Monthly Review

FEDERAL RESERVE BANK OF SAN FRANCISCO

AUGUST-SEPTEMBER 1945

Government Security Sales

THE end of the war made it possible to anticipate a substantial downward revision in Treasury expenditures. As of August 30, total expenditures for the fiscal year ending June 30, 1946 were estimated by the Budget Bureau at 67 billion dollars, as against an August 1 estimate of 85 billion. Even the lower figure, however, is markedly above probable post-transition levels and involves a substantial deficit, estimated for the year at 31 billion dollars. Expenditures arising out of the war but yet to be made include payments for materials and munitions already delivered, contract settlements, and payments related both to the maintenance of the armed forces and to the veterans program.

The Victory Loan

To supply these funds in part, the Victory Loan Drive will begin October 29 and close December 8. (Savings bonds and notes processed through the Federal Reserve Banks from December 8 to December 31 will also be credited to the drive.) The goals established are 14 billion dollars for sales to all non-bank investors and 4 billion for sales to individuals, of which 2 billion is to come from Series E bonds. The securities to be sold under the direction of the State War Finance Committees are:

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

Inflationary pressures did not disappear with the end of the war, and the major emphasis in the Victory drive will again be on sales of securities to individuals. As in other drives, efforts are being made to discourage the direct or indirect use of bank credit except to facilitate permanent investment in Government securities.

Commercial banks will not be allowed to subscribe for new issues, except that commercial banks accepting time deposits will again be permitted limited subscriptions, not to exceed 10 percent of their time deposits or $500,000. Certificates of indebtedness are the only securities being offered without restrictions as to bank ownership after the drive. Banks are urged not to make loans nor to accept subscriptions for speculative purchases and not to purchase outstanding securities with the understanding that a corresponding subscription for new securities will be entered through such banks.

Non-bank investors are requested not to sell securities, except for ordinary portfolio adjustments, to obtain funds for Victory Loan subscriptions. Limitations are placed upon subscriptions of dealers and brokers and, for the first time, upon those of insurance companies and savings institutions.

As in the Seventh War Loan, dealers' and brokers' subscriptions will be restricted to the 2¼ and 2½ percent Treasury 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, or (2) 40 percent of the dealer's or broker's net capital.

Insurance companies will be limited in their subscriptions to either 15 percent of their total Government security holdings on December 31, 1944 or 6 percent of their total admitted assets on that date, whichever is larger. Savings institutions, including savings banks not accepting demand deposits, savings and loan and building and loan associations, cooperative banks, and credit unions, will be limited to twice the amount of their increase in net assets (total assets less borrowed funds) from July 1 through September 30, 1945 plus 7 percent of their Government securities held on June 30, 1945.

Goals for non-bank investors are lower than in any war loan drive except the first two, but the need to meet these goals with the minimum possible expansion in bank credit is as pronounced as ever. The desirability of continuing purchases of Government securities by individuals will remain after the Victory Loan Drive is concluded. The Treasury has indicated that, while this will be the last great public drive, both the general sale of savings bonds and the sale of Series E bonds through payroll deduction plans will be continued.

Results of the Seventh War Loan

Security sales in the Seventh War Loan Drive amounted to 26.3 billion dollars, 5.7 billion more than the Sixth Drive total, which was the previous high. In addition, sales to commercial banks having time deposits were 1.3 billion dollars and to Treasury investment accounts, 1.1 billion. Sales to individuals totaled 8.7 billion dollars, 2.3 billion above the earlier record established in the Fifth War Loan. Series E bond sales of 4 billion dollars were also substantially higher than in any previous drive.

Twelfth District sales also reached new highs. Total sales amounted to 2.2 billion dollars, compared with 1.7 billion in the Sixth Drive; and sales to individuals were 0.9 billion, compared with 0.7 billion in the Fifth Drive. In terms of quotas, Washington and Oregon were the leading District states in total sales with 193 and 187 percent; Oregon and Nevada led in sales to individuals with 125 and 123 percent of their quotas and in sales of Series E bonds with 109 and 106 percent. Comparable national figures were 188 percent of the quota for total sales, 124 percent for sales to individuals, and 99 percent for sales of Series E bonds.

The extremely high level that was reached in sales of securities other than savings bonds was not attained without a substantial expansion of bank credit, which probably amounted nationally to more than 10 billion dollars. Funds for non-bank purchases were obtained both from bank borrowing and from the sale of outstanding securities to the banking system. Although the increase in bank credit related to drive sales was as great as or greater than in previous drives, the net absorption of securities by non-bank buyers was also probably greater than in any other drive.

SALES OF SECURITIES, SEVENTH WAR LOAN DRIVE
UNITED STATES AND TWELFTH DISTRICT BY STATES
(millions of dollars)

	Total	Sales to individuals				Other sales[1]
		Total	Series E	Series F & G	Other	
United States	26,313	8,681	3,976	683	4,022	17,632
Twelfth District....	2,191	910	508	78	323	1,281
Arizona	43	21	13	3	5	22
California	1,449	594	318	56	220	856
Idaho	42	22	13	1	7	20
Nevada	16	11	5	1	5	5
Oregon	205	100	58	6	36	105
Utah	72	31	21	1	9	40
Washington	364	130	80	11	39	234

[1] Excluding sales to commercial banks and Treasury investment accounts, which were outside the loan drive.
Note: Figures do not necessarily add to totals because of rounding.

Business Conditions—Twelfth District

FROM the end of 1943 to mid-August of this year, employment in manufacturing industries in the Twelfth District declined appreciably although few persons were unemployed and more or less acute labor shortages were widespread. In the first month since the end of the war, an even more paradoxical situation has developed. Manufacturing employment has been reduced sharply and there has been some increase in unemployment, but local labor shortages continue and a substantial number of job openings exists. The new situation, aggravated by the unexpectedly early ending of the war, necessarily involves a certain amount of dislocation and individual hardship, especially in the war industry centers. The full impact of the end of the war has not yet been felt, however; some industries and areas are faced with the necessity of an immediate shift to a peacetime economy, but the continuance of services related to military traffic to and from the trans-Pacific area has temporarily delayed part of the expected reduction in war-supporting activities. Even in the two major war industries of the District, aircraft and aircraft parts and ship construction and repair, the volume of employment at September 15 was still around 400,000, a figure far in excess of any purely peacetime level that may reasonably be expected. The adjustments attendant upon the transition from a wartime to a peacetime economy in the District will probably not be completed rapidly.

Industrial employment

While the approaching end of the war had already resulted in appreciable employment reductions in the major war industries of the Twelfth District, the immediate effect of the Japanese surrender was the additional loss of nearly 300,000 jobs during the four weeks following August 15. About one-third of these were in shipbuilding and repair yards, about one-quarter in the airframe and aircraft parts industries, with the remainder scattered through a miscellaneous group of metals, ordnance, and munitions plants, parts manufacturers and sub-contractors. The areas experiencing the largest reductions in war industry employment were metropolitan Los Angeles, with approximately 100,000 layoffs, the Seattle-Tacoma-Bremerton area with about 50,000, the San Francisco Bay area with about 45,000, the Portland-Vancouver area with about 30,000, and San Diego, with about 17,000. Among individual communities, the most severely affected by contract cancellations were Long Beach, Wilmington, Santa Monica, Inglewood, Huntington Park and San Diego in southern California, and Portland, Vancouver, Seattle and Tacoma in the Northwest. While the San Francisco Bay area has had relatively few large cancellations since mid-August, a considerable number of small manufacturers were affected; there were also sizeable layoffs in the shipyards at Richmond and Sausalito.

Among the several industrial areas of the District, the San Francisco Bay region seems to be experiencing relatively less difficulty than the other large centers in the current situation, in large part because more or less readjustment had already been made in this area as new shipbuilding construction approached completion and shipyard workers transferred themselves to other lines which are still active, left the district, or retired from the labor force. A large volume of transport and shipping activity and ship repair work continues to center at San Francisco Bay in connection with trans-Pacific military and naval supply and replacement operations; labor requirements for these services are providing some offset to declining employment in direct war activities.

A sharp increase in unemployment compensation claims was one of the first consequences of contract cancellations and layoffs in Twelfth District industrial centers.[1] Total claims on file jumped from approximately 42,000 in California, Oregon, and Washington at the be-

[1] It should be noted that the number of persons receiving unemployment compensation is well below the number of persons having filed claims.

ginning of August to about 100,000 at the end of the month and to about 145,000 by mid-September. The heaviest increase was in southern California—from 28,000 claims on August 1 to over 100,000 on September 15, while the lowest proportionate increase was in the northern California area—from about 11,000 claims to about 20,000. Greater relative increases occurred in Oregon and Washington, where the total number of claims increased from about 2,500 for the two states on August 1, to nearly 24,000 on September 15.

Some of those laid off or having voluntarily left war jobs have taken other employment; some, especially industrially trained women, are unemployed; and some have left the District labor force by retirement or by leaving the area. Substantial numbers of job openings are reported by the United States Employment Service in most of the larger District cities. Most of these openings are in the trades and services. The railroads and public utilities are also seeking to augment their forces, and certain industries, including lumbering, metal mining, and steel mills and foundries, are having considerable difficulty in obtaining enough men to sustain their operations. Concern is also being expressed over the adequacy of the agricultural labor supply. Lower wages offered, differing and in many cases lower skills required, lack of housing, and in some instances lack of employment opportunities for women and for members of minority races as well as for marginal workers, are among the factors explaining the over-supply of some types of labor and the shortage of others.

War industries

By mid-August Pacific Coast shipyards building for the Maritime Commission were within measurable distance of completing their contracts. Following the surrender of Japan, the Commission announced the cancellation on August 20 of 355 million dollars in contracts covering the construction of 135 ships, of which 53 were under contract to West Coast shipyards. At the end of August there still remained about 100 vessels of the Commission's Pacific Coast program to be completed—assuming no further cancellations; most of these were under contract to yards at Los Angeles harbor and at Portland and Vancouver. In probably not more than two West Coast yards, however, will the remaining ships require any appreciable amount of construction extending into 1946. Naval contracts have also been extensively cancelled, including a recent large order for aircraft carriers held by a Vancouver yard and contracts for destroyers at Seattle and San Pedro; naval work at a large Tacoma yard has also been greatly curtailed. A considerable number of army and navy contracts for barges and lighters of various kinds have either been cancelled or suspended. On the other hand, one of the smaller Portland yards is actively working on a contract for the Netherlands Indies calling for the construction of 20 freighters for use in inter-island traffic. A number of inquiries have also been reported from European and South American countries for new ships to be built in American shipyards, and it is not impossible that West Coast yards may participate in this business. Ship repair and conversion work is still going forward, offsetting to some extent the rapid decline in new ship construction activity. The overall reduction in District shipyard employment between August 15 and September 15 was approximately 100,000, from about 385,000 to about 285,000.

Cutbacks in the procurement of aircraft had been considerably greater than in the case of ships during the period following V-E day. In spite of heavy cancellations, however, the backlog of Twelfth District airframe plants still remained at a high figure in early August, and the total weight of airplanes to be produced by all plants for the army air forces and for Lend-Lease during the second half of 1945 had been scheduled at a rate equal to 70 percent of production in the first six months of the year.

This program was abruptly changed by the surrender of Japan. During the period immediately following August 15, the Army Air Forces announced the cancellation of orders for more than 31,000 military planes, involving approximately 7 billion dollars. Among the Pacific Coast airframe plants, large units at Long Beach, Santa Monica, Inglewood, San Diego and Seattle have had extensive cancellations, and numerous sub-contractors, parts manufacturers and feeder plants have also been affected. In the month ending September 15, employment in West Coast airframe and aircraft parts establishments was reduced by approximately 40 per cent, from about 185,000 to around 110,000 persons. Following the cancellation of military orders, the larger airframe plants inaugurated a five-day, 40-hour work week.

The situation is still too confused to permit a reliable estimate of the probable rate of production and employment by the District aircraft industry during the next few months. A considerable backlog of military orders remains to be filled even after allowing for the extensive cancellations of August and early September. Some of the larger plants, notably those at Burbank and Santa Monica, will fare better than the average in this respect,

Production and Employment—

Index numbers, 1935-39 average=100	With seasonal adjustment				Without seasonal adjustment			
	1945			1944	1945			1944
Industrial production[1]	Aug.	July	June	Aug.	Aug.	July	June	Aug.
Lumber	p95	103	r118	124	p114	114	134	149
Refined oils[2]	—	—	—	—	262	265	263	220
Cement[2]	..	128	122	111	..	140	139	124
Wheat flour[2]	143	170	173	137	143	150	152	137
Petroleum[2]	—	—	—	—	139	143	143	130
Electric power[2]	395	394	407	415	433	440	436	455
Factory employment and payrolls[3]								
Employment								
Twelfth District	..	222	230	280	..	222	230	282
California	244	252	261	327	245	252	261	328
Pacific Northwest	..	189	197	224	..	190	196	229
Oregon	..	159	165	193	..	160	167	199
Washington	..	207	217	243	..	208	214	247
Intermountain	..	106	109	123	..	109	112	123
Payrolls								
California	486	528	547	679	489	528	550	682

[1] Daily average.
[2] 1923-25 average = 100.
[3] Excludes fish, fruit, and vegetable canning.
r Revised
p Preliminary.

while a few smaller plants will also retain a fair volume of army and navy work. An appreciable amount of commercial business had already been booked by at least two of the leading Pacific Coast concerns before the end of the war and it is expected that the requirements of the commercial air lines for replacements and additions will provide a substantial volume of business over the next year or two for the aircraft industry as a whole, though at a rate far below the output attained during the past three years. Many of the aircraft parts manufacturers are converting their plants to production of civilian goods, in some cases prewar products, in others new lines of output.

A minor casualty in the general policy of retrenchment following the cessation of hostilities was the abandonment by the WPB of its project for the construction of four additional mills in California to process guayule shrub for the emergency production of natural rubber. The Department of Agriculture will continue to operate the two mills currently in production, one at Salinas and one at Bakersfield, California, but the improved outlook for natural rubber makes unnecessary any further expansion of processing facilities.

Petroleum and lumber

Among the basic industries of the District, petroleum production and refining probably finds fewer problems than most others in adapting itself to immediate postwar conditions. The elements of the situation are fairly simple. On the demand side, military requirements for high octane gasoline have contracted sharply, while consumption of fuel oil for naval and transport purposes still remains high, and civilian demand for gasoline, with rationing and road speed limitations removed, has increased. Increased civilian gasoline requirements fall far short, however, of the decline in military needs; the problem is largely one of reducing refinery operations and relieving pressure on sources of crude petroleum. No fundamental technical changes are involved in adjusting refinery technique; the reduced needs for petroleum have already been given effect by eliminating imports from the midwest and by cutting down on local production. The latter has taken the form chiefly of curtailing production in the Elk Hills naval reserve to 15,000 barrels per day, as contrasted with the recent rate of about 65,000 barrels.

Automobile registrations in California during the first seven months of 1945 were within 5 percent of the number for the corresponding months in 1941, while the number of trucks registered was larger by about 15 percent. In addition, there are large numbers of out-of-state cars, many of them owned by military personnel or members of their families. It is probable that the total civilian demand for gasoline in the Twelfth District is running not very far below the levels of 1941, the highest prewar year.

The lumber industry is currently facing a very difficult situation. Large cancellations of military orders have theoretically released supplies of lumber for civilian purchase in western producing areas, but stocks at mills as well as in dealers' yards are at a very low level, and production has been hampered by labor shortages and wage disputes as well as by fire weather shutdowns and inadequate equipment, particularly of trucks and tires needed in logging operations. Since the beginning of the war the labor force of the northwestern lumber industry has been considerably below its needs and the differentials between wage levels in this industry and those prevailing in war industry centers have undoubtedly contributed to its difficulties in obtaining necessary manpower. Strike votes were being conducted in August and early September by the A. F. of L. and C. I. O. unions among the sawmill operatives and loggers respectively, to enforce their demands for a basic hourly wage rate of $1.10 as compared with the present minimum of 90 cents per hour. Until these labor difficulties are cleared up and mechanical equipment needs are made good, there is little prospect that the industry will resume operations at anywhere near its potential capacity.

Reports continue to be heard of housing shortages throughout the District, not only in the larger cities but also in many smaller communities at some distance from the industrial centers, and in some cases even in agricultural districts. Government controls on the allocation of lumber for civilian use were relaxed in August; the remaining limitations on distribution were dropped at the end of September and all restrictions on new construction, including house building, will be removed effective October 15.

Transportation and shipping

Up to mid-August the railroad and ocean shipping situation remained extremely tight. As a means of speeding up the return of empty cars to eastern points for loading military equipment and supplies, it became necessary to impose restrictions on carloading at the weekends, which caused losses to producers of perishable farm products at scattered points in California. In addition, off-shore shipping was hampered by the large number of vessels requiring overhauling or repair, in spite of strenuous efforts to speed up ship repair work.

The cessation of hostilities in August lessened somewhat the urgency of military needs, and the movement of supplies through the Pacific ports, which had averaged over 70,000 cars per month from January through July, has diminished sharply. Carloadings within the District have also declined, reflecting the cancellation of war contracts, with corresponding reductions in output by District producers, as well as the curtailment of lumber production in the Northwest. While the railroads still need additional manpower and equipment to meet the normal crop moving requirements, which are at a peak in the fall months, their operating problems have been considerably mitigated by the ending of the war.

The long continued strain on overland transportation occasioned by the war has prompted inquiry from time to time as to the prospects for resumption of intercoastal shipping service. The present lack of suitable vessels, together with the need for more thorough reorganization than can be effected immediately, makes the early re-

sumption of normal service by private operators out of the question. The inauguration of coastwise and intercoastal cargo movement on a limited scale, however, is to be undertaken temporarily by the War Shipping Administration, which has been authorized to engage in these services up to the end of the current year as an emergency measure.

It is reported that direct shipping service will be resumed not later than October via the Panama Canal between the Atlantic Coast and Hawaii and certain South Pacific ports. Resumption of limited service between the East Coast of South America and Pacific Coast ports is also in early prospect. Commercial service from the West Coast to the Philippines was inaugurated in August by the American President Lines as agent for the W. S. A. The need for rehabilitation of physical facilities is expected to result in a fairly heavy volume of freight movement to the Philippines and probably to the Dutch East Indies also. Civilian transportation to Pacific areas will be restricted, however, to essential passengers approved by the State Department.

Late in August the W. S. A. approved the transfer of 16 coastwise vessels to Philippine registry and flag, retaining ownership and direction of their operation. These vessels are to be used in coastwise and inter-island cargo and passenger movement; Philippine laws do not permit the coastwise operation of vessels other than those of Philippine registry.

Retail trade

The drastic curtailments already effected in District war production plants and the reductions in manufacturing employment and payrolls which are still to come may soon be reflected in reduced spending for goods and services. Up to mid-summer of this year, however, the rate of consumer expenditures as indicated by available data for retail sales was still extremely high. Daily average sales in 220 department stores in the District during the first seven months of 1945 were approximately 14 percent higher than in the corresponding months of 1944, while this bank's seasonally adjusted index number of department store sales in July, 255 percent of the 1935-39 average, was within one point of the record figure established last February. Increased sales in July over last year's figures were general throughout the District, averaging about 15 percent.

In August and early September, department store sales continued to exceed the volume of a year ago but by a somewhat smaller margin than in earlier months. In certain areas, however, including San Diego and Portland, department store sales in August were below the level of a year earlier. For the Northwest as a whole the increase over last year was only 1 percent. The general closing of stores in mid-August incident to the Japanese surrender was an important factor in bringing down the month's sales volume in the District as a whole to a level only 4 percent above that of August 1944. Preliminary reports from larger cities for the first three weeks of September indicate considerable variation within the District, with an overall increase of approximately 10 percent above last year's sales.

Data are also available for two other related lines, apparel stores and furniture stores. District apparel stores reported sales volume up 12 percent from last year for July and for the first seven months of the year; the rate of increase dropped to 7 percent in August. Furniture store sales in the District were 8 percent above a year earlier for the first seven months of 1945, and 10 percent higher in July. In August, however, furniture store sales dropped 3 percent below last year's level. In San Diego, Seattle, and Spokane, furniture store sales have for a number of months run consistently lower than last year.

Bank deposits and reserves

The end of the war made little or no immediate difference in the behavior of bank deposits and money in circulation. Since the end of June, demand deposits of individuals, partnerships, and corporations have followed the usual pattern of increase between war loan drives, as war loan deposit accounts of the Treasury in commercial banks have been drawn upon and as additional funds have continued to be brought into the District through Treasury expenditure. By mid-August, demand deposits had returned to a level approximating the high reached in late May, just before the Seventh War Loan. In the next four weeks, they continued to increase steadily.

The growth in time deposits has been remarkably per-

Distribution and Trade—

Index numbers, 1935-39 daily average=100	With seasonal adjustment				Without seasonal adjustment			
	1945			1944	1945			1944
	Aug.	July	June	Aug.	Aug.	July	June	Aug.
Department store sales (value)								
Twelfth District	231	255	233	222	210	211	215	202
Southern California	231	260	239	221	213	219	r218	204
Northern California	212	244	220	200	193	200	r203	182
Portland	211	232	211	212	197	195	200	199
Western Washington	275	310	282	268	256	254	259	250
Eastern Washington and Northern Idaho	228	211	208	231	202	184	194	205
Southern Idaho and Utah	257	253	225	239	214	198	r210	199
Phoenix	319	287	272	284	223	218	232	199
Carloadings (number)[1]								
Total	..	112	116	115	..	115	125	133
Merchandise and misc.	..	*131*	*134*	130	..	140	142	145
Other	..	89	94	98	..	85	104	118

[1] 1923-25 daily average = 100.
r Revised.

Banking and Credit—

Averages of Wednesday figures (millions of dollars)	1945	Change from		1944
Condition items of weekly reporting member banks	Aug.	July	June	Aug.
Total loans	1,091	— 4	+ 41	+124
Com'l., ind., & agric. loans	518	+ 17	+ 32	+ 46
Loans to finance transactions in:				
U. S. Government securities	128	— 19	+ 10	+ 67
Other securities	51	+ 4	+ 5	+ 4
Real estate loans	290	— 1	— 1	— 5
All other loans	104	— 5	— 5	+ 12
Total investments	5,533	+ 68	+335	+977
U. S. Government securities	5,133	+ 62	+328	+916
All other securities	400	+ 6	+ 7	+ 61
Adjusted demand deposits	3,205	+128	+ 64	+425
Time deposits	1,906	+ 41	+ 68	+394
United States Government deposits	1,040	—172	+216	+ 5
Coin and currency in circulation				
Total (changes only)	—	+ 65	+ 80	+613
Fed. Res. Notes of F. R. B. of S. F.	2,992	+ 62	+ 74	+585
Member bank reserves	1,775	+ 40	— 6	+265

sistent, war loan drives notwithstanding, in the past two years or more, and has so far been impervious to the effects of the end of the war. Time deposits continued to rise steadily well into September. Money in circulation in the District likewise continued to increase in the month following the end of the war.

The rate at which Treasury disbursements have exceeded Treasury receipts in the District so far in 1945 was sustained from mid-August to mid-September. Member bank reserves continued to rise as a consequence, despite the offsetting effects of increases in money in circulation and of the net outflow of funds from the District in other commercial and financial transactions. This strengthening of reserves has enabled District member banks to add somewhat during the past two months to their Government security holdings, which had increased considerably at the time of the last war loan drive.

With war contract cancellations and reductions in war industry employment and payrolls, it is reasonable to anticipate at least some reduction in the near future in the excess of Treasury disbursements over collections in the District and some check upon the increase in District bank deposits and money in circulation, but there were no indications of such developments in the six weeks ending September 26. In the week ending September 26, demand deposits and money in circulation did decline slightly, and net Treasury disbursements were smaller in amount than in previous weeks. These appear to be seasonal declines, however, related primarily to tax payments.

The Central Valley of California and the Central Valley Project

THE Central Valley of California, 450 miles long and approximately 50 miles wide, lies west of the Sierra Nevada Mountains and east of the Coast Range, and between Mount Shasta on the north and the Tehachapis on the south. Two major rivers flow through the flat, low valley floor, the Sacramento from the north and the San Joaquin from the south and, turning westward, join to empty into San Francisco Bay. Climate and soil are unusually favorable for a wide variety of agricultural products. With about a fourth of the total land area of the state, the Valley contains over half of the available land suitable for crops. Before the war, 43 percent of the land in farms in California and 54 percent of the land in irrigated farms were in the Central Valley.[1] Despite the existence of a large number of local irrigation districts, irrigation works on the whole have not made the most effective use of water, and excessive pumping has seriously lowered the ground water level in some sections.

The chief purpose of the Central Valley Project is to redistribute available water so as to increase its usability. This redistribution is both in terms of the seasons of the year, by water storage in seasons of surplus rainfall with subsequent release during seasons of deficient rainfall and run-off, and in terms of geographic areas of the Central Valley, through diverting water from surplus areas in the upper Sacramento Valley to deficit areas in the San Joaquin Valley. At the same time, the Project is designed to restore depleted ground water supplies in the upper, or southern, San Joaquin Valley; to repel salt water that has been encroaching on the agricultural lands in the delta of the Sacramento and San Joaquin Rivers; to control floods and aid navigation on both rivers; and to generate hydroelectric power.

The Central Valley

The Central Valley did not impress the first white immigrants as offering particularly favorable sites for development. Before improvement, much of the land area appeared to be useless because of poor natural drainage resulting in swamps, on the one hand, and inadequate rainfall resulting in large reaches of arid land, on the other. Early exploitation took the form of extensive grain cultivation and cattle grazing. As the more attractive lands were taken up, the Valley commanded closer attention, and its possibilities under irrigation began to be appreciated. By 1940, with irrigation extended to over 2,600,000 acres, the Central Valley had a population of 1,126,000, which was 16 percent of all California residents, living on more than 50,000 farms and in 80 cities and towns. Forty-nine percent of the state's rural farm population, 27 percent of the rural nonfarm population, and 9 percent of the urban population were in the Valley.

	Population of Central Valley, April 1940 Number (thousands)	Percent	Percent of California population living in Central Valley
Total	1,126	100	16
Urban	441	39	9
Rural	685	61	34
Farm	313	28	49
Nonfarm	372	33	27

Population and occupations

Although agriculture is basically the most important industry in the Central Valley, the permanent population is not predominantly a farm population. Less than three out of every ten Valley residents were living on farms in April 1940, and well over twice as many persons reported that they were earning their livings in non-agricultural as in agricultural occupations. Trade and service accounted for 44 percent of the gainfully occupied; agriculture, forestry and fishing for 29 percent; manufacturing, together with transportation, communications and other public utilities for 17 percent; and construction and mining together accounted for 10 percent. The figures understate somewhat the importance of farming since they apply to employment during the last week in March. This month represents a seasonal low in hired agricultural labor, much of which moves from place to place with the harvests. Over half of the Valley residents, 56

[1] For statistical purposes, the Central Valley is considered to include the following 18 counties:
Sacramento Valley counties: Butte, Colusa, Glenn, Sacramento, Shasta, Solano, Sutter, Tehama, Yolo, Yuba, and San Joaquin Valley counties: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare.

percent, lived in unincorporated places in 1940, with an additional 10 percent in towns and villages of less than 5,000 population. Thirty percent, however, were located in the metropolitan areas of Sacramento, Stockton, and Fresno, either within the central cities, in the suburbs, or in the unincorporated environs.

Over a period of several decades the Central Valley has gained in total population but not as rapidly as California as a whole. In this respect there have been differences between the northern and southern parts of the Central Valley, with the Sacramento Valley growing more slowly than the state and the San Joaquin Valley generally growing more rapidly than the state. During the war this has been reversed; population in the Sacramento Valley has grown at about the same rate as in the entire state, while the San Joaquin Valley has gained much less rapidly. In both sections, there has been an increase in urbanization over the years, but its extent and rate of increase since 1900 are lower for the Central Valley than for the state.

Racially, the people of the Central Valley depart only slightly from the state average. In 1940 there were fewer Negroes, proportionately, than in the state, but more Japanese and other groups classified as non-white by the Census. A smaller proportion of adults in the Central Valley in 1940 had completed college, high school, or grade school, respectively, than in California as a whole. These differences between the Valley and the state were greater for men than for women, and were greater for the higher degrees of education than for the lower.

Income

People living in the Central Valley counties are estimated to have received less than 14 percent of the individual income of all California civilians in 1940, although they constituted a little more than 16 percent of the civilian population. Over 22 percent of the incomes of California proprietors of unincorporated businesses, which include most farms as well as trade and service enterprises, were received in the Central Valley, but less than 14 percent of the wage and salary incomes and about 6 percent of the dividend, interest and net rental incomes. Wages and salaries were the most important single source of income in the Central Valley as well as in the state, accounting in each area for about 60 percent of all income. In none of the Central Valley counties was income of proprietors, which include farmers, of greater aggregate importance than income of wage and salary earners. Wages and salaries were considerably more important in Sacramento, Shasta, and Solano counties, largely because of state and national government activities, than in the state or in the Valley as a whole.

The average income of Central Valley residents was estimated at $674 in 1940, and in only two counties, Sacramento and Solano, was income above the state average of $803. The increase in per capita income to $1,250 in 1943 was greater for the Valley than for the state as a whole, despite the location of the bulk of war industry outside the Valley. In 1943, per capita income in three agricultural counties, Colusa, Sutter, and Yolo, in addition to Sacramento and Solano counties, stood above the state average of $1,425 per civilian resident. Income of proprietors displaced wages and salaries as the most important source of income in Colusa, Glenn, Sutter, Tehama, Madera, Merced, Stanislaus, and Tulare counties, all of which are mainly agricultural, rather than industrial or commercial.

Agricultural specialization

Agriculture in the Central Valley, as in California as a whole, tends to be highly diversified between farms or local farming areas, but highly specialized within farms or local farming areas. That is, many different crops are produced in significant volume, but individual farms tend to concentrate, often to the exclusion of other products even for the farmer's own family consumption, on a single crop or on a very limited number of related crops or products. For example, in the United States, 67 percent of all livestock were produced in 1939 on farms specializing in livestock—in the Central Valley, 81 percent. Corresponding percentages of other groups of products are: dairy products, 67 percent and 80 percent; poultry and poultry products, 72 percent and 89 percent; field crops, 68 percent and 85 percent; vegetables, 74 percent and 86 percent; and fruits and nuts, 84 percent and 91 percent.

Concentration on the production of one or two specialty products results in a high degree of dependence on the market, not only in the disposal of the product, but in the purchase of food for the farmer's own table. The farm family's food supply, in such a case, is no more stable and secure than that of an urban worker—both the farm and the city breadwinners must sell their services or products on an uncertain market and must in turn obtain practically all their food and other necessities from the market. In the Central Valley in 1939 only a little over 2 percent of the agricultural production was consumed on the home farm, compared with 14.5 percent for the country as a whole.

The Central Valley produced 2.6 percent of all farm products, in terms of value, in the United States in 1939. Less than this proportion of livestock and livestock products (with the exception of sheep and lambs) and much more of such cash specialties as rice, sugar beets, asparagus, peaches, figs, olives, almonds, oranges and grapes, came from the Valley. The percentage of national and state production of specified crops that occurred in the Central Valley, and the concentration of production within leading Central Valley counties, are brought out in the accompanying table. Within each of the counties, the various special crops often are concentrated in still smaller areas, of no greater compass, in the extreme, than a few contiguous farms.

Even in products for which the Central Valley does not possess unique climatic advantages there is often a high degree of specialization within the Valley. Sixty-seven percent of the Valley's production of green beans, for example, was in Tulare and Fresno counties. Similarly,

72 percent of the cotton grown in the Central Valley came from Kern, Tulare and Fresno counties; and 97 percent of the Irish potatoes from Kern and San Joaquin counties.

Business characteristics of Valley agriculture

Because of its specialized character, agriculture in the Central Valley typically is a business. Its costs are higher, its risks are heavier, a larger part of both its outlays and its income is in cash, its monetary returns to the owner are greater and are more in the nature of profits and less in the nature of wages, than in farming in the usual sense. Specialized agricultural business has much the same kind of labor problems as any other business in which wages are an important cost and in which the demand for labor is highly seasonal or erratic. In the past its attitudes toward labor and the unionization of labor, and its methods of seeking to make these attitudes prevail, have been similar to those of other businesses that see a direct connection between plentiful supplies of cheap labor and profitability of operations. The relationship between the agricultural businessman and agricultural labor under these conditions departs widely from the traditional relationship between the farming family and the hired man.

The Central Valley as a whole stood above the state in the percentage of farms hiring labor, 67 percent as against 62 percent, and in the proportion of farm cash wage payments that were made on a day, week, or piece basis, 82 percent as against 74 percent. Use of hired labor was considerably greater in the San Joaquin Valley, where 71 percent of the farms reported it, than in the Sacramento Valley, where 57 percent of the farms so reported. In the three unusually well-to-do Sacramento Valley agricultural counties, Colusa, Sutter, and Yolo, however, the percentages of farms reporting hired labor were 75, 81, and 77, respectively.

Over three-fourths of the farms, containing well over half of the land in farms in the Central Valley, were irrigated in whole or in part in 1939. Costs of operation are higher for irrigated than for unirrigated land, not only because of the greater out-of-pocket outlays for water, but also because of the greater investment in wells, pumps, and other fixed and movable equipment that is required. In addition to the cost of irrigation equipment, Central Valley farms represent a greater than average investment because of high land values. In 1940, before recent sharp farm price increases, the average value of farm land and buildings in the Central Valley was a little over $16,000, compared with $16,300 in all California, $12,600 in Iowa, and $5,500 in the United States as a whole. Irrigated farms in Kern, Colusa and Yolo counties averaged well over $30,000. There is some evidence that land prices in the Central Valley went up more, during the war, than either prices throughout the United States or in California as a whole. Bona fide sales in Tulare County indicate price increases for irrigated land of nearly 190 percent between 1941 and the middle of 1945 and it is not uncommon to hear of individual tracts planted to fruit, nuts, or grapes in the various other parts of the Valley selling for as great or even greater mark-ups over pre-war prices.[1]

[1] From 1941 to the second quarter of 1945, United States farm prices increased 55 percent; California farm prices about 70 percent; Tulare County irrigated farm prices about 190 percent and unirrigated farm prices about 75 percent.

CONCENTRATION OF PRODUCTION OF SELECTED AGRICULTURAL PRODUCTS IN THE CENTRAL VALLEY AND IN LEADING VALLEY COUNTIES, 1939

Product	Central Valley production as percent of: California	Central Valley production as percent of: United States	Leading counties production as percent of: Central Valley	Leading counties production as percent of: California	Leading counties production as percent of: United States	Leading Agricultural Counties[1]
Total farm production	44	2.6	39	..	..	Tulare, Fresno, San Joaquin
Milk, cream and butter	37	2.3	25	..	..	Stanislaus, Merced
Wool	56	2.6	29	..	..	Tehama, Glenn
Cattle and calves	41	1.6	35	..	..	Tulare, Kern
Hogs and pigs	49	0.7	..	..	..	
Sheep and lambs	65	3.6	30	..	..	Glenn, Stanislaus
Poultry	32	1.7	61	..	..	Stanislaus, Tulare, Fresno, Sacramento, Merced
Chicken eggs	27	1.7	46	..	..	Sacramento, Tulare, Fresno
Barley	74	9.2	17	12	..	Kings
Rice	99	17.9	64	63	..	Sutter, Butte, Colusa
Alfalfa hay	63	7.4	66	..	..	Stanislaus, Merced, Fresno, San Joaquin, Tulare
Cotton	98	4.0	72	71	..	Kern, Tulare, Fresno
Irish potatoes	71	4.1	97	69	..	Kern, San Joaquin
Sweet potatoes and yams	70	1.0	62	44	..	Merced
Sugar beets	52	12.2	42	22	5	Yolo
Field beans	38	9.0	82	..	..	Stanislaus, San Joaquin, Sutter
Green beans	11	0.6	67	..	..	Tulare, Fresno
Asparagus	86	42.6	96	83	41	San Joaquin, Solano, Sacramento, Yolo
Dry onions	61	5.0	45	28	..	San Joaquin
Tomatoes	46	7.2	39	18	..	San Joaquin
Cherries	42	7.2	71	30	5	San Joaquin
Peaches	92	32.7	46	43	15	Sutter, Stanislaus
Pears	22	7.7	73	..	..	Sacramento, Solano
Figs	94	89.0	80	76	71	Fresno, Merced
Olives	91	91.0	64	58	58	Tulare
Almonds	76	76.0	33	25	25	Butte, Yolo
Navel oranges	25	24.8	88	22	22	Tulare
Grapes—total	90	82.0	73	66	60	Fresno, San Joaquin, Tulare
table grapes	97	—	60	59	—	San Joaquin, Tulare
raisin grapes	99	—	60	60	—	Fresno
wine grapes	63	—	46	29	—	San Joaquin

[1] Counties listed in descending order of importance. No county listed unless it accounts for more than 10 percent of production in Central Valley, and no percentages shown in California or United States columns unless the least of the leading counties accounts for 10 percent or more, or 5 percent or more, respectively, of total. A county may account for more than these minimum percentages, however, and still not be included if it is markedly outranked by another producing county or counties.

Source: United States Census of Agriculture.

Land ownership and size of farms

About two-thirds of the farms in the Central Valley were operated by full owners in 1940. These owner-operated farms were well below average in size, however, since they included only one-fourth of the acreage. Part-owners operated 14 percent of the farms but 43 percent of the acreage, which suggests that high land prices may prove an obstacle to full ownership, at least of larger tracts. Only 2 percent of the farms were run by managers, but these included 13 percent of the acreage. Tenants accounted for about one-fifth of the farms and of the acreage.

Differences in the size of farms are extremely pronounced in the Central Valley, partly as a result of high land values and great variation in the productivity of the soil, and partly as a result of the historical development of land ownership in California. Under the Spanish system, missionaries held the land in trust for their wards, the Indians, although a few gifts of land were made to retired soldiers or other deserving Spanish subjects. Under Mexican rule, a commandante could make grants in the neighborhood of his presidio, and the Governors could make larger grants anywhere in California. Although preference was supposed to be given Mexican citizens, in practice all who could use lands were granted them freely. The unit of land was a square league, about 4,439 acres, and 11 units, or 48,824 acres, could be granted to one individual on the theory of one league of irrigable land, four of crop land dependent on natural rainfall, and six for grazing cattle. Following American seizure of California, Congress passed a law requiring proof of title and recognizing the original grants where proof was clear. Lands for which title was not proved passed into the public domain. If the documents relating to the original grants were incomplete or defective, as many were, a tedious and costly process of adjudication was prescribed. The uncertainties surrounding title and the difficulty of establishing clear claims made land hard to sell, with the consequence that vast tracts fell into the hands of sharp lawyers and land speculators.

Spanish and Mexican titles to about 8½ million acres in California were finally recognized by the United States. About 11½ million acres of the public domain were granted to the railroads and about 8½ million acres to the State of California. These grants, with the sustained Spanish and Mexican titles, embraced a little more than half the total land area in California in private or state ownership. Still other large tracts of public lands were sold for cash or exchanged for scrip. The Homestead Act and similar laws designed to transfer land in small units from public to private ownership were less important in California than in most other parts of the country, and fraud in the operation of the various land laws is reputed to have been extensive. Early California land practices facilitated concentration of ownership in a relatively small number of relatively large holdings. Economic tendencies also favored large holdings, the chief uses of the land being for grazing livestock and raising grain. Other forces, however, worked in the opposite direction. Squatters took advantage of the Federal Preemption Act whereby they could preempt 160 acres of land that was vacant. As population became more dense and as new or different agricultural products or techniques were introduced, economic incentives for breaking up large holdings have been strengthened. The Chinese Exclusion Acts impaired the profitability of huge single-crop ranches, but the automobile and low paid migratory labor partially restored it.

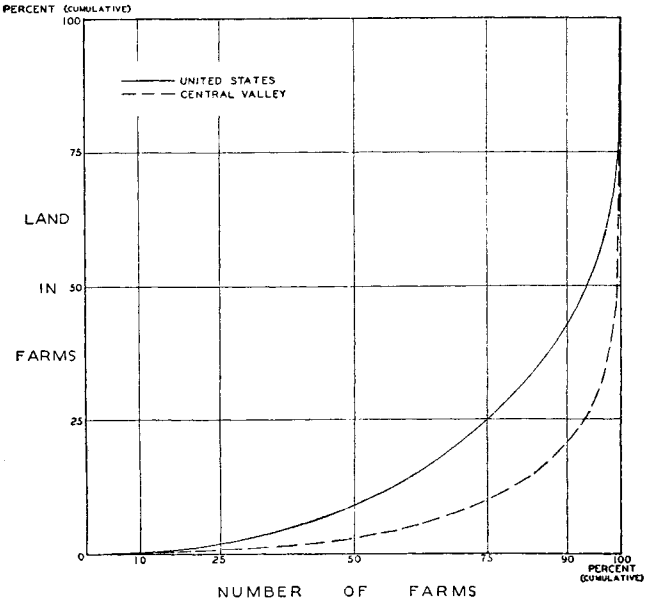
On balance, a relatively high concentration of land ownership persists in California, especially in parts of the Central Valley. The Valley is characterized by many more very small holdings than is typical of American agriculture, and by a great deal higher proportion of the land in holdings of large size. In 1940, 50 percent of the farms in the Valley had only 3 percent of the land and 75 percent of the farms had only 10 percent of the land, compared with 8 percent and 25 percent in the United States as a whole. At the other end of the scale, 10 percent of the Central Valley farms contained 80 percent of the land, and two thousand farms of 1,000 acres or more had twice as much land as fifty thousand farms of less than 1,000 acres apiece. Part of this inequality doubtless is due to differences in productivity, which are very great, with highly fertile, intensely cultivated, irrigated land at one extreme and semi-arid range land at the other. Even after allowances for differences in the value per acre, however, a high concentration of ownership of farms in the Central Valley is evident. In 1940 the most valuable 10 percent of the farms had 47 percent of the value of all farm lands and buildings, and the upper 25 percent of the farms had 66 percent of the value. The lower 25 percent of the farm units, in contrast, had only 6 percent of the value and the lower 50 percent of the farm units had 16 percent of the value. Perhaps the chief reason for a less extreme concentration of value than of acres is that the most valuable lands have tended to be broken up to a greater extent than the less valuable lands. The introduction and extension of irrigation no doubt contributed to this process, although in areas where water is obtained by pumping from farm wells economies of large scale operation, within limits, exist even on irrigated lands. Another reason for the less extreme concentration of control in terms of value than in terms of acres is that the value figures include the farm homes and other buildings, which make up a higher proportion of the value of small than of large farms. In terms of value, as well as in terms of acres, the extent of concentration in large holdings is notably greater in the Central Valley than in the United States as a whole.

Large farms, of 1,000 or more acres each, are more or less evenly distributed in number throughout the Central Valley, with 27 percent of the total in the upper Sacramento Valley, 23 percent in the lower Sacramento, 20 percent in the lower San Joaquin, and 30 percent in the upper San Joaquin in 1940. The size of the large holdings is greater in the San Joaquin Valley than in the Sacramento Valley, and is greater in the upper than in the lower parts of both valleys. The large farms were largest

on the average in Kern County, where the mean size of 177 of them, all of 1,000 acres or more, was over 8,000 acres. The number and financial importance of large farms in the Central Valley, and the consequent power of the owners of large tracts, is one of the principal reasons for the bitterness of the controversy over acreage limitation provisions of the reclamation laws under which the Central Valley Project is being constructed and, unless other arrangements are made, will be operated.

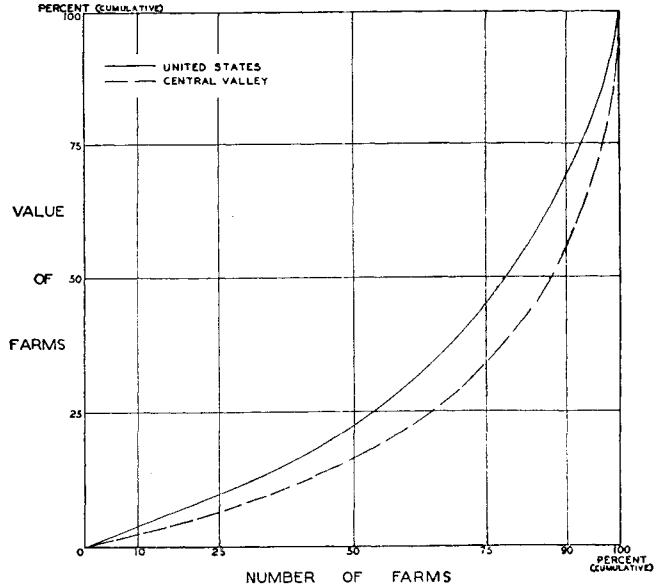
DISTRIBUTION OF FARM LAND—1940

Percent of farms, starting with the smallest, accounting for various percents of the total land in farms.



DISTRIBUTION OF VALUE OF FARM LAND AND BUILDINGS—1940

Percent of farms, starting with the least valuable, accounting for various percents of the total value of farms.



The above curves indicate the concentration of land in the larger farms, and the concentration of the value of land and buildings in the larger farms. The more a curve departs from the diagonal (which would represent an even distribution) the greater the degree of concentration. Readings can be taken from either end of the curve: for example, the smallest 25% of farms in the Central Valley contain 1% of the land; and the largest 25% (100% minus the smallest 75%) of the farms contain 90% of the land.

The Central Valley Project

The Central Valley Project is a water project, concerned with irrigation, flood control, navigation, salinity repulsion, and restoration of ground water, with the generation of hydroelectric power as a by-product. The primary object is to store and distribute water for irrigation. Two-thirds of the irrigable land is located in the San Joaquin Valley, while two-thirds of the rainfall and stream flow occurs in the Sacramento Valley. The geographic redistribution of this water through a series of engineering works has been under active study by the State government since 1921 and by the Federal government since 1929. The electorate of California in 1933 approved a bond issue of 170 million dollars for financing the Central Valley Project, and the legislature established the California Water Project Authority to take charge of construction and operation. By this time the market for municipal bonds had weakened; the United States Public Works Administration had launched its program for stimulating construction by the loan-and-grant of federal funds to public bodies; and the California authorities decided not to issue the authorized bonds. The Public Works Administration had the Central Valley Project under consideration from time to time, with no final approval. In 1935 the President allocated Federal funds and Congress, in the Rivers and Harbors Act, voted approval of construction of parts of the Project by the United States Bureau of Reclamation.

Irrigation features

The authorized water features of the Central Valley Project provide for storage of upper Sacramento River water behind Shasta dam and its subsequent release into the river channel during dry seasons, and for the storage of upper San Joaquin River water behind Friant dam. Some of the water released into the Sacramento River during the dry season is to be used for additional irrigation in the Sacramento Valley and the upper San Francisco Bay region, and some of it is to be conveyed to the lower, or northern, part of the San Joaquin Valley, to replace San Joaquin River water. This, in turn, will permit diversion of water from Friant reservoir into the deficit areas of the upper San Joaquin Valley. Part of the Project water will be used to supplement irrigation water now available, part will be used to bring additional land under irrigation, and part will be used to restore the underground water table in the upper San Joaquin Valley. Water from Shasta dam, in addition, will be used to generate power, to push back salt water from the ocean that has been threatening agriculture in the Sacramento-San Joaquin delta, and to improve navigation on the Sacramento River; and both Shasta and Friant reservoirs will provide flood control.

Most of the irrigated lands in the Sacramento Valley take their water from hitherto unregulated streams or from streams regulated in the interest of hydroelectric power generation. A relatively small fraction of the irrigated land drew on stored water, and, while in general the amount of water has been sufficient for existing irriga-

tion needs, in dry years there has not always been enough to go around. The main streams tributary to the lower San Joaquin Valley already are regulated by storage reservoirs, and the water has been sufficient for the irrigated sections, but not for substantial extension of irrigation to additional land. In the upper San Joaquin Valley there were no storage reservoirs for irrigation before construction of Friant dam. The amount of land that can be adequately irrigated from surface run-off under established water rights necessarily varies from year to year with the amount of rainfall. Wells are widely used in the upper San Joaquin Valley both as a supplemental source of water and as the chief water supply. It is estimated that about 70 percent of the irrigation water in this area is now being pumped. The pumping of water has been excessive, with the consequence that the underground water level has fallen sharply. In adversely affected localities the ground water level receded by 50 to 200 feet between 1921 and 1939, causing the abandonment of almost 50,000 acres of once highly productive land and threatening an additional 200,000 acres.

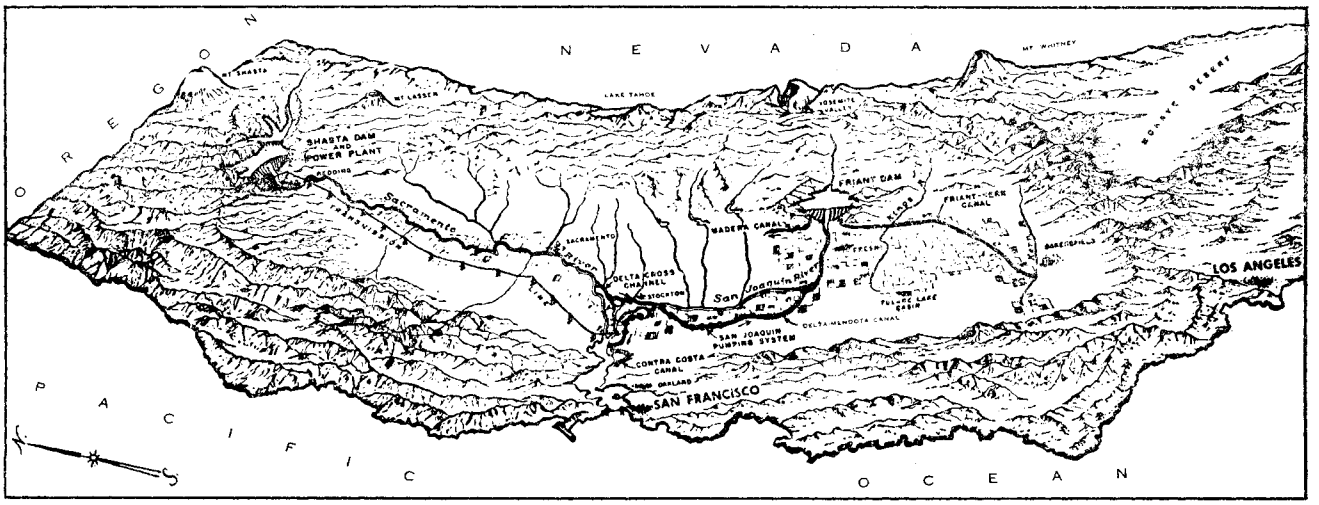
Irrigation features of the Central Valley Project that have been authorized to date include, in addition to the recently completed Shasta and Friant dams, a number of canals and pumping stations and subsidiary works. The principal canals are the Delta Cross Channel canal, to carry Sacramento River water across the delta; the Delta-Mendota canal, to carry it, with the aid of pumps, up the San Joaquin Valley to Mendota, as a substitute for San Joaquin River water; the Friant-Kern canal, to carry irrigation water southward from Friant reservoir to the Kern River below Bakersfield and to points between; and the Madera canal, to carry irrigation water from Friant reservoir northwestward to the Chowchilla River. Construction was postponed for the most part during the war. The Madera canal is now nearing completion and work is under way on the Friant-Kern canal. Letting of contracts for the Delta Cross Channel and Delta-Mendota canals awaits appropriations. The Contra Costa canal, a much smaller carrier than any of the major irrigation canals, was substantially completed as a war project, to serve the upper San Francisco Bay region with industrial, and to some extent with agricultural, water.

New irrigation water

With completion of the authorized features, irrigation water will be made available to an additional 100,000 acres in the Sacramento Valley, 20,000 acres on the west side of the lower San Joaquin Valley along the Delta-Mendota canal, 20,000 acres along the Contra Costa canal, and 500,000 acres in the Friant-Kern and Madera canal service areas in the upper San Joaquin Valley, a total of 640,000 acres. In addition, a substitute and assured water supply will be made available to 100,000 acres now under irrigation and the ground water level will be restored and maintained over an area even larger than that to which irrigation will be extended. First call on the water is to go to supplementary uses and to raising the ground water level in the upper San Joaquin Valley. It is estimated that the accumulated overdraft of ground water will take about ten years of average rainfall to overcome, and it is planned to bring new land in this area under irrigation only gradually as the deficit is made up. Although authorized storage and distribution works carry water only as far south as the Kern River, pumping south of the Kern River also has exceeded natural replenishment of ground water. Should Friant-Kern canal deliveries be extended to overdraft areas south of the Kern River, the smaller amount of water available for irrigating new land would be sufficient for about 400,000, rather than 500,000, acres in the upper San Joaquin Valley.

Acreage limitation controversy

The irrigation program of the Central Valley Project has given rise to a number of problems, some of which have been the subject of recent and continuing controversy. United States reclamation laws, under which the Project is being built, have consistently favored the establishment of family size farms as a matter of public policy. The chief instrument for effectuating the policy has been



PRINCIPAL FEATURES OF THE CENTRAL VALLEY PROJECT—CALIFORNIA

limitation of the acreage to which water will be supplied under public subsidy consisting of interest-free construction capital. The statutory limit is 160 acres. Because of the importance of large land holdings in the Central Valley, and particularly in the upper San Joaquin Valley where most of the new water will become available, modification of the statutes has been discussed in a number of quarters. A Central Valley Project Studies Committee, appointed at the instance of the Bureau of Reclamation and including representatives of other interested Federal, State and local governmental agencies, farm organizations, irrigation districts, and land owners, has recommended that national reclamation law be changed to provide: (1) a limit of 160 irrigable acres on the area of presently unirrigated lands; (2) a limit of 640 irrigable acres on the area of presently irrigated lands; (3) an incentive to reduce land holdings to 160 acres by including 3 per cent interest on construction costs in the charge to holdings of more than 160 irrigable acres. Congress has changed various provisions of reclamation law in the past as conditions have been deemed to justify it, but no action has yet been taken in reference to the Central Valley.

Outright repeal of all acreage limitations has been urged by the large land owners, their spokesmen and their sympathizers. Those who agree with this solution also support proposals to remove the Project from under the jurisdiction of the Bureau of Reclamation through transfer to some other Federal agency or purchase by the State. In the Flood Control Act of December 1944, Congress authorized construction along the Kern and Kings Rivers and their tributaries as a civil function of the War Department. In signing the bill, President Roosevelt criticized division of responsibilities for water projects within the Central Valley and announced his intention of seeking Congressional transfer of all such responsibilities to the Bureau of Reclamation. Others, including some Congressmen, have urged formation of a Central Valley Authority somewhat along the lines of the Tennessee Valley Authority. Still other groups propose State acquisition of the Project.

Assessment of costs

A second problem arising out of the irrigation features of the Project is the equitable allocation of costs among the various beneficiaries. In the Sacramento Valley, most of the irrigation water now comes from streams which, on the whole, provide an adequate supply of water for the area at present being irrigated. Regulating the stream flow will make it possible for farmers to draw more heavily during dry seasons, but will not be of any particular advantage to those who already are adequately supplied with water. New lands for which an assured water supply is made available, however, would clearly gain. Repulsion of salinity in the delta region of San Joaquin and Sacramento Counties unquestionably benefits lands that have already suffered, and protects other lands that might soon be damaged. The value of the benefits to already damaged lands and of protection from potential damage to additional lands is not readily measurable, so that an acceptable allocation of costs is extremely difficult to achieve. Most of the water to be carried by the Delta-Mendota canal will merely replace river water already being taken by farmers in the lower San Joaquin Valley, to permit diversion of the river water to farmers in the upper part of the Valley. There is no apparent reason for the lower Valley farmers to pay for a mere substitution made for the purpose of improving the water supply of others. The canal, however, will provide additional water as well, which can be used either to supplement present supplies or to bring new land under irrigation. It would appear to be equitable to seek payment for this additional water.

Distribution of costs in proportion to benefits, or on some other fair basis, probably will prove most troublesome in the upper San Joaquin Valley. To the extent that Project water is metered out to existing or newly established irrigation districts, a reasonable charge presumably can be agreed upon. The restoration and maintenance of ground water supplies gives rise to more complex problems. Those who pump water are benefited, as a group, but it is hard to measure the overall benefit, the benefit to each individual land owner, or the relative distribution of benefits among land holders. For example, some farm operators may already have sufficient pumping capacity for all needs at present ground water levels. If they have not experienced so far any alarming decline in the ground water level on their farms, they might be difficult to convince of the necessity for raising the ground water level generally. Yet the area as a whole has clearly suffered from excessive pumping, and will gain in a most direct way from completion of the Project. Failure to charge a fair share of the cost to the area would constitute a subsidy for those who continue to mine their water resources, at the expense either of other Project beneficiaries who pay enough to meet all the costs assigned to the irrigation features, or of the public at large through failure to collect all the costs of providing water for irrigation. Committees similar to the advisory group described earlier in connection with acreage limitation have been studying problems of cost allocation.

Since the Central Valley Project has a number of purposes, there also is a question of the allocation of total construction costs among the various purposes. Some controversy has arisen in connection with the charges to be made for electric power, the issue being whether price policies should be designed to promote the greatest usefulness of the power feature from the standpoint of all elements in the widest practicable service area, or should be designed to yield the greatest net contribution to total cost in order to reduce the charges to users of Project water. Bureau of Reclamation policy in administering multi-purpose projects apparently favors the independent development of each feature to be of greatest value to those served both directly and indirectly by that feature. While this general approach does not automatically establish the relative charges to water and power users, it suggests that the Bureau would not deliberately price any service to subsidize users of the other services.

Distribution of power

The chief controversy affecting Project power is between the proponents and opponents of public power generation and distribution. Since public generation is now an accomplished fact, the current issue revolves about plans for distribution, although any proposals to expand generating capacity as part of a postwar works program doubtless would encounter renewed resistance. Two of the five generators included in the design for Shasta dam have been installed. Keswick dam, a smaller structure to form a balancing reservoir a little below Shasta, is partially constructed. Keswick dam is designed for three generators, with an ultimate capacity of 75,000 kilowatts compared with 375,000 kilowatts at Shasta dam. Authorized features of the Project include power lines from Keswick and Shasta dams to electric power use areas, and an auxiliary steam plant at Antioch, in the delta region. A publicly owned transmission line to Oroville on the east side of the upper Sacramento Valley was completed in order to deliver power to the private utility company serving Northern California war production centers. Construction of other transmission lines, which was postponed during the war because of materials and manpower shortages, is opposed by those who favor exclusively private power distribution.

The Antioch auxiliary steam plant has not yet been built. It is strategic in two ways. In the first place, an auxiliary steam plant in any appropriate location should greatly increase the amount of firm power that the Project could undertake to deliver, thus strengthening the position of the Project regardless of whether the power is sold to a single private company for redistribution or is distributed to a number of buyers. In the second place, location of the steam plant at or near Antioch would require a transmission line into that area, in order to integrate the main hydroelectric power with the steam-electric auxiliary power. This would bring Project power into the delta region near the center of the expected service area for Project power. Furthermore, the irrigation features of the Project will require large blocks of power to lift Sacramento River water into and through the Delta-Mendota canal. Without a transmission line into the vicinity of Antioch, the Project would be forced to purchase power that it had in abundance a relatively short distance away. Quite naturally, the officials charged with administering the Project desire to avoid such a situation.

Congress so far has refused appropriations for the Antioch steam plant and the related transmission line. Authorization has not been rescinded, however, so that Congressional refusal to appropriate funds does not as yet represent a decision on the public versus private power question. As materials, equipment, and manpower again become available, the question presumably will be settled one way or the other. Unless Congress reverses its previous authorization, the decision will favor public power.

The Reclamation Project Act of 1939 specifies that, in the sale of electric power or in the lease of power privileges, preference shall be given to municipalities and other public corporations and agencies, and to cooperatives and other nonprofit organizations financed under the Rural Electrification Act and amendments. Those favoring private, as against public, distribution of Project power reasonably can be expected to support suggestions designed to change the reclamation laws or to remove the Project from under the operation of these laws. A number of such suggestions already have been noted, in the description of irrigation features of the Project.

Economic effects of the Project

The Central Valley Project will not revolutionize the economy of the Central Valley, but it is bound to be a considerable factor in the future development of the Valley and may indirectly affect other parts of California and of the United States as well. Perhaps the most important contribution the Project can make will be to preserve agricultural land from threatened deterioration through continued encroachment of salt water in the Delta and through continued mining of ground water in the upper San Joaquin Valley. Such protective services do not make a noticeable favorable difference in the amount of agricultural production—they simply prevent the occurrence of an adverse difference that is debatable in extent. Greater availability of electric power, or a possible reduction in power rates to some consumers, or both, likewise are expected to have a gradual and largely nonmeasurable effect on the development of the area. Similarly, the land for which water is to be made available for the first time, 540,000-640,000 acres, will be brought under irrigation only gradually.

If the water features of the Project are administered to discriminate against large holdings in favor of family size farms, presumably there will be a greater tendency toward subdivision of affected large operating units. It is not clear how strong the tendency will be, or what forces already may be operating in the same or in the opposite direction. Large scale farmers could scarcely be forbidden to pump water from underground sources replenished by the Project, but the availability of adequate water, either by pumping or from irrigation canals, may well make it profitable to reduce the size of extremely large operating units, most of which are only partly under irrigation at the present time. Even where irrigation water is obtained by pumping from wells, the method requiring the largest amount of equipment, the advantages of large scale operation of the irrigation equipment apparently can be realized on farms of 200 to 250 acres under average conditions of water need and lift. A change to smaller size farms in areas now dominated by very large land holdings would, it is held, have a number of desirable results. A case study recently completed by the Bureau of Agricultural Economics, comparing two Central Valley country towns distinguished chiefly by the size of surrounding farms, suggests that the houses and business properties, and the educational, recreational, religious, and civic facilities are better, and that the general standards of economic and social existence are

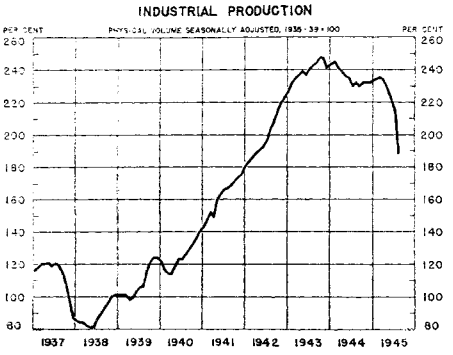
notably higher in communities with family size, owner-operated farms than in communities serving large-scale farming areas. If these differences prevail generally, and if the type of farming is a causal factor, operation of the Project can be expected to favor a higher general level of economic and social activity among Valley residents to the extent that the relative importance of family size farms is increased.

There is some hope that the new lands to be brought under irrigation will increase the production of livestock, of livestock feed and forage, and of dairy products and other livestock products. The concentration of Central Valley agriculture on specialty crops, with heavy dependence on favorable markets outside of California, is expected to continue, but if the total productive capacity of the Valley is sufficiently increased the profitability of specialized farming compared to general farming may be reduced. An excessive expansion of specialty crops would have serious consequences for existing California agriculture. Cash costs, including marketing costs, are relatively high and inflexible for specialty crops, so that changes in prices result in more than proportionate changes in agricultural profits. Furthermore, prices of perishables are sensitive to changes in that part of production that reaches the market. Increases in the production of livestock, on the other hand, to the extent of replacing imports from out of state with domestic products, would not necessarily affect local prices adversely, it is held, but would contribute to local agricultural stability. Furthermore, the specialty crops require large numbers of agricultural laborers for short periods, while the raising of livestock and livestock products provides a higher proportion of year-round employment, an additional factor making for greater economic and social stability.

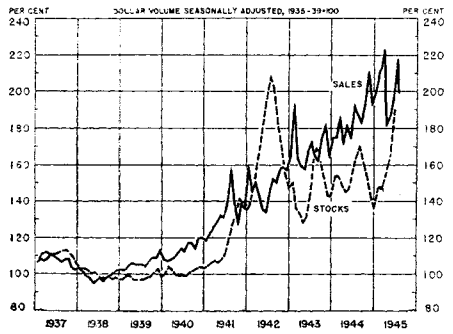
The hoped-for increases in the relative importance of livestock and general farming as a result of Project operations may be either direct or indirect. Central Valley Project water will not be cheap water—it apparently will cost in the neighborhood of ten dollars an acre for the average use in the area served. Livestock and general farming operations may not thrive on so high a water cost, although some of the specialty crops have shown profits on much more expensive water. It is unlikely that all of the new land brought into cultivation, or the presently farmed lands on which intensive cultivation will be made feasible by additional water supply, will be used directly for livestock or general farming. These lands may be better suited to some of the specialty crops than land now devoted to those crops. Consequently, a process of displacement and shifting is likely to take place, with part of the hoped-for increases in livestock and general farming ultimately occurring on land now specializing in other crops. This would be a painful process for the growers who are forced to make the shift. By the same token, capture of local markets now served by imports from other agricultural producing areas, as is contemplated in the case of livestock and livestock products, might be painful to farmers in the areas that now supply the California market.

If, as appears likely, redistribution of Central Valley water has a gradual effect on agricultural production in the area served, its adverse effects on other agricultural producers should be less pronounced. Displacement of less efficient by more efficient uses of resources is one of the costs of progress. When public funds are used to bring about more efficient agriculture in one area, however, possible adverse effects on other agricultural areas ordinarily are one of the considerations weighed by the legislative body authorizing use of the funds. In the case of the Central Valley Project, there is some reason to believe that the adverse effects will be neither widespread nor unduly severe in their impact. Much of the water will be used to conserve present agricultural lands, and the amount of new land that will be brought under cultivation over a period of years, under Project features authorized to date, is expected to be relatively small compared with additions to and abandonments of farm land in the country as a whole for all reasons. Continued increase in agricultural productivity in the Central Valley over a ten-year period, if past trends are an indication, could well influence agricultural production much more than the extension of irrigation to half a million additional acres.

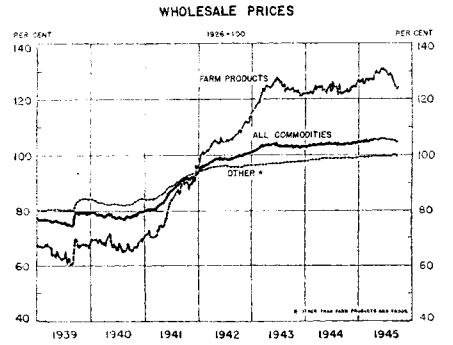
Note: Many of the data used in this article have been taken from "The Effects of the Central Valley Project on the Agricultural and Industrial Economy and on the Social Character of California," a Report on Problem 24, Central Valley Project Studies, reproduced and distributed by the Bureau of Agricultural Economics, Berkeley, California.



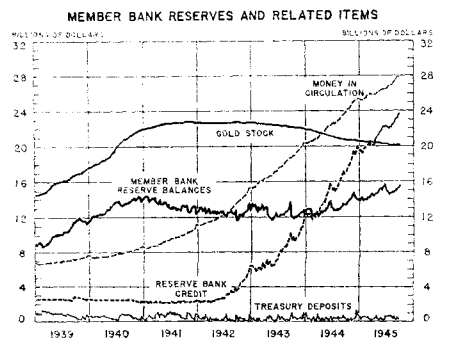
Federal Reserve index. Monthly figures, latest shown is for August.



Federal Reserve indexes. Monthly figures, latest shown are for July (stocks) and August (sales).



Bureau of Labor Statistics indexes. Weekly figures, latest shown are for week ending September 22.



Wednesday figures, latest shown are for September 19.

National Summary of Business Conditions

Released September 29, 1945—Board of Governors of the Federal Reserve System

PRODUCTION and employment at factories dropped sharply after the middle of August when most military contracts were cancelled. Activity in most other lines was maintained and the value of retail sales continued above last year's high levels.

INDUSTRIAL PRODUCTION

Industrial production declined 11 percent in August, reflecting primarily the sharp curtailment of activity in aircraft, shipbuilding and ordnance plants in the last half of the month, and the Board's seasonally adjusted index was 188 percent of the 1935-39 average as compared with 211 in July.

The largest part of the decline was in the machinery and transportation equipment industries, where activity during the month averaged about 20 percent below July. Output of steel and of nonferrous metal products likewise declined with the sudden elimination of almost all military demands. In September steel output increased with the receipt of orders in large volume from the automobile and other steel-consuming industries now rapidly converting to civilian production.

Production of nondurable goods in August was also below the July level, reflecting primarily military contract cancellations affecting output in the chemicals and rubber products industries. Cattle slaughter at federally inspected plants rose sharply in August and the first two weeks of September. Output of shoes and newspaper publishing activity also increased in August. Output of textiles, most manufactured food products, and other nondurable goods showed little change or declined slightly. Immediately after Japan's capitulation, rationing was ended for gasoline, fuel oil, and canned fruits and vegetables. Increased supplies of dairy and meat products and tobacco products were also made available for civilians.

Minerals production declined somewhat in August reflecting chiefly a 4 percent decrease in coal production. In the first part of September output of bituminous coal advanced. Crude petroleum output was maintained in August at the record July level, but due to the substantial decline in military demand for petroleum products, the production rate in the first half of September was about 8 percent below August.

Awards for the construction of privately-owned factories and commercial buildings continued to increase sharply in August. Contracts for private residential construction were awarded at about the same rate as in June and July, which was about twice the value of awards in the summer of 1944.

DISTRIBUTION

Department store sales in August were smaller than in July on a seasonally adjusted basis but about 6 percent larger than in August last year. In the first half of August sales were about 20 percent larger than a year ago. In the last half of the month and the early part of September, following Japan's surrender, sales slackened and were little changed from last year's level. Sales in the two weeks ending September 22, however, rose sharply and were 11 percent larger than in the corresponding period a year ago.

Railroad shipments of revenue freight in the last two weeks of August and the early part of September were in almost as large a volume as in the period prior to the week of Japanese surrender and only 7 percent smaller than during the same period last year.

COMMODITY PRICES

Prices of agricultural commodities declined from the early part of August to the early part of September but since that time have increased somewhat.

Maximum prices of petroleum products have been reduced somewhat since the early part of August, owing to lower transportation charges, while maximum prices of cotton goods, building materials, and various other industrial commodities have been increased.

AGRICULTURE

Crop prospects continued to improve during August and total production is expected to equal the record harvests of 1942 and 1944. Cotton production, however, is forecast at only 10 million bales, which is about 2 million smaller than last year's crop and the average for the past 10 years. Total carryover of raw cotton in this country on August 1 was about 11 million bales, slightly more than in the two previous seasons.

BANK CREDIT

In the first month of peace, Federal Government expenditures though reduced were still well in excess of receipts, and war loan balances at commercial banks were accordingly reduced. Adjusted demand and time deposits of weekly reporting banks increased by 1.8 billion dollars during the five weeks ended September 19, while war loan balances at these same banks declined by 3.4 billion. Thus, as in other periods between Treasury financing drives, Treasury expenditure tended to increase deposits of business and individuals at small banks more than at large ones.

The currency outflow continued and totaled 425 million dollars during the five-week period, but it was somewhat below the outflow of last year for the comparable period. Time deposit expansion continued as rapidly as in recent months.

Loans for purchasing and carrying Government securities at reporting banks were further liquidated during the five weeks by 470 million dollars and, in addition, reporting banks reduced holdings of U. S. Government securities by 1.3 billion dollars to meet the increase in reserve requirements and net deposit declines. Smaller banks appear to have been purchasing Government securities during the period.

Reserve funds during the five-week period were supplied by an increase of 1.1 billion dollars in Reserve Bank holdings of Government securities and by a small increase in member banks borrowings from the Reserve Banks. This increase met the currency outflow and increased average reserve balances by close to 550 million dollars; this was about as much as the increase in required reserves, and excess reserves remained near one billion dollars.

VICTORY LOAN

Summary of Information Regarding Securities

Title of Security	United States Savings Bonds SERIES E	United States Savings Bonds SERIES F	United States Savings Bonds SERIES G	Treasury Savings Notes SERIES C	7/8% Treasury Certificates of Indebtedness SERIES K—1946	2¼% Treasury Bonds of 1959-62	2½% Treasury Bonds of 1967-72
Dated	1st day of month in which purchased	1st day of month in which purchased	1st day of month in which purchased	1st day of month in which purchased	December 3, 1945	November 15, 1945	November 15, 1945
Due	10 years from issue date	12 years from issue date	12 years from issue date	3 years from issue date	December 1, 1946	December 15, 1962	December 15, 1972
Cost price	75% of maturity value	74% of maturity value	100%	100%	100% and accrued interest after December 3, 1945	100% and accrued interest after November 15, 1945 (6) (7)	100% and accrued interest after November 15, 1945 (6) (7)
Yield	Varies—2.90% if held to maturity	Varies—2.53% if held to maturity	Varies—2½% if held to maturity (1)	Varies—1.07% if held to maturity (2)	7/8%	2¼%	2½%
Denominations	$25 to $1,000	$25 to $10,000	$100 to $10,000	$100 to $1,000,000	$1,000 to $1,000,000	$500 to $1,000,000	$500 to $1,000,000
Registration	Registered form only	Registered form only	Registered form only	Inscribed form only	Bearer form only	Bearer or registered form	Bearer or registered form
Redeemable for cash prior to maturity	At holder's option, 60 days from issue date, on variable redemption schedule	At holder's option, on 1st of month following one month's notice, after 6 months from issue date	At holder's option, on 1st of month following one month's notice, after 6 months from issue date (1)	At holder's option, after 6 months from issue date, at 100% and interest (2)	No	At Government's option, on or after December 15, 1959, at 100% and interest	At Government's option, on or after December 15, 1967, at 100% and interest
Acceptable in payment of Federal income, estate or gift taxes prior to maturity	No	No	No	Yes, during and after 2nd calendar month after month of purchase	No	Federal estate taxes only, on death of owner	Federal estate taxes only, on death of owner
Use as collateral	No	No	No	For loans from banks only	Yes	Yes	Yes
Salable in open market	No	No	No	No	Yes, after December 8, 1945	Yes, after December 8, 1945	Yes, after December 8, 1945
Who may subscribe	Individuals only	All investors (3)	All investors (3)	All investors	All investors except securities dealers and brokers (3)	All investors (3) (4)	All investors (3) (4)
Amount an eligible investor may buy	Limited to $5,000 maturity value in one calendar year (5)	Not more than $100,000 issue price of Series F and G together in one calendar year		No limit	No limit (3)	No limit (3) (4)	No limit (3) (4)

(1) On death of owner, redeemable at 100% after 6 months from issue date, if application is made within 6 months after death.

(2) Notes owned by commercial banks bear interest only if used in payment of Federal taxes.

(3) Commercial banks permitted to subscribe for only a limited portion of their savings deposits and certain time certificates of deposit.

(4) Commercial banks will not be permitted to own until within ten years of maturity, except as provided in (3).

(5) Additional bonds may be purchased in coownership form in certain cases, and also when Series A Bonds are exchanged for Series E Bonds during and after the month in which Series A Bonds mature.

(6) Subscriptions from others than individuals must include accrued interest to December 3, 1945, or such later date as payment is made to a Federal Reserve bank. The term "individuals" includes partnerships (other than securities dealers and brokers) and personal trusts, but does not include personal holding companies, corporate trusts, bonus funds, pension funds, or similar aggregations of individuals.

(7) Accrued interest on subscriptions for $500 and $1,000 will be waived.