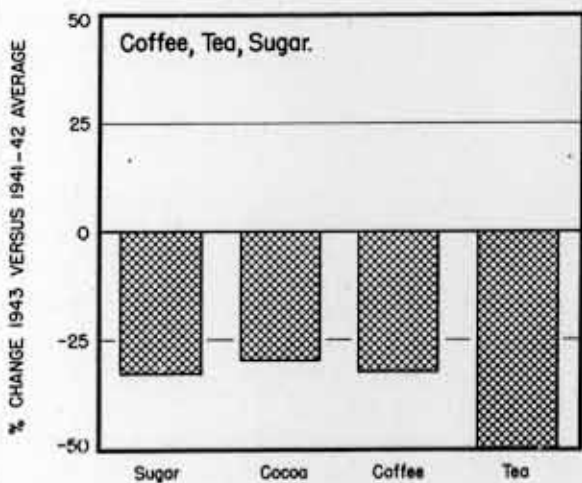
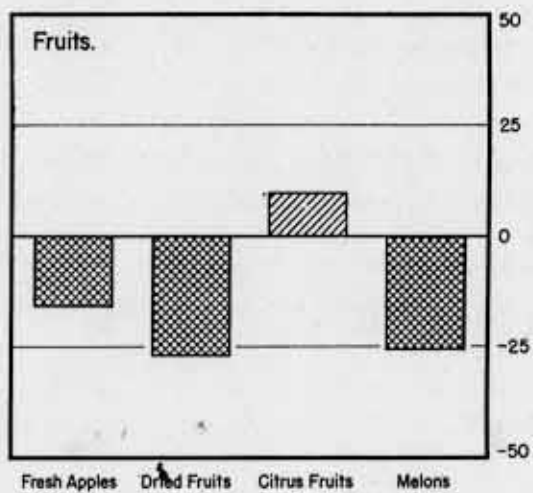
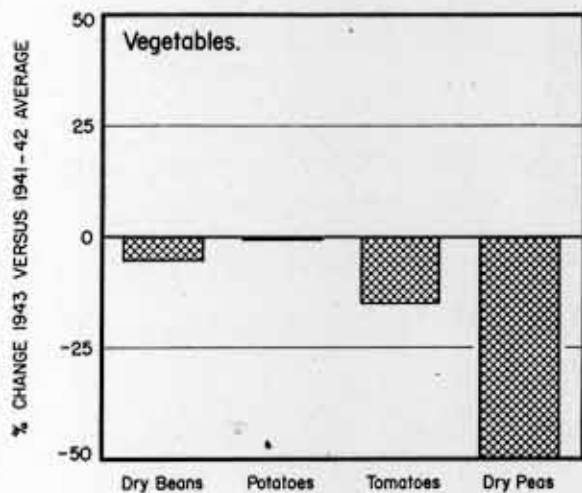
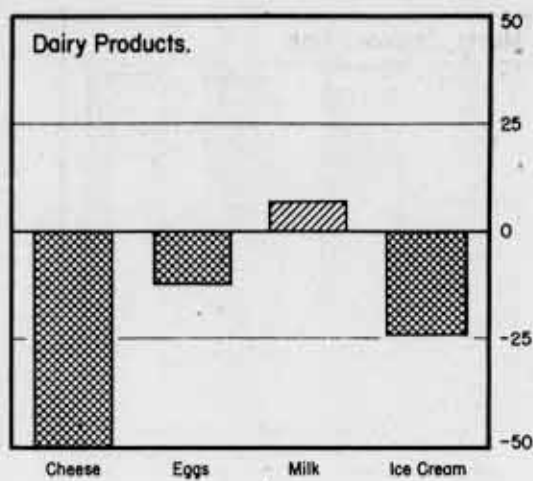
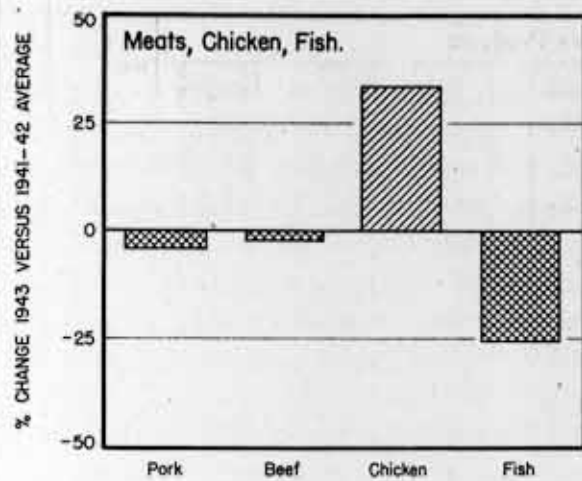
Armed forces to take 17% of beef, 12% of butter. Civilians get 90% of chicken.





## WHAT THE CIVILIAN MENU WILL LOOK LIKE

The ultimate consumer will eat 33% more chicken, drink 33% less coffee in 1943.



the civilian food supply. It is simply not in the law of averages for last year's bumper harvests to recur. Although 1943 goals for acreage planted to some major crops equal or exceed 1942, smaller (though normal) yields are forecast:

	1943 Agricultural Goals	
	As % of '42 Acreage	As % of '42 Production
Wheat.....	100%	66%
Corn.....	104	70
Soybeans....	112	103
Rye.....	70	66
Commercial truck crops	99	--
Fruits.....	100	99
Oats.....	87	84
Peanuts.....	149	148
Potatoes....	117	111
Dry beans...	155	130

Commercial truck crops will decline slightly, but meat and poultry produc-

tion is expected to increase. In 1943 some 30,500,000 cattle and calves are expected to be sent to slaughter, compared with 28,000,000 in 1942; and 100,000,000 hogs will be marketed, compared with 80,000,000 in 1942. Output of dressed chicken is scheduled to increase from 3,100,000,000 pounds to 4,000,000,000 pounds; turkey from 485,000,000 pounds to 560,000,000 pounds; and eggs from 4,400,000,000 dozen to 4,800,000,000 dozen. (This record production does not mean that farmers will reduce the size of their flocks and herds. In fact, it is estimated that by the end of the year cattle on farms will increase by 2%; pigs, 15%; laying hens, 9%. Nor will seed crops and carry-overs be reduced.)

Military and export needs will cut more sharply into food supplies than in 1941 and 1942 (chart, page 8). With the expansion of our armed forces, an increasing proportion of the agricultural output will be drained off to army

## KEY STATISTICS OF THE WEEK

	Latest Week	Preceding Week	Month Ago	6 Months Ago	Year Ago
War program - Checks paid (millions of dollars) -----	1,417	1,531	1,414	1,039	549
War bond sales (millions of dollars) -----	182	378	219	194	255
Commodity prices (August 1939 = 100)					
28 Basic commodities -----	174.7	174.4	173.8	167.0	165.1
Controlled -----	162.1	162.1	162.0	161.6	162.2
Uncontrolled -----	206.7	205.9	203.7	181.2	172.7
Nonferrous metal scrap -----	117.5	117.5	117.5	119.0	131.6
Petroleum carloadings (no. of tank cars)					
Total -----	52,721	50,631	49,045	53,822	48,783
Movement into East -----	25,812	25,879	25,129	26,145	5,125
Exports (no. of freight cars unloaded for export Friday)					
Atlantic Coast ports -----	1,223	1,306	1,262	1,627	1,605
Gulf Coast ports -----	335	330	363	468	445
Pacific Coast ports -----	888	769	1,027	905	386
Strikes affecting the war effort					
Number in progress -----	n.a.	6	6	14	n.a.
Man-days lost -----	n.a.	44,617	15,973	34,649	n.a.
Unused steel capacity (% operations below capacity) -----	0.7	0.5	0.7	3.5	4.5

n.a. Not available

camps and naval establishments both here and abroad. Also, reserves must be built up to feed countries which the United Nations may occupy in coming offensives.

Altogether, more than a fifth of the coming year's food supplies will not be available to the domestic civilian population. Lend-lease will take about 11%; the armed forces an additional 11%. Varying proportions of the different items will be drawn off--ranging from 6% for fresh fruits to 45% for canned vegetables and 50% for canned fruits (chart, page 8).

**MAY NOT MEET GOALS**

These estimates are based on current forecasts--before the planting of spring crops. Conceivably, 1943 agricultural goals may not be met, unlike 1942 when production exceeded forecasts. This year, problems of manpower, shortages of fertilizer, farm machinery, and transportation equipment will make it harder for farmers to get maximum production.

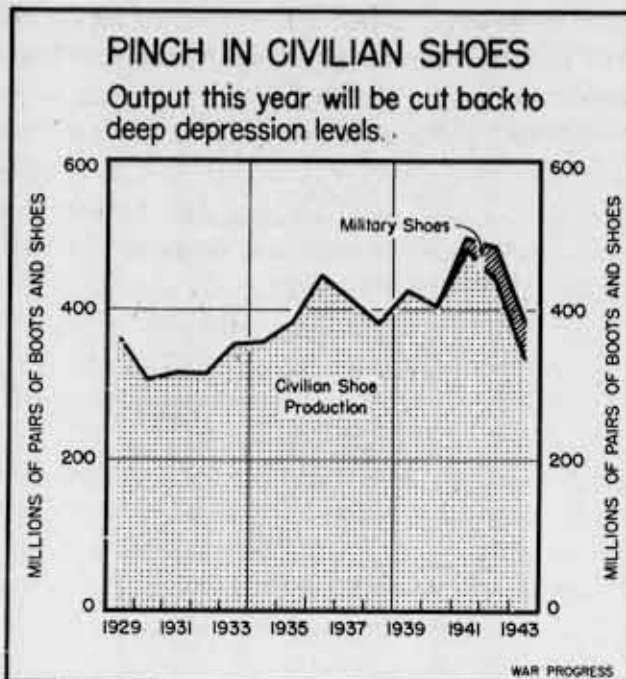
**Shoe Rationale**

Army and lend-lease now get one pair in ten and use about one-third of sole leather supply. Ration is close to average--but three pairs per person not assured in '43.

HERE ARE THE FACTS leading up to this week's shoe rationing order:

When the United States entered the war, only one out of every 25 pairs of shoes made was for the armed forces or lend-lease. Today, the proportion is one in 10 and it's still rising (chart, right). This tenth uses about one-third of the sole leather. Half of the country's shoe leather is tanned from imported hides and shipping space is at a premium.

The shoe rationing order--if it ultimately yields three pairs of shoes per



civilian per year--will impose no great hardships, even though civilian production this year will be cut back to the lowest level since 1932. The average annual consumption of shoes in the years 1937-41 was only 3.2 pairs per capita.

As a rule, women and girls have used more pairs per year than this, while men and boys have used fewer pairs.

Since the rationing order permits the transfer of coupons within a family, provided its members live under the same roof, women and girls can make up the deficit by getting coupons from husbands, brothers, or sons, etc.

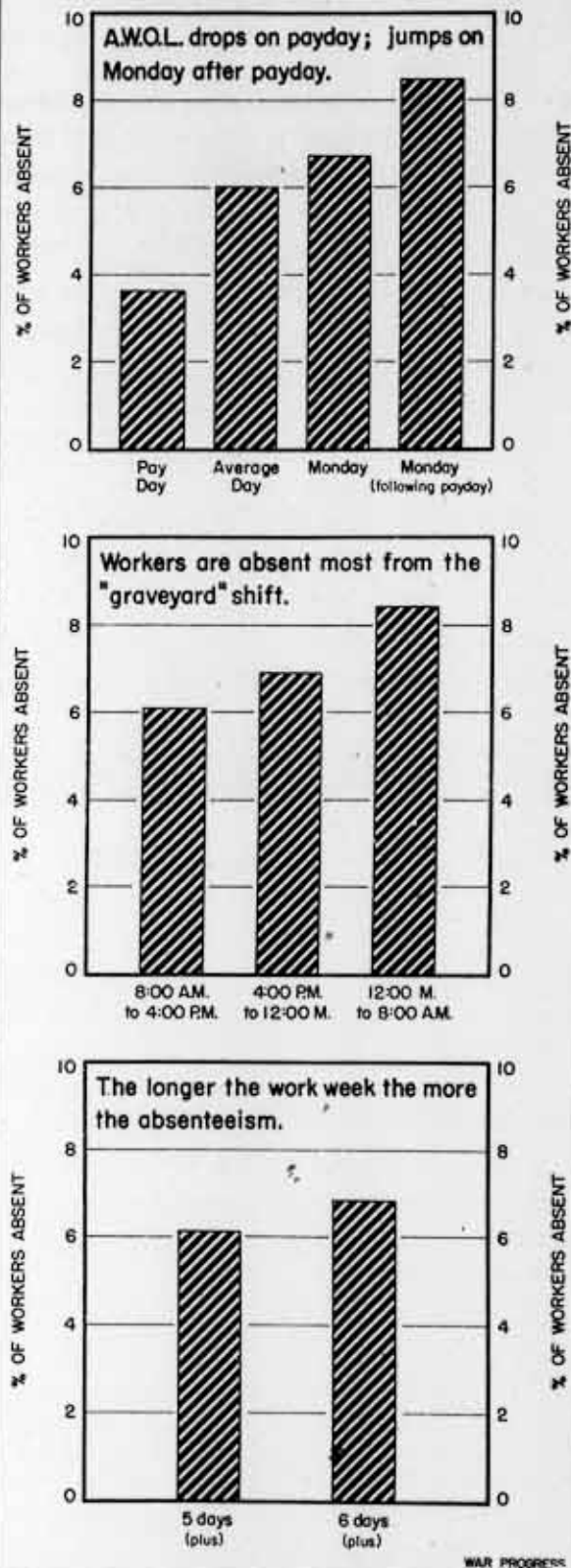
**HOPEFUL ON THREE PAIRS**

However, three pairs of shoes per year are by no means assured. The rationing order promises one pair per person between now and June 15. That's at an annual rate of three pairs a year, and it is hoped to meet that rate. But whether actual production warrants that ration depends on (1) imports of hides; (2) supplies of reclaimed rubber; (3) how much the armed forces and lend-lease require.



### SIGNS OF ABSENTEEISM

Data from selected war plants, though not all inclusive, show what you'd expect.



## A Day Off

Absenteeism is indigenous to wartime working conditions. Long hours, high wages, influx of unseasoned help, etc. are factors conducive to taking time off.

DURING the last nine months of 1942, commercial shipyards in the United States lost 1,000,000,000 man-hours—enough to build 136 tankers—through absenteeism.

That's symptomatic—wartime conditions are bound to exert special pressures on AWOLism. Labor is in a seller's market and the boss doesn't have the same freedom in hiring and firing as formerly. So workers are more inclined to stay away from the job, not only because of legitimate illness and serious fatigue but for voluntary reasons: the urge to go shopping, or even the "morning-after" feeling.

Moreover, this is a high-wage period, and high hourly wages sometimes work with reverse English on the financial incentive: When workers can earn enough in five days to get along comfortably, they sometimes prefer leisure to an extra day's pay.

### BLUE MONDAY

Certain facts about absenteeism are readily understandable: (1) It increases with the length of the work week; (2) it is high after payday and particularly low on payday, when they come to collect. It is most prevalent on the night shifts; (3) and Monday leads all other days in absenteeism (chart, left).

Booming employment accelerates absenteeism. Shipyard facts tend to illustrate the point. In yards building naval ships, where employment has not risen outstandingly, absenteeism has held fairly steady. But in yards in which employment has risen greatest, absenteeism has increased about 35%