

Monthly Review

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Pacific Coast Wartime Shipbuilding

THE contribution of Pacific Coast shipbuilders to the war effort has been impressive. Starting from a relatively low level of activity in 1939, the subsequent expansion of the industry has made possible the delivery of nearly 2,000 merchant vessels by the end of 1944, having a tonnage substantially greater than that of the entire prewar American merchant fleet. At the same time, the industry has been engaged in the construction of destroyers, aircraft carriers, escort vessels, and a large number of landing craft and miscellaneous auxiliaries for the armed forces. It is not yet possible, for reasons of military security, to give a complete account of the naval construction phase of this extensive program, or to detail in any adequate manner the large volume of repair work that has been performed in West Coast shipyards. Within these limitations, the following analysis attempts to give some account of how the wartime expansion of Pacific Coast shipbuilding has come about, some of the problems it has had to meet, and what has been accomplished to date in terms of actual shipbuilding performance. Some information on investment in shipyard plant facilities and employment is also presented. A discussion of certain repercussions on other industries of the Twelfth District resulting from rapid expansion of shipbuilding activity in this area was presented in the May 1944 issue of the Review. Attention is also called to the companion article in this issue of the Review on the postwar intentions and prospects of Pacific Coast shipbuilders. Other significant aspects of Pacific Coast shipbuilding will be discussed in forthcoming issues.

The Current Situation

Whatever the prospects for a reasonably early close of the European phase of the war, recent statements by the heads of the Navy Department and the Maritime Commission emphasize the need for a constantly increasing intensification of the war effort in the Pacific Coast area. Although earlier losses of shipping by enemy action have been more than made good, the war's demand for ships continues insatiable. The Maritime Commission took delivery of 1,677 vessels during 1944 and at the end of the year announced the award of contracts for 226 more. Of these, 82 are to be constructed in Pacific Coast yards. Together with a backlog of around 460 vessels under con-

tract on January 1, 1945, these new orders will assure a volume of work sufficient to carry about 9 of the 12 large Pacific Coast yards building for the Commission well through the year 1945. The three remaining yards, all on San Francisco Bay, will probably work through their backlogs at various times during the first three quarters of the year. One of these concerns has for the past three years been doing a large volume of ship repair work; two new dry docks, one of very large size, are currently being installed at this plant, and it is not improbable that its entire facilities will be assigned to repair work before the year is over. Similar utilization is currently planned for the largest of all the Maritime Commission yards, the Richmond plant of the Permanente Metals Corporation.

New naval construction on the Pacific Coast, although not nearly so large as the program of the Maritime Commission, remains impressive. The naval program on this Coast involves chiefly vessels of intermediate and smaller size, and includes both combat ships and a wide variety of auxiliary craft. Commercial shipyards working primarily on new naval construction or general repair work have accounted for nearly two-fifths of the total volume of private shipyard employment in this area during the past three years. In addition, there has been a steady increase in the activity of the Government navy yards and dry docks, which is now at an all-time high. The Government establishments, while playing an important part in the destroyer, submarine, and escort vessel programs, have found their principal usefulness during the past few years in repair work for the Pacific fleet. Contrary to the situation in private shipyards, their total employment continues to expand.

The immediate problem for the private yards is to counteract the tendency, present now for more than a year, for their work-people to drift away to other jobs and other localities. The volume of maintenance and repair work involved in servicing an ever-growing cargo and combat fleet, together with the construction of new vessels, will probably tax the physical facilities and managerial capacity of Pacific Coast shipyards in 1945 as severely as any job they have ever undertaken. Their success in meeting this problem will play an important part in hastening the end of the war.

★ *For Victory* ★ *Buy War Bonds* ★ *Keep Them* ★

Revival of Shipbuilding under the Merchant Marine Act

Until about six years ago, ship construction on any important scale had practically disappeared from this region. Total employment in ship and boat building and repair in the whole Pacific Coast region, during most of the twenties and thirties, averaged around 10,000 to 12,000, much the greater part of which was in the two naval establishments at Vallejo and Bremerton. Most of the large private shipyards that were hastily set up or expanded in the last war were dismantled during the lean years following 1921, or converted to repair yards, steel fabrication, or engineering work. The marine activity of the remaining private yards was for a long time restricted largely to dry docking and repair work, or to the construction of relatively small craft, such as fishing boats or pleasure yachts, with an occasional Coast Guard cutter or survey ship. Not a single ocean-going merchant vessel of 2,000 gross tons or more was built on the West Coast during the decade and a half ending in 1938. Naval construction, following the disarmament treaties of the nineteen-twenties, was also greatly curtailed; a few cruisers and some destroyers and submarines were built in the two navy yards, together with some auxiliary vessels, but no contracts for warships were placed with private shipyards on this Coast until the rearmament program really got under way, late in 1940. At the beginning of 1939, the private shipyard industry of the Pacific Coast consisted of about half a dozen fair sized plants, in terms of physical layout, and several dry docking and repair establishments, together with a considerable number of boat building and small repair yards. The majority of the larger concerns were not, however, entirely dependent upon ship work for a livelihood, but engaged in miscellaneous steel fabrication and construction activities as well. This was the underlying basis upon which the wartime expansion of the industry has been superimposed.

In order to give effect to the policy of Congress, set forth in the Merchant Marine Act of 1936, to rehabilitate the American merchant fleet, which was rapidly becoming obsolete, the Maritime Commission embarked in 1937-38 upon a policy of systematic replacement of obsolete vessels. This long range replacement program was initiated at the rate of 50 vessels per year, in contemplation of the construction of 500 new ships over a period of ten years. The first 50 vessels, including the luxury liner "America" and a group of a dozen fast tankers, were ordered in 1937-38 from six eastern shipyards. Within the next two years, 1939-40, contracts were placed for 129 additional vessels, distributed among sixteen shipyards. Five West Coast yards were given orders for 38 of these vessels, designed as standard cargo carriers of turbine or Diesel engine propulsion. Only two of these concerns were actually established shipyards, although a third had built some emergency vessels during the last war, while the two others were new ventures. None of them had more than two shipways suitable for large ship construction. The 23 vessels ordered in 1939 were laid down at a leisurely pace; one was completed in July 1940, and the 22 others at various times in 1941. Their produc-

tion period, from keel laying to delivery, ranged from an average of 11 months for five ships turned out by the speediest builder, to 16 months for two groups of four vessels each by the slowest builders.

Emergency Shipbuilding Program, 1941-44

This relatively modest beginning was soon dwarfed by the flood of orders for new ships, the need for which first became evident as the tempo of Axis submarine activity was stepped up and grew increasingly imperative after the United States was drawn into the war. Already, in the fall of 1940, the British Government had placed orders in the United States for 60 large cargo vessels of simplified design, 30 of which were to be built in a new shipyard, the Todd-California Shipbuilding Corporation, to be established, with British funds, at Richmond, California, and the others at a similar yard in Maine. These were the largest individual contracts that had been placed for merchant vessels in this country since the last war, and involved approximately 50 million dollars each. The necessity for speed of construction was emphasized in order to counteract the destruction of merchant shipping by growing Axis submarine activity. Ground was broken for the new Richmond shipyard early in 1941, and, in spite of serious delays in delivery of ship steel during the summer, five vessels were delivered before the end of the year and the remaining 25 within the first seven months of 1942. The Maine yard delivered its first ship in February 1942 and completed its contract the following November.

On January 3, 1941 the President announced the initiation of an emergency shipbuilding program calling for the construction of 200 cargo vessels of extremely simplified design and large carrying capacity. This was the initial step in the so-called "Liberty" ship program, destined to become the largest and most significant shipbuilding effort in history. Because of the congestion in existing shipbuilding facilities of the country, already fully occupied with both naval and merchant vessel construction, it was decided to set up seven entirely new shipyards, financed with Government funds and operated by private companies associated with established concerns, in order to undertake the emergency ship program. Of the seven new shipyards, two were allocated to the Pacific Coast—the California Shipbuilding Corporation at Wilmington, on Los Angeles Harbor, and the Oregon Shipbuilding Corporation at St. Johns, on the Willamette River, within the corporate limits of Portland. To each of these two yards were assigned 31 of the new emergency ships, while 75 vessels were allocated to two yards on the Atlantic Coast and 63 to three Gulf Coast yards. An allotment of 36 million dollars from the President's emergency fund provided for the cost of shipbuilding facilities, while the 200 vessels were expected to cost around 300 million, in addition to approximately half that amount for steel and other materials supplied directly to the shipyards by the Maritime Commission.

Following enactment of the lend-lease legislation in March 1941, the emergency ship program was increased

by an additional 112 Liberty ships, and before the end of the year still other additions brought the total up to 352. Three more emergency shipyards were established, including the Richmond Shipbuilding Corporation, adjacent to the Todd-California yard.¹ Thirty-six vessels were allocated to this yard, and the previous contracts of "Calship" and "Oregonship" were increased by 24 and 12 vessels, respectively, thus bringing the total number of emergency ships awarded Pacific Coast builders up to 134 for the year, or 164 including the 30 British vessels.

The greatest pressure for the construction of Liberty ships came in 1942. Upwards of 1,000 more vessels of this type were ordered, 798 of them from Pacific Coast builders, and the number of new shipyards designed to build them was expanded to 16. On the Pacific Coast, the four original yards at Wilmington and Richmond, California and at Portland, were increased to seven in the spring of 1942 by the addition of new shipyards at Sausalito, California, Portland (Swan Island), and Vancouver, Washington. The last two, however, were soon switched to vessels of other types, Swan Island to tankers, and Vancouver to landing craft for military operations and subsequently to aircraft carriers. The extremely high rate of productivity of the original West Coast yards, which really got into their stride during 1942, made it possible to switch the Sausalito yard also to tanker construction. The Commission was more or less reluctantly committed to a continuing large program of Liberty ships by pressure from the War Production Board and the non-availability of turbine engines, the manufacturing facilities for which were preempted by naval requirements. By the beginning of 1943, however, the situation had eased to the point where it was possible to reduce the award of new Liberties, at least to Pacific Coast yards, and to initiate the construction of the so-called "Victory" ship; no additional contracts for Liberties have been placed in this area since June 1943, and a number of those previously ordered were converted to other than cargo carrying purposes.

Production Problems of the Emergency Program

Admittedly inferior to the standard, or long range, vessels of the Maritime Commission, the emergency type of freighter was a concession to the necessity of providing a large fleet of cargo vessels, suited to work in convoys, in the shortest possible time. The general design of the Liberty, or EC-2 ships, was similar to that used in the 60 British vessels, except that they used oil fuel, while the British ships were coal-burners. A Division of Emergency Ship Construction was created in the Maritime Commission, responsible for the design and layout of the new shipyards and for the design and construction of the hulls, engines, and equipment of the vessels themselves. The major problem, aside from the procurement of steel, was to obtain engines and auxiliary equipment for the proposed new ships without interfering too seriously with the progress of the Commission's long range

program, which had grown to over 600 vessels actually contracted for by the end of 1941, of which nearly 500 were still to be delivered. It was found that unused manufacturing facilities could be drawn upon by resorting to the old-style reciprocating type of engine instead of turbine or Diesel drive, and by using steam-driven winches and other auxiliary equipment not being installed in the Commission's standard type vessels. The chief characteristics of the Liberty ship are minimum cost, rapidity of construction due to adaptability to mass production methods, and simplicity of operation. Speed was deliberately sacrificed to large cargo capacity; triple expansion reciprocating engines of 2,500 horsepower drive the Liberty ship at a normal operating speed of 10 to 11 knots, as compared with the 14 to 19 knots of the Commission's long range vessels, while a useful load can be carried of approximately 10,000 tons.

Because of the increasing scarcity of skilled shipyard workers it was planned to follow as far as possible the practice in the first world war, when hundreds of standardized cargo vessels were "assembled" at a few large shipyards from parts and equipment fabricated at hundreds of interior shops and factories. The most important developments in speeding up ship construction during the period between 1917 and 1941 were the introduction of the principle of prefabrication of large parts or sections and the general replacement of riveting by welding. Both of these improvements were quite generally and successfully utilized by the new yards specializing in Liberty ship construction. The crowded condition of the older shipyards, frequently occupying a cramped physical space, usually limited the opportunity to employ prefabrication methods to any considerable extent; the newer yards were free from this handicap and could lay out their physical facilities in such sequence as to obtain the maximum benefit of prefabrication, utilizing the labor of many crews or gangs of workmen concurrently in assembling individual pieces of steel into sections or units ready for final delivery to the building ways. This procedure results in a marked reduction in the time required by each vessel on the building way, thus permitting a more effective use of that critical stage in ship construction. A notable example of prefabrication methods is the Richmond yards of the Permanente Metals Corporation, where an entire prefabrication plant, employing upwards of 5,000 workmen, serves two shipyards having an aggregate of 19 building ways. Welding has almost completely displaced riveting at many shipyards and is an important factor in the development of the prefabrication technique. The all-welded ship also permits a considerable saving in steel and weight, due to the absence of overlapping plates, thus increasing the cargo carrying capacity of the vessel. And, perhaps most important of all in an emergency, welders can be trained far more rapidly than riveters and can perform their task without helpers, thus making possible the recruitment and effective utilization of large numbers of relatively unskilled workers. By use of assembly line methods and elaborate division of labor, both shop operations and outfitting can be so sequenced that unskilled workers can be

¹These two yards were subsequently merged into the Permanente Metals Corporation, Shipbuilding Division, thus bringing the facilities of both under the Maritime Commission.

trained in a matter of weeks to perform the specialized tasks to which they are assigned. The utilization of such methods by the newly constructed shipyards, together with the extensive employment of mechanical equipment, such as heavy duty cranes for the handling of materials and large parts, has made possible a striking reduction in the average time required in ship construction.

The Pacific Coast yards specializing in building Liberty ships have set particularly good records for both speed and cost of construction. For the 2,206 such vessels delivered by all United States shipyards up to June 30, 1944, the average time elapsed from keel laying to delivery was only 63 days. For five Pacific Coast yards, which delivered a total of 1,137 vessels during this period, the average building time was slightly under 50 days, as compared with an average of 72 days for seven Atlantic Coast yards, delivering 782 vessels, and 88 days for the 287 vessels delivered by four Gulf Coast yards. Cost comparisons, in terms of dollars per vessel for actual construction, exclusive of materials, and in terms of man-hours required, are also favorable to the Pacific Coast builders. The Truman Committee has published some detailed cost figures for each of the 15 shipyards which were building Liberty ships in 1943, by which time practically all the emergency yards had attained their full development and probable maximum operating efficiency. In that year 1208 Liberty ships were delivered, 642 by five Pacific Coast yards, 440 by six Atlantic Coast yards and 126 by four Gulf Coast yards. For all 15 yards the average cost of construction per ship, exclusive of builders' fees, and cost of materials supplied by the Government of approximately \$742,000 per vessel, was \$904,300, and the average number of man-hours required for construction was 565,800. For the 642 vessels delivered by the five Pacific Coast yards, including one high cost yard that delivered only 10 Liberties in that year, the corresponding figures were \$734,300 and 434,100 man-hours per vessel—more than 18 percent and 23 percent, respectively, below the overall averages.

The Victory ship, turbine driven, is both larger and faster than the Liberty, and approaches in size and performance the larger vessels of the Commission's standard long range replacement program. Over 400 of these ships had been ordered from five Pacific Coast yards by the end of 1944, and about 200 delivered, including 105 converted to "combat loaded transports." An important factor contributing to this program is the successful manufacture of marine turbine engines, initiated on a substantial scale at Sunnyvale, California—a wartime development that has interesting possibilities for the future.

The wisdom of the Commission's policy of keeping the emergency shipbuilding program as distinct as possible, in its physical aspects, from the activities of the yards building standard types of vessels, is abundantly attested by the results. To an extent unequalled in previous American experience, each shipyard was able to specialize its operations and to concentrate on a single type of vessel. The procurement of materials for all the emergency yards was largely centralized in the Maritime Commission it-

self and a certain amount of interchange or pooling of critical materials or parts was made possible. Not only was a huge volume of tonnage constructed but the job has been performed in record time. Bringing new ideas and new methods into the shipbuilding art has worked well. Novel methods of construction, ingenuity in the adaptation of limited materials and supplies, substitution of the new time-saving technique of welding for the slower process of riveting, extensive application of the principle of prefabrication of large units of hull sections and superstructure, and the general use of assembly-line methods of construction, along with considerable farming out of work to sub-contractors, are among the procedures which have carried a task of unprecedented magnitude to a highly successful outcome.

Summary of Maritime Commission Building Programs

Over the six-year period 1939-1944, the building programs of the Maritime Commission on the Pacific Coast have included over 2,500 vessels, involving a total outlay in excess of 4 billion dollars. More than 2,000 of these vessels had been delivered by the end of 1944, and some 500 remained to be completed. The distribution of these orders and deliveries, by type of vessel, was as follows:

	Vessels ordered ¹	Vessels delivered	Remainder
Long Range Program:			
Cargo vessels ²	359	256	103
Tankers	243	157	86
Emergency Program:			
Liberty ships ³	1,202	1,202	—
Victory ships	464	193	271
Others:			
Military types ⁴	157	145	12
Cargo carriers ⁵	132	59	73
Total	2,557	2,012	545

¹Including orders announced January 3, 1945.

²Including a number of C-3 type vessels taken over by the Navy Department for conversion to aircraft carriers.

³Including 30 vessels built for the British Purchasing Commission in 1941-42.

⁴Including tank landing ships, aircraft carriers, frigates, and attack transports.

⁵Including 90 "coastal" vessels, of 2,800 to 4,000 deadweight tons, and 42 "ship-shaped" concrete barges, of 5,000 deadweight tons.

The total deadweight tonnage involved in this program is between 24 million and 25 million tons, a figure greatly in excess of the entire prewar American merchant marine. It will be noted that Liberty ships accounted for substantially half of the entire Maritime Commission program for the West Coast, in terms of orders placed, and rather more than that in terms of vessels delivered to the end of 1944. Eighteen large shipyards have participated in the construction of the vessels listed above. In addition, a number of small concerns have built lifeboats, wooden barges and tugboats, none of which are included in the above summary.

Approximately 230 million dollars of public funds have been invested in shipbuilding facilities in these plants, the greater number of which are entirely new creations designed to facilitate the war emergency program. This means, in effect, that the operators of such plants are practically the agents of the Government in the operation of these properties. They have little or no investment of their own in the physical plant and relatively little in

the inventories of material or work in process, the bulk of which has been supplied by the Maritime Commission. Much the same condition prevails in the case of several private shipyards engaged in naval construction work; the Defense Plant Corporation, or some similar agency, has provided their physical facilities, while the material and outfitting equipment were supplied by the Navy Department.

Naval Construction and General Repair Work

The naval and military program, initiated in 1940, has represented a volume of contracts placed with private shipyards of the Pacific Coast approximating 3 billion dollars. It has comprised a wide range of vessels of the intermediate and smaller types, including light cruisers, destroyers, repair ships, mine layers and mine sweepers, submarine chasers, destroyer escorts, landing barges, aircraft carriers, salvage vessels, tugs and floating dry docks, and has provided for the needs of the Army as well as naval requirements. Not less than 100 shipyards and boat building establishments up and down the coast have participated in this business, including some of those working on Maritime Commission orders. In many cases, ships under construction for the Commission were requisitioned at various stages of construction and converted to specialized naval purposes; in one case an entire shipyard was taken over and its ships redesigned as aircraft carriers. The Commission has also administered the building of both combat vessels and auxiliaries for the Navy, including tankers, refrigerator ships, landing craft, frigates, aircraft carriers, and attack transports. These ships have been given priority over Maritime Commission work at certain yards which were equipped to build such vessels.

Up to about mid-1941 employment at the two large navy yards on the Pacific Coast, Mare Island and Puget Sound, had regularly exceeded the total of private shipyard employment, usually by a wide margin, although not all navy yard personnel are engaged in ship construction or repair. This situation rapidly changed, however, under the impact of the national defense program and the accelerated building program of the Maritime Commission. Expansion of private shipyard employment was

most rapid from about the middle of 1941 to the end of 1942, particularly in the yards building emergency vessels for the Commission. Total employment by types of yards at the end of each year from 1940 to 1944 was as follows (in thousands):

	1940	1941	1942	1943	1944 ¹
Navy yards	25.5	46.0	64.5	79.5	95.0
Private yards:					
Maritime Commission ...	7.5	74.0	294.5	321.0	278.0
Other	11.5	50.0	172.5	204.0	163.0
Total	19.0	124.0	467.0	525.0	441.0
Total	44.5	170.0	531.5	604.5	536.0

¹Estimated.

Three new supplementary naval dock yards have been created during the past two years at Hunters Point, San Francisco, at San Pedro, and at San Diego. The two older establishments have played an important part in the current destroyer, submarine, and escort vessel programs and have also constructed a number of fairly large auxiliary craft. Their principal role, however, during the past year or two has undoubtedly been repair work on battle damaged warships. An increasing number of private shipyards are being pressed into repair service, as well as the new docking facilities at Hunters Point and San Pedro. Additional drydock construction is also under way in private shipyards on Puget Sound, the Willamette River, and San Francisco Bay, and a large new private drydock has been proposed for Los Angeles Harbor. Over 5,000 merchant vessels operated under the jurisdiction of the War Shipping Administration have received major repairs at West Coast repair yards during the three years, 1942 to 1944; the tempo of this work is steadily rising.

The character of the Pacific Coast shipbuilding effort during 1945 is likely to be altered by the increasing shift from ship construction to ship repair and maintenance. As this occurs, mass production methods will decline in importance. Employment-wise, this implies a shift from large gangs of semi-skilled workpeople, working on particular jobs according to assembly line methods, to smaller groups of highly skilled, all-around mechanics, with adaptability and experience at a premium. Obviously, this means a shrinkage in overall numbers employed and less regularity of work for individual workmen, though not necessarily for the industry as a whole.

Production and Employment—

Index numbers, 1935-39 average=100	With seasonal adjustment				Without seasonal adjustment			
	1944		1943		1944		1943	
	Nov.	Oct.	Sept.	Nov.	Nov.	Oct.	Sept.	Nov.
Industrial production ¹	134	128	125	152	128	139	145	144
Lumber	—	—	—	—	239	230	227	196
Refined oils ²	—	118	131	119	—	136	139	119
Cement ²	129	117	117	133	142	139	139	146
Wheat flour ²	—	—	—	—	133	133	134	120
Petroleum ²	433	412	410	470	410	r410	429	444
Electric power ²								
Factory employment and payrolls ³								
Employment								
Twelfth District	270	272	313	—	273	275	316	—
California	311	312	318	r371	313	315	319	r373
Pacific Northwest	—	222	218	240	—	226	225	242
Oregon	—	193	189	214	—	196	196	214
Washington	—	240	235	255	—	243	243	258
Intermountain	—	123	r122	157	—	131	r125	169
Payrolls								
California	667	666	677	760	668	673	679	761

¹ Daily average.

² 1923-25 average = 100.

³ Excludes fish, fruit, and vegetable canning.

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Distribution and Trade—

Index numbers, 1935-39 daily average=100	With seasonal adjustment				Without seasonal adjustment			
	1944		1943		1944		1943	
	Nov.	Oct.	Sept.	Nov.	Nov.	Oct.	Sept.	Nov.
Department store sales (value) ¹								
Twelfth District	253	228	217	216	299	238	226	255
Southern California	267	244	222	222	306	244	228	255
Northern California	230	212	210	189	276	219	209	226
Portland	247	215	207	215	288	227	233	250
Western Washington	293	272	238	268	351	282	264	320
Eastern Washington and Northern Idaho	228	169	203	198	274	230	227	239
Phoenix	267	234	263	228	313	255	231	266
Carloadings (number) ²								
Total	115	106	105	110	116	125	121	111
Merchandise and misc.	130	123	122	123	130	148	144	123
Other	95	86	85	94	97	96	94	96

¹ Revised series. Tabulations of back figures for these and other cities and areas will be made available upon request.

² 1923-25 daily average = 100.

Postwar Intentions of Pacific Coast Shipbuilders

THE Pacific Coast shipbuilding industry today is experiencing a serious labor shortage in part because workers expect a later job shortage. It is generally admitted that shipbuilding in ordinary times can use only a small fraction of the number of workers currently needed to complete the ship construction program. It may not be as widely recognized, however, that the shipbuilding industry probably will go through two transitional stages between the wartime construction program and the final postwar level of activity. The first stage is that of repair-

otherwise putting them in good shape for sale, return to private ownership, or transfer to stand-by status. Shipyard operators expect this second stage to last for two, three, or even four years after the end of both the European and Pacific wars and to employ as many as 113,000 people.

As shipyards move from the emergency construction program into a period of wartime maintenance of the merchant fleet with remaining new construction increasingly concentrated on special types of work, and from there to an immediate postwar period of active repair and modification work, and finally to ordinary non-war operations, the general course of shipbuilding employment is expected to be downward. The decline may take the form of a series of relatively sharp drops, at intervals, or it may continue to be gradual. Military exigencies may even cause temporary reversal of the downward movement from time to time. But, while individual yards may experience sudden changes in activity, shipyard operators as a whole do not look for an immediate drop from a point at or near the wartime peak to the normal postwar level, or to a point below the normal postwar level as is expected by industries in which considerable plant reconversion must precede civilian production.

Information relating to the postwar expectations and intentions of private shipyard operators on the West Coast was assembled in the spring and summer of 1944 by the Federal Reserve Bank of San Francisco in cooperation with the Committee for Economic Development. Shipbuilders accounting for a little more than half the total shipbuilding employment on the Coast furnished reports. The figures presented herein are based on a summation of these individual reports rather than on a collective judgment of shipyard operators concerning the postwar prospects of the industry as a whole.

Employment Immediately After the War

Reporting shipyard operators look for an immediate postwar decrease in employment to about 22 percent of the average in 1943, the peak year, or about 26 percent of the November 1944 level. If the reporting yards fairly represent all Pacific Coast shipbuilding, this indicates an expected immediate postwar employment of 113,000, on a scheduled 40 hour or shorter work week, compared with 440,000 on the longer average work week scheduled in November 1944. Some, perhaps 7,000, of the 113,000, should not properly be counted as employees in the ship or boat building and repair industries, since a number of concerns now engaged primarily in shipbuilding intend to reconvert to their prewar activities, which were primarily non-shipbuilding. Employment of the remaining 106,000 is predicated on several sources of demand that shipyard operators hope will develop.

One expected source of demand is the need for work on account of deferred maintenance and repair of merchant vessels. During the war, ordinary maintenance and non-essential repairs have been postponed. It is assumed

EMPLOYMENT AND POSTWAR INTENTIONS OF WEST COAST SHIPBUILDERS¹

	Total	Prewar shipyard operators	New shipyard operators	Converted prewar manufacturers
Employment (number of persons)				
(a) 1939 average ²	6,500	6,500	—	—
(b) 1943 average ³	515,000	144,000	314,000	57,000
(c) November 1944 ⁴	440,000	123,000	268,000	49,000
Expected Postwar Employment ⁴ (number of persons)				
(a) during repair and modification period	113,000	52,000	54,000	7,000 ⁵
(b) in ordinary year with good business	40,000		30,000	10,000 ⁶
(c) in ordinary year with poor business	16,000		11,000	5,000 ⁶
Expected Postwar Employment as Percentage of 1943 Employment				
(a) during repair and modification period	22	36	17	12 ⁶
(b) in ordinary year with good business	8		7	17 ⁶
(c) in ordinary year with poor business	3		2	8 ⁶
Expected Postwar Employment as Percentage of 1939 Employment —Shipbuilding Only				
(a) during repair and modification period	1,630	800 ⁷	830 ⁷	—
(b) in ordinary year with good business	460		460	—
(c) in ordinary year with poor business	170		170	—
Intended Postwar Use of Present Facilities (percentage of total facilities now operated, weighted by 1944 volume of operations)				
(a) close down, sell, or turn back to Government	76	38	95-99	40
(b) use in producing prewar products	22	60	8	49
(c) use in producing new peacetime products	2	2	8	11

¹ Exclusive of navy yards.

² Employment in establishments engaged in shipbuilding and ship-repairing and boat building and boat-repairing only. Source: U. S. Census of Manufacturers.

³ Source: U. S. War Manpower Commission.

⁴ Estimated by applying relationships expected by reporting yards to all employment in the same class of yards. Reporting prewar shipbuilders represent 40 percent of the total employment of their class in 1943; reporting operators of Maritime Commission yards represent 60 percent; and reporting prewar manufacturers represent 35 percent. The over-all coverage of the reporting sample was a little over 50 percent.

⁵ Predominantly in activities other than shipbuilding.

⁶ Will be reconverting to prewar production.

⁷ Percentage of total 1939 shipbuilding employment that this class of yards alone expects to employ.

⁸ Negligible.

Source: Federal Reserve Bank of San Francisco, in cooperation with the Committee for Economic Development.

ing battle damage and otherwise maintaining the merchant marine on a war footing. This type of work already is being performed in increasing amount, and two major San Francisco Bay yards are now converting their facilities to concentrate on such repairs. The second transitional stage will consist of removing military installations from passenger and cargo vessels, re-outfitting them and

that ships taken over by the Government from private owners will be put in good condition at Government expense before or immediately after being returned to the private owners. It also is assumed that commercial type vessels built for the Government will be similarly repaired before being sold, leased, or laid up. Additional work anticipated by the shipyards consists of the removal of military installations from cargo and passenger vessels, and the re-outfitting of emergency type ships to improve their convenience and usefulness in commercial carriage. Another possibility, which is more in the nature of a hope than of a firm expectation, is the construction of new ships for former maritime nations whose shipping has been largely destroyed and whose own shipyards are inadequate to build enough replacements in a short time. If European shipyards should be restored between the end of the European and the Japanese phases of the war; if American emergency vessels should be sold abroad on an as is basis, to be repaired in the foreign yards; if emergency vessels should be laid up without prior repair or re-outfitting; or if Pacific Coast yards should obtain a smaller share of the business than the reporting operators estimate; shipbuilding employment immediately after the war doubtless would be considerably less than 106,000.

Continuing Postwar Employment

Within a few years after the war, when the repair and modification work has been completed, reporting West Coast shipyard operators expect their employment to decline further, to about 8 percent of the 1943 average. If these expectations are realized, concerns now engaged in shipbuilding would employ about 40,000 persons. Of these, 10,000 would be in plants which had reconverted and were no longer in the shipbuilding industry, and 30,000 would still be shipbuilding employees. The latter figure is between four and five times as many as were in the industry in 1939. In stating their postwar expectations, the reporting operators were asked to assume generally good business conditions. Most of them assumed, in addition, that this country would maintain a large postwar merchant marine and would service that part of it engaged in Pacific trade in West Coast yards. If these assumptions should not be borne out, the above employment expectations would not be realized. Under the assumption of poor general business conditions, for example, the reporting shipyard operators look for shipbuilding employment to be only 35 to 40 percent as great as with good business conditions.

Employment in Different Classes of Shipyards

Three important groups of concerns, having quite different postwar expectations, contribute to wartime shipbuilding on the West Coast. One consists of prewar shipbuilders who have simply expanded their regular activities and who plan to continue building and repairing ships and boats after the war. There are perhaps 125 such concerns in all, including many small prewar boat works. This group employed 144,000 in 1943 and 123,000 in November 1944. Reports from a sample of these firms indicate immediate postwar employment during the repair and modification period of 52,000.

The second group of shipbuilders are primarily the operators of Maritime Commission or Defense Plant Corporation yards, with, for the most part, no prewar shipbuilding or manufacturing experience or plant. These are essentially "war babies," that is, emergency yards owned by the Government and operated by private organizations. With few exceptions, they have highly uncertain postwar futures. There are about 20 establishments of this type, but they have accounted for an important part of the wartime shipbuilding. In the peak year, 1943, they employed an average of 314,000 persons. In November 1944, they had about 268,000 workers, and would have hired more if they could have found them. While they hope to participate in the immediate postwar repair and modification activity, with about 54,000 employees, assuming that the Maritime Commission places contracts with them for such work, their longer range prospects are quite doubtful. Many, if not most, of the emergency yards will be dismantled or reduced to standby status. A few of them, however, have facilities and installations suitable for peacetime ship construction and repair and maintenance, which the present managements hope to operate continuously on a modest scale.

The surviving emergency yards plus prewar shipyards are expected to employ about 30,000 in good years after the immediate postwar period of repair and modification. Prewar shipyards probably will account for most of the expected postwar employment. If more of the emergency yards should be kept in operation, it probably would result in a greater spreading of the work, rather than in a substantially higher employment in prewar and emergency yards combined. In a poor year, employment in prewar and emergency yards is expected to be much lower, perhaps about 11,000 persons. Even this number would be nearly twice the employment in ship and boat building and repairing in 1939.

The third group, a dozen or so concerns, chiefly engineering firms and steel fabricators, converted and added to their plants in order to build ships during the war. They expect to employ about 10,000 persons in an ordinary postwar year, assuming general business conditions to be good, compared with 57,000 in 1943 and 49,000 in November 1944. Their postwar activities would not be in shipbuilding, and the immediate postwar period is regarded by them as one of low activity, while plants are being reconverted, rather than one of high activity in converting a wartime merchant marine to peacetime use. Although some of the concerns in this group may intend to participate in ship repair and modification for a time immediately after the war, their over-all expectations are for a smaller volume of employment—7,000—in the re-conversion period than in an ordinary postwar year of good business, when they expect to employ 10,000.

Utilization of Present Facilities

Established yards, that is, those engaged primarily in shipbuilding before the war as well as now, intend ultimately to close down, sell, or turn back to the Government 38 percent of the plant capacity currently operated by them. They plan to continue to use 60 percent of it in

shipbuilding, and to convert only a negligible portion to new peacetime production. Operators of Maritime Commission yards not tied in with prewar industrial plant expect that over 95 percent of the present capacity ultimately will be closed down. The prewar manufacturers who have converted to shipbuilding plan to close down 40 percent of the plant now operated in shipbuilding, and to convert 49 percent to the manufacture of their prewar products and 11 percent to the manufacture of new peacetime products. For some firms in this group, ship or boat building may be among the new peacetime products.

The ways and yard structures of large shipyards are not readily convertible to other uses, at least not on a large scale. This is not necessarily true, however, of all facilities of all concerns in the shipbuilding industry, because some of them make parts, sub-assemblies, equipment and various special devices, for small craft as well as for large ships, and so may have peacetime non-maritime markets for their present products or for other products involving similar processes. But the bulk of wartime employment is in yards fabricating large vessels, and present operators do not contemplate wholesale conversion of these yards and facilities to other productive use.

Postwar Expenditures

It follows that the shipyards can not be counted on to contribute greatly to the so-called postwar industrial workpile. Very few outlays are reported to be anticipated for changing over to peacetime production. Reporting concerns accounting for 54 percent of reported value of production think no outlays whatever will be necessary to make the changeover; reporting concerns accounting for 22 percent of reported production are uncertain as to what outlays they may make, or do not furnish figures for other reasons; and reporting concerns accounting for the remaining 24 percent of reported production definitely plan outlays in changing over from war to peace production. The concerns with definite plans contemplate only modest expenditures amounting, on the average, to less than 1 percent of a year's value of production at the February 1944 rate. Even on the unlikely supposition that the uncertain concerns will in fact spend proportionately as much as those with definite plans for postwar expenditures, and on the additional assumption that reporting concerns are representative of all West Coast shipbuilders in respect to postwar expenditures, only about \$9,000,000 in postwar reconversion outlays can be expected. Over \$5,000,000 of this amount would be spent by prewar manufacturers in reconverting to non-shipbuilding production. Prewar shipyards account for the bulk of the remainder. Only 70 percent of the total, or about \$6,000,000, would be spent immediately after the war—the rest would await favorable postwar developments. Ten percent of the outlays would be for purchase of Government owned plant and equipment, 30 percent for structural additions, alterations and repairs, 25 percent for retooling, 30 percent for accumulation of working inventories, and 5 percent for other purposes.

No difficulties are expected in raising the funds for intended postwar outlays. About 40 percent of the funds are expected to come from the concerns' own resources,

with banks furnishing the remainder. Prewar manufacturers plan to make 70 percent of their contemplated outlays from their own resources, going to the banks for only 30 percent. Prewar shipbuilders, by contrast, plan to borrow 80 percent, and most of the remaining funds, to come out of their own resources, depend on the favorable settlement of Government contracts.

Recapitulation

If the expressed intentions of West Coast shipyard operators are realized, the following developments can be expected after the war. First, there will be a period of relatively high activity in repairing the wartime fleet and putting it in condition for peacetime disposal. Even if all yards should be fully occupied during this period, employment would decline, since fewer people can work simultaneously on relatively specialized repair operations affecting only part of a vessel than on the mass production of standardized ships. Furthermore, it is unlikely that all the existing facilities will be suitable for simultaneous full utilization in repair and modification work. During this period, manufacturers who have converted their plants to shipbuilding expect to employ fewer than at some later date when their facilities will have been reconverted. Continuing shipyards, however, expect to have several times as many jobs as later when postponed repair and maintenance, and modification of war installations and design will have been completed. Second, employment will decline further, to less than one-tenth of the 1943 average, even if business throughout the country is good. The actual rate at which West Coast postwar shipbuilding may continue depends at least as much on national and international political decisions as on business decisions of the present shipyard operators. Accordingly, figures representing the sum of operators' expectations at the time of the survey may fail by a wide margin to reflect actual postwar experience. If the shipyard operators foresee correctly the economic and political factors affecting shipbuilding activity, the postwar decline in shipbuilding employment alone will amount to 30 percent of total manufacturing employment in the three West Coast states in the fall of 1944. Compared with 1939, however, postwar shipbuilding employment would represent a four or five fold increase in a good year.

Third, so far as is known, major shipyard operators do not intend to convert present yard structures and facilities to peacetime manufacture of new products, or to purchase Government owned yards and facilities on a large scale for private postwar operation. Because of the non-convertibility of most yard structures and facilities, and the certainty that normal postwar shipbuilding activity will be low compared with present capacity, few expenditures of any sort are anticipated by shipyard operators during the reconversion period. Most of the intended outlays, furthermore, are for reconverting prewar non-shipbuilding plants, rather than for converting shipyards. Eighty-five percent of the intended outlays are earmarked for additions, alterations and repairs, retooling, and acquisition of working inventory. No new construction is planned.

Department Store Sales

As has been the case each year since 1938, Christmas buying attained a new record in 1944. After allowance for seasonal influence, department store sales averaged 239 percent of the 1935-39 average during the fourth quarter. Actual fourth-quarter sales approximated 318 million dollars in 1944 compared with 279 million in 1943, and a 1935-39 fourth-quarter average of 138 million. During the past few years, a larger proportion than usual of Christmas purchases has been made in November and even earlier in the year. This tendency has become progressively more important, and the present distribution of sales within the fourth quarter differs somewhat from that of prewar years.

Wartime restrictions on manufacture have upset the normal interdepartmental balance of inventories held by department stores. Accordingly, the allocation of the consumer's dollar among departments is now less a matter of unimpeded choice than it is a matter of selection from a narrowing list of goods available. Relative changes, over a year or several years, in sales of individual departments clearly show how commodity limitations have affected shopping habits. In general, dollar changes have roughly corresponded in importance, however, to the departments themselves; that is, most larger departments experienced the larger absolute increases in sales, and vice versa. Such data do not reveal anything of the important wartime changes which have occurred *within* individual departments, such as the disappearance of particular articles, stock upgrading, or the tendency of the average consumer, whose income is higher than it was before the war, to select more often from the so-called "quality" grades.

The accompanying table showing changes in the dollar value of departmental sales in the Twelfth District from November 1941 and November 1943 to November 1944 has been prepared to indicate how the tremendous pre-Christmas sales were distributed and to illustrate recent shifts in the character of consumer purchases, department by department. Corresponding percentage change figures are also shown. Data for November are used because November 1944 departmental sales figures are the most recent available, and because of the interest in Christmas shopping activity at this time of the year. The increasing emphasis on earlier Christmas shopping may have had some effect on the comparisons shown in the table, but this effect is probably fairly uniform as among the several departments.

From November 1941 to November 1944 the largest percentage gains took place in nondurable goods, headed by several articles of women's apparel and accessories, and infants' and children's wear. Durable consumer goods such as housefurnishings display the smallest gains, and sales of major household equipment and radios and phonographs declined. Civilian production of these articles was largely stopped early in the war. Although the percentage increase from November 1943 to November 1944 in sales of major household appliances is

in sharp contrast to the decrease over the past three years, the shift has little significance because of the small dollar sales volume in 1944 as compared with 1941.

DEPARTMENT STORE SALES—BY DEPARTMENTS—
TWELFTH DISTRICT
(dollar figures in thousands)

	Nov. 1944 Dollars	Increase from (Nov. 1943)		Increase from (Nov. 1941)	
		Dollars	Per- cent	Dollars	Per- cent
Total store	\$101,940	\$15,180	18	\$49,540	95
Main store departments	90,630	13,820	18	45,200	99
Men's furnishings, hats, caps...	5,770	950	20	2,860	98
Women's & misses' coats & suits	4,450	690	18	2,490	127
Women's & misses' dresses...	4,260	600	16	1,670	65
Toilet articles, drug sundries...	4,250	300	8	2,410	131
Blouses, skirts, sportswear....	4,230	560	15	2,360	126
Stationery, books, magazines....	4,170	930	29	2,230	114
Toys, games, sporting goods, cameras	3,370	520	18	1,640	95
Infants' wear, infants' furniture.	3,340	720	27	2,220	200
Women's & children's hosiery..	3,150	720	30	1,520	93
Silverware, jewelry, clocks, watches	2,940	450	18	1,480	101
Silk & muslin underwear, slips, etc.	2,780	590	27	1,780	177
Women's & children's shoes....	2,730	500	23	1,370	101
Men's clothing	2,480	480	24	980	66
Boys' clothing & furnishings....	2,130	590	39	1,290	152
Furniture, beds, mattresses, springs	2,070	320	19	650	46
Draperies, curtains, upholstery, etc.	1,920	240	14	780	68
Handbags, small leather goods...	1,830	120	7	900	96
Linen, towels	1,700	90	5	810	90
Silks, rayons, velvets	1,520	290	24	790	109
Notions	1,430	270	23	700	96
Juniors' coats, suits, dresses...	1,420	250	21	730	106
Knit underwear	1,410	300	27	820	140
Art needlework, artists' supplies.	1,380	280	26	570	70
Negligees, robes, lounging apparel	1,380	260	23	820	149
Girls' wear	1,330	280	26	800	152
Corsets, brassieres	1,320	360	37	620	90
Furs	1,320	*450	*26	870	196
Blankets, comforters, spreads...	1,310	70	6	640	97
Millinery	1,300	220	21	600	86
Domestic floor coverings	1,240	*20	*1	380	44
Women's & children's gloves...	1,210	280	30	700	139
Handkerchiefs	1,090	150	16	640	146
Aprons, house dresses, uniforms.	970	130	16	520	115
China, glassware	950	20	2	280	43
Housewares	940	150	19	120	15
Domestics, muslins, sheetings...	650	*50	*7	360	125
Woolen dress goods	630	160	33	350	123
Cotton wash goods	630	90	16	370	145
Lamps, shades	560	80	17	250	79
Men's & boys' shoes & slippers..	500	80	19	230	86
Luggage	490	10	3	200	70
Major household appliances....	260	90	56	*240	*48
Radios, phcnographs, records...	130	* †	*2	* 60	*29
Not classified	7,700	1,160	18	3,660	91
Basement departments	11,290	1,340	14	4,330	62
Women's, misses', juniors', girls', & infants' apparel	6,200	840	16	2,590	72
Men's & boys' clothing & furnishings	2,090	240	13	840	67
Domestics, blankets, linens, towels	760	50	8	260	52
Shoes	590	* †	1	40	8
House furnishings	470	30	8	80	19
Piece goods	460	70	19	190	72
Not classified	730	90	14	330	82

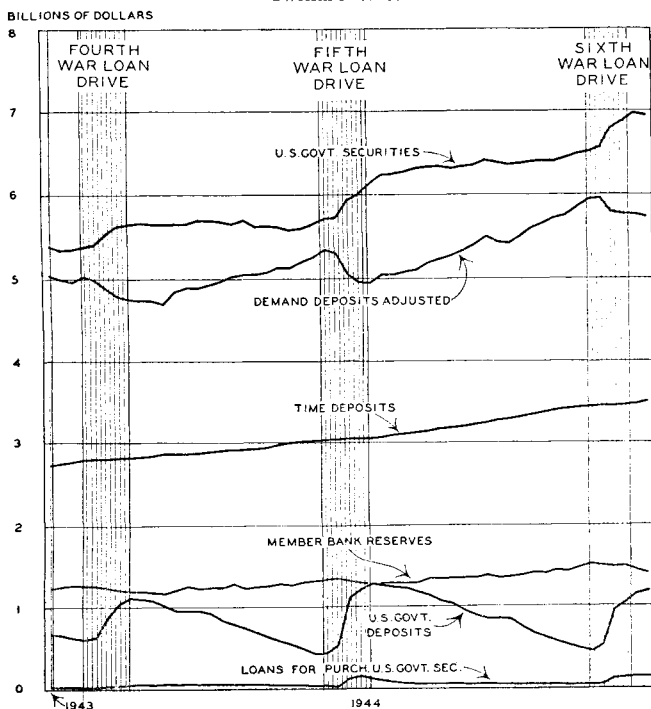
*Decrease. †Less than \$5,000.
Note: Figures do not necessarily add to totals because of rounding.

The distribution of annual sales, which is not affected by seasonal influences, differs somewhat from that of the November sales shown above. Sales of commodities which are popular as gifts, such as toiletries, toys, and jewelry, are relatively less important than in November, but sales of more prosaic goods such as shoes, hosiery, and draperies, are relatively more important. Sales of women's outer clothing and men's furnishings rank high on both bases.

Bank Credit, Deposits, and War Loan Drives

WAR loan drives have imposed a definite and recurring pattern upon the behavior of bank credit and deposits, as is indicated in the accompanying chart. The Sixth War Loan Drive brought private and local government demand deposits in the Twelfth District down about 260 million dollars or 3 percent from their pre-drive high. Both time deposits and currency in circulation were higher after the drive than before, although the increase in currency was smaller than might have been expected in relation to the usual pre-Christmas rise. Bank credit, in the form of loans to purchase securities and in the form of Government security holdings, again rose during the sixth drive.

MEMBER BANK DEPOSITS AND RELATED ITEMS
Twelfth District



Data for reporting banks having 84 percent of total deposits, except interbank, of all Twelfth District member banks on June 30, 1944. Wednesday figures, December 29, 1943 to December 27, 1944.

Government securities include direct and guaranteed issues. Demand deposits (adjusted) exclude U. S. Government and interbank deposits and collection items. Government deposits include a small amount of other balances in addition to war loan accounts. Loans for purchasing or carrying U. S. Government securities do not include loans of branches outside major cities of some reporting banks, but that amount is not appreciable.

During each loan drive, there was a shift from private and local government demand deposits to Treasury war loan deposit accounts at commercial banks. In turn, calls were made by the Treasury upon those accounts as funds were needed, so that there was a gradual return of balances to private hands between drives. The loan drives had considerably less effect upon time deposits and currency in circulation than upon demand deposits. At the most, there was no more than a slowing up or temporary cessation of their growth during drives. The loan drives involve more, however, than a simple circuit between the

Treasury and others over which a portion of the previously existing money supply travels. During each circuit of funds borrowed through war loans, newly created dollars have been injected into the money flow.

To the extent that security purchases from the Treasury during loan drives are made, directly or indirectly, with new funds obtained from the banking system, the net result is an increase in deposits. In the Twelfth District, war loan deposit accounts have risen much more than other deposits have declined during loan drives. This is the result both of the accompanying increase in bank loans and investments and of the continuing shift of funds to the District from elsewhere in the nation through Treasury expenditure.

Although direct subscriptions by commercial banks were severely limited in the three loan drives held in 1944, not all purchases were made without expansion of bank credit. Bank loans for the purchase of Government securities rose considerably in each loan drive. Bank holdings of Government securities also increased as banks purchased securities in the market from other holders, many of whom in turn subscribed for new securities.¹ Limited direct subscriptions for new securities also were made by commercial banks having savings accounts.

Total member bank reserves are little affected during loan drives, but the ability of member banks to expand credit is furthered by the shift of funds from deposits subject to reserve to war loan deposit accounts, which require no reserve. It is evident that bank holdings of Governments have increased substantially during the loan drives. If banks were not able to credit the proceeds of the sales of Government securities to war loan accounts but had to transfer all such funds immediately to the Treasurer's account in the Reserve Bank, wide fluctuations in reserves would occur. Reserves, like deposits, would be drawn upon heavily at the time of a drive and

¹ Banks also may repurchase Treasury bills from the Reserve Bank. This has occurred to some extent during the drives, but does not affect deposits. Sales by non-bank holders of Treasury bills to the Reserve Bank, either directly or through commercial banks, which have occurred occasionally at such times, do increase both deposits and reserves, however.

Banking and Credit—

Condition items of weekly reporting member banks	Averages of Wednesday figures (millions of dollars)			
	Nov.	1944		1943
		Oct.	Sept.	Nov.
Total loans	983	+ 2	+ 14	— 69
Com'l, ind., & agric. loans	503	+ 8	+ 25	— 30
Loans to finance transactions in:				
U. S. Government securities	40	— 4	— 12	} — 3
Other securities	51	— 2	+ 1	
Real estate loans	295	0	0	— 24
All other loans	94	0	0	— 12
Total investments	4,557	+ 36	+ 12	+ 654
U. S. Government securities	4,211	+ 27	+ 3	+ 624
All other securities	346	+ 9	+ 9	+ 30
Adjusted demand deposits	3,086	+148	+210	+ 540
Time deposits	1,626	+ 37	+ 75	+ 324
United States Gov't. deposits	464	—195	—344	— 489
Coin and currency in circulation				
Total (changes only)	—	+ 98	+163	+ 812
Fed. Res. Notes of F. R. B. of S. F.	2,639	+ 92	+155	+ 802
Member bank reserves	1,687	+ 85	+127	+ 312

restored between drives, and it would be difficult for banks to meet reserve requirements during loan drives.

As funds in war loan deposit accounts are disbursed by the Treasury and appear in deposits subject to reserve, required reserves again increase. If banks in general should be unwilling or unable to allow excess reserves to fall below the pre-drive level, it would be necessary for them to restrict credit and thus shrink deposits to levels existing before the drive, unless additional reserves were obtained.

Although excess reserves were low before 1944 and there was no appreciable decline in them during the year, Twelfth District banks were able to retain between drives most of their increases in Government security holdings. (Loans for the purchase of Governments declined after each drive, although this apparently was offset to some extent by increases in bank holdings of Governments.)

Additional reserves came primarily from the shift of funds to the District from elsewhere in the country.

In the nation as a whole, the Reserve System supplied additional reserves over the year by the purchase of Government securities. This was done to meet the drain upon reserves caused by the continuing demand for currency and, to a much lesser extent, to enable banks to meet reserve requirements resulting from the deposit expansion associated with their increased Government security holdings. In supplying reserves, the System attempts not to encourage an increase in bank holdings of Government securities greater than necessary to meet Treasury needs. The fact remains, however, that the gap between taxes and expenditures must be filled. It must be done by the banking system to the extent that non-bank investors fail to purchase and *retain* enough Government securities to accomplish it.

Agricultural Goals for 1945

FARM production goals for field and seed crops, for livestock and livestock products including poultry, and for vegetables for canning have again been established by the State U.S.D.A. War Boards. For both crops and livestock, another high level production year is requested. Some individual crop and livestock adjustments are needed, but the total program should just about equal that of 1944.

The 1945 goals have been set at a time when future food requirements of the armed forces are difficult to estimate with accuracy, since the war in Europe might end before another harvest season is at hand. It is equally difficult to forecast the amount of food that will be needed for European relief. The War Food Administrator believes, however, that this country must be assured of enough food for our armed forces under all conditions, for our civilian population, and for foreign relief needs. We cannot risk the possibility of a shortage.

Wartime Increase in Output

New production records have been set in each of the three war years. Output in 1944 was about a third higher than the 1935-39 average. The increase in agricultural production has been induced in large part by higher prices. It is estimated, however, that more than a third of the increase in crop production during the past three seasons was due to the generally favorable growing and harvesting weather. With only average growing conditions in 1945, a total acreage of crops equal to that of 1944 could reasonably be expected to result in a volume of production about 10 percent less, or about equal to that of 1943. For this reason the 1945 goals are designed to provide, under average conditions, a volume of production about 5 to 10 percent below that of 1944, but still 25 percent above the prewar level.

The wartime increase in output has been brought about, not so much by expanding acreage, as by increasing yields per acre and per animal. It has taken place in the

face of a decline in agricultural employment, and in spite of a larger proportion of unskilled and inexperienced agricultural workers. Increased production is due, in addition to favorable weather, to longer hours of work, superior varieties of crops, a shift to more intensive crops, improved seed selections and breeding practices, more and better use of fertilizer, the cumulative effect of the use of legumes and soil conservation measures in recent years, and the more effective use of available tractors and other machinery in farm operations. The increase in livestock products has been accompanied by heavy drafts upon reserve grain supplies, which are now at low levels.

The production facilities outlook is more favorable than it was last year. The supply of farm machinery will be as plentiful, or possibly somewhat more plentiful than it was a year ago, but farmers will be handicapped by a shortage of light trucks. Sufficient gasoline is expected to be available to carry out 1945 production goals. Some deterioration in the fertilizer supply is likely, but the relatively generous use of fertilizers during recent growing seasons will offset the ill effects of this situation to a considerable extent. The quantitative supply of farm labor is expected to be about the same in 1945 as it was this year. More prisoners of war should be available for farm work, and the agricultural labor supply will again be augmented by Mexican nationals under arrangements between this country and the Mexican Government. In some areas specializing in particular crops, such as sugar beets and fruit, labor supply problems will continue to be present.

Specific Goals—Twelfth District

Specific production goals for each of the states in the Twelfth District are shown in the accompanying table. They are intended to indicate the acreage or production necessary to fulfill the District's share of expected military, export, lend-lease and domestic civilian requirements, but they should not be interpreted as forecasts. In

fact, there is considerable evidence indicating that some of these goals will be exceeded and others will not be achieved.

The principal changes from 1944 are in dry peas, cotton, and hens on farms, for all of which substantial reductions are asked. A much smaller production of dry peas will meet national requirements in 1945, therefore a smaller acreage is requested. In view of the national cotton surplus it is thought that 38,000 acres of California cotton land could well be diverted to the production of alfalfa and sugar beets. There was a surplus of early potatoes last year and a decreased production is requested in California, but, in view of the support price making potato production more profitable than many of the alternative crops, it is likely that the goal will be exceeded.

Increases in some items are asked for but they are relatively less sharp than the decreases. More flaxseed and sugar beet acreage is requested but, unless supplementary programs are approved, it is unlikely that the goals will be reached because other less risky competing crops would be equally profitable. The sharpest increase in the livestock classification is in pig production. The slaughter of hogs requested a year ago was overdone and it is desirable now that the pig population be restored to normal.

Important increases in feed crop acreage and in alfalfa seed production are desired because of the need to bring the West closer to self-sufficiency in feed supplies. The pressure of the Pacific War upon westbound transportation may make it difficult to ship feed west during the coming year.

1945 FARM GOALS—TWELFTH DISTRICT

Field Crops											Twelfth District—
1945 planting goals compared with 1944 acreages (thousands of acres)		Year	Ariz.	Calif.	Idaho	Nev.	Ore.	Utah	Wash.	Total	1945 goal as % of 1944
Barley.....	1944	130	1,730	353	24	225	150	228	2,840	100	
	1945	120	1,700	350	24	225	150	275	2,844		
Corn.....	1944	40	67	32	4	43	26	29	241	107	
	1945	40	75	32	4	50	26	31	258		
Hay, tame.....	1944	324	1,851	1,019	193	859	506	1,004	5,756	101	
	1945	310	1,852	1,050	195	900	510	1,010	5,827		
Oats.....	1944	34	534	242	13	455	56	168	1,502	109	
	1945	35	535	240	13	465	55	295	1,638		
Rye.....	1944	—	9	6	—	31	9	15	70	94	
	1945	—	10	6	—	25	5	20	66		
Sorghums, grain.....	1944	69	102	—	—	—	—	—	171	94	
	1945	60	100	—	—	—	—	—	160		
Wheat.....	1944	35	572	1,048	22	987	296	2,403	5,363	100	
	1945	26	600	1,100	22	950	300	2,375	5,373		
Beans, dry.....	1944	16	411	154	—	2	12	4	599	98	
	1945	15	400	159	—	2	8	4	588		
Peas, dry.....	1944	—	—	230	—	51	—	351	632	58	
	1945	—	—	140	—	30	—	195	365		
Potatoes, Irish.....	1944	6	102	169	3	46	18	47	392	99	
	1945	7	95	169	3	46	18	50	388		
Rice.....	1944	—	246	—	—	—	—	—	246	100	
	1945	—	245	—	—	—	—	—	245		
Sugar beets.....	1944	—	77	51	—	14	34	13	189	145	
	1945	—	125	70	—	17	45	17	274		
Cotton.....	1944	147	303	—	—	—	—	—	450	92	
	1945	147	265	—	—	—	—	—	412		
Flaxseed.....	1944	20	170	1	—	2	—	—	193	106	
	1945	20	180	1	—	2	—	1	204		
Alfalfa seed.....	1944	36	20	29	—	5	30	—	120	148	
	1945	37	25	60	2	10	43	—	177		
Other cover crop and legume seeds	1944	—	40	33	—	281	—	16	369	119	
	1945	—	41	54	—	326	—	17	438		
Livestock and Livestock Products											
1945 goals compared with 1944 population and production (in thousands)											
All cattle and calves, Dec. 31....	1944	900	2,540	926	414	1,072	515	956	7,323	98	
	1945	877	2,538	886	410	1,072	500	929	7,212		
Sheep and lambs, Dec. 31.....	1944	700	2,800	1,540	670	1,220	2,360	500	9,790	99	
	1945	700	2,800	1,473	662	1,220	2,300	500	9,655		
Sows to farrow, spring.....	1944	5	67	50	4	33	14	37	210	104	
	1945	5	75	53	3	32	14	37	219		
Chickens raised.....	1944	723	19,821	4,482	436	4,362	2,620	11,100	43,544	102	
	1945	748	21,000	4,258	428	4,362	2,709	11,100	44,605		
Hens on farms, Jan. 1.....	1944	656	16,261	2,880	324	3,944	2,774	—	26,839	86	
	1945	518	14,297	2,333	262	3,440	2,247	—	23,097		
Hens on farms, Mar. 1.....	1944	471	14,000	—	262	3,096	—	—	
	1945	—	175,000	—	3,300	—	—	—	..		
Egg production (dozens).....	1944	—	158,000	—	2,730	—	—	—	
	1945	—	158,000	—	2,730	—	—	—	..		
Milk cows, average number.....	1944	47	755	248	19	262	114	352	1,797	101	
	1945	48	760	250	18	262	116	352	1,806		
Milk production (pounds).....	1944	252,000	5,436,000	1,404,000	107,000	1,436,000	667,000	2,150,000	11,452,000	102	
	1945	260,000	5,525,000	1,432,000	107,000	1,450,000	696,000	2,166,000	11,636,000		

Note: District totals for 1945 include all announced state goals, and for 1944, only those data for states for which 1945 goals were announced. Acreage goals for tomatoes, green peas, and snap beans to be used for processing in 1945 have been announced only for California. These goals call for tomato acreage to remain unchanged at 130,000 acres, and green pea and snap bean acreage to be increased from 4,800 to 5,200 acres and from 1,100 to 1,200 acres respectively.

Summary of National Business Conditions

Released December 26, 1944—Board of Governors of the Federal Reserve System

OUTPUT at factories and mines showed little change from October to November. Retail trade expanded further to new record levels.

INDUSTRIAL PRODUCTION

Industrial output in November and the early part of December was maintained at approximately the same level that had prevailed during the previous four months. Production of durable goods declined slightly in November, while output of other manufactured goods, especially war supplies, increased somewhat further and mineral production was maintained in large volume. Output of critical war equipment was larger in November than in October but was still behind schedule, according to the War Production Board.

Activity in the durable goods industries, particularly machinery, transportation equipment, and lumber, continued to be limited in part by manpower shortages. Employment in the transportation equipment industries has declined by about one-fifth during the past twelve months, but total output of aircraft, ships, and combat and motor vehicles has declined by a much smaller amount owing to greater efficiency.

In most nondurable goods industries, production was somewhat greater in November than in the previous month. Activity at explosive and small-arms ammunition plants increased, reflecting enlarged war production schedules, and output in most other branches of the chemical industry also expanded, reaching levels above those of a year ago. Production in the petroleum refining and rubber industries, chiefly for war uses, increased somewhat in November.

Output of manufactured foods showed less decline than is usual for this season and was as large as in November 1943. In the textile industry, output at woolen and worsted mills continued to advance in October from the reduced level of operations prevailing during the summer. Cotton consumption in November was above October and rayon deliveries were at a new record level.

Mineral production was maintained in November. Coal output was one-fifth larger than in November 1943 when operations were sharply reduced by a work stoppage. In the early part of December, however, coal production was nearly 10 percent less than in the same period last year.

DISTRIBUTION

Value of department store sales in November was 14 percent above the exceptionally high level last year, about the same year-to-year increase which prevailed in the previous four months. In the first half of December, sales were about 20 percent larger than last year. All Federal Reserve Districts have shown large increases over last year in pre-Christmas sales.

Railroad freight carloadings, adjusted for seasonal changes, were maintained at a high level in November and the first two weeks of December. Shipments of most classes of freight, however, were not quite as great as the exceptionally large movement of freight during the same period last year.

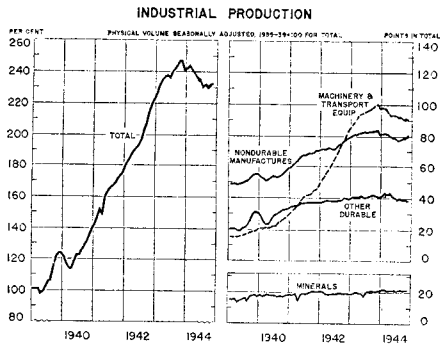
COMMODITY PRICES

Changes in wholesale prices of agricultural and industrial products were mostly upward in November and the early part of December. Retail prices of foods and various other commodities were slightly higher in November than in October. During the past year there has been a slight upward tendency in prices of most commodities, both in wholesale and retail markets.

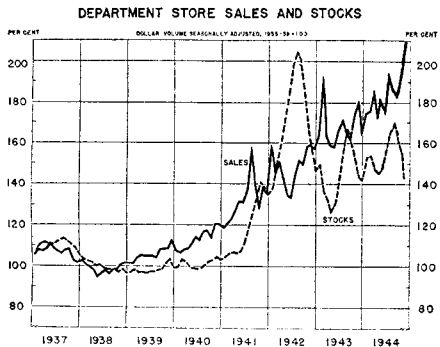
BANK CREDIT

Banking developments during the four weeks ended December 13 were largely determined by the Sixth War Loan Drive. Government deposits at weekly reporting banks in 101 cities increased by approximately 8 billion dollars while adjusted demand deposits of individuals and business were drawn down about 2.6 billions in payment for securities purchased. The reporting banks added 3.7 billion dollars to their holdings of Government securities and increased their loans by 1.7 billion.

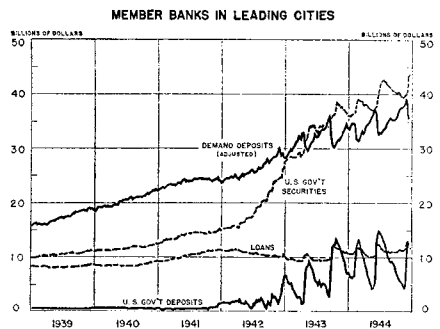
As a result of the transfer of deposits of individuals and businesses to war loan accounts, reserves required by member banks declined about 700 million dollars from the beginning of the drive through mid-December. In addition, reserve funds were supplied to the banking system through the purchase by the Federal Reserve banks of 640 million dollars of Government securities. The additional reserves were used in part to reduce member bank borrowings at the Reserve banks, which had risen to nearly 600 million dollars in the latter part of November, and to meet the demand for currency. This demand, though slackened somewhat by the war loan drive, amounted to 450 million dollars for the four weeks ended December 13. Excess reserves increased by 300 million dollars, principally at country banks.



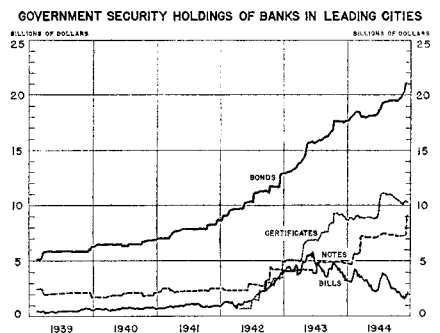
Federal Reserve indexes. Groups are expressed in terms of points in the total index. Monthly figures, latest shown are for November.



Federal Reserve indexes. Monthly figures, latest shown are for November.



Demand deposits (adjusted) exclude U. S. Government and interbank deposits and collection items. Government securities include direct and guaranteed issues. Wednesday figures, latest shown are for December 13.



Excludes guaranteed securities. Data not available prior to February 8, 1939; certificates first reported on April 15, 1942. Wednesday figures, latest shown are for December 13.