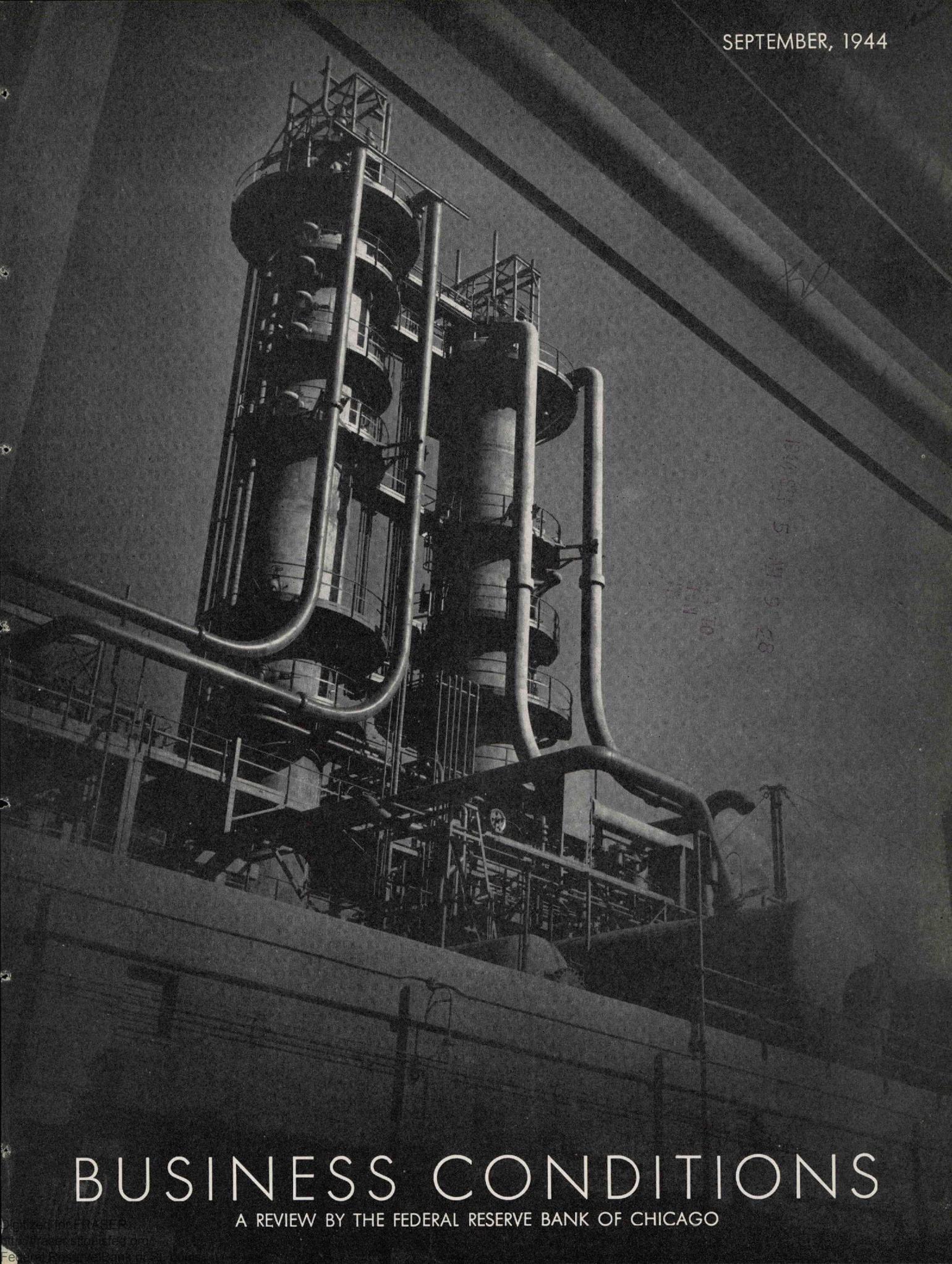


SEPTEMBER, 1944



# BUSINESS CONDITIONS

A REVIEW BY THE FEDERAL RESERVE BANK OF CHICAGO

# European Food Relief After the War

## *Problem Important to American Agriculture*

The extent of food relief that will be required by European countries after the end of the war is of direct concern to American farmers, agricultural industries, and consumers. To the farmer the quantitative aspects of the problem have an important bearing on the markets for his products and the prices he may receive for them. To the agricultural industries the problem is important for similar reasons, because variations in the estimates of requirements spell a rather wide range in the scale of activities which marketing and processing the relief exports may require. To the consumer the question is one of whether or not the needs of Europe will require food rationing after the war.

### TWO PROBLEMS CLOSELY RELATED

To many people the problem of the food and relief situation in Europe after the war is all loosely lumped together as one general, if not vague, problem. But for students of the situation the elementary beginning has generally been to separate the problem into two rather distinct phases. The first has to do with the immediate and urgent tasks of avoiding starvation and widespread disease epidemics, and of restoring basic production and distribution of the essential foods, clothing, and medicines. The second phase cannot be completely separated from the first, but it deals with the more general and longer range problem of restoring the economies of Europe to a stable functioning soundness. This involves for agriculture some substantial changes in the patterns of production and enterprise followed before the war and aggravated as a result of the war. In terms of current usage these phases are distinguished by the term "relief" to describe the first phase, and "rehabilitation" to characterize the second.

### EUROPEAN FOOD SITUATION BEFORE THE WAR

Before the war the level of food consumption was about 2900 calories per day per person, compared with about 3000 in the United States. About 90 per cent of total consumption was produced in Europe, with only the remaining 10 per cent imported from the rest of the world. The area imported only about 5 per cent of its animal proteins (meat, milk, eggs, and fish), but about 25 per cent of edible fats and oils requirements came from outside Europe. Generally the imports consisted of about 5 to 6 million tons of food and 11 million tons of livestock feed each year. Animal products were the source of only about 20 to 25 per cent of the foodstuffs, compared to well over half for the United States.

### EFFECTS OF THE WAR ON FOOD IN EUROPE

With the coming of war naval blockades cut off the foreign sources of food and feeds for the Continent. Caloric

content of the average daily diet of necessity declined drastically as the war continued. For example, the daily ration for adults in France declined from over 1300 calories in 1940 to around 1100 at the present time. Instead of the 25 per cent of foodstuffs contributed from animal products before the war, this proportion declined to about one-seventh of the declining total of foods. Probably the over-all average for the Continent is not much above the latter figure today. Moreover, calories tell only the beginning of the story. The reduction of the protective foods, proteins, minerals, and vitamins, has been even more severe. In occupied Europe today people are getting only half as much milk and fats as before the war, and more than one-third less meat and cheese. Meanwhile, the losses have had to be made up as best they could be from increased consumption of potatoes and fresh vegetables.

The burden of short food supplies has by no means fallen evenly on all nations nor on all classes. In general the Nazis have drained heavily the food supplies from occupied countries into the Reich. This has been partly the sheer selfishness of the conqueror, but it has been also part of the diabolic strategy to debilitate whole nations in order to degrade and weaken them, such as Poland, or to "punish" and exterminate races, particularly the Jews. Another cause of inequality in food consumption has been the strategic position of farmers who were able to augment their allotted rations from their own production. Sometimes farmers have therefore been "allowed" to keep disproportionately larger shares of their products in order to legalize what they would do anyway. At other times or in other situations they have been allotted less on the logical grounds that they could make up the difference by greater efforts on their own part. The net effect, however, has been that it is the nonfarm populations that have borne the brunt of the shortages. Farmers in Europe as a whole have probably eaten just about as well during the war as they did before. Hoarding, or concealment of supplies from the occupation authorities, has been a significant factor in the drastic food situation.

### PROGRAMS FOR RELIEF AND REHABILITATION

It is recognized by close students of the problem that the major share of the task of feeding Europe after the war must fall upon Europe itself, that the most to be asked from outside is to help Europe help itself. The overwhelming bulk of the Continent's food needs must be supplied by home production. Even then it is probable that for a while the Continent will have to import a larger share of its needs than it did before the war. The first step in improving the food situation, and one of the most difficult problems, will be the task of reviving distribution.

A host of problems present themselves on this score. Not

*(Continued on Inside Back Cover)*

# War Manufactures Dominate Milwaukee

## *Diversified Industries Raise Favorable Conversion Prospects*

Milwaukee — the Seventh District's third city and industrial area — is now producing the largest manufacturing output in its history. Record production is being obtained to a larger extent from converted-expanded peacetime plants than from separate industrial facilities built specifically to meet war needs. Despite unprecedented war conditions, the Milwaukee population has remained fairly well stabilized without heavy in- or out-migration. Manpower problems, while often severe, have been less acute in Milwaukee than in other major industrial areas in the Seventh District.

Although a "heavy" industry area, and hence vulnerable to generally depressed business conditions, Milwaukee's manufactures are well diversified so that conversion prospects for the community do not depend primarily upon one or a few plants. The outlook for the period immediately following conversion to peacetime production is for general employment to be above 1940, but according to local estimates probably 20 per cent below the present level. Some cutbacks in war production have occurred in Milwaukee as elsewhere, but to date new war contracts have offset cancellations. Because of existing manpower stringencies, and the high war priority of numerous products being manufactured, Milwaukee along with several other Midwest industrial centers may experience delay in converting to large scale peacetime production as compared with some other sections of the nation.

### INDUSTRIAL AREA IN DAIRY STATE

Milwaukee dominates the industrial southeast corner of Wisconsin, the nation's dairyland state. The city is situated on the west shore of Lake Michigan, at the confluence of the Milwaukee, Menominee, and Kinnickinnic Rivers, eighty-five miles north of Chicago. Immediately adjacent and included in the Milwaukee industrial area are several satellite manufacturing communities, notably Racine and Kenosha to the south, and Waukesha and West Allis to the west. A short distance from Milwaukee lie rich farming and dairying regions of Wisconsin and northern Illinois.

As Wisconsin's first, and the nation's thirteenth largest city, Milwaukee had 587,472 residents in 1940. Estimates of wartime population have been disputed but it seems probable that the population has gained slightly since the last census in 1940, despite withdrawals to the armed services. The number of persons in the Milwaukee industrial area, comprising Kenosha, Milwaukee, Racine, and Waukesha Counties, has increased from 987,181 in 1940 to about 995,000, according to ration registrations.

One of the oldest cities in the Midwest, Milwaukee has experienced population decentralization similar to most large metropolitan areas. During the prewar decade, the city population gained 1.6 per cent, and the industrial area, 5.3 per cent. The war has continued to emphasize this

outward movement as war workers and their families have shifted residences to outlying industrial sections. Housing stringencies, however, have kept virtually all dwellings in use regardless of location during the war.

### PREWAR ECONOMIC ACTIVITIES

Often referred to as the "machine shop of America," Milwaukee was one of the nation's leading peacetime producers of heavy machinery and other important durable goods, such as automobile bodies, tractors, steam shovels, and gas engines, all of which have had highly important direct or converted war uses. Peacetime employment of 212,000 persons, consequently, was heavy in manufacturing which accounted for nearly 39 per cent of the working population compared with 23 per cent in the nation as a whole. About 21 per cent of the city's workers were engaged in trade, 15 per cent in service occupations, 8 per cent in transportation and public utilities, 4 per cent each in finance, construction, and government, and 5 per cent in all other activities.

Leading Milwaukee manufactures in 1940 were motor vehicle bodies, parts and accessories, tractors, meat packing, malt liquors, and construction machinery. Beer, Milwaukee's best known product, ranked fourth in peacetime value. These five large industries, however, accounted for less than 40 per cent of the total value of manufactured products, and employed less than one-third of all wage earners, thus emphasizing the broad diversity of manufacturing in Milwaukee despite the national importance of a few heavy manufactures.

Well-known Milwaukee firms include Allis-Chalmers, Briggs & Stratton, Bucyrus-Erie, Cutler-Hammer, Harley-Davidson, The Heil Company, Harnischfeger, International Harvester, Nash-Kelvinator, and A. O. Smith, all manufacturers of heavy equipment and now engaged wholly in producing war products. Milwaukee's famous breweries are operated by Schlitz, Blatz, Miller, Pabst, Gettelman, and Milwaukee Independent brewing companies. Principal meat packers are the Armour, Cudahy, Oscar Mayer, and Plankinton companies. Numerous other firms have nationally known products in lines different from those mentioned.

### WARTIME GROWTH AND CHANGES

Shifting to a wartime basis quickly, and for the most part easily, Milwaukee's plants since early in the defense period have been producing unprecedented quantities of war materials, dominated by aircraft parts, turbines, engines, and many heavy ordnance items. The annual output of Milwaukee's war industries now is estimated to exceed one billion dollars. Total manufacturing output of about one and a half billion dollars annually is about double the prewar level of 1939.

To produce this record flow of war products, the area has relied heavily upon existing plants and equipment. New industrial facilities, however, have amounted to more than 275 million dollars since 1940, the third largest volume in the Seventh District, surpassed only by Detroit and Chicago, which rank first and second, respectively, in wartime facility expansion in the nation. Milwaukee's new plants and equipment have been about 38 per cent for aircraft parts, 24 per cent for ordnance and accessories, 20 per cent for non-electrical machinery, and 12 per cent for iron and steel products. Because of the size of prewar manufacturing plants, wartime facility expansion has been nearly three-fourths for equipment and only one-fourth for structures compared with a two to one equipment-structure ratio in the district as a whole. Public funds have financed more than 80 per cent of the new facilities, a slightly higher proportion than in the district as a whole. At wartime values the Government has invested about 225 million dollars in Milwaukee industry.

On the basis of war supply contracts, the Milwaukee area ranks third among all industrial areas in the district and sixteenth in the nation. The Milwaukee industrial area by the end of May 1944 had received major nonfood supply contracts for war products valued at 2,296 million dollars, or 60 per cent of all such awards in Wisconsin, 6 per cent in the district, and 1.4 per cent in the nation. These supply contracts have been for ordnance items, 37 per cent; aircraft parts, 30 per cent; shipbuilding, 4 per cent; and all other, 29 per cent. Within the ordnance group, the bulk of production is for combat vehicles and parts and heavy munitions. The "all other" is composed principally of engines, turbines, and construction and metalworking machinery. Total war supply contracts awarded to Milwaukee firms since 1940 are equivalent to three times the value of products manufactured in 1939.

Manufacturing employment in Milwaukee County has increased from about 110,000 persons at the beginning of defense preparations in 1940 to a peak of nearly 200,000 in November 1943, or a gain of 80 per cent. A gradual decline has occurred during recent months, attributable to production adjustments and the withdrawal of some workers from industrial jobs. Employment in Milwaukee manufacturing plants in July 1944 was 7 per cent below the 1943 record level. General employment in the area expanded steadily from the fall of 1939 to the time of Pearl Harbor when extensive industrial plant conversion caused a brief downturn. By April 1942 most of the local industries had begun heavy wartime expansion in production. Over-all employment increased by 2,000-3,000 persons per month throughout the remaining months of 1942. During 1943 the upward trend continued but at a smaller rate until near the close of the year when the all-time record was achieved. During the war period the number of women wage earners has increased from about 20,000 to 60,000.

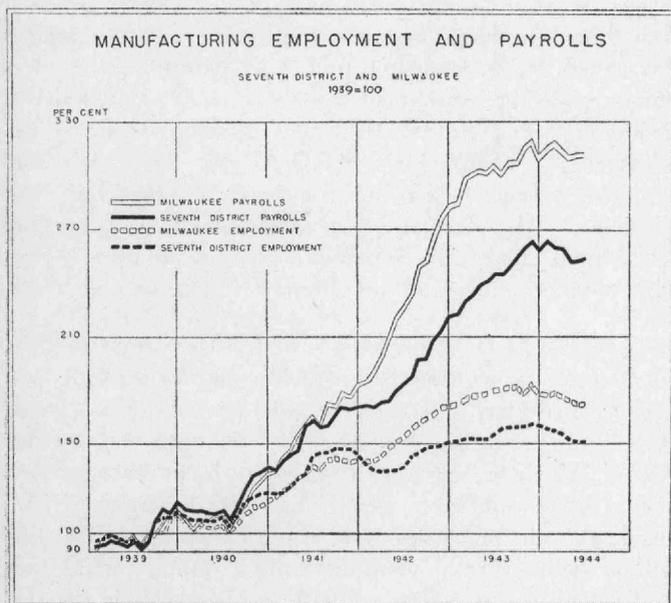
#### MANUFACTURING PAYROLLS TRIPLED

Employment of almost twice as many factory workers, higher wages, extended work-days and work-weeks, premium overtime compensation, and upgrading of many workers have tripled Milwaukee payrolls since 1940. Estimated weekly factory payrolls of roughly 2.3 million dollars have surged upward to nearly 7 million dollars. Average weekly earnings have increased correspondingly from 29.50 dollars to more than 49.42 dollars. Comparable wage gains in the nation as a whole were from 22.81 to 46.13 dollars.

Despite the continued increase in employment, the labor supply situation in Milwaukee has not become acute as formally defined by the War Manpower Commission. Since December 1942 Milwaukee has been classified as a Group II labor market area, or one in which a labor stringency exists with an acute labor shortage anticipated within six months. The Group II designation thus has remained unchanged for eighteen months during which time production schedules generally have been well maintained, and a Group I classification avoided.

Present labor shortages in Milwaukee are in a few highly important activities such as foundries where selective service withdrawals have been large, heavy work is involved, and wage rates are comparatively unattractive. The relatively favorable manpower situation in Milwaukee which has existed thus far during the war can be attributed to an initially large number of unemployed, some migration from outlying agricultural sections to local war industries, significant numbers of previously nonworking persons, especially women, entering the labor force, and an unusually stable working population which did not leave Milwaukee in appreciable numbers to take advantage of employment opportunities elsewhere, particularly during the early periods of defense preparations and war.

Expanded industrial payrolls in Milwaukee have been largely responsible for the unprecedented gains in retail trade which have occurred in the area since 1939. Milwaukee forms the center of a trading area having approximately



Compiled from reports of the five district states.

1,300,000 persons, and including the nearby communities of Beaver Dam, Fond du Lac, Fort Atkinson, Fort Washington, Kenosha, Racine, Sheboygan, Watertown, Waukesha, Wauwatosa, and West Allis. More than one-fourth of Wisconsin's total retail sales are made within this general area. In 1939, Milwaukee's retail sales were 288 million dollars, ranking thirteenth among the nation's cities. Since 1939, retail sales have climbed steadily upward, passing in 1941 the 1929 previous all-time high. The rise has continued, reaching an estimated 450 million dollars in 1943, and at present the annual rate is about 490 million dollars. The dollar volume in department store sales now is also substantially above peacetime records. Department store sales in 1943 were more than 65 per cent greater than in 1939, and currently at 8 per cent above a year ago.

#### BANK DEBITS SURGE UPWARD

Measured by bank debits, general business activity in Milwaukee has more than doubled since 1939. Bank debits, which were 3.1 billion dollars in 1939, exceeded 6.5 billion dollars in 1943, and are now at an annual rate of 7 billion dollars. Milwaukee's gains have been relatively greater than in the Seventh District and the nation.

Bank deposit growth has paralleled the rise in bank debits during the war. Between June 30, 1939 and December 31, 1943 total deposits of reserve city member banks in Milwaukee, which hold roughly 90 per cent of the city's deposits, increased from 315 to 700 million dollars. This 122 per cent gain exceeded the 117 per cent increase for Seventh District member banks, and slightly over 100 per cent increase for all member banks in the United States.

The city's expansion in total deposits in the five-year period ended June 30 of this year occurred mainly in demand deposits. The latter expanded from 229 to 668 million dollars, and time deposits from 86 to approximately 115 million dollars. On June 30, 1944 United States Government demand deposits amounted to 173 million dollars, all but 10 million of which were acquired since June 30, 1939.

During the present year Milwaukee will become a debt-free city in that the Public Debt Amortization Fund created in 1923 to retire debt is expected to equal the amount of outstanding general obligation bonds. The city has had an excellent financial record over the years, never having defaulted on its obligations either as to principal or interest.

In 1937 a permanent improvement fund was established by the city to place future building on a "pay as you go" basis, the levy for this fund to be increased as the levy for debt purposes decreased annually. The 1944 levy for permanent improvements is 3,035,000 dollars and each succeeding year, 3,800,000 dollars. Milwaukee thus may be able to finance an important part of its postwar rehabilitation and replacement projects on a cash basis.

#### CONVERSION-POSTWAR PROSPECTS

The industrial growth and related changes which have occurred in Milwaukee since 1940 are certain to bring severe conversion problems with effects lasting well into the post-

war period. Sharp cut-backs and cancellations in war contracts for ordnance materials and aircraft parts, Milwaukee's leading war industries, are inevitable and perhaps not far distant. Nevertheless, while Milwaukee's conversion difficulties will be large in absolute terms because of the scale of current war production, diversified industry and wartime expansion concentrated among established manufacturing firms suggest that Milwaukee's coming adjustments will lend themselves much easier to solution than in most industrial areas of comparable size.

The results of a comprehensive survey of industrial and commercial firms in Milwaukee recently completed by the Postwar Planning Division of the local Association of Commerce, under direction of Milwaukee County Postwar Planning Committee and Committee for Economic Development, reveal in a general way what may be expected in Milwaukee during and after the conversion period.\* A "serious decline in employment" is forecast during conversion, possibly 40 per cent from present levels, without considering the effects on total unemployment of returning veterans. A prolonged transitional period between production for war and production for civilian use, it is said, may plant "seed for another depression." After the period of reconversion, however, Milwaukee firms surveyed expect to employ 21.5 per cent more persons than in 1940, but 18 per cent below the 1943 all-time high. The same firms expect to re-employ nearly 80 per cent of their employees who entered the armed forces. Some potential conversion-postwar unemployment is expected to be mitigated by employment opportunities in businesses adversely affected by war conditions, the withdrawal of large numbers of persons, especially women, from the labor force, and the return to school of many young persons, including veterans.

The future of Milwaukee in the immediate postwar years to a considerable extent is inseparable from that of the producers' goods which dominate the industry of the area. Prospects for the further development of consumers' goods in the area obviously must not be overlooked. Despite the possibilities that the markets for many of Milwaukee's products may be at least partially supplied by surplus stocks of the armed forces, the accumulated domestic and foreign demand for many heavy goods should be sufficient to stimulate large production for many months. Milwaukee manufacturers must, of course, expect to meet new competition from areas which have become industrialized during the war, particularly in the South. Timing of conversion may be an important factor in this regard. Present wartime manpower and production requirements indicate that large scale resumption of civilian goods manufacturing in Milwaukee cannot be expected until well into 1945. If past conditions are reflected in future trends, Milwaukee will experience no spectacular slump or boom during reconversion or in the immediate postwar years compared with many other industrial areas in the district and nation. Milwaukee will rely heavily upon its stable population, diversified industry, and manufacturing "know-how" to meet whatever problems arise.

\**Milwaukee Looks to Its Future*, July 1944, 32 pp.

# Reserve Position of Seventh District Banks

## *Bills and Certificates Replace Large Excess Reserves*

Many member banks in the Seventh District and throughout the nation have replaced their formerly large volume of excess reserves with holdings of Treasury bills and certificates of indebtedness. Present arrangements for the repurchase of bills from the Reserve banks at the rate of  $\frac{3}{8}$  per cent and the virtual absence of risk involved in certificates have enabled these securities to perform adequately the function of excess reserves, while yielding an income to their holders.

Bills, in particular, have been extensively used by larger member banks in adjusting their reserve positions. Without these liquid short-term securities it is doubtful that excess reserves would have been permitted to become depleted to such an extent. The degree to which this has occurred, however, has not been uniform for all classes of banks. Chicago central reserve city and also Detroit banks have maintained only negligible amounts of excess reserves since early in 1943, and it is these banks which have made the most extensive use of short-term governments to adjust their reserve positions.

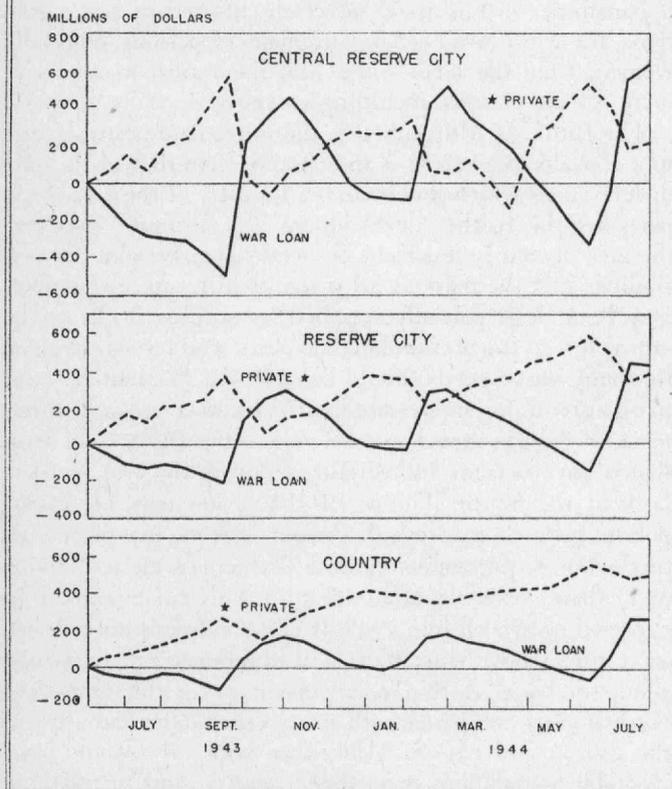
**SELECTED ITEMS OF CONDITION  
SEVENTH DISTRICT MEMBER BANKS  
December 31, 1940 and December 31, 1943**  
(amounts in millions of dollars)

	Chicago Central Reserve City Banks		Reserve City Banks		Country Banks	
	1940	1943	1940	1943	1940	1943
<b>Liquid funds:</b>						
Reserve balances.....	1,051	821	419	660	230	440
Required reserves....	645	807	228	608	117	332
Excess reserves.....	406	14	191	52	113	108
Balances with banks	316	156	417	287	400	476
Bills.....	297	199	1	322	1	111
Certificates.....	.....	877	.....	735	.....	411
Total.....	1,019	1,246	608	1,396	513	1,106
<b>Demand deposits:</b>						
Private <sup>2</sup> .....	1,905	3,097	1,131	2,553	859	2,074
U. S. Government....	90	713	39	439	12	270
Interbank.....	1,005	986	331	439	40	69
Other.....	201	218	167	266	158	240
Total.....	3,201	5,014	1,668	3,697	1,069	2,653
Ratio of liquid funds to demand deposits.	32%	25%	36%	38%	48%	42%

<sup>1</sup>Less than 500 thousand dollars.

<sup>2</sup>Deposits of individuals, partnerships, and corporations.

**CHANGES IN DEMAND DEPOSITS  
SEVENTH DISTRICT MEMBER BANKS**



\*Includes chiefly deposits of individuals, partnerships and corporations, and states and political subdivisions.

Note: Data shown are semi-monthly averages of daily figures.

### FACTORS AFFECTING RESERVE POSITIONS

The rise of currency in circulation which constitutes a drain on reserve balances and the growth of deposits which increases required reserves are the factors primarily responsible for the reduction of excess reserves from their prewar level, given the availability and acceptance of bills and certificates as outlets for idle funds. Although currency in circulation has been the more important factor over the period as a whole, most of the fluctuations which require short-period adjustment in reserve positions are attributable to changes in deposits.

During the war loan drives shifts from private deposits to reserve-exempt war loan accounts tend to reduce required reserves. Between drives private deposits increase as war loan funds are expended. The inverse relationship between these two items for different classes of banks in the Seventh District and the extent to which declines in private deposits during war loan periods have been offset by gains between periods are indicated in the accompanying chart. It should be noted that the data plotted here are only changes from average levels of the last half of May 1943. Absolute amounts of private deposits, of course, are much greater than war loan accounts and changes in them are thus relatively much smaller.

## USE OF BILLS AND CERTIFICATES

While member bank excess reserves have declined, holdings of bills and certificates have expanded and now constitute a large portion of their liquid funds. The practice of large city banks of operating on a full investment basis and the fluctuations of deposits caused by the war loan drives and other circumstances combine to necessitate frequent adjustment in their reserve positions. The chart indicates how weekly reporting member banks in Chicago and in Detroit accomplish these short-period adjustments through purchases and sales of bills to the Reserve banks. The repurchase option arrangement for bills has enabled these banks to hold virtually no excess reserves.

Bills have been used to a far greater extent to take the place of excess reserves, while certificates have followed a more steady upward tendency. Since the middle of 1943 there has been a general tendency for banks to reduce their holdings of bills and to build up their supplies of certificates. Bills are still purchased with funds released during war loan drives, but in each drive since October 1943 the amount of bills absorbed in this manner has been successively smaller. The chart shows liquidation of bill holdings of greater magnitude than the increase in required reserves in the inter-drive period. This can be explained mainly by the concurrent drain of funds due to expansion of currency in

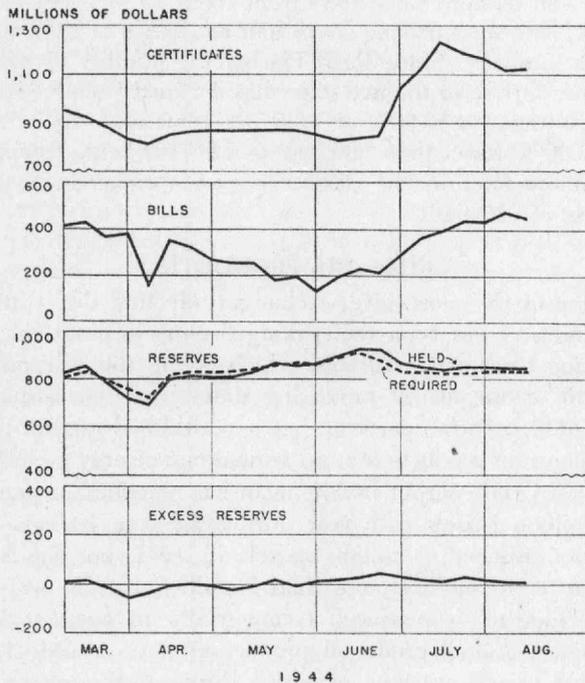
circulation and partly by the purchase of other securities.

While bills have provided most of the flexibility required for reserve adjustments of city banks, certificates are being used to support the over-all liquid position of these banks. The accompanying table shows that the liquid position of member banks in the Seventh District has not changed appreciably from its prewar status. The ratio of liquid funds to demand deposits is smallest for central reserve city banks whose deposits are likely to be more stable than those of outlying centers. It should also be noted that country banks are more liquid than either central reserve or reserve city banks despite the reduction in their excess reserves and their relatively smaller holdings of short-term governments.

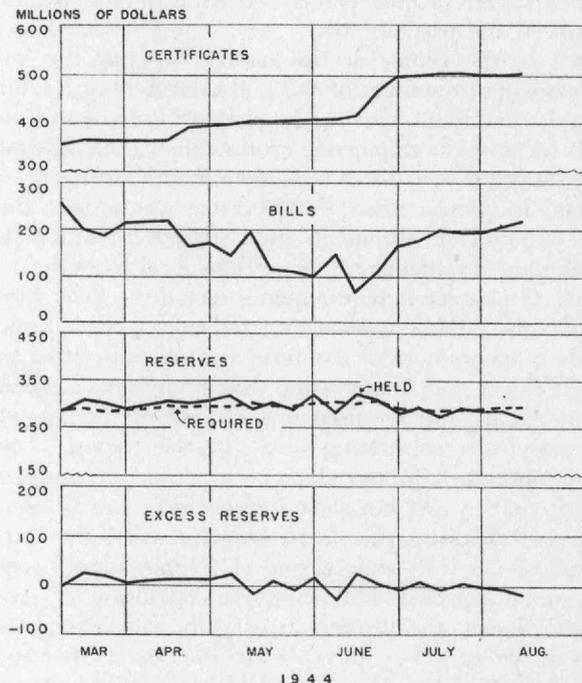
In the Seventh District, Chicago and Detroit banks have made more extensive use of bills and certificates than banks in outlying areas. Smaller banks still possess sizable amounts of excess reserves and carry large balances with city correspondents. Consequently, they can carry a larger portion of less liquid securities with higher yields. Nevertheless, the present trend is for smaller banks also to reduce their holdings of excess reserves. In view of the present rate pattern established by the Federal Open Market Committee and the Treasury, the shift from excess reserves to bills and certificates, particularly the latter, may be expected to continue and to become more widespread among smaller banks.

## RESERVES, TREASURY BILL AND CERTIFICATE HOLDINGS

WEEKLY REPORTING BANKS IN CHICAGO



WEEKLY REPORTING BANKS IN DETROIT



# Wartime Trends in Midwest Petroleum

## *Production Increases Despite Crude Oil Shortages*

Because the Seventh District is one of the nation's largest petroleum-consuming areas, but produces relatively little crude oil, wartime adjustments for the district petroleum industry have been particularly severe. The Seventh District states — Illinois, Indiana, Iowa, Michigan, and Wisconsin — consumed 20 per cent of the nation's petroleum output in 1939, and produced less than 10 per cent of the nation's crude oil. Present consumption in these states is about 15 per cent of the national total, but crude production is only 6 per cent. Inasmuch as most of the oil wells in Illinois and Indiana lie in the southern sections of those states, and outside of the Seventh District, the divergent relationship between production and consumption in the district is more pronounced than first indicated.

Changes which have occurred in the Midwest petroleum industry during the war are numerous, but several are particularly important: (1) crude oil supplies have become very limited; (2) refinery production has shifted noticeably to an increase in aviation gasoline, fuel oil, and chemical components, at the expense of ordinary motor fuel; (3) new plants have been built and rapid advances made in technology, resulting in unprecedented outputs of complex refined products; (4) transportation facilities have been expanded significantly, but shortages in tank cars and trucks currently present a critical problem; (5) the present consumption pattern is dominated by Government purchases for the armed forces and lend-lease; and (6) an extensive distribution system of bulk plants and retail stations is now under-utilized and partially idle.

Situated in the center of the nation between the important petroleum resources of the mid-Continent and Gulf areas, on the one hand, and the large East Coast petroleum terminals for overseas shipments, on the other, the Midwest in many respects now forms the petroleum crossroads of the nation. In prewar years the Midwest was largely the terminus of petroleum shipments from other areas, although some important shipments are made from local refineries.

As long as petroleum requirements remain at their wartime levels, the Midwest petroleum industry will continue to provide a major share of its crude and refined output to the armed forces and at the same time endeavor as much as possible to fill the requirements of one of the largest over-all petroleum consuming areas in the nation. The immediate outlook is for no change in petroleum supplies for general civilian use, but some improvement can be seen in the over-all Midwest petroleum situation. After the German phase of the war, some easing of civilian supply conditions can be expected. Following the conclusion of hostilities with Japan, the district once again will resume its full importance as a key petroleum market with huge quantities of refined products available for civilians from both local refineries and those in districts to the south.

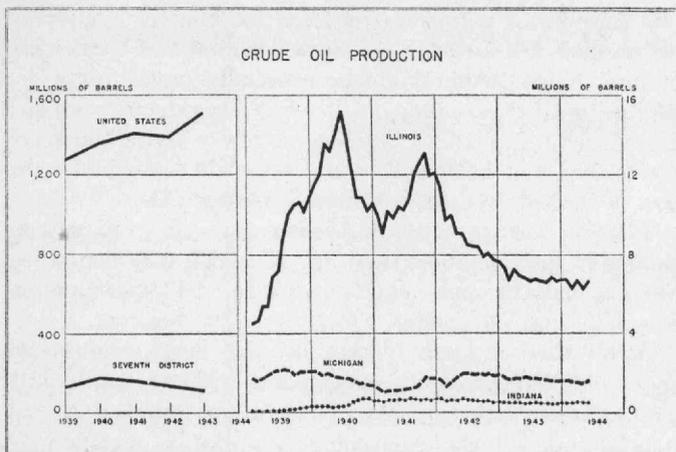
### MIDWEST PETROLEUM DEMAND

Indicative of the general scale of petroleum demand in the Midwest, the five district states now have 16.3 per cent of the national population, 20 per cent of all passenger cars, 21 per cent of the trucks and buses, and 30 per cent of the tractors. War requirements, of course, have altered materially the prewar pattern of consumption of refined products in this district as elsewhere. The armed forces, which used less than one per cent of all petroleum consumed in 1939, now constitute along with lend-lease the largest single consuming group, taking more than 30 per cent, and perhaps even 40 per cent, of present production. Passenger cars, which in peacetime used about one-third of the district's petroleum, now consume only about 15 per cent. The proportion of petroleum going into commercial vehicles has remained at about 12 per cent. While farmers are now using more refined products to produce record crops than during prewar years, the combined farm-household group is receiving roughly 10 per cent of current supplies compared with about 14 per cent earlier. Petroleum consumed by industries and railroad-public utilities is roughly in the same proportions as before the war, 12 and 10 per cent, respectively.

Wartime changes in gasoline demand in the Seventh Federal Reserve District were outlined in an article in the May 1944 issue of *Business Conditions*, which described gasoline as the "first necessity of mechanized warfare" and reported that average civilian consumption in the district has been reduced since 1939 from about 15 to 7 gallons per week, with most driving cut in half to a range of 2,000-6,000 miles annually. Since Pearl Harbor the number of passenger cars in use in the five states has declined from 5,818,000 to less than 4,850,000, or 16.6 per cent, and trucks from 797,000 to fewer than 680,000, or 14.7 per cent. Scrapping of automobiles in the district is now estimated to be in excess of 750 daily.

### CRUDE OIL PRODUCTION

One of the most adverse changes affecting the Midwest oil industry has been the striking decline in crude oil production since 1940. Illinois, which before the war ranked fourth among all oil producing states, with an output of 147 million barrels per year, has now declined to sixth place with current production at an annual rate of only 80 million barrels. Crude output in Michigan has remained at roughly 20 million barrels each year during the war. Indiana production reached 7 million barrels in 1941, but has since fallen off to slightly more than 5 million barrels per year. No crude oil is produced commercially in Iowa or Wisconsin. National crude oil production now exceeds 1,500 million barrels per year, of which Illinois-Indiana-Michigan contributes about 100 million barrels, or roughly 6 per cent.



Source: U. S. Bureau of Mines.

Opinions differ as to the cause of the decline in Illinois crude oil output. Many operators and observers believe that for the present at least prospects are not good for new large discoveries sufficient to regain former record levels. The output of many wells continues to drop and the number of dry holes drilled in oil areas is increasing. Exploratory drilling, or "wild-cattling," nevertheless continues. Some petroleum specialists feel that the discovery of additional oil reserves in Illinois is dependent primarily upon the availability of needed equipment, experienced workers, and increased crude prices to cover higher production costs. Regardless of the causes, however, Illinois in particular, and the Midwest in general, continue to be the only important oil producing areas in the nation to experience a decline in crude oil output during the war.

To retard oil well abandonments, and to encourage oil production and new developments, the OPA placed in operation on August 1, 1944, a plan of subsidy payments to "stripper" producers of less than nine barrels per day. Within the industry there is fairly widespread feeling that the subsidy payments for wells with small production will aid many marginal producers but will not answer the problem of finding more oil. Throughout the war there has been a strong industry demand for a general price increase as an incentive for finding more oil, but such increase has been generally resisted by price control authorities.

The oil producing regions of Illinois-Indiana-Michigan, on January 1, 1944, had estimated proven reserves of 380 million barrels, or 1.9 per cent of the national total, compared with 400 million barrels, or 2.1 per cent, at the outbreak of war. Inasmuch as reserve estimates can only be made with rough accuracy—and improvements in refining technology and consumption efficiency, in effect, increase reserves—estimates purporting to indicate future petroleum supplies obviously must be made and used cautiously.

#### REFINERY OPERATIONS

The wartime refinery program has been designed to supply five principal products: 100-octane aviation gasoline, toluene for TNT explosive production, high quality lubricating oils, high octane general purpose motor fuel, and

petroleum chemicals for synthetic rubber. During the war the principal problem facing Midwest refiners has been obtaining adequate supplies of crude oil to produce these and related products. Over-all refinery capacity has been more than adequate, but current operations, because of lack of crude, are below full capacity.

Petroleum refineries are located in each of the five district states, except Iowa. Illinois and Michigan, however, have thirty-eight of the present forty-seven refineries operating in the district states. The largest refineries are in Illinois and Indiana, with a combined capacity of 550 thousand barrels, or 81 per cent of the four state total of 654 thousand barrels. The district states have about 13 per cent of all petroleum refinery capacity in the United States. Petroleum refining had the fourth largest product value, 343 million dollars, among all manufactures in the district states in 1939.

Since 1940 the district states have had an increase in refinery capacity amounting to more than 70 thousand barrels per day. Several large plants for producing components for 100-octane gasoline have been constructed during the war, concentrated in the prewar refinery centers in Illinois and Indiana. Within the Seventh Federal Reserve District, new petroleum refinery facilities valued in excess of 17 million dollars have been constructed since June 1940. The new plants and equipment have been almost entirely financed with private funds in contrast with the very heavy participation of public financing in most other facility expansions for war purposes.

To increase the availability of crude supplies in the Midwest has been a serious problem. Large crude oil reserves in West Texas have been made available to Midwest refiners by the construction of a new pipeline and by arrangements for tank car movement, with Government compensation for additional transportation costs. More recently, efforts have been made to encourage increased shipments of Gulf Coast crude by barge and tank car shipments from Wyoming, also with compensatory transportation cost arrangements. A deterrent to the importation of West Texas and Wyoming crudes has been their high sulphur and salt content. Some refiners have hesitated to expose their equipment to possible damage by the processing of these so-called sour crudes. An exchange of technical information with refiners accustomed to using sour crudes, nevertheless, has resulted in more extensive refining in the Midwest of crude oil from West Texas and Wyoming. Efforts are being made to increase further the use of sour crude because refineries in all other districts of the nation are now running maximum amounts of available crude and because the Midwest alone can effect increases in refinery operations. Despite idle refining capacity in the Midwest, crude oil consumption at refineries is more than 25 per cent above average peacetime consumption in 1939.

#### TRANSPORTATION ADJUSTMENTS

The peacetime pattern for petroleum transportation, closely linked to the most economically advantageous methods, has been sharply altered during the war. Because the district relies heavily upon outside areas for supplies of

crude oil and refined products, changes in petroleum transportation have been far-reaching. Midwest refineries are concentrated in a few refining sections at, or near, terminals for pipelines, railroads, barges, and tank ships. Consumption of petroleum is heavy, not only in the industrial centers but in farming areas as well, necessitating considerable movement of refined products into the hinterland. Few regions in the nation are able to use on a large scale all important methods of transporting petroleum products. Overland shipments through the Midwest have been particularly heavy during the war because of the exceedingly large East Coast demand for shipment overseas, and disruption of normal tank ship service along the Atlantic Coast.

Four of the five district states, excluding Wisconsin, have extensive petroleum pipelines measuring about 75 hundred miles of crude oil trunk lines, 15 hundred miles of crude oil gathering lines, and more than a thousand miles of pipes for refined oils. Most of the crude trunk lines are in Illinois and Indiana; gathering lines in Illinois; and refined lines in Iowa, in the latter case because of the importance of a major gasoline line from the Southwest extending through Iowa.

Two new, large pipelines have been particularly important in easing the problem of transporting large supplies of petroleum to the East Coast. The so-called "Big Inch" pipeline, in operation for one year, carries oil from Texas through Illinois to Pennsylvania and New York. The newer "Little Inch" pipeline also originates in Texas, extends into Arkansas, and then parallels the "Big Inch" line to the East Coast. These new pipelines, together with several smaller lines and other overland facilities, now move into the East Coast area more petroleum than prewar movements by water when tankers carried 95 per cent of the oil.

This sharply changed transportation system for petroleum has involved large outlays by Government and industry for new facilities and the substitution of more expensive methods than those used before the war. To assist the industry in meeting some of these added costs, the Defense Supplies Corporation for some time has been making compensatory payments for the movement of crude and petroleum products into the East Coast, and more recently for crude oil from the Southwest into the district.

At present, one of the principal petroleum transportation problems involves tank cars and tank trucks. Tank cars are needed badly to handle increased product movement to the East and more crude from Texas, in addition to movement of both crude and products to the West Coast. The shortage of heavy duty tires in recent months has begun seriously to affect petroleum hauling by tank trucks.

#### MARKETING PRACTICES

Although the marketing, or distribution, branch of the industry has had an important part to play in keeping essential industries and war workers supplied with petroleum products, nevertheless, this branch probably has been the most adversely affected by war conditions. Marketing and sales functions have been restricted principally by (1) lim-

ited supplies of petroleum products for sale; (2) rationing of gasoline and fuel oil; (3) price ceilings; (4) changing quality of petroleum products, especially motor fuel; (5) decline in the importance of branded products; and (6) Government regulations designed to effect savings in manpower and materials, and at the same time guarantee the flow of refined products to essential users.

The five district states, in 1941, consumed 5,100 million gallons of gasoline, more than half of which was distributed to consumers through retail outlets. In 1943 consumption was 3,765 million gallons, a decline of 26 per cent.

At the time of Pearl Harbor the five district states had about 44,000 retail service stations and 7,000 wholesale bulk plants. In the second quarter of 1944 more than 8,100 retail stations and 260 wholesale plants were not in operation.

#### LOOKING AHEAD

Activities of the Midwest petroleum industry clearly will be dominated by Government requirements during the remainder of 1944, and most likely through the first half of 1945. At the conclusion of the German phase of the war, the petroleum demands of the armed forces can be expected to decline, in all probability leading to larger gasoline rations for civilians. The present shortage of crude oil in the Midwest from local sources is likely to persist indefinitely, but reduction in the demand for petroleum by the armed services will make available large quantities of crude oil elsewhere for processing by Midwest refineries. The immediate postwar period, moreover, is likely to be characterized by conditions of large petroleum surpluses.

With the resumption of a heavy civilian demand, refinery operations will be shifted to meet these requirements. War-time expansion in refining facilities and aviation gasoline will present some important conversion problems, but much of the equipment in the district promises to lend itself to the production of refined products for peacetime consumption. The demand for 100-octane fuel is expected to remain exceptionally large until the end of the war with Japan.

As soon as reduced war requirements permit, a shift in current methods of transporting petroleum can be anticipated. Pipelines constructed during the war will exert a strong influence on postwar petroleum movements. Relative costs compared with tanker movement on the East Coast will determine to what extent petroleum products will be shipped to or through the Midwest to the East Coast after the war. A sharp decline in the present heavy use of tank cars, the most expensive method, can be expected.

In the marketing division postwar prospects are commonly held to include reduced warehousing because of improved transportation, fewer wholesale and retail outlets, and the selling of many products indirectly related to petroleum.

#### THIS MONTH'S COVER

New petroleum refining unit used in the manufacture of aviation gasoline components.

(Courtesy Standard Oil Company of Indiana)

only is transportation badly broken down, but also facilities have been destroyed on a very wide scale due both to incidental battle destruction and especially to strategic design under a "scorched earth" policy as the enemy is driven back. But more important than the question of transportation and other facilities is the problem of exchange of foods between the producers and consumers. Farmers will be reluctant and unwilling to yield their produce without something of value in exchange. "Occupation currency" may be accepted for a little while, but unless it will buy something desired by and useful to the farmer he will not long trade on such a basis. This complicates the job of getting the trading in foods re-established by requiring that satisfactory consumer goods be on hand to stimulate production and trading. This difficulty has been well illustrated by Allied experience in North Africa and Italy. Restoration of production by city inhabitants is therefore urgent and essential to any lasting revival of food production and trading. Further difficulties revolve around the nature of local and civil government remaining in the reoccupied areas. Without respected authority, chaos and anarchy are inevitable, and the task of restoring economic life becomes an impossible burden to any relief administration.

The farm lands of the Continent have not in general suffered extensive disruption physically as a result of battle. This being a war of movement rather than position, most of the damage has been to cities and to industrial areas and facilities. However, the soils have suffered loss of productivity because it has not been possible to maintain fertility. Fertilizer imports have been cut off. The need for phosphates is particularly acute, and the supplying of this and other needs will be a basic step to getting European agriculture back to a position where it can carry the bulk of the burden of producing the Continent's food needs. Processing facilities for farm products will require extensive restoration. These facilities have been the targets of destruction, particularly as the enemy has retreated, and further extensive devastation of such units is expected. Farm implements, seeds, and other production supplies will be required to revive farm production.

#### MAGNITUDE OF FOOD NEEDS

If, then, the major task of relieving the European food situation is the restoration of Continental production in the shortest practicable time, what are the needs for food from the outside? Present thinking is that the objective will be to raise the caloric level of Europe to a minimum of 2000 calories per day, with the expectation that the average will be substantially above this figure. It is assumed that demolition will not exceed present expectations; that the present concentration of European farmers upon the production of vegetable foods will continue; that the United Nations will ship in at the right time the essential requirements of fertilizer, seeds, implements, and other production supplies; that Europe's collection, processing, transportation, and distribution facilities can move the Continent's own produced supplies without too much trouble.

Under these assumptions it is believed that the require-

ments for imported foods into Europe will be about 9 million tons. The division of these imports would be: about 5½ million tons of grain; around 500 thousand tons of fats and oils; approximately 1⅓ million tons of milk products; about 700 thousand tons of meats, fish and cheese; 300 thousand tons of beans and peas; and 400 thousand tons of sugar. These would presumably be the requirements for each of the two years following the end of the war with Germany.

#### SOURCES OF SUPPLY

It is often erroneously assumed that these imports are to be supplied substantially or in whole by the United States. Probably very little of the grains would be supplied by this country. The total would be about 160 to 175 million bushels, supplied mostly by Canada, with the help of possibly Argentina, Australia, and the United States. If the United States were to supply all the projected requirements of fats and oils, this would be about 20 per cent of current domestic consumption. However, sizeable stocks are available in stock piles now located in Great Britain, and it is probable that supplies from Latin American and other countries would leave a residual of only about 100 thousand tons to be supplied by this country, or about 4 per cent of consumption.

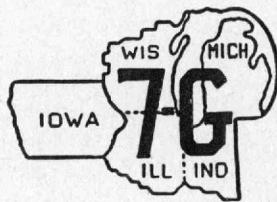
Supplying the milk products, principally powdered and condensed milk, would fall almost entirely to the United States. In view of the vigorous demand for milk in this country this would probably be the hardest part of the situation to meet. Since about eight times this much milk is fed annually to livestock in this country, it has been suggested that this amount could wisely be diverted from such use. That would be less than three per cent of the national production.

If this country had to furnish all the requirements for meats, fish, and cheese, it would amount to about 5 per cent of civilian consumption during the next two years. It is possible, however, that about half the requirements could be supplied by South American countries. This would reduce the proportion down to less than 3 per cent of United States civilian consumption.

#### CIRCUMSPECTION IN ORDER

Perhaps enough has been said above to indicate that those who count heavily on relief needs in Europe to counteract potential surpluses of farm products in this country and to support farm prices at wartime levels may be too optimistic in their expectations. It may be, however, that some of the assumptions upon which the needs are predicated are also too favorable and that the needs will be greater than indicated. On the other hand, it may be argued that stocks in the hands of the military services and other governmental agencies are now unofficially conceded to be fantastically large, and that when demobilization begins these will be available to supply some of the anticipated needs for food stocks to relieve Europe. The possibilities and probabilities as discussed here are such as to warrant considerable caution and circumspection in counting heavily upon relief feeding as a substantial market for American agricultural products.

**SEVENTH FEDERAL**



**RESERVE DISTRICT**

