

Monthly Review

FEDERAL RESERVE BANK OF SAN FRANCISCO

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Review of Business Conditions—Twelfth District

Shipbuilding and the Pacific Coast Manpower Outlook

NEW ship construction was relatively well maintained in the Twelfth District during the first quarter of 1945, in spite of a continuing shrinkage in volume of employment in the privately operated shipyards. Deliveries of vessels to the Maritime Commission during the quarter aggregated 164, with a total lightweight displacement of around 775,000 tons; this represents a decline of about five percent in tonnage from the first quarter of 1944, and of about 14 percent from the quarterly average for 1943. There remained to be delivered by 14 yards under contract to the Maritime Commission about 380 additional vessels having an aggregate lightweight displacement of about 1,800,000 tons. A substantial amount of work had already been performed on an appreciable number of these ships at the end of the first quarter. It is estimated that only about 60 vessels under contract in nine yards will remain uncompleted by the end of the third quarter. A very small number of the larger types are scheduled for delivery after the end of the current year. To the extent that work shifts may be reduced, as for example by discontinuance of night work or a return to the five-day work week, the estimated dates of completion of outstanding contracts may be postponed. Cancellations of present commitments would of course hasten the end of the program. Shipyards building for the Navy and Army have also advanced their programs well toward completion and have only about 50 or 60 vessels of major types and some 200 small craft remaining uncompleted out of a total program since 1940 of more than 2,600 vessels, exclusive of landing craft of which over 3,700 had been delivered by March 31, 1945, with approximately 100 still to be completed.

Shipbuilding employment, first quarter 1945

Employment in all shipbuilding and repair yards on the Pacific Coast averaged about 510,000 persons during the first quarter of 1945, as compared with an average of about 560,000 for all of 1944 and of around 590,000 for the year 1943. Privately operated yards employed an average of approximately 410,000 persons in the first quarter of 1945, and Government yards, which have been expanding their operations, chiefly in repair work to

naval craft, employed nearly 100,000. The employment of women, which reached a peak on the West Coast in December 1943, when nearly 113,000 were employed in 35 major shipyards, and which declined only moderately through 1944, fell more sharply during the early months of 1945 and averaged less than 100,000 for the first quarter.

Changes in the volume of shipyard employment during the first quarter of 1945 have followed quite different patterns in the several major shipbuilding districts of the West Coast as compared with the situation last year. Employment was most stable during 1944 in the Los Angeles and Portland-Vancouver areas, with net decreases through the year of about 4 or 5 percent; the Puget Sound and San Francisco Bay areas experienced net losses of about 12 percent and 16 percent, respectively, during 1944. Since the beginning of the current year the situation has changed sharply; in the Puget Sound district

SHIP DELIVERIES AND EMPLOYMENT OF MARITIME COMMISSION YARDS—PACIFIC COAST, 1941-45

	Quarter	Number of vessels	Lightweight displacement tons (in thousands)	Average employment
1941.....	1	4	20	9
	2	5	23	15
	3	9	38	31
	4	9	34	56
1942.....	1	30	113	95
	2	86	311	150
	3	98	363	216
	4	154	567	273
1943.....	1	204	714	304
	2	243	917	315
	3	242	979	327
	4	249	1,013	324
1944.....	1	194	821	305
	2	179	855	281
	3	109	574	273
	4	163	882	272
1945.....	1	164	777	235 ²

¹Including 30 vessels delivered in 1941-42 to British Purchasing Commission.

²Preliminary.

Sources of basic data: United States Maritime Commission and War manpower Commission.

shipyard employment has become stabilized since September 1944 at slightly under 90,000; in southern California a decrease of about 7 percent since the first of the year has brought the total to slightly over 100,000; in the San Francisco Bay area a further shrinkage of about 10 percent, almost wholly accounted for by the large yards working on Maritime Commission contracts, has

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resulted in a reduction to about 195,000 as compared with a peak figure of about 250,000 in the third quarter of 1943; while in the Portland-Vancouver area, similar but sharper cuts in working forces by the three large Maritime Commission yards have caused a reduction for the area as a whole of about 15 percent in the past three months, to a total of approximately 103,000.

The manpower outlook

Further curtailment in shipbuilding is inevitable, with resulting loss of jobs, as the construction program is completed and shipyard workers are laid off. The expansion in ship repair work, problematic in amount and timing, can be expected at best to fill only part of the gap. An additional overall reduction of 75,000 to 100,000 persons may be expected in West Coast shipyard employment, with more than half of the reduction occurring in the San Francisco Bay area, by the end of the third quarter of this year. Alternative employment opportunities within the District for laid-off shipyard workers are not likely to be numerous enough to take up the slack. The District industries with most pressing labor needs, in addition to ship repair, include iron and steel foundries, lumbering and mining, transportation, warehousing and port facilities, and the maritime service. The steel mills and foundries and the lumber and mining industries have been continuously handicapped by the higher wage scale prevailing in shipyards and may now find it somewhat easier to satisfy their labor needs as surplus shipyard workers are released. The group of transportation and port service industries should also derive some benefit from this source. The ship repair branch of the shipbuilding industry and the miscellaneous metal working trades are in a somewhat different position, since their demand for labor centers on the more skilled crafts, in which the labor supply is still tight, not only on the Pacific Coast, but nationally as well. Shortages of experienced skilled craftsmen continue to exist in specific industries, therefore, in spite of reductions in employment arising from the curtailment of new ship construction. Since a considerable proportion of those so far released from the shipyards are marginal workers, including women, older men and less efficient younger men, even the transportation and port service industries in the same localities, which need relatively unskilled labor for heavy work, may not be able to obtain as many workers from the shipyards as the numerical reduction in employment might indicate.

Important consequences for the economy of the Pacific Coast region will ensue from the reductions in shipyard employment that have already occurred and even more from the larger reductions still to come. The pressure of demand for workers of any kind or quality which was characteristic of the labor market during most of 1942 and 1943 had already shifted in 1944 to specific skills and occupations. This shift is now even more pronounced. Hiring is becoming much more selective, with a tendency to insist upon men rather than women, upon white rather than non-white labor, and upon proved skill and experience rather than a general willingness to learn.

Labor markets in Pacific Coast industrial areas

The availability of workers released by the shipyards and their subcontractors, as well as by certain other war industries that have passed their peak, led to proposals that the War Manpower Commission change the classification of the San Francisco Bay region from a "Group I" to a "Group II" area; that is, from an area of acute labor shortage to an area approaching a balanced demand-supply situation.¹ Such official reclassification, it is hoped by labor unions and employers' organizations, may result in bringing new war contracts to the San Francisco region and thus provide employment for workers and plants otherwise unemployed, as well as stimulate plans for the early conversion of war industries to the manufacture of civilian products when their war contracts run out and present controls are relaxed. Further evidence of the lessening pressure upon the labor market in Northern California, including the San Francisco Bay area, particularly for women in industrial occupations, was afforded by the elimination late in March of ceilings upon the number of women that may be employed by individual concerns. Effective March 26, women not currently or last employed in essential industries no longer need certificates of availability or specific job referrals in order to obtain new jobs. Women, other than clerical workers, holding positions in essential industries, or who were last employed in such activities, are still required to obtain certificates of availability, but they may be referred to jobs in non-essential activities if job openings in essential activities for which they are qualified are not available. Women in clerical occupations in essential industries are still required to remain in essential work.

The labor market outlook in other shipbuilding centers of the District varies from locality to locality. Portland, like San Francisco, will no doubt experience a drastic reduction in employment of shipyard workers engaged in the Maritime Commission's construction program. Unlike San Francisco, however, Portland does not have a large and miscellaneous range of manufacturing activities which could absorb any significant part of the surplus labor released from the shipyards. Alone among the four large West Coast shipbuilding centers, Portland has no important naval repair or dockyard establishments, although a large steel floating drydock, recently completed at Vancouver, Washington, is currently being installed at Swan Island on the Willamette River, and the Port of Portland is engaged in rebuilding a wooden drydock intended as a temporary facility for servicing vessels up to the size of Liberty ships. One of the smaller Portland shipyards has recently begun the construction of 20 small cargo vessels for the Netherlands East Indies, expected to cost about \$400,000 each. The Puget Sound area, in contrast, has not participated extensively in the Maritime Commission's building program but has specialized almost entirely on naval construction and repair work. A recent announcement of additional contracts for escort aircraft carriers to be built at the large Todd yard in Ta-

¹This change was made by the Commission on April 4.

coma will assure work for this plant extending well into 1946. The shipyard employment outlook in the Puget Sound area is for a moderate increase over the next six months, with a probable declining tendency thereafter. Some migration of shipyard workers from the Portland-Vancouver area to the Puget Sound district, therefore, as well as a more permanent type of outmigration to other industries and to more distant localities, may be expected.

In the Los Angeles harbor area a mixed situation prevails. One of the two larger Maritime Commission yards will probably complete its deliveries (Victory ships) early in the fourth quarter and will presumably have substantially reduced its force during the next four or five months; no new work is in sight for this yard. The other large Maritime Commission yard still has between 40 and 50 coastal cargo motor vessels, ships about half the size of a Liberty ship, to complete, which should all be delivered by the end of the third quarter, and also has a recent order for 15 large (C-2) cargo vessels. If this latter contract is, in fact, carried through, relatively full employment could be maintained at this yard until near the end of the year. One of the smaller Long Beach yards was a recent successful bidder, on a competitive basis, for six small coastal tankers for the Maritime Commission to cost about \$600,000 each and to be delivered over the next nine months. The Los Angeles yards working on naval contracts will probably be releasing workmen at the rate of around 1,000 per month for the next five or six months. The demand for shipyard repair labor, on the other hand, is expected to increase as construction yards are converted to repair work and the Navy continues to expand its large new dockyard facilities at San Pedro.

An important sustaining influence in the labor markets of Los Angeles and Seattle, but not in the San Francisco and Portland areas, is the aircraft industry, which has not yet experienced cutbacks in orders comparable to the curtailment in shipbuilding indicated for the remainder of the year. While not fully interchangeable, the labor forces of important segments of the shipbuilding and aircraft industries are yet sufficiently alike to permit some

absorption of laid-off shipyard workers by the airframe construction concerns. It is not expected, therefore, that any large amount of unemployment in the Seattle and Los Angeles areas will result from the reduction in new ship construction during the next five or six months. Beyond that period, however, substantial labor surpluses must be expected, with consequent pressure upon local industries and a definite tendency to outmigration.

Redistribution of surplus shipyard labor

Little or no information is available as to what actually becomes of the workers who have already been released from the shipyards. Quite generally the less experienced workers are the first to be laid off. Considerable numbers of Negroes and women were included, for example, among the recent reductions at the large Maritime Commission yards in all districts. Many of the women will perhaps retire from the labor force. In the Portland-Vancouver area outmigration of Negroes appears already to have begun. No significant increase seems to have occurred in the filing of claims for unemployment benefits in the shipyard centers. It may be that the problem of an impending labor surplus will partly cure itself through the return of surplus workers to their prewar occupations and vocations, although a residual problem will, no doubt, remain. The rates of absorption into other jobs, of retirement from the labor force, and of outmigration of those released by or leaving the shipyards, may well be higher now than later when widespread cutbacks in war production occur, which will sharply reduce other job opportunities. Also, while there have been substantial numbers of shipyard workers laid off, a significant fraction of the decline in employment so far in 1945 has resulted from the non-replacement of those leaving voluntarily. It is reasonable to assume that a higher proportion of those quitting than of those laid off have definite plans to retire, to take other jobs here, or to leave the area.

Farm Production

In the first quarter of 1945 crop prospects were better than average in most areas. In the Pacific Northwest east of the Cascades, the irrigation water supply may be below average this summer, but the prospective shortage seems likely to limit crop production in small areas only. Winter ranges and pastures throughout the District generally supplied ample feed during the quarter. Sheep and cattle have wintered in good condition. With a smaller number of livestock and sufficient grain and concentrates available, record high rates of feeding were reported throughout the Western region. District farm real estate values continued to increase during the quarter and in March were 13 percent above a year earlier and 58 percent above March 1940. Corresponding increases for the nation were 10 and 50 percent.

Harvesting during the first quarter of the year is confined largely to citrus fruits, dates, winter vegetables, and cotton. The 1944-45 citrus crop should be about as large as the record crop of 1943-44 and prospects appear fa-

Production and Employment—

Index numbers, 1935-39 average=100	With seasonal adjustment				Without seasonal adjustment			
	1945		1944		1945		1944	
	Feb.	Jan.	Dec.	Feb.	Feb.	Jan.	Dec.	Feb.
Industrial production¹								
Lumber	159	161	151	165	116	115	116	122
Refined oils ²	—	—	—	—	239	233	241	225
Cement ²	138	167	159	120	123	118	117	106
Wheat flour ²	156	160	144	128	156	160	144	128
Petroleum ²	—	—	—	—	136	135	134	125
Electric power ²	459	457	436	495	420	423	412	454
Factory employment and payrolls³								
Employment								
Twelfth District .....	..	274	r271	r307	..	268	r271	r303
California	310	313	312	r365	308	309	312	r362
Pacific Northwest .....	..	231	r225	238	..	224	r225	232
Oregon .....	..	210	r202	208	..	199	r200	199
Washington .....	..	243	r239	256	..	239	r240	252
Intermountain .....	..	132	r127	134	..	121	r130	121
Payrolls								
California	653	664	671	r736	647	653	671	r729

¹ Daily average.

² 1923-25 average=100.

³ Excludes fish, fruit, and vegetable canning.

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avorable for a good production from the present bloom. There was no extensive injury from cold weather this winter, and February and March rains were especially beneficial. California navel orange production is estimated at 4 percent less than last season, but the Valencia crop is expected to be 17 percent higher. The California lemon crop is 21 percent above last year's, and winter grapefruit 10 percent above a year ago. In Arizona the winter grapefruit crop is expected to be 7 percent below last season's record. Approximately 22,000 persons were engaged in picking and packing citrus fruits and dates in southern California in early March.

Picking and packing winter and spring vegetables grown in six southern California counties employed about 20,000 persons in the early part of March. Winter and early spring vegetable crops were delayed because of dry or cold periods, but in general broccoli, cabbage, cauliflower, and celery were being harvested in volume in the southern part of the Twelfth District in early March. In the Imperial Valley of California, carrots, green peas, and tomatoes were also being harvested in important quantities. The winter lettuce harvest declined rapidly after March first, and early spring lettuce is now being marketed from Arizona. Early spring lettuce from California is not expected in volume before mid-April. Indicated production of early California artichokes, asparagus, cabbage, and winter lettuce is below that of a year ago, while the production of carrots, cauliflower, celery and spring lettuce is expected to be above that of last year. The California early potato acreage, about 80 percent of which is in Kern County, is estimated at 73,000 acres. This exceeds last year's plantings by 9,000 acres and the reduced 1945 goal by 18,000 acres. The harvest will start about mid-April. Cotton picking was still under way in March in California with about 10,000 people at work in the cotton fields of the San Joaquin Valley. Early rains and labor shortage have delayed the cotton harvest.

In California, Washington, and Idaho, milk production per cow as of March 1st was slightly higher than last year. In general, due to labor shortages, the percent of all cows being milked is the lowest in years. The rate of egg production in February was 2 percent below that of a year ago in the western states, and the number of layers was 10 percent less. During the first two months of this year, Washington and Utah were the only states in the District to show an increase in egg production over the same period last year. The sheep industry is severely handicapped by a lack of sheep herders, and ranchers are taking steps to make arrangements with the State Department to obtain Basque workers from Spain and Mexico by means of a waiver of the alien contract labor laws.

The Government is making an effort to supplement the farm labor supply to the extent necessary to meet production requirements. The Army expects to have 100,000 war prisoners available for farm work in 1945, and the total of foreign agricultural workers in the United States may reach 140,000 at the peak of the 1945 harvest,

compared with a maximum of 95,000 in 1944. The labor force in California is being supplemented by Mexican nationals again this year. At the peak of the 1944 harvest season there were 36,600 Mexican nationals employed on California farms, and, as of the second week of March 1945, a relatively slack season, over 20,000 were still at work. In contrast to a year-period reduction nationally, the total number of persons working on California farms in March was about 10 percent higher than a year ago. There were more foreign workers than in March 1944, but the year-period increase appears to be due in part also to the return to agriculture of some persons from industry.

The index of prices received by farmers (1910-14 = 100) reached 201 on January 15, 1945. This is the highest point attained during the present war period. By mid-February, the index declined to 199. Sharply lower truck crop and egg prices, together with decreases in dairy products and cotton prices were only partly offset by seasonal rises in fruit prices and an increase in the price of meat. With increases in prices paid by farmers, parity prices were at the highest level of the war in January and were unchanged at mid-February. Farm product prices averaged 16 percent above parity in February.

The Dry Pea Program

The price support program for the 1945 dry pea crop involves severe restrictions upon acreage and marketing. The 1945 price support for dry peas has been lowered from that of the past two years, but the restrictions introduced into the present program are considered by the War Food Administration to be necessary to hold production in line with national requirements and to avoid a possible surplus at 1945 prices. The details of this program are of interest in more than an immediate sense and to others besides those directly affected. It may become necessary, in order to minimize surpluses, to restrict the production of other price-supported products, whether or not by similar programs, when their expanded wartime output may be no longer in demand even though prices are supported at only 90 percent of parity.

Dry edible peas are a comparatively new crop in the Pacific Northwest and output has expanded very rapidly in the last four years. Production in this District in 1944 was over five times that of 1940, and the District now accounts for about 90 percent of the national production. Acres harvested in the District increased from 183,000 in 1940 to 612,000 in 1944. During this period of phenomenal growth in production, the average price increased to two and a half times that of 1940.

It now has developed that a much smaller production of dry peas will meet national requirements in 1945. Pea growers in the Twelfth District have been asked to reduce their acreage to only 58 percent of their 1944 plantings. This is by far the most drastic reduction requested in 1945 for any agricultural product. It means that in order to comply, 267,000 acres would have to be taken out of pea production in limited districts in Washington,

Idaho, and Oregon. As of March 1, indications were that this reduction would be realized.

As an incentive to increase production in 1942, the Commodity Credit Corporation agreed to purchase all U. S. No. 1, cleaned and bagged, dry peas at \$5.50 per cwt. In 1943 and in 1944 this support price was increased to \$5.65 per cwt. The farmer was guaranteed these prices less an agreed margin for the dealer or processor. The

DRY PEA ACREAGE PLANTED
(thousands of acres)

	1944	Goal 1945	Indicated 1945
Idaho	230	140	119
Oregon	51	30	20
Washington	351	195	202
Twelfth District	632	365	341

support price for the 1945 crop has been announced as \$4.50 per cwt. This is a considerable reduction from previous years but still well above 90 percent of parity, the minimum price support pledged by Congress for Steagall commodities. The parity price for peas was \$3.57 per cwt. in December 1944.

It has been announced that the reduced support price of 1945 is only applicable to the actual production on goal acreage. To induce farmers to limit their acreage, a certificate of eligibility is to be issued to the grower by

the county committee of the Agricultural Adjustment Agency, indicating the percent of the grower's crop that is entitled to price support. This is the acreage goal assigned to the individual farm, expressed as a percent of the pea acreage actually planted in 1945. It is understood that acreage goals will not be assigned nor certificates granted except in the few most important producing counties.

Before the dealer or processor can sell to the Commodity Credit Corporation, the price supporting agency, he must certify (1) that the peas included in the sale are eligible for price support, (2) that all of the peas purchased by him and sold or held for sale on the civilian market or for seed are eligible for price support, (3) that all of the peas purchased by him which are not eligible for price support have been or will be sold for use as feed for poultry or livestock, and (4) that for all peas offered to the Commodity Credit Corporation he has paid not less than the support prices less the agreed dealer's margin. Under this program a grower with pea acreage in excess of the acreage goal assigned to him must sell his peas from this excess acreage for other than human consumption, presumably at a lower price, or else sell all of his crop to a dealer who does not participate in the price support program.

Pacific Coast Shipbuilding

The Labor Force, Wages, and Hours of Work, 1940-44

SHIPBUILDING is a combination of construction and manufacturing and uses the techniques of both. Under normal conditions the construction of steel vessels has been essentially a custom-building job, contracts seldom calling for the construction of more than one vessel at a time. Much of the work performed in shipyards is of a type that is ordinarily done by skilled craftsmen who have usually served an extended apprenticeship. The normal proportion of such skilled craftsmen in a large and well balanced shipyard is unusually high, running to well over 60 or 70 percent of the total labor force. Not less than 40 distinct occupations are represented in many large shipyards, with about a dozen outstanding crafts usually accounting for the great bulk of the skilled workers. The more important of these are welders, shipfitters, machinists, pipefitters, electricians, carpenters, burners, painters, and sheet metal workers. Other important occupations include boilermakers, chippers and caulkers, riggers, drillers, and riveters, all of which differ considerably in relative importance in the various centers of the industry.

The expansion of shipbuilding on the scale attained between 1939 and 1943 on the Pacific Coast represented a much more difficult undertaking than is indicated by a mere recital of the number of employees involved, which rose from less than 20,000 at the beginning of 1940 to a peak of about 610,000 in the third quarter of 1943 and declined to around 530,000 at the end of 1944. The

wartime necessity of producing more ships in less time than ever before made imperative the introduction of far-reaching changes in the traditional technique of shipbuilding. Mass production methods became the order of the day, particularly in the construction of standardized cargo vessels such as Liberty ships, and some of the smaller combat and escort types and landing craft. With the rapid expansion of the industry under the impact of unprecedented demands upon its resources, it became necessary to establish new procedures in utilizing a much higher proportion of untrained workmen, to many of whom industrial operations were a comparative novelty. Highly skilled jobs were broken down into their component processes and a more elaborate division of labor was applied. The labor force itself was diluted through the introduction of large numbers of inexperienced and partially skilled workers, many of whom were women, in jobs traditionally held by experienced men.

Sources of labor supply

Up to about mid-1941, it was possible to draw upon local sources of labor supply to man the expanding shipyards of the Pacific Coast. The metropolitan centers and adjacent non-industrial areas provided adequate numbers of workmen so long as requirements were on a relatively modest scale, although shortages soon began to appear among the skilled and semi-skilled crafts, reflecting the long period of industrial stagnation and neglect of the early nineteen-thirties. With the establishment of

more and more shipyards, however, and the constantly enlarging scope of the shipbuilding program, local sources no longer sufficed and migration from other areas became the principal source of supply. Voluntary migration was stimulated and supplemented by vigorous recruiting campaigns instituted by the larger shipyard organizations and by Governmental agencies. The group of Kaiser yards at Richmond and in the Portland area set the pace in such recruitment drives, establishing headquarters in eastern and mid-western cities, and even advancing railroad fare to eligible applicants. While in the beginning the demand had been chiefly for skilled craftsmen, it soon became a matter of taking all kinds of able-bodied workmen, skilled or unskilled. Training programs for imparting the rudiments of industrial skills to inexperienced workers were set up both by private concerns and by public agencies. As the demand for workers became more insistent, pre-employment training was allowed to lapse in some areas and many thousands of new recruits were trained in the shipyards themselves in the simpler mechanical crafts, particularly welding and sheet metal work, and were upgraded to journeyman status after a few weeks experience on the job.

Geographic origins of shipyard workers

The question of the regional sources of Pacific Coast shipyard workers is important because of its implications for the probable postwar redistribution of the war-expanded population of this region. While little exact information of a comprehensive nature is available concerning the origins of shipyard workers specifically, something may be gleaned from a general analysis of population movements and from a few local surveys of shipyard labor forces. It must be borne in mind, however, that the employment situation is constantly changing, both in volume and composition, and conclusions drawn from the position at any one time must be used with caution.

The degree to which Pacific Coast shipyards have depended for their labor supply upon sources outside their immediate localities cannot be precisely ascertained in the absence of an actual census of shipyard workers, or an analysis of hiring records, neither of which is available. Some light on the question may be had, however, from sample inquiries made in particular localities. In the San Francisco Bay area, for example, surveys made in the spring of 1944, when shipyard employment was near its peak, indicate that a little less than one-half of the workpeople interviewed had been prewar residents of the immediately adjacent Bay area counties before taking jobs in the local shipyards, about one-sixth had come from other localities in California, and somewhat over one-third were drawn from outside the state.

Because of its larger labor supply and smaller shipbuilding industry, the proportion of prewar local residents among shipyard employees was probably greater in the Los Angeles area than in the San Francisco Bay area. Such a conclusion is supported by an analysis of the

sources of local population, as revealed by a special census taken in the spring of 1944 of five Pacific Coast congested production areas, San Diego, Los Angeles, San Francisco, Portland-Vancouver and Puget Sound. This census showed that for the two counties comprising the Los Angeles area about 23 percent of the resident population at that time had come from outside those counties since 1940, as compared with 28 percent for the six San Francisco Bay counties, 27 percent for the four Puget Sound counties, 33 percent for the four Portland-Vancouver counties, and 40 percent for San Diego County.

The contribution of immigration to the shipyard labor supply was relatively greater in the Portland-Vancouver area than in any other large Pacific Coast shipbuilding center. There the proportion of large new shipyards was greatest and the resources of the local labor market were earliest exhausted. Estimates by the Census Bureau indicate that between April 1940 and November 1943 net civilian migration into Oregon amounted to 138,000 persons. This figure is almost exactly the same as the number of people living in the Portland-Vancouver area in the spring of 1944 who were living outside the three Pacific Coast states in 1940, and compares with a total of 222,000 persons living in that local area in 1944 who came into it during the same period from all sources, including other parts of Oregon. With the almost exclusive concentration of the local war effort upon shipbuilding, as compared with the situation in the four other congested production areas of the Pacific Coast, it is reasonably certain that the primary source of shipyard labor in the Portland-Vancouver area was outside the Pacific Coast states, chiefly the North Central and Mountain regions.

In terms of the general population, the regions which made the heaviest contribution to the resident population and labor supply of the five congested areas as a whole, as of the spring of 1944, were those west of the Mississippi River. Over one-quarter of all those who were living outside the Pacific Coast states in 1940 came from the West North Central states, about one-fifth each from the West South Central and the Mountain states, and about one-seventh from the East North Central states. In the

Distribution and Trade—

Index numbers, 1935-39 daily average=100	With seasonal adjustment				Without seasonal adjustment			
	1945		1944		1945		1944	
	Feb.	Jan.	Dec.	Feb.	Feb.	Jan.	Dec.	Feb.
Department store sales (value) ¹								
Twelfth District.....	257	247	233	211	217	197	373	178
Southern California.....	260	256	241	210	232	215	384	187
Northern California.....	234	226	210	192	196	182	351	161
Portland.....	256	212	238	213	217	172	352	180
Western Washington.....	305	298	276	251	251	228	440	206
Eastern Washington and Northern Idaho....	266	247	221	215	186	164	321	150
Southern Idaho and Utah.	256	238	222	232	193	170	363	174
Phoenix.....	296	283	260	226	269	244	428	205
Carloadings (number) ²								
Total.....	136	129	119	125	112	102	105	104
Merchandise and misc..	156	146	141	135	129	123	126	112
Other.....	111	107	91	114	91	77	79	93

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.

case of San Francisco Bay shipyard workers in 1944, the proportions of that part of the labor force drawn from outside the Pacific Coast states ran about 34 percent from the West South Central states (Oklahoma, Texas, Arkansas and Louisiana, in order), 28 percent from the West North Central states (with Minnesota, Missouri and Iowa leading), 17 percent from the Mountain states (with New Mexico, Colorado and Arizona leading), 9 percent from the East North Central group (with Ohio and Illinois as the chief sources), and 12 percent from the remaining areas of the country.¹

Composition of labor force

As increasing numbers of younger men were drawn into the armed services and as the flood of immigration began to subside, it became necessary for the shipyards to hire larger numbers of women. The possibilities in the large scale utilization of women had been demonstrated by the experience of the aircraft industry, in which the period of most rapid expansion on the Pacific Coast antedated that of shipbuilding by roughly a year. The number of wage earners in California aircraft plants had grown from less than 40,000 at the beginning of 1940 to over 140,000 by January 1942, and exceeded 230,000 a year later. A similar though much smaller expansion occurred in Washington. Employment of women wage earners in California aircraft plants, negligible at the beginning of 1941, and only about 5,000 at the beginning of 1942, rose to over 80,000 a year later. In shipbuilding, the extensive substitution of women for men in the range of occupations for which they are suitable began in West Coast private shipyards about the middle of 1942, although the Government navy yards on both the Atlantic and the Pacific Coasts had been using women in industrial occupations on a fairly large scale much earlier. By the end of 1942 the total employment of women in all occupational categories in Pacific Coast shipyards, including both private and navy yards, exceeded 40,000 and at the end of 1943 had reached a peak of about 113,000. This figure was fairly well maintained through most of 1944: the net decline of about 10 percent at the year end was accounted for entirely by the privately operated yards; in the naval establishments the number of women employees continued to rise. The proportion of female employees to total employment, even in the private yards, remained fairly constant throughout 1944 at a level between 20 and 23 percent, reaching its maximum in the final quarter of the year.

Considerable differences have marked the extent to which the major shipbuilding districts of the Pacific Coast have utilized womanpower. The Portland-Vancouver area has been a consistent leader in the proportion of women in total shipyard employment; the ratio in that district has been regularly above 25 percent from the third quarter of 1943 to date. Nearly 33,000 women were employed in the shipyards of this area at the end of 1943 and again in the final quarter of 1944. At the other ex-

treme have been the yards of the Los Angeles area, which have regularly lagged behind the other districts in proportion of women employees over most of the past two years, and, up to the end of 1943, in total numbers. The peak figure for this area, about 18,000, was attained in August 1944. With perhaps the largest concentration of shipbuilding of any area in the world and a total employment of around 250,000 at the peak, the shipyards of the San Francisco Bay area have provided the largest number of jobs for women—over 50,000 at the end of 1943, and around 40,000 at the end of 1944. The Puget Sound shipyards, including a large proportion of small and intermediate sized concerns, have furnished employment for approximately 15,000 women over the year and a half from mid-1943 to date. The ratio of women to total employees in the Puget Sound area over most of the past two years has been quite similar to that of the Los Angeles district. In both cases the local aircraft plants have provided an alternative employment opportunity to industrially-minded women.

As compared with conditions in other important shipbuilding regions of the country, the utilization of women's work in shipbuilding on the Pacific Coast has been outstanding. The following table gives a comparison of the proportion of women wage earners in private shipyards during 1943 in the principal shipbuilding regions. Unpublished data for 1944 indicate that the higher rates in the Pacific Coast region were well maintained.

PERCENT OF FEMALE WAGE EARNERS IN PRIVATE SHIPYARDS—1943

	United States *	Pacific Coast	Atlantic Coast	Gulf Coast
1st quarter	3.3	6.4	2.6	4.7
2nd quarter	6.1	9.4	3.9	5.5
3rd quarter	8.6	13.6	5.2	6.6
4th quarter	10.0	15.9	5.9	7.6
Yearly average	7.4	11.5	4.5	6.2

Another striking and novel feature in the staffing of Pacific Coast shipyards has been the employment of large numbers of Negroes, a development which became increasingly significant in 1944 as the supply of white labor was reduced to the vanishing point. Completely comparable data to measure the increasing trend in employment of non-white labor are not available, but the following figures supplied by the War Manpower Commission give a sufficiently clear indication of the growing dependence of the shipyards on colored labor.

NON-WHITE EMPLOYEES IN IDENTICAL PACIFIC COAST SHIPYARDS—1942-44

	Number of shipyards	Employment		Percent non-white of total
		Total	Non-whites	
September 1942	83	422,216	9,001	2.1
May 1943	83	559,836	26,809	4.8
May 1944	104	461,423	38,197	8.5
November 1944	104	443,017	48,492	11.0

Source: War Manpower Commission, San Francisco Regional Office.

These figures include a certain number of Chinese and other racial elements, chiefly in the San Francisco Bay area, but their number is small. The proportion of non-whites is highest in that area (approximately 13 percent

¹A more complete discussion of wartime migration to the Twelfth District appeared in the September 1944 issue of this REVIEW.

at the November 1944 survey), reflecting no doubt the very large number of Negroes who have been imported to staff the new naval dry docks at Hunters Point, but significant concentrations occur at other local areas, as in Oakland, Richmond, Sausalito, the Wilmington yards at Los Angeles, and the Portland-Vancouver area.

Labor shortages and wage rates, 1941-44

The drain upon all regional sources of labor supply resulting from the mushroom-like growth of Pacific Coast shipbuilding soon completed the process set in motion by the earlier but still continuing expansion of the aircraft industry, the establishment of other war industry plants of various kinds, and the construction of numerous army camps, airfields, supply depots and similar installations. The labor surplus of a few years earlier was quickly turned into a labor deficit and persistent complaints of labor shortage were heard on every hand.

Wage rates, which had been relatively stable until early 1941 at about 95 cents to one dollar per hour for shipyard operatives in California (average hourly earnings for the industry as a whole), soon began to reflect the increasing pressure of the expanding ship construction program and advanced rapidly. Competitive bidding among the shipyards and other defense industries operating on a cost plus basis resulted in a considerable amount of labor pirating by one yard from another by the offer of higher wages. In anticipation of such developments, reminiscent of the last war, and in order to promote employment stability, the Office of Production Management had set up a Shipbuilding Stabilization Committee in November 1940, composed of representatives of labor, the shipbuilding industry, and the principal Government agencies concerned with shipbuilding. This Committee conducted negotiations between employers and labor organizations in various shipbuilding centers, the first of such conferences being held in San Francisco in February 1941. A series of Zone Stabilization Agreements were effected, which among other things established basic wage rates and made provision for standardization of shifts, overtime pay, et cetera for each of the four major shipbuilding regions of the country. As a result of these agreements, a minimum wage rate was set for first-class skilled mechanics at \$1.12 per hour in the Atlantic, Pacific, and Great Lakes regions and \$1.07 in the Gulf Coast region. These rates became effective in April 1941 for the West Coast and at varying dates from June to August for the other regions. Shipyards employing approximately 90 percent of all shipyard wage earners have subscribed to the standards established by the Zone Agreements, which are to remain in effect for the duration of the war.

In order to meet increases in the cost of living and to correct inequalities among the various regions, a National Shipbuilding Conference, sponsored by the War Production Board, the Navy Department, and the Maritime Commission, in May 1942 established a new minimum rate for first-class skilled mechanics at \$1.20 per

hour for each of the four major regions, thus eliminating the differential that had existed for the Gulf Coast shipyards. Wage rates for all other employees were raised at the same time by eight cents an hour, except in the Gulf region where the increase ranged from nine cents for the lowest paid jobs to 13 cents for the highest. These minimum rates do not tell the whole story, however, and the effective average rates of pay in most Pacific Coast shipyards continued above the rates for similar establishments in other regions. The determination of the specific occupations to be included in the "first-class skilled mechanics" group, and the rates to be paid to other workers, were left by the original agreements to local bargaining between management and labor. The apparent effect of the wage stabilization agreements, as interpreted on the Pacific Coast, was to bring about a remarkable uniformity of wage rates, both for particular occupations and within individual yards, and also to stabilize these rates at a high level. An analysis of the wage structure in a representative group of Pacific Coast construction and repair yards in the spring of 1942 showed that not less than 28 occupations represented in the construction yards included mechanics earning the minimum rate of \$1.12 per hour, effective at that time, for straight-time day-shift work. Of all the workers included in these 28 occupations, 89 percent were considered as "first-class"; the remaining 11 percent were classified as second and third class craftsmen, handymen and trainees, rather than as helpers who are paid at lower rates. Among the first shift workers in the construction yards, nearly three-fifths were paid at rates of \$1.00 or more per hour for straight time, and almost one-tenth equaled or exceeded \$1.20 per hour. Relatively few workers, chiefly laborers, received less than 87 cents per hour. Rates in repair yards averaged 10 percent higher than in the construction yards.

In spite of the pressure for standardization, both from Government sources and from labor unions, basic differences among the several shipbuilding regions remained outstanding. Especially marked was the difference between the Pacific Coast, where the proportion of new shipyards is highest, and where labor shortages have been most acute, and the other regions of the country. In June of 1943, payroll reports secured from 387 representative shipbuilders in all parts of the country, employing about 92 percent of all wage earners in private shipyards at that time, indicated that Pacific Coast yards employed the highest proportion of first-class craftsmen and supervisors: 48.7 percent and 9.3 percent, respectively, in their labor force, as against the national average of 33.7 percent and 7.2 percent. The average base rates at that time for all employees in the yards covered by the stabilization agreements were: Pacific Coast yards, \$1.15 per hour; Atlantic Coast yards, \$1.01; Gulf Coast yards, \$0.98; and Great Lakes yards, \$1.04. In November 1943 the National War Labor Board approved increased rates for some 30 occupations and classes of shipyard labor on the Pacific Coast, ranging from \$1.35 per hour for black-

smiths to 88 cents for sweepers and cleaners. Though affecting some 60,000 workers, it was estimated that these changes would increase the average base rate on the Pacific Coast by less than 1 cent per hour.

The War Labor Board also ordered, in July 1943, a general review of the wage rate structure of the entire industry. New basic minimum rates were established under this order for approximately one-third of the employees in Atlantic Coast shipyards that, it was estimated, would increase their total wage bill by slightly over 1 percent. Wage rates have also been increased somewhat in the Gulf and Great Lakes regions, but the general relationship among average base rates in the several shipbuilding regions remains substantially unchanged.

Shipyard wages compared with general wages

The powerful influence exerted by shipyard wages in attracting additional workers to the industry may best be gauged by comparing the hourly and weekly earnings of shipyard wage earners with those of employees in other manufacturing industries in typical industrial areas. Such a comparison can be made for California areas on the basis of sample data on employment and payrolls secured each month by the California Division of Labor Statistics and Law Enforcement. For the San Francisco Bay area, for example, statistical series on average hourly and weekly earnings and average number of hours worked per week in shipbuilding and repair work are available for the period from June 1940 to date.

These data show that shipyard earnings in the Bay area differed little from average weekly earnings in other local manufacturing industries in 1940, but since early 1941 have regularly exceeded them by a considerable margin. Average hourly rates in shipbuilding during the second half of 1940 were about 15 percent higher than the average for all manufacturing industries, but the average number of hours worked per week was at that time about one-eighth less in shipyards than in manufacturing plants generally. The increasing tempo of shipbuilding activity from about the middle of 1941 onward rapidly changed that relationship, however, and the work week in shipyards in this area has for the past four years consistently been longer than the general average in manufacturing. As a result of the lengthening work week in conjunction with overtime pay, of successive wage ad-

justments, of the increasing proportion of skilled workmen and upgrading of workers, and of a tendency toward a greater proportion of ship repair work, compensated at higher rates, the average weekly earnings of shipyard workers in the Bay area advanced from a level of about \$32.31 per week in the second half of 1940 to almost \$68.00 per week in the last half of 1944. For all manufacturing wage earners in the Bay area (which category included an increasing proportion of shipbuilding employees until about the middle of 1943) the corresponding averages were \$31.78 per week in 1940 and \$59.82 per week in 1944.

In the Los Angeles industrial area the general movement of shipyard wages since 1940 has been roughly parallel to that of the San Francisco area, but the increase in weekly earnings has been more pronounced, having started from a lower level in 1940 and having attained an earlier and higher peak. Throughout 1942 and most of 1943 Los Angeles shipyard workers worked longer hours and earned higher pay than those of the Bay area. During the last quarter of 1944 average weekly earnings in Los Angeles shipyards exceeded \$73.00, as compared with about \$69.20 in the San Francisco Bay area.

Compared with wages in other specific industries, hourly wage rates of Pacific Coast shipyard workers have in recent years been among the highest. Workers in certain of the metal-working trades have sometimes received higher weekly earnings but usually only by working longer hours. A comparison of average hourly earnings of wage earners employed in shipbuilding and in a dozen other representative California durable goods manufacturing industries is given in the accompanying table, covering the period from 1941 to 1944. The length of the average work week for each industry included is also shown. The basic rates of pay prevailing in the several industries are not indicated by these figures, which reflect the combination of basic rates and such other factors as overtime work, compensated at higher rates, and extra shifts, also paid at premium rates. Some part of the differences in average hourly earnings between the various industries reflects these factors as well as differences in the occupational patterns and wage structures of the industries themselves.

AVERAGE EARNINGS AND HOURS WORKED IN SELECTED DURABLE GOODS INDUSTRIES—CALIFORNIA, DECEMBER 1941-44

	Average hourly earnings				Average hours per week			
	1941	1942	1943	1944	1941	1942	1943	1944
Shipbuilding and repairing ¹	\$1.18	\$1.33	\$1.40	\$1.47	41	45	45	48
Engines and turbines	1.13	1.29	1.36	1.36	51	51	53	50
Structural steel and ornamental metal work.....	1.02	1.23	1.30	1.34	45	50	49	51
Sheet metal products—nonferrous	1.03	1.24	1.22	1.33	43	44	44	46
General industrial and metal working machinery .....	.95	1.16	1.26	1.28	47	44	48	47
Construction, mine, oilfield, and related machinery .....	.99	1.11	1.21	1.28	45	47	47	48
Automobiles and automobile equipment.....	1.05	1.14	1.22	1.27	36	47	46	45
Iron and steel foundries.....	.87	1.07	1.18	1.21	42	45	45	45
Aircraft and parts.....	.91	.97	1.12	1.21	45	46	43	46
Blast furnaces, steel works, rolling mills.....	1.10	1.26	1.20	1.20	38	43	43	44
Lumber and timber.....	.86	1.01	1.15	1.18	35	42	45	45
Cement.....	.95	1.06	1.08	1.14	42	45	47	48
Electrical machinery and equipment.....	.88	.95	1.05	1.11	43	45	44	46
Structural clay products.....	.67	.83	.90	.94	39	43	44	46
All durable goods industries (23 classifications).....	.97	1.13	1.24	1.31	43	45	45	47

¹ Private yards only.
Source: California Labor Statistics Bulletin.

Inter-industry competition for labor

Probably in furtherance of a deliberate national policy, shipyard wages in all parts of the country were allowed to advance, at least until about the middle of 1942, not merely to offset increases in the cost of living but also in order to attract labor to the shipyards from other industries and from other areas. There can be little doubt that up to the announcement in July 1942 by the War Labor Board of the Little Steel formula restricting wage increases, the marked advance in shipyard wages and earnings had reacted to cause increases in hourly rates in other industries and occupations. Certainly their problems of manning and labor recruitment were not eased by the competition of these new enterprises, largely operating on a cost plus basis, which tended to drain away their labor supply in both skilled and unskilled categories. Migration of workers to the expanding shipyard centers and other higher paying war industries caused serious labor shortages in the lumber industry of Oregon and Washington and in the nonferrous mining and smelting industries of the Intermountain region. Action was taken in the autumn of 1942 by the War Manpower Commission and other official agencies to check this migration of miners and loggers and to alleviate the resulting shortages. Restrictions were imposed on the release of workmen from these industries or their employment elsewhere; gold mining was virtually suspended by executive order and its workers channeled into the critically important nonferrous minerals. Several thousand men were furloughed by the Army to work in the western copper mines, longer hours at overtime rates were prescribed for logging camps and sawmills, and substantial wage increases were authorized for mining and milling operatives.

The high level of shipyard wages, especially the high entry rates for helpers, trainees and common labor, also had serious repercussions on the West Coast aircraft industry, both in California and in Washington. Over 200,000 Pacific Coast aircraft employees were involved in 1942 and early 1943 in an attempt to secure a general wage advance that would reduce to some degree the competitive differential enjoyed by shipyard workers. Since the industries were largely carried on in the same localities, drew their workers from the same labor markets, and had many similar occupations, it was argued that wage rates should be reasonably comparable. In deciding this issue, in February 1943, the War Labor Board followed a strict interpretation of the Little Steel formula and, while granting certain limited wage increases both in California and Washington, insisted that a substantial differential between wage rates for less skilled labor in aircraft and in shipbuilding be allowed to remain.

The ability of the aircraft industry to continue expanding its operations through most of 1943, despite the drain of the shipyards on its personnel, was largely due to the fact that much of the work performed in airframe plants can be done by women. From a figure of less than 500 early in 1941, the number of women wage earners in the

California aircraft industry expanded to more than 100,000 in March 1943, when they represented over 40 percent of the total number of wage earners in the industry, a proportion maintained over most of the past two years. In shipbuilding, the employment of women on a substantial scale did not begin in the Los Angeles area until about the third quarter of 1943 and reached a proportion in excess of 10 percent of the total number of wage earners only toward the end of that year. The disinclination of women to engage in shipyard work in that area was accentuated by the long distances involved in journeying from the residence areas to the congested harbor district, with consequent loss of time, discomfort and fatigue, as well as by the less congenial nature of the work itself, compared with employment in modern aircraft plants, more favorably situated and requiring lighter work.

In the Seattle area, aircraft factory manning problems have been especially troublesome despite the large increase in the local population and the bringing in of considerable numbers of partly trained young people in 1942 and 1943 by the National Youth Administration. Here, again, the basic difficulty was the competition of the rapidly growing shipyards and the differential between shipyard wages and aircraft wages. The disparity was especially marked in the entry rate for unskilled labor, which in the summer of 1943 was 67½ cents an hour in the aircraft plants and 95 cents in the shipyards. The award made by the War Labor Board in February of that year had provided for a general wage increase for aircraft workers in Washington of 4½ cents an hour, although the industry management had offered an increase of 10 cents. During the seven months following that decision aircraft employment remained stationary, and even declined at the largest Seattle plant despite an intensive local recruitment drive. Early in September 1943 the War Labor Board approved a revised job classification and wage rate schedule authorizing increases in hourly rates ranging from 15 to 22 cents, which, it was estimated, would permit a total increase of more than \$1.00 per day for about three-fourths of the aircraft employees. Within 60 days a net increase of more than 3,000 employees had occurred and production losses due to labor shortage had been fully made up.

Partly in order to relieve the aircraft labor situation and partly because of increasing evidence of overmanning and labor hoarding in the shipyards, the War Manpower Commission early in August of 1943 directed the major private shipyards of the Puget Sound area to reduce their total employment by 10 percent within the next 30 days. In the next few months following this order, basic controls (in addition to Selective Service policies) were established that were intended to bring labor supply and demand on the Coast into better balance, both between one industry and another and within particular industries. These were first, the requirement that hiring by essential industries be done on the basis of controlled referrals; and second, the establishment of employment ceilings

which applied to individual firms. The operation of these measures has undoubtedly lessened indiscriminate and wasteful job shifting and, incidentally, demonstrated that future labor requirements as estimated by the shipbuilding and aircraft industries at that time were greatly exaggerated.

The work week and intensity of plant utilization

Maximum efficiency in industrial production requires a nice balancing of several different factors. Granted the proper organization of working forces and managerial supervision and an adequate flow of materials with their various components in proper sequence, there remains the important question of the right balance of manpower and plant utilization in relation to the time element. With an unlimited or flexible labor supply more output can generally be obtained by keeping the plant fully staffed at all times and in continuous operation. With a fixed labor supply, however, or one sharply limited in relation to the plant and its equipment, it is necessary to consider how far people can be worked for longer hours or more days in the week without incurring excessive fatigue, with resulting loss in efficiency and reduction of total output. There is also the question of scheduling the work so as to allow for adequate plant maintenance, with periodic shutdowns for major repairs or overhaul of critical equipment.

The Pacific Coast shipyards have illustrated various phases of this cycle of labor abundance and scarcity during the period from 1940 to date. Prior to 1941, as was pointed out above, the average work week in the Pacific Coast shipbuilding industry was shorter than that in most other manufacturing industries. A marked advance in shipyard working hours occurred in 1941, however, and more moderate increases thereafter, until in California the work week in shipbuilding has regularly exceeded the general average in manufacturing industry for the past three years. As compared with the situation in other important shipbuilding regions, in spite of these advances, the work week in Pacific Coast shipyards has lagged behind the general rise elsewhere, and for the most of the past two years the West Coast had the short-

est average work week of all the shipbuilding regions of the country.

The shorter average work week for individual employees in Pacific Coast shipyards was more than offset, however, by the more general practice in this region of working multiple shifts and by operating the plant more days per week. While the basic minimum wage rates established by the Zone Stabilization Agreement of April 1941 were predicated on an eight-hour day and a 40-hour week, the intent of the agreement was to encourage six days of operation per week, even though a considerable amount of overtime pay was incurred. Overtime was to be paid at the rate of time and one-half for hours in excess of eight per day or 40 per week and for all work on Saturday; double time rates applied to Sunday and holiday work. In January 1942, as part of the all-out war effort, the agreement was amended to provide for continuous operation, i.e., 24 hours a day, seven days per week. The revised arrangements called for a work week of six regularly scheduled shifts for each employee with straight-time rates applying to the first five shifts and time and one-half rates to the sixth shift. It was also provided that the day off to which each workman was entitled every week should, if possible, be rotated so that each man should have an equal opportunity to be off on a Saturday or Sunday; overtime rates for Saturday and Sunday work, as such, were abolished. The extra shift arrangements covered by the original agreement were left undisturbed. These specified that the second, or "swing", shift should consist of 7½ hours working time, to be compensated at eight times the regular hourly rate for the first, or daylight, shift, plus ten percent; the third, or "graveyard", shift, was to cover seven hours working time, with pay also equal to that for the regular day shift of eight hours, plus 15 percent. These shift premiums were equivalent to differentials of 17 percent and 31 percent, respectively, over the straight-time rates for the day shift.

For a variety of reasons it is seldom possible to staff the night shifts at a level approximating that of the regular day shift. Repair and maintenance work must largely be done at night, or at the week-ends, if possible. Operating reasons sometimes make it impossible to perform all necessary work in certain departments except on the day shift; frequently there is a lack of balance in the equipment of the various departments, which equal manning of the several shifts would only accentuate. It is to be expected, therefore, that great differences would be found in the operating practices of various shipyards with respect to multiple shifts. This has actually been the case on the Pacific Coast, where extreme differences have characterized the policies of various shipyards, even within the same locality. In general, it may be said that the older yards were the slowest to use extra shifts and where they did so they staffed them relatively lightly. The large new yards, on the other hand, especially those concentrating on the emergency program of the Maritime Commission, used multiple shifts extensively and effi-

Banking and Credit—

Condition items of weekly reporting member banks	Averages of Wednesday figures (millions of dollars)		Change from	
	1945 Feb.	Jan.	Dec. 1944	Feb.
Total loans.....	1,030	--25	-- 41	+ 34
Com'l., ind., & agric. loans.....	515	-- 2	-- 1	-- 7
Loans to finance transactions in:				
U. S. Government securities.....	64	--23	-- 45	+ 19
Other securities.....	55	-- 1	+ 2	+ 21
Real estate loans.....	296	0	-- 1	-- 4
All other loans.....	100	+ 1	+ 4	+ 5
Total investments.....	5,069	+ 8	+143	+988
U. S. Government securities.....	4,692	0	+138	+919
All other securities.....	377	+ 8	+ 5	+ 69
Adjusted demand deposits.....	3,066	+16	+ 69	+484
Time deposits.....	1,721	+39	+ 78	+351
United States Government deposits....	937	--93	-- 43	-- 5
Coin and currency in circulation				
Total (changes only).....	--	+44	+ 49	+781
Fed. Res. Notes of F. R. B. of S. F....	2,743	+43	+ 50	+751
Member bank reserves.....	1,680	+29	+ 48	+281

ciently. These modern plants were designed with a view to continuous operation, and their blazing illumination has been a familiar sight in the nocturnal landscape for the past three or four years.

The idea of the seven-day work week in shipyards was much more generally accepted on the Pacific Coast than in other parts of the country, and probably had much to do with the outstanding record established by the West Coast yards for the speedy construction and delivery of merchant vessels to the Maritime Commission. In fact, at various times in a number of Maritime Commission yards, large numbers of ships' hulls had been launched and were tied up awaiting the delivery and installation of propulsion engines and miscellaneous auxiliary equipment. The output of the shipyard workers, which was essentially the construction of the hulls and installation of equipment, outran the capacity of the engine builders and manufacturers of pumps, valves, and other necessary equipment for outfitting and completing the ships.

The seven-day work week requires more manpower, however, than a shorter work week, if the plant is to be as fully staffed. The peak of shipyard employment was reached on the Pacific Coast in the third quarter of 1943. While the level was well maintained during the succeeding five or six months, it became increasingly difficult to attract new workers to this region for replacement of those who for one reason or another dropped out of the working force. There is evidence, moreover, that many shipyards had been overmanned and could have functioned perhaps as well with fewer employees. Effective January 1, 1944, all shipyards working on Maritime Commission contracts were ordered to reduce their work week from seven to six days. For a brief period in the third and fourth quarters of 1944, a number of yards working on the so-called attack transports (modified Victory ships) returned to the seven-day work week, which, however, was abandoned again when these vessels were completed. At the end of 1944 about 10 percent of Pacific Coast shipyard workers were working Sun-

day shifts, chiefly in yards engaged in naval construction and in repair yards.

The situation at the end of 1944

Shipbuilding employment reached its peak on the West Coast in the third quarter of 1943 with about 610,000 persons engaged in the several branches of the industry. Following that date a fairly steady reduction, averaging about three percent each quarter, ensued until at the end of 1944 the total number had declined to about 530,000. Some of the reduction was accounted for by the closing down of yards that had completed their contracts, some by the abandonment of Sunday work in 1944, some by the weeding out of less efficient workers, and some by the operation of the draft, but probably the greater part of the reduction was due to a persistent drift of workpeople away from the shipyards. Also the recruitment and hiring policies of the shipyards were becoming more selective and discriminate, and increasing emphasis was placed upon specific skills and versatility as the ship repair program began to bulk larger in the total picture. At the end of 1944, with the completion under considerable pressure of certain types of vessels, notably attack transports, fairly drastic cuts in the working force at some of the large Maritime Commission yards were impending.

All in all, three stages may be roughly distinguished, although they blend into one another. First was the period lasting well into 1943 during which additional workers of almost any degree of skill were needed—and were obtained, although not always as rapidly as was desired. The second period was that in which shipyard employment declined, to a considerable degree through voluntary quits, in the face of general demands for additional labor—demands, however, which steadily became more selective. This situation continued through most of 1944. The third period, which may be said to have begun at the end of 1944, is one of declining overall shipyard labor needs with consequent layoffs of workers—although needs for skilled machinists and the like for ship repair remain pressing.

The Seventh War Loan Drive

WAR spending has continued at levels close to the mid-1944 high, and in more recent months has been accelerated, with the result that during March expenditures for war reached a new high of more than 8 billion dollars. With tax collections still averaging less than one-half of current expenditures, the Treasury again will need to call upon the public for funds. Beginning April 9 an intensive drive to increase the sale of Series E bonds by means of special 90-day additional payroll deductions begins. All Series E, F, and G savings bonds and Series C savings notes processed through the Federal Reserve Banks between April 9 and July 7 will be credited to the Seventh War Loan Drive. The formal period of the Seventh Drive itself is from May 14 through June 30.

As in previous drives, particular emphasis will be placed upon sale of securities to individuals, and the goal for such sales, 7 billion dollars, is greater than in any previous drive. The total goal for the drive is 14 billion dollars to be subscribed by non-bank investors. Every effort again is being made to discourage purchase by commercial banks either directly or indirectly. Commercial banks are permitted, however, to invest in accordance with the formula used during the last drive, which permits subscription in aggregate amounts not exceeding 10 percent of time deposits or \$500,000. Commercial banks will not be permitted to own the 2½ percent or the 2¼ percent marketable bonds offered in the drive until within ten years of their maturity dates.

The list of securities to be offered in the Seventh War Loan Drive differs somewhat from offerings in previous drives, and is as follows:

- Series E, F and G Savings Bonds
- Series C Savings Notes
- ⅞ percent Certificates of Indebtedness
- 1½ percent Bonds of 1950
- 2¼ percent Bonds of 1959-62
- 2½ percent Bonds of 1967-72

The 1½ percent bonds are offered in lieu of the 1¼ percent notes and 2 percent bonds made available in previous drives. The offering of 2¼ percent bonds, previously available only in the Fourth War Loan Drive, provides another relatively long term security, yet of less distant maturity than the 2½ percent bonds, which have been standard offerings in all drives. In view of the delayed announcement of maturities for the several classes of securities, there was a good deal of interest in the market concerning the possibility of reduced effective interest rates. As this is written, however, maturities have just been announced, and it is apparent that the movement toward lower rates of interest is slight. The 2½ percent

bonds offered in the Seventh Drive run for about a year longer than the same bonds in earlier drives, and other issues have been adjusted in proportion.

Several changes in procedure undertaken in the Seventh War Loan Drive are designed to focus efforts on sales to individuals, and to discourage further the purchase of securities by banks. The 1½ percent bonds will be offered during the drive only to individuals.¹ This is of considerable significance, since individuals' subscriptions during the Sixth Drive for the 2 percent bonds and the 1¼ percent notes amounted to only 1,295 million dollars and 210 million, respectively, out of total sales of 6,939 million and 1,550 million. During the Seventh Drive, other buyers will have available only the usual certificates of indebtedness, savings notes, and bonds of comparatively distant maturities.

Subscriptions from dealers and brokers will be restricted to the 2½ percent and the 2¼ percent bonds. No such subscription may exceed the greater of two amounts: (1) the amount of those two restricted issues sold outright by the dealer or broker to customers other than dealers or brokers in the 45 days following the Fourth War Loan Drive, or (2) 40 percent of the dealer's or broker's net capital.

Commercial banks, which during the period of the Sixth War Loan Drive purchased more than a billion dollars' worth of Series F and G savings bonds and 2 percent and 2½ percent Treasury bonds, will be permitted to buy within specific limits savings bonds, 1½ percent Treasury bonds, and certificates of indebtedness during the period of the Seventh Drive. As before, such sales will not be credited to the drive. And although the 1½ percent bonds and certificates of indebtedness may be purchased by banks in the open market after the drive period, the omission of the 2 percent 10-year bonds and the limitations on bank ownership of the 2¼ percent and 2½ percent bonds already mentioned should lend assistance to the general policy of encouraging individual rather than bank purchase of such securities. Banks are requested not to make loans for the speculative purchase of Government securities, not to accept subscriptions for speculative purposes, and not to purchase outstanding securities on the understanding that a similar amount of new securities will be subscribed for through such banks. All non-bank owners of Government securities are asked not to sell securities, apart from usual portfolio adjustments, in order to obtain funds to subscribe for securities offered in the Seventh War Loan Drive.

¹ Including partnerships (other than securities dealers and brokers) and personal trust accounts.

National Summary of Business Conditions

Released March 26, 1945—Board of Governors of the Federal Reserve System

INDUSTRIAL activity continued to increase slightly in February and the early part of March. Value of department store sales was one-fifth greater than in the same period last year. Wholesale commodity prices generally showed little change.

INDUSTRIAL PRODUCTION

The Board's seasonally adjusted index of industrial production was 235 percent of the 1935-39 average in February, as compared with 234 in January and 232 in the last quarter of 1944.

Steel production, which declined further in the first part of February as a result of continued severe weather conditions, showed a substantial increase at the end of the month and in the first three weeks of March. Average output of open hearth steel during February was 2 percent above the January rate, while electric steel production increased 7 percent. Output of nonferrous metals continued to rise slightly in February, largely reflecting increased military demands. Activity in the machinery and transportation equipment industries was maintained at the level of the preceding month; a decline in shipbuilding offset a slight increase in output of most other munitions industries. Production of lumber and stone, clay, and glass products in February was at about the January level.

Production of most nondurable goods showed little change in February. Output of cotton goods and shoes, however, rose 5 percent from the preceding month to a level slightly above that of a year ago. Output of explosives and small-arms ammunition showed further large gains. Activity at meat-packing establishments continued to decline, as pork and lard production dropped further and was 50 percent below the peak level reached a year ago. In March it was announced that supplies of meat available for civilians in the second quarter of 1945 would be 12 percent less than in the first quarter. Activity in rubber products industries in January and February was 6 percent above last autumn, reflecting chiefly a sharp increase in production of military truck tires.

Minerals output rose slightly in February, reflecting increased output of anthracite and a further gain in crude petroleum production. Anthracite production recovered in February and the first two weeks of March from a large decline during January. Bituminous coal production showed little change in February from the January level and declined slightly in the early part of March.

DISTRIBUTION

Department store sales in February, which usually show little change from January increased considerably this year. Value of sales in February and the first half of March was 22 percent larger than in the corresponding period a year ago, reflecting the earlier date of Easter this year and continuation of the freer spending in evidence since the middle of 1944.

Freight carloadings, which had declined at the end of January and the early part of February owing to severe weather conditions, have increased since that time. Shipments of miscellaneous freight were in larger volume in the five-week period ending March 17 than in the corresponding period of 1944 while loadings of most other classes of freight were less.

BANK CREDIT

Treasury expenditures during February and the first half of March continued to increase the total volume of deposits and currency held by the public. Adjusted demand deposits at weekly reporting banks in 101 cities increased 1.4 billion dollars and time deposits rose about 200 million dollars during the four-week period ended March 14. Currency in circulation increased 350 million dollars over the same period, but declined somewhat in the week following. To meet the resulting increase in required reserves as well as the currency drain, Federal Reserve Bank holdings of United States Government securities increased 395 million dollars in the four weeks ended March 14, while reductions in nonmember and in Treasury deposits at the Reserve Banks supplied 450 millions of Reserve funds to member banks. Excess reserves have remained at an average level of about a billion dollars.

The increase in Federal Reserve holdings of Government securities roughly paralleled the decline in commercial bank holdings. Reporting banks reduced their portfolios by 260 million dollars in the four weeks. Holdings of Treasury notes declined by 1.7 billion dollars while certificate holdings increased by 1.4 billion dollars, reflecting the March 1 Treasury exchange offer. Bill holdings were reduced by 210 million dollars. Bond holdings, however, continued to increase. Total loans for purchasing and carrying Government securities declined by 230 million dollars and commercial loans by 185 million.

