


# Monthly Business Review



Finance, Industry,  
Agriculture, and Trade

Fourth Federal Reserve District  
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No. 3

## STRUCTURAL CLAY PRODUCTS INDUSTRY

The attainment of the Government's goal of nearly 2.5 million new housing units within the next two years depends upon industry's ability to produce the necessary building materials as well as to find the labor needed for both off- and on-site construction. Producers of clay products such as brick, hollow structural tile, sewer pipe, floor and wall tile are faced with a big assignment to manufacture badly needed material. In addition their trade associations are bending every effort toward recruiting and training the craftsmen needed to translate stocks of brick and tile into housing accommodations.

According to the Census of Manufactures, 1200 establishments were engaged in the production of structural clay products in the United States and employed 57,000 wage earners in 1939. The total value of product was \$166 million out of which wage earners received \$55 million. Ohio alone had 175 establishments with 10,500 wage earners whose value of product amounted to \$32 million or 19 percent of the national total.

Compared to the value of product and number of wage earners in such industries as iron and steel, coal, rubber, and automobile, the structural clay products industry seems relatively unimportant. However virtually every commercial, industrial, and residential building constructed in this country uses structural clay products in some degree. Not only are common and face brick integral parts of most buildings, but "invisible" items such as hollow tile, drain tile, sewer pipe, flue lining, and chimney pipe are also equally necessary and important.

WPB's announcement in the fall of 1945 that about 350 brick and tile plants out of an estimated 800 throughout the country were shut down, awakened the general public to the fact that a serious shortage of these items existed and threatened to block the impending construction program. The immediate problems facing the industry last fall were to attract an adequate labor supply and to obtain prices high enough to earn a reasonable profit and to stimulate owners to reopen establishments.

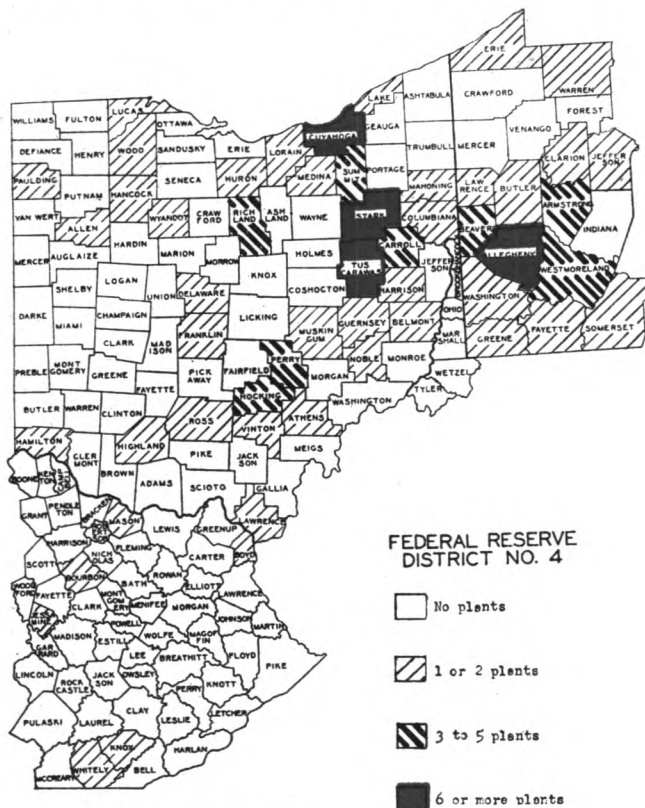
**History** Brick making is one of the most ancient crafts. Well made bricks have been discovered in ruins at least 5,000 years old. In this country bricks were burned as early as 1612 in the Jamestown settlement. Numerous brick yards were established in the 17th century. There is some disagreement as to the importance of competition from imported brick in early Colonial days. Such brick as was imported apparently was used primarily as ballast for ships carrying an otherwise light cargo.

In Ohio, the first bricks were made at Marietta about 1788 for the construction of Fort Campus Martius. Zanesville had a plant in 1803 and by 1815 every important settlement in the state had a brickyard. By mid-century, face brick was being manufactured in the state in response to a demand for the product.

Since the value of both raw material and finished product is low in relation to bulk, nearness to raw material and market are the determining factors in plant location. Clay suitable for common brick can be found in nearly every part of the country, so that brickyards manufacturing this article tend to cluster near large industrial and population centers which provide a market. High transportation costs limit the market for common brick to a maximum of 250-300 miles for most manufacturers, but the more valuable face brick which is made of fire clay and in a variety of colors including light grays, buffs, and tans, has a wider market. Eastern Ohio and Western Pennsylvania have an especially fine deposit of fire clay that has attracted a large number of producers whose market extends to the Eastern Seaboard and as far west as Chicago.

The influence of market and raw material upon the location of structural clay product manufacturers is reflected on the accompanying map, which shows the location of Fourth District brick and tile plants in 1945.

## BRICK AND TILE PLANTS IN OPERATION — 1945



Source: Ohio Brick and Tile Institute

Stark County leads the District with 16 brick and tile plants. Tuscarawas County and Allegheny County, Pennsylvania, follow closely with 11 establishments each. Cuyahoga and Perry Counties in Ohio, and Beaver and Westmoreland Counties in Pennsylvania each have five to seven plants. Production is thus heavily concentrated in seven counties.

According to Census data shown below, Pennsylvania and Ohio have been leaders in the industry by a substantial margin for at least 20 years.

## Structural Clay Products 1919-39

(000 omitted)

Year	Leading State	Second State	Third State
1919	Pa. \$43,900	Ohio \$32,200	Ill. \$17,564
1921	Ohio 34,100	Pa. 31,400	Ill. 18,400
1923	Pa. 65,500	Ohio 57,000	Ill. 31,500
1925	Pa. 59,500	Ohio 57,600	Ill. 33,100
1927	Pa. 57,000	Ohio 54,300	Ill. 31,600
1929	Pa. 59,500	Ohio 47,600	Ill. 23,700
1931	Pa. 25,300	Ohio 23,200	N. J. 10,500
1933	Pa. 17,400	Ohio 10,000	Mo. 5,500
1935	Pa. 27,600	Ohio 18,500	Mo. 8,100
1937	Pa. 43,700	Ohio 33,800	Mo. 14,400*
1939	Pa. 39,250	Ohio 36,000	Mo. 12,000*

\*Does not include non-clay refractories.

If non-clay refractories were excluded from 1939 data, Ohio would be the leading structural clay

product state with value of product of \$31,750,000 and Pennsylvania the second state with value of product of \$25,750,000.

In terms of value, output of structural clay products in Ohio and Pennsylvania was about 35 percent of the national total in 1939. Pennsylvania is the leading producer of clay refractories while brick, floor and wall tile, and sewer pipe are more prominent in Ohio.

Value of Product	United States	Ohio	Pa.
	(000 omitted)		
Brick & Tile.....	\$78,200	\$11,900	\$9,000
Clay Refractories.....	42,200	5,750	12,300
Sewer Pipe.....	18,300	6,300	2,300
Floor & Wall Tile....	17,700	5,750	1,700
Not Classified.....	4,500	2,000	300
Terra Cotta.....	3,200	—	—
Roofing Tile.....	1,800	—	—
Total.....	\$165,750	\$31,750	\$25,750

## Average Number of Wage Earners

Brick & Tile.....	29,000	4,000	2,500
Clay Refractories.....	12,000	1,800	3,700
Sewer Pipe.....	6,500	2,200	700
Floor & Wall Tile....	5,700	1,800	600
Not Classified.....	1,600	750	100
Terra Cotta.....	1,100	—	—
Roofing Tile.....	600	—	—
Total.....	56,700	10,600	7,500

## Wages Paid

(000 omitted)

Brick & Tile.....	\$26,350	\$4,500	\$2,600
Clay Refractories.....	12,300	2,000	4,000
Sewer Pipe.....	6,800	2,600	900
Floor & Wall Tile....	5,900	2,000	600
Not Classified.....	1,500	750	90
Terra Cotta.....	1,300	—	—
Roofing Tile.....	600	—	—
Total.....	\$54,800	\$11,850	\$8,300

## Number of Establishments

Brick & Tile.....	800	75	72
Clay Refractories.....	165	33	48
Sewer Pipe.....	65	22	5
Floor & Wall Tile....	49	5	5
Not Classified.....	99	38	5
Terra Cotta.....	12	1	—
Roofing Tile.....	16	1	—
Total.....	1,206	175	135

Because of rounding, columns do not necessarily add up to total.

These data emphasize the fact that this is a relatively small scale industry. For the United States as a whole, the average value of product per brick and hollow tile plant was only about \$98,000 and each plant averaged 36 employees. The average value of product for similar plants in Ohio, however, was \$159,000 or approximately 60 percent above the average. Ohio plants averaged 54 wage earners.

**Characteristics of the Industry** There are three methods of making structural clay products in the United States today — the dry press, soft mud, and stiff mud processes. A survey of Ohio manufacturers reveals that the dry press method is not now used by any producer and only one brickyard is currently using the soft mud process. The stiff mud brick (and tile) process using either shale or fire clay is therefore the leading method of forming the green ware.

After drying the product is burned in a variety of different type kilns. The more common are round or beehive downdraft, rectangular, scove, and tunnel kilns. In Ohio about 95 percent of structural clay products are burned in the beehive downdraft kilns. A few scove and rectangular kilns are in operation. There are only two tunnel or continuous kilns now in use for non-glazed brick and tile with two more under construction. However, five companies manufacturing glazed hollow tile, floor and wall tile, operate a total of 14 tunnel kilns.

Nearly all beehive kilns are hand-fired with coal as the universal fuel. Some of the scove and most of the tunnel kilns are fired with gas, but fuel oil can be used in an emergency. Beehive kilns are "periodic" in that they are loaded, fired, allowed to cool, and then unloaded before the cycle can be repeated. Tunnel kilns are continuous with the ware loaded on cars and progressing through the water smoking, dehydration, oxidation, vitrification, and cooling areas.

Wages, fuel, and materials are the most important cost elements in the manufacture of brick and tile as indicated in the following table:

#### Cost Data, 75 Ohio Producers in 1939

Value of Product		Percent
	\$11,900,000	100
Wages.....	\$4,450,000	37
Fuel.....	1,800,000	15
Materials and Supplies.....	1,400,000	13
Salaries (other than officers')	450,000	4
Purchased Electrical Energy	400,000	3

Source: Census of Manufactures.

Wages and salaries are 41 percent of the value of product; fuel and purchased electrical energy, 18 percent; and materials and supplies, 13 percent.

Hourly wage rates in the industry have advanced nearly 61 percent since 1939. In June of 1939, the average weekly earnings of brick, tile, and terra cotta workers were \$21.25. Average hourly earnings were 53.8 cents. In June 1945, average weekly earnings had advanced to \$35.60 and average hourly earnings to 81.5 cents. By November, the average hourly rate had increased to 86.4 cents. The industry estimates that labor costs are now 65 percent of the total costs of production. In addition, coal prices have advanced substantially. Since nearly every producer mines his own clay from land owned or leased, raw material prices have not changed. The labor cost of extracting the raw material, however, has advanced with the increase in wage rates.

Rates of production in the industry correspond closely to the volume of construction. Since 1919, peaks of output of structural clay products were attained in the building boom of the early 1920's and again in 1942. Changes in output are also accompanied by the entrance and exit of firms from the industry. Between 1925 and 1939, some 750 plants went out of business. In 1925, 1950 establishments produced \$336 million of product or \$172,000 per plant; in 1933, 928 establishments produced \$65 million of product, or only \$70,000 per plant. In other words, the number of plants shrank by nearly one-half, and the value of their output about four-fifths. By 1939, a moderate increase in construction had resulted in a reopening of some 300 plants and the 1200 establishments reported output of \$166 million.

The trade estimates that during the 1930's brick and tile plants operated at about 30 percent of capacity. After the rush of defense project work was completed in 1942 production dropped the following year to 15 percent of 1941 capacity, and continued at that level until the end of the war. The industry was declared non-essential and as a result found it virtually impossible to retain or recruit labor. Moreover, with selling prices frozen, it was difficult to compete for labor with the war industries. As a result of these factors, Ohio's 75 brick and hollow tile manufacturers in 1939 shrank to 42 by the middle of 1945. The current rate of production is about 50 percent of capacity.

An analysis of manufacturers' trade directories in 1939 found 173 structural clay products manufacturers listed for Ohio as compared to 175 reported by the Census for that year. By 1944, 40 of these listed companies had been dropped from the directories indicating a mortality rate of 23 percent in five years. However, 13 companies were in business in 1944 that had not been operating in 1939. The net loss for the period was therefore only 16 percent. The companies which retired from business were well distributed over the state and not concentrated in any particular local area.

#### Recent Technological Changes

As in many other industries rising wage costs are providing the stimulus toward mechanization. Until relatively recent times the manufacture of brick and tile has been primarily a hand process with the exception of machinery used to work the raw materials and form the greenware. At every stage of production the product was handled by hand. As a result labor productivity has been low. The value of product per worker in Ohio in 1939 was only \$3,000.

In a typical beehive brickyard the greenware is removed by hand from a take-off belt at the cutting machine and stacked on the drying cars which are then pushed to the driers. After drying and conditioning the dryer cars are run into the kiln and the brick are set for burning. After the burning process is complete and the product is cool enough to handle, the product is again loaded by hand in carts or wheelbarrows and



wheeled to the storage area where it is unloaded by hand and re-stacked to await shipment. The elapsed time between cutting machine and stock pile will average about four weeks. Another handling takes place when an order to ship is received. Labor costs and breakage are understandably high as a result of these methods.

The tunnel kiln, which is really a highly developed burning machine, is being adopted by an increasing number of producers. It has been established that tunnel kilns reduce burning cost in some cases by as much as 50-80 percent, with the average about 25 percent. Since it operates at top efficiency and lowest cost when used at full capacity, (which means 24 hours a day, 365 days a year) many plants in the past have been reluctant to install them since the rate of production in the industry varies tremendously. This problem may be met, however, by the use of two small kilns instead of one large one. At their present stage of development tunnel kilns are best suited for production of straight colors of brick and are not used for color work. Beehive kilns will produce a variety of colors and can be adjusted more easily for flashing at the end of the burn, and to accommodate the different kinds of product which each plant turns out. If each plant produced only one grade and one variety of product, tunnel kilns would be adopted more rapidly.

A more recent improvement in the tunnel kiln, operating by itself, is to combine the kiln with the drier. The combined drier and kiln avoid nearly all heat losses by utilizing all of the heat put into the kiln as well as the heat which is the product of combustion in the clay product itself. The kiln cars are loaded directly from the take-off belt at the cutting machine with green ware. Once loaded the article is not touched by human hands until after it has been dried, burned and cooled for shipment. This is the nearest approach to a continuous assembly line method of production that has been reached by the industry. Handling is reduced to two operations and breakage correspondingly lowered. Tunnel kilns are also said to produce a more uniform product and to reduce burning losses.

Fork or lift trucks have now been developed to handle brick or tile of any size with or without pallets or platforms. They can be used to set green ware in the driers, to load and unload any kind of kiln, and to convey the finished product directly to the storage area or load trucks or box cars. Brick is handled in units of 500 to 1500 bricks at a time. The pallet system of course cannot be used to load kilns for firing. Most brickyards, however, are rough and unpaved and roadways must be provided for fork truck operations.

Other types of handling equipment such as overhead cranes have now been devised for setting brick and unloading scove kilns. Brick "grabs" load and unload a kiln car at a time thus totally eliminating hand labor.

Mechanical conveyor belts are being successfully used to carry raw materials to the grinding and processing machines as well as to remove the green ware

from the cutting or forming machines and convey the product to the driers. Automatic conveyors and lifts are also used to speed brick to the kiln for setting.

During the past decade one of the most notable advances in the processing of the raw clay or shale has been greatly improved deairing machines. The result is a more uniform product and reduction of subsequent burning losses. Diesel power is replacing steam power in many plants.

In the clay pits substantial improvements have been made for winning the raw material. There are now in operation or available a wide variety of mechanical shovels, scoops, drag lines, and shale-planers to meet peculiar production needs and reduce costs.

Due to a marked trend on the part of the construction industry to demand concrete block for "back-up" material and for certain types of construction work instead of hollow tile, many brick and tile plants have installed high speed concrete block manufacturing machines. Thus the yards can offer the contractor a complete line of structural products. This activity also helps to balance seasonal operations since concrete block can be manufactured indoors in the winter months when bad weather causes a slow down in burned clay production.

**Prospects for the Industry** From 1849 to 1909, the production of brick and tile expanded at the rate of 40 to 50 percent each decade, as a result of the demand for brick as a building material and new uses found for the product. Thereafter production declined until the building boom of 1921-1926. World War II gave the industry another temporary lift. The recession between 1909 and 1921 was partly due to technological changes in the building industry. Increasing use of steel and Portland cement cut into the market for clay products. Production of Portland cement increased from 10 million barrels in 1900 to 80 million barrels in 1910 and about 160 million barrels in 1925. Other competitive materials have also shared the market.

The present intense demand for all types of building materials, and the acute shortage of lumber offers the brick and tile industry an excellent opportunity to recapture a large share of the construction market. At the same time an expanding market at stable or rising prices will enable many producers to mechanize their plants and improve their long run competitive position.

The Civilian Production Administration is making an intense drive to help expand production and to reopen closed facilities by granting priority ratings for the purchase of needed equipment. The RFC stands ready to aid operators unable to obtain financial assistance from banks or other sources.

A survey made in February 1946 of eleven structural clay products plants in the Fourth District known to have closed during 1942 and 1943, indicated that seven of them had again reopened or expected to resume operations as soon as repairs can be completed and needed machinery obtained. These plants have a capacity of about 50 million bricks per year.

Of the remaining plants, one has been dismantled and another is awaiting a new shovel and a satisfactory price adjustment from OPA. Two will not be reopened by their present owners because of other more profitable interests, but the plants will be leased if suitable lessees can be found.

If sufficient labor can be recruited, Ohio producers will be operating very close to 100 percent capacity within a few months. In general, prices are now satisfactory at present costs, having increased about \$5.75 per 1,000 brick since March 1942. A large part of this increase has occurred since September 1945.

The accompanying chart shows the trend of brick and tile, lumber, and all building material prices from 1939 through 1945. Since June 1940 the wholesale price of lumber rose 64 percent while brick and tile prices advanced only 29 percent, which is less than the average increase of all building material prices. If comparison were made with 1939, the percentage rise for lumber would be even greater. From the end of 1941 to the latter part of 1944 brick and tile prices were rigidly held. The major advance in brick prices took place in the last 12 months. If it were possible to measure quality deterioration, the relative price of lumber would be even higher than that shown. It is therefore apparent that brick and tile producers have improved their price-competitive position as a result of wartime price changes.

Higher wages can easily upset brickmakers' present price-cost equilibrium. With wages now representing 65 percent of total costs in the average Fourth District brickyard, the industry estimates a one cent per hour increase in wages as raising costs 25 cents per 1000 brick. Since fixed costs are relatively low, expanded production does not materially lower unit costs as in highly mechanized manufacturing operations. Too low profit margins or losses are avoided by simply closing the brickyard until competition or market factors reduce costs or increase the price of the finished article. The recent rush to reopen plants following the increase in ceiling prices during the latter part of 1945 verifies this condition.

**The Mason Shortage** All evidence points toward an ample supply of structural clay products by this spring. That there will be enough brickmasons to put these supplies to work is still problematical. The Structural Clay Products Insti-

tute estimates an accumulated shortage of 63,000 masons for the nation. The average age of brick-masons is now 56 years.

In June 1945 there were 3,500 journeymen brick-masons, and 31 apprentices in the state of Ohio. Cleveland had only about 1100 masons and 5 apprentices as against approximately 3,000 masons in 1930.

To combat this problem the Structural Clay Products Institute members are actively cooperating with builders, War Manpower Apprentice Training Service, and the unions to improve apprentice training. New standards for training masonry apprentices have been approved by the Federal Training Service, State Vocational Education, and State Apprentice Council. Briefly the plan provides:

1. Higher apprentice pay during the first six months equal to 50 percent of journeyman's rate as compared to 32 percent previously paid.
2. A more practical graduated scale of wages making it possible for apprentices to increase earnings more rapidly.
3. A change in age requirements to include high school groups, returning war veterans and those who have been working in war plants.
4. A shortening of the training period to attract men with family responsibilities.

The unions provide capable instructors, manufacturers supply all necessary materials, and communities provide classroom space.

In some towns contractors' associations are assessing members to provide a fund to pay apprentice masons while undergoing intensive schooling and then pay premium wages while they are training on the job. The program is beginning to show results. By February 1, 1946 the number of mason apprentices in Ohio had increased to about 500 as compared to 31 some six months previously. In Cleveland the number of apprentices had risen to 63. Continued hard work by contractors, unions, and local communities can overcome the labor shortage.

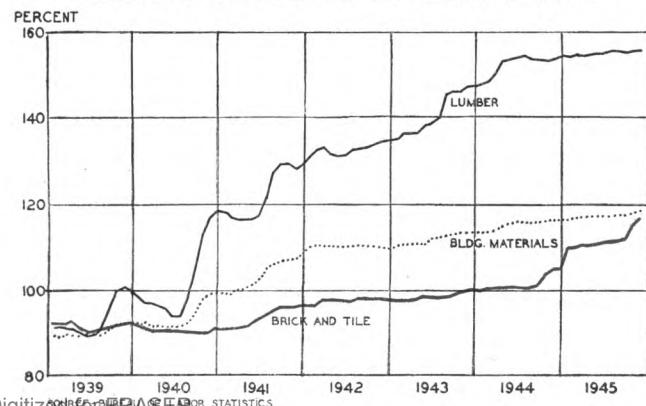
## CURRENT EVENTS

On February 9 the Board of Directors announced the re-appointment of Mr. Ray M. Gidney, president, and Mr. William H. Fletcher, first vice president of this bank, each for a term of five years beginning March 1, 1946.

## POSTWAR ECONOMIC STUDIES

The Division of Administrative Services, Board of Governors of the Federal Reserve System, Washington 25, D. C., now has available for distribution the third pamphlet of a series of eight entitled "Public Finance and Full Employment." Educational institutions and public libraries may obtain copies free upon request; others may purchase single pamphlets at 25 cents each, or at 15 cents each for a group order of ten or more.

## WHOLESALE BUILDING MATERIAL PRICES





## RECENT FINANCIAL DEVELOPMENTS

The postwar rise in commercial loans in this District, which was the subject of brief comment in last month's issue of this Review, appears to have spent some of its force in the past several weeks. Although another new high was established by a small margin on February 13, the rate of growth has slowed down perceptibly. As a matter of fact in three out of the past four weeks the volume of outstanding commercial loans actually declined slightly.

"All Other" loans, consisting largely of consumer instalment indebtedness, have also extended their rise somewhat during the past few weeks to a new high for some time, but here too the pace appears to have been more leisurely than in November and December.

The tendency on the part of these two types of loans to level off during midwinter was not peculiar to the Fourth District, but was evident in the New York City banks as well. However, conceivably a seasonal expansion may develop shortly in commercial loans and it is a foregone conclusion that, as durable merchandise becomes more plentiful, consumer loans will rise also.

### Effect Upon Investments

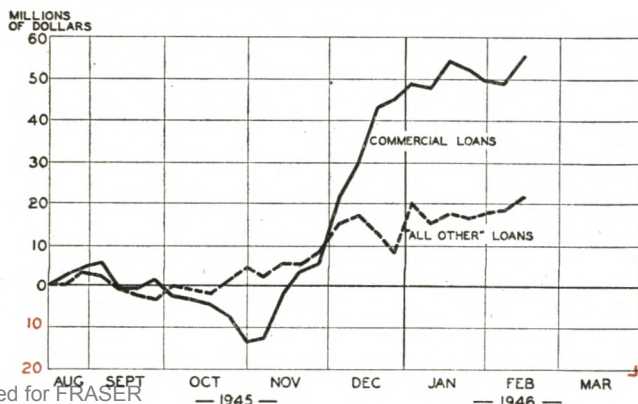
The possibility of a further expansion in loans has frequently evoked conjecture regarding the effect of such potential demands for bank credit upon bank holdings of investments, particularly U. S. Government securities. In that connection it may be significant that during the past three to four months portfolios of member banks in this district were apparently wholly unaffected by the sharp rise in loans. From the end of October to mid-February, while commercial and "all other" loans of weekly reporting banks increased \$86 million, holdings of investments likewise increased concurrently by \$326 million.

#### Increases in Investments 41 Fourth District Banks October 31, 1945 to February 13, 1946

Certificates and Notes.....	\$188,000,000
Treasury Bonds.....	108,000,000
Corporate and Other Investments	29,000,000
Treasury Bills.....	1,000,000

Total Increase..... \$326,000,000

#### POSTWAR FLUCTUATIONS IN LOANS



### Decline in Liquidity

This expansion of both loans and investments has reduced the ratio of cash resources to total assets to the lowest percentage of recent years. By late January, cash resources of the eight largest weekly reporting banks were less than 18 percent of total assets as against better than 21 percent two years earlier. For the other 33 reporting banks, the ratio was close to 20 percent as compared with nearly 25 percent two years ago. Thus the smaller banks are now as fully invested as were the largest city banks in early 1944, while the latter have moved still closer to the effective limit.

The latest increase in security holdings differed from previous acquisitions during inter-drive periods in that better than half consisted of certificates of indebtedness and short-term notes. Since the turn of the year, nearly 90 percent of the net increase in investments has been of this type of short-term Federal obligations. For the first time in many months, a greater preference was shown for certificates of indebtedness than for Treasury bonds, which were available only at new record-high prices.

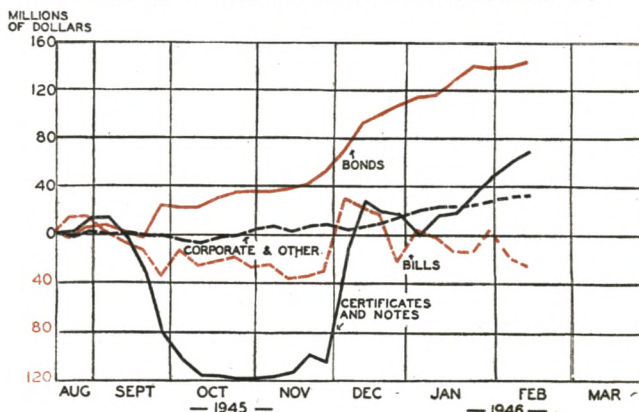
### Deposit Fluctuations

The fact that changes in deposits have been quite nominal is not without some significance. As indicated on the accompanying chart, demand deposits of individuals and corporations stand only slightly above the 1945 low. This is partly the result of large internal revenue collections and in part a consequence of the fact that the slowing down of Government expenditures has obviated large drafts on war loan accounts. Treasury balances at Fourth District reporting banks at mid-February were as large as in early December. There was no net transfer of Government funds to private account during that two-month period.

The protracted rise in time deposits, apparently unaffected by work stoppages and other unemployment has also been a factor in holding demand deposits at a lower level. Over the twelve weeks ended February 13, time deposits at the 41 weekly reporting banks increased at the rate of nearly \$200 million per year.

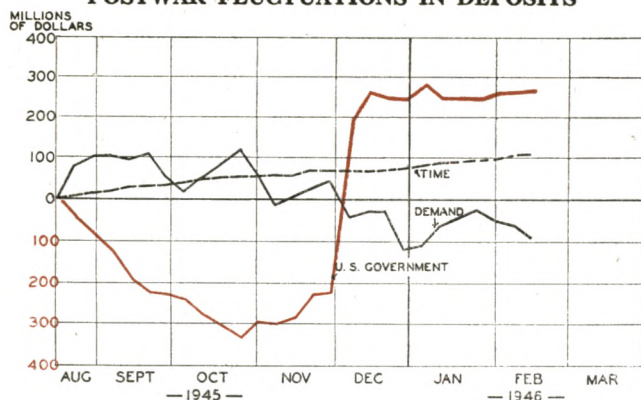
A further factor which has tended to affect the level of demand deposits, is the flow of funds out of

#### POSTWAR FLUCTUATIONS IN INVESTMENTS





## POSTWAR FLUCTUATIONS IN DEPOSITS



this district. It is estimated that during the month of January, fourth district banks and their depositors "exported" about \$45 million to other districts, principally to New York City, and presumably almost entirely in connection with Government security pur-

chases, for there is no indication that the flow of funds for ordinary commercial purposes was far out of balance.

A movement of funds out of the Fourth District to the money market is a typical January development. Last year, however, it was not large enough to offset the current inflow resulting from Treasury expenditures which were averaging better than \$600 million per month in the Fourth District. During this past January that source of funds had receded to around \$400 million, which is inclusive of cash redemptions of excess profits tax refund bonds. This difference of \$200 million in inflow of Treasury funds may be compared with a concurrent decline of only \$150 million in Treasury receipts. Had it not been for the almost unprecedented return of currency to the banking system during January—about \$45 million Fourth District notes came back out of circulation—demand deposits might have dropped below the 1945 low in recent weeks.

## INDUSTRIAL SUMMARY

**Rubber** Passenger tire production in 1945 approximated 28 million casings of which 11 million were manufactured in the last quarter of the year. Production for 1946 appears to be headed for a new record if no major work interruption occurs. During the week ended February 2 production was at the rate of 15 million passenger tires a quarter according to the Rubber Division of the Civilian Production Administration. If this volume of production can be maintained and slightly expanded, the goal of 66 million tires for 1946 will be reached. The previous production record of 50 million passenger tires was established in 1941.

The threatened shortage of bead wire, which would have closed down most major tire manufacturers by the end of February, was averted when a major bead wire producer resumed operations in the second week of the month. Bead wire fabricators were among those caught in the general steel strike. Although Akron tire producers are operating on a six hour shift basis, returning war veterans have eliminated the severe labor shortage experienced in the last quarter of 1945. It is reported that little additional labor will be required in the near future.

Semi-automatic tire building machines are now being used by some manufacturers to speed production, and labor productivity in general is improving. Capacity operation is anticipated by several companies by early spring. A small amount of natural rubber has been allocated to tire cord dip which will improve factory processing.

For the first time in the industry's history the "Big Four" rubber companies and the United Rubber Workers of America are conducting industry-wide labor negotiations. Heretofore negotiations have been conducted with individual companies, and in

some cases, on a single plant basis. The union is proposing a 30 cents an hour wage increase as well as a 30 hour work week with time and a half pay for anything over six hours in any one day and over 30 hours a week. Average hourly wages in the tire and tube factories have risen from 95 cents in 1940 to \$1.249 at the end of 1945, according to the Bureau of Labor Statistics.

**Coal and Coke** The steel strike had no appreciable effect upon bituminous coal production. Coal producers were able to divert output to other industrial users. Large quantities of coal in cars at steel mills tied up needed equipment for a time, but the situation was alleviated by the railroads taking much of it for their own use.

Stocks of coal held by industrial users and others are very irregular. Some plants have a very low supply and many retail dealers are currently out of coal. The Bureau of Mines reports inventories of industrial consumers and retail dealers declined 5 and 24 percent respectively during December. Coal reserves declined from 33 days on December 1, 1945 to 27 days on January 1, 1946.

Bituminous coal production in the Fourth District during January amounted to 20.2 million tons as compared to 18.6 million tons for January 1945. Total United States production for the period ending February 2 was 58.2 million tons as compared to 57.7 million tons for the period ending February 3, 1945 or an increase of about one percent.

By-product coke production in the United States for the calendar year 1945 was 61.6 million tons, a decrease of 8 percent from the previous year. Beehive coke production amounted to 5.2 million tons in 1945, a decrease of 25 percent from 1944.



**Steel** After 27 days the general steel strike was abruptly terminated on February 18 when the United States Steel Corporation granted an 18½ cents an hour wage increase and the Government announced a new wage-price policy. The new policy acknowledges that price increases are necessary to meet increased wage costs and provides a general average price increase for carbon and alloy steel mill products of \$5 a ton.

National steel ingot production for the period ending February 18 was estimated at 5.5 percent of capacity. In the Fourth District Cleveland and Youngstown were shut down completely while the rate at Pittsburgh was 1.5 percent, Wheeling 56 percent, and Cincinnati 44 percent. Steel operations were scheduled at about 15 percent of capacity beginning February 18. While estimates vary, it will probably take at least 2 to 3 weeks for the industry to regain a rate near 80 percent of capacity. *Magazine Steel* estimates that 6 million tons of ingots were lost as a result of the strike and at least 2 million tons additional before full scale operations can be resumed. This amounts to about 10 percent of the total produced last year.

The Stabilization Director has issued a directive to OPA formalizing the President's agreement with the steel industry to raise prices. The objectives of OPA under the order will be to encourage maximum production of items in greatest demand, to minimize impact of the increase upon prices of consumer goods, and to minimize hardship of smaller and non-integrated producers.

Steel mills have been put on an open billing basis by OPA until new ceiling prices can be worked out for specific items. The order is retroactive to February 15, so that mills will bill customers at present prices with the understanding that the balance between old and new prices will be paid when finally determined. The agency is directed to complete 90 percent of the price adjustment within two weeks, the balance within five weeks. Application for additional price relief may then be made within three months instead of waiting six months as has been the past requirement.

The situation with regard to steel fabricators may only be described as chaotic. About 1200 plants were struck by the steel worker's union. Not more than 400 of these were basic steel producing companies. The

remaining plants are operated by fabricators. The bulk of these plants have not as yet fallen into line with the wage agreements of the basic steel producers. The reason is obvious. Fabricators will have to pay not only the higher wage rates, but also higher steel prices. It is possible that they will receive steel for the next five weeks without knowing exactly what it will cost them. These companies may make immediate application for price increases but there is little likelihood that full-scale production will or can be resumed until OPA acts upon their applications.

In October 7400 metal fabricators employing 3.7 million persons filed reports with CPA. These plants account for about 90 percent of the value of production in the industry and do not include primary producers such as blast furnaces, steel work, rolling mills, smelters, foundries, and forge shops. Of those reporting Ohio had over 900 plants employing 438,000 people. In Pennsylvania, the Erie, Pittsburgh, and Sharon-Newcastle areas had 246 plants with 140,000 employees. The impact of higher wages and higher metal costs upon this vital segment of the Fourth District economy will be heavy. Even though immediate application for price relief may be made, it will be a physical impossibility to process the individual cases unless some sort of a blanketing order is issued, with all the inequities which such orders cause.

Products of metal fabricators have been divided by CPA into 274 classes, ranging from steam locomotives and metal caskets to buttons. Some are very large producers, some are very small. Probably 33 percent of the fabricators operated at a loss in the 1936-1939 base period. These firms would be entitled to adjustments in price so that 1946 percentage losses would be the same as in the base period. Under such conditions resumption of production is likely to be slow and with the strong possibility that many plants either will not reopen their doors, or will discontinue their least profitable lines.

As long as there prevails the policy of refusing to grant price adjustments on individual items when the over-all profit position in relation to the manufacturer's base period is satisfactory, there is little possibility of obtaining balanced production in the metal working industry. Manufacturers will continue to produce only their most profitable products or lines and refuse to turn out items on which losses are incurred.



# SOYBEAN PRODUCTION, PROCESSING and USE

Soybeans were an important food crop of the Orientals for over 50 centuries before they were known to the Western World. A German botanist introduced them into Europe in 1712, where they were received with little interest. Nor did they attract much attention when first brought into this country by the captain of a Yankee clipper in 1804. Although a Pennsylvanian recommended this new plant for growth and cultivation in Pennsylvania, another 100 years elapsed before soybeans became recognized as a field crop rather than a curiosity plant from Asia.

During the ten year period prior to World War I the acreage grown increased from 50,000 acres to nearly a half million. After a slow start in Pennsylvania the area of production subsequently expanded southward into the Southeastern States, the area south and east of the Ohio and Mississippi rivers, where growers raised them exclusively for hay. This led them to be considered a southern crop. The acreage gradually increased with the greatest expansion occurring in the Atlantic Coast States<sup>1</sup> and the Delta States<sup>2</sup> from 1907 to 1924.

From 1917 to 1924 the acreage of soybeans increased from 500,000 to 1,750,000 acres. For the next ten years, as shown in the chart, the acreage increased rapidly. This increase occurred at about the same rate in all three regions. Hay continued to be the principal use of the crop, although production of beans was becoming important as larger and larger quantities of seed were needed to plant the expanding acreage. Seed requirements range between  $1\frac{1}{4}$  and  $1\frac{1}{2}$  bushels per acre. While hay still accounted for about 75 percent of the total acreage harvested in 1934, that year marked the first substantial gain in the acreage harvested for beans. It also marked the beginning of an expansion in acreage in the Corn Belt States<sup>3</sup> which was eventually to make it the leading production area accounting for nearly 90 percent of the national aggregate.

**Expansion in Corn Belt** An important factor contributing to this change was the incidence of drouth conditions upon Western agriculture in 1934-5. In that adversity farmers grew them for the first time as an emergency feed crop to

replace hay meadows that had failed. Second and more important, the processing industry was becoming established after a long and rather discouraging period of development.

Since 1934 total area planted has more than doubled, the acreage harvested for beans has increased nearly tenfold, while the acreage used for hay has declined 50 percent. Concurrently with this rapid expansion in acreage during the past twenty years, the yield per acre of beans has also increased quite generally. Yield increases were most significant in the Corn Belt States, where the crop per acre is now 70 percent above the average of 1925. Yields in the Delta region, after little or no improvement for the first ten years, have increased by 50 percent in the last ten. On the other hand yields in the Atlantic States actually declined by nearly 20 percent during the past two decades.

Constant introduction of new varieties by plant scientists served to broaden the area of cultivation. Distinct types ranging in maturity from 75 to more than 200 days have resulted from the thousands of samples collected in a half dozen or more countries of the Orient. From these collections plant breeders have developed over 100 varieties.

The wide range in adaptation of these varieties to soil and other cultural conditions has made it possible to grow soybeans profitably in the Corn Belt as well as in the Southeastern States where they first found favor among American farmers.

**Lincoln Soybeans** Development of improved varieties made more progress in the Corn Belt than in any other region. This was undoubtedly due to the combined efforts of the Northern Regional Research Laboratory staff, Peoria, Illinois, and the cooperating agricultural college and experiment station workers of the states concerned. One of the most recent products of this combined effort is the Lincoln soybean. In nearly a hundred tests conducted by the above research workers this high oil-content bean has outyielded other common midseason varieties by four to six bushels per acre. It was first released for commercial planting in the spring of 1945<sup>4</sup>. If the Lincoln beans produced in 1945 are used for seed in 1946 they will plant more than half of the acreage in Ohio, Indiana, Illinois, and Iowa. If only half of the acreage in these states of the Corn Belt, where the Lincoln seems best adapted, is planted with this variety 20 million more bushels of beans may be produced without adding an extra acre to plantings. More improved varieties are in the making, of which some give promise of excelling even the new Lincoln.

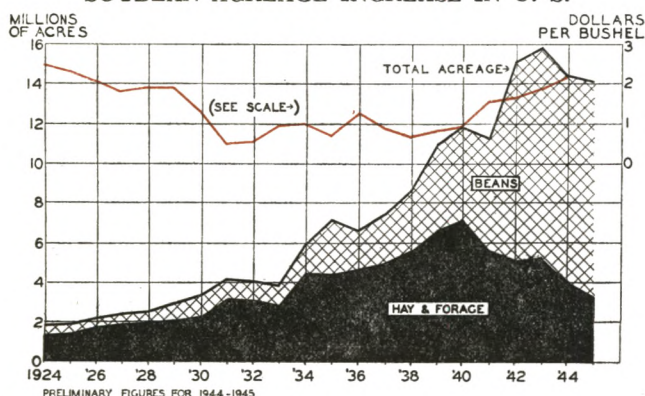
<sup>1</sup> North Carolina, Virginia, Maryland, and Delaware.

<sup>2</sup> Arkansas, Mississippi, and Louisiana.

<sup>3</sup> Illinois, Iowa, Ohio, Indiana, and Missouri.

<sup>4</sup> Authorities estimate that this variety has been made available five to ten years sooner by reason of the combined effort of research.

SOYBEAN ACREAGE INCREASE IN U. S.



Source: U. S. Dept. of Agriculture.



**Cultivation and Harvesting** Increases in yield were not due to improved varieties alone. Methods of seed preparation and harvesting were improved, too. Careful attention to inoculation of seed with bacteria cultures to promote nitrogen-fixing nodule growth on the roots added to the yield, as did care in providing a proper seed bed. Use of the combine harvester in preference to the earlier method of cutting the beans with a grain binder or mower and threshing them in a conventional grain separator recovered more beans per acre. Estimates of loss of beans in harvesting before the combine harvester came into use ranged as high as 30 percent. By use of the combine this loss has been reduced to an estimated 9 percent.

**Return Per Acre** The above factors were important in the expansion of the soybean acreage, but the impelling influence was the profit motive. They have proved to be one of the most profitable crops in the Corn Belt. Even in the early thirties, when the acreages of many farm crops were being restricted because of limited demand, soybeans found a market at prices which encouraged their production. During the recent war period the net return per acre from soybeans ranked next to corn and was more than double that obtained from wheat and oats. The relatively low labor requirement per acre, and the fact that both the planting and harvesting periods fit well into the labor pattern, were further reasons why acreage expanded in the Corn Belt States. In fact this combination of favorable circumstances prompted many growers to expand their soybean plantings at the expense of their small grain and hay acreages. This decline in hay and sod crops has given concern to agronomists who point out that soybeans deplete the organic matter content of the soil and leave the surface in a loose condition which favors erosion. They believe that if crop rotations are not adjusted to include sufficient acreages of crops which restore organic matter and tend to prevent erosion that the continued growth of large acreages of soybeans can easily lead to excessive losses of organic matter and topsoil due to erosion.

In 1942 for the first time the gross income from the sale of soybeans in Ohio was higher than any other crop. Total cash income exceeded \$31 million, as against \$27 million from wheat which was second. They retained this position in 1943, but were exceeded again by wheat in the past two years due to the exceptionally good crops of the latter. Gross cash income from the 1945 crop is estimated at approximately \$30 million.

While soybeans are grown both for beans and hay in most of the counties in the Fourth District, production of beans alone centers in the level grain-livestock farming area of Ohio, as shown by the map. The most concentrated area of production is located in the fertile Black Swamp area of northwestern Ohio. Beans constitute the most important source of income in Paulding and Van Wert counties and are extensively grown in Hancock, Putnam, and Wood. The soil in this section closely resembles that found in the major soybean states of Indiana, Illinois, Iowa, and Missouri.

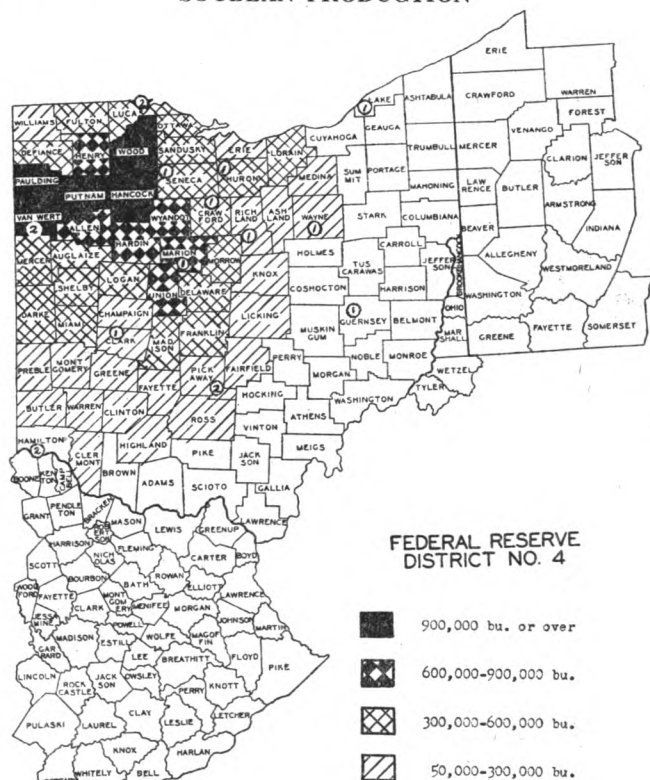
## Beans Supersede Hay

Utilization of soybeans for hay has been declining as indicated by the chart. This shift in use has occurred wherever beans can be produced satisfactorily as the grain is more profitable than the hay. Although soybean hay has proved to be an excellent high protein roughage, it is more costly to produce than either clover or alfalfa or combinations of these legumes with timothy or brome grass. The latter legume and legume grass mixtures can be sown with small grain crops thus alleviating the plowing and special preparation of seed bed necessary for soybeans.

On-the-farm consumption of soybeans is confined to the quantity needed for seed, which has approximated 20 million bushels annually in recent years, and a limited amount for feed. The quantity used in this manner has seldom exceeded 6 million bushels. The high fat content of ground soybeans causes them to be less suitable as a feed than as soybean meal, and precludes storing since after grinding the beans soon become rancid.

Neither exports nor imports have figured greatly in the total situation since 1930, when soybeans harvested for grain were showing a definite trend upward. A considerable quantity was imported during World War I, but subsequent needs were met entirely from domestic production. In only two years of the last fifteen have exports been of any consequence, of which one was 1939 when nearly eleven million bushels were exported, and again in 1945 when exports are estimated to have been in excess of five million bushels.

SOYBEAN PRODUCTION





**Processing Methods** The processing of soybeans for oil and derived meal first exceeded a million bushels in 1930. In the next five years the quantity so processed increased nine times, and in 1936 jumped to 25 million bushels. Another sharp increase in processing occurred in 1943 when the volume rose to 133 million from a total of 77 million for the previous year. At the present time soybeans processed account for as much as 150 million bushels or about 75 percent of the annual production.

From the time domestically produced soybeans were first processed in this country in 1915 up to the present time, the processing industry has had many obstacles to surmount. Among the first and rather unusual was the inability to obtain beans for processing because they were so much in demand for seed. Another was the difficulty of gaining acceptance of soybean oil meal as a livestock feed among farmers and members of the feed trade. Likewise the markets for soybean oil required development. Despite these deterring factors processing facilities have expanded from about 2 million bushels of capacity to over 150 million in the past 15 years, and a further 20 million is reported under construction.

Changes have likewise occurred in processing methods. The early equipment was of a hydraulic press type. That was succeeded by expeller or screw type units which today account for about 73 percent of the processing plant facilities in the country. A more recent type of extraction process is the solvent method by which oil is separated from the meal through the use of a chemical dissolvent. Present plant capacity using this method approximates 26 percent. The remaining one percent is represented by hydraulic presses which have declined in use because they are less efficient than the expeller method in extraction of oil.

**Solvent Process** Of the two methods now in common use the solvent process is slightly more efficient.

The average yield from a bushel of beans (60 pounds) by the solvent process is  $10\frac{1}{2}$  pounds of oil and 45 pounds of meal containing 43-48 percent protein, as against 9 pounds of oil and 48 pounds of 40-45 percent protein meal by the expeller method. With soybean oil figured at 12 cents per gallon this represents a gain in return of 16 percent. But this is not all net as solvent extraction is more costly. Another factor to be considered is that the resulting soybean oil meal from solvent extraction is lower in fat content and higher in protein thus making it slightly more acceptable to poultry and hog feeding authorities in light of present research information. Best index as to the attitude of the industry is that of the plants under construction or built during the past year, 64 percent were of the solvent type.

The number and location of processing plants in the Fourth District is shown on an adjoining map. While there are reported to be three processing plants in Kentucky and one in Pennsylvania, they are well

## Estimated Annual Processing Capacity in Three Corn Belt States and Selected States<sup>1</sup>

October 1, 1945

Estimated capacity—1000 bu.

Total in Operation and Under Construction

Method	Ohio	Ill.	Ind.	Total 16 States	Per- cent of Total
Expeller	17,700	44,200	10,900	118,700	70
Solvent	9,400	18,700	6,600	51,400	30
Total	27,100	62,900	17,500	170,100	100

<sup>1</sup> In addition to those listed: Iowa, Missouri, Delaware, Kansas, Kentucky, Michigan, Minnesota, Nebraska, New York, North Dakota, Pennsylvania, South Dakota, and Wisconsin.

Source: November issue *Soybean Digest*.

outside of the District and probably receive few if any soybeans from farms in this District.

The amount of capital investment required for an efficient unit varies with the type of operation. The cost of equipment, exclusive of building and storage, for an 1800 bushel-per-day expeller unit approximates \$55,000. Solvent equipment of similar capacity would cost about \$100,000 according to present day estimates.

Soybean products have many uses. Some of the widely publicized uses have tended to obscure the more important ones. The most important use of the meal has been for livestock feed, which annually accounts for 90-98 percent of total domestic consumption. Soybean oil meal is a high-protein feed used as a supplement with grain and grain by-products to provide a ration in which the protein is in proper proportion to the carbohydrates and fat. The meal is not only among the highest in protein content but excels in digestibility. These properties have caused it to be received with favor among livestock and poultry producers once earlier prejudices were overcome. The extent to which it is being used for feeding purposes is indicated in the following table.

## Oil Seed Cake and Meals Available for Livestock Feeding

Year beginning October 1

(Thousands of tons)

	1945	1938-42
Soybean.....	3,525	1,720
Cottonseed.....	1,450	1,907
Linseed.....	700	604
Other Cake and Meal*....	150	203

\*Includes peanut and copra.

Source: U. S. Dept. of Agriculture.

Some of the other uses of soybean meal include glue for plywood industry, plastics, alpha protein, soya flour, fertilizers (except during wartime), paper coatings and sizing, cold-water paints and foam solutions. These solutions, termed "bean soup" by Navy personnel, proved very effective in extinguishing gasoline and oil fires aboard ship.

The drying industries, which include paints, varnishes, linoleum, oil cloth, and printing ink, were one of the major markets for soybean oil until 1935. From then on the food industries—shortening, margarine, salad oils, etc.—began purchasing greater amounts yearly. In 1944, the latest year for which figures are available, 80 percent of the annual soybean oil was consumed by manufacturers of edible products. The extent and nature of expansion in the usage of soybean oil is as follows:

### Soybean Oil Utilization

(In millions of pounds)

	1944	1935-39
Edible Uses		
Shortening.....	620	119
Margarine.....	211	32
Other edible products....	279	59
Other Uses		
Drying industries.....	19	20
Soap.....	3	8
Other industrial.....	31	5
Exports.....	65	6

Source: U. S. Dept. of Agriculture.

From the foregoing it is apparent that soybean products have attained wide usage in both human and livestock foods. Whether this position will be challenged by other competitive sources of oil and meal, either imported or domestically produced, will depend upon the ability of the industry to keep costs competitive with products of similar quality. Cost figures from the University of Illinois in 1944 indicate that with present methods and equipment the per acre cost of producing soybeans is one dollar less than it was in 1932 despite the general trend toward higher wages and other expenses. Costs of processing likewise have been lowered materially in the past 15 years through technological improvements.

**Wartime Expansion** Wartime demands greatly accelerated the expansion of this industry. Developments which normally might have required 10 to 25 years were telescoped into five. Soybean production in 1945 was 223 percent of the ten-year average (1934-43), thereby heading the list with respect to expansion of United States crops. Flaxseed, another oil-bearing crop, ranked second with production at 171 percent. During this same period peanuts increased by 41 percent and cotton-

seed production declined 28 percent. Soybeans processed for the year ending September 1945 totaled nearly 153 million bushels, the highest on record, and more than double prewar processings.

Probably the most important question is "how much of the war expansion can be profitably maintained in the future?" For the current year domestic and world supplies of fats and oils as well as proteins call for a continued high rate of production as indicated by a recent increase in the soybean goal from 9½ to over 10½ million acres.

The outlook for subsequent years appears to be dependent upon a number of factors, one of which is the continued need for fats and oils.

### Continued Need for Fats and Oils

The prewar upward trend in consumption of fats and oils is expected to continue. On the basis of recent increases, annual consumption within the next five years may amount to 11-12 billion pounds as against the prewar average of only 9.7 billion pounds.

The supplies to meet this additional consumption will probably have to come from domestic production as net imports of fats and oils are not expected to be any greater in the next few years than they were in the period immediately preceding the war. Likewise the demand for protein feeds is likely to be above prewar when our livestock population as a whole received about one-half the protein supplement considered necessary for optimum results.

Another factor is the technological developments in the processing field already made and in process which have resulted in end products more favorably suited to both the users of edible and inedible oils. These developments also hold promise for a number of other industrial uses which may not account for large quantities individually but which are of importance in the aggregate.

Finally, production of soybeans in subsequent years will depend upon production techniques which result in high per acre yields at a low cost per unit while maintaining productivity of the soil.



# DEPARTMENT STORE TRADE

If department store sales are an accurate gauge of public confidence in the continuity of personal incomes, it is clearly evident that a high degree of optimism prevails in that important segment of the consumer market.

On the basis of incomplete dollar figures, the past month was not only the best February on record, but sales (after seasonal adjustments) also surpassed the previous all-time peak established last November. This surge of buying has been nearly nation-wide in scope.

The substantial margin over all previous Februaries has likewise been quite uniform among all Fourth District reporting centers. In the week of February 16, only 12 out of 59 reporting stores showed year-to-year decreases, and some of these resulted from the fact that there was one less trading day this year in a large Fourth District city because of a power shortage.

This demonstrated strength in sales is especially significant when considered in the light of the widespread unemployment which prevailed concurrently in the automotive, steel, and other industries. The margin of sales over last year in this highly industrialized district compared favorably with increases reported in the rest of the nation.

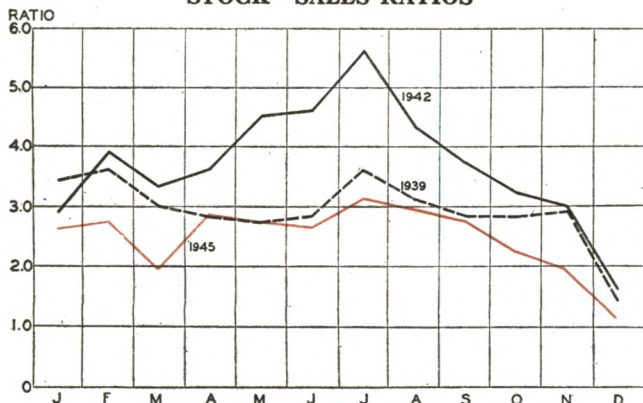
For the four weeks ended February 16, the various localities in the Fourth District reported the following percentage increases over last year, as compared with the country as a whole:

Percent Increase Over Year Ago  
4 Weeks Ended February 16

Cincinnati.....	23
Pittsburgh.....	21
"All Other" Cities.....	20
UNITED STATES.....	20
FOURTH DISTRICT.....	19
Cleveland.....	18
Columbus.....	18
Toledo.....	12
Akron.....	10

Some of the record sales volume can be explained on the grounds of a greater scarcity of a number of

STOCK - SALES RATIOS



relatively low-priced items. The growing absence of such merchandise has brought about a noticeable amount of up-trading, depending upon the extent of actual need. Sales have also been stimulated by the reappearance of durable housewares and major household appliances for which a record demand exists for replacement purposes alone.

It is rather difficult however to explain the prodigious purchases of china and glassware, lamps and shades, toys and games, silverware and jewelry in terms of dire necessity. The volume of traffic in these lines indicates that the public is in a mood to buy comparative nonessentials with as much avidity as the more staple items of apparel and piece goods.

The presence of such pronounced consumer demand, in the face of a number of uncertainties and definitely adverse factors, leads to many surmises regarding the probable level of sales when industrial disputes have abated and a greater variety of merchandise becomes available.

**Low Stocks Ratios** The postwar bulge in sales has had a decided effect upon department store inventories. The accompanying chart depicts the ratio of stocks to sales for the last prewar year, 1939, the peak year, 1942, and the calendar year, 1945. Stocks were at their highest in 1945 in relation to sales just prior to V-J Day when they were equivalent to better than three times July sales, or close to the conventional ratio.

During the two months of August and September, as consumers were in the process of reorientation to peacetime conditions, the decline in the ratio was slightly less than several preceding years. By the end of October however and throughout the remainder of the fourth quarter, the ratio established successive new—perhaps all-time—lows. At the end of the year, only the following main store departments (U. S. average) reported slightly higher stocks, in relation to December sales, than a year earlier:

RATIOS OF STOCKS TO SALES

	1945	1944
Juniors' and girls' wear.....	1.2	1.1
Infants' wear.....	1.4	1.2
Corsets, brassieres.....	2.0	1.7
Furs.....	2.3	1.9
Handkerchiefs.....	0.7	0.6
Millinery.....	1.0	0.9
Draperies, curtains, upholstery..	2.3	2.2
China and glassware.....	1.7	1.6
Art needlework.....	2.0	1.8
Stationery, books, magazines...	0.9	.08

In most instances this improvement was due to resumption or expansion of production and shipments rather than to slackening of sales.



# Summary of National Business Conditions

By the Board of Governors of the Federal Reserve System

Output at factories declined further in January and the early part of February owing to work stoppages. Production and employment in most nonmanufacturing lines, however, continued to advance and the value of retail trade was maintained considerably above last year's level.

## Industrial Production

Wage disputes sharply reduced output in the iron and steel and electrical machinery industries during January and the early part of February. These decreases were offset in part by increased output in most other manufacturing lines and in mining. The Board's index of total industrial production was at a level of 159 percent of the 1935-39 average in January, as compared with 164 in December.

Steel mill operations, which averaged 83 percent of capacity in the first three weeks of January, dropped to around 6 percent during the succeeding four weeks. Since settlement of the wage dispute in the steel industry, output has recovered sharply and during the last week of February operations were scheduled at 59 percent of capacity.

Activity in machinery industries declined about 5 percent in January, mainly because of work stoppages in plants of leading electrical equipment producers after January 15. Output of most other types of machinery continued to increase. Activity in the automobile industry rose in January, even though plants of the leading producer remained closed by a labor-management dispute. About twice as many automobiles and trucks were assembled in January as in December. Passenger car assemblies were at an annual rate of 700,000 cars which, however, was only about one-fifth of the 1941 rate.

Lumber production rose considerably in January and there were substantial increases in output of most other building materials from previous low levels. Production gains were also recorded in January at textile and paper mills, at printing and publishing establishments, and in the furniture, tobacco, chemical, and rubber products industries.

Output of minerals rose 5 percent in January, reflecting large increases in output of anthracite and bituminous coal and a small gain in production of crude petroleum. Coal production in January and the first part of February was at a rate about 8 percent above a year ago.

## Employment

Employment at trade establishments in January showed a much smaller decline than is usual after the Christmas season and employment in most other industries continued to advance. Construction employment in January was double the level in the same

month last year, and, following large increases since last autumn, employment in the trade, finance, service, and miscellaneous industries was substantially larger than a year ago. Employment at factories was about one-fifth lower than at the beginning of 1945 as reductions in munitions employment was only partly offset by increases in other employment. Unemployment rose somewhat further by the middle of January to a level of 2,300,000 persons.

## Distribution

Value of department store sales in January was 15 percent above last year and in the first half of February the increase was larger. Retail sales at stores selling furniture, building materials, and other durable goods were from 25 to 40 percent above a year ago in January and the total value of retail trade since the first of the year has been about one-fifth higher than during the same period last year.

Railroad freight traffic was reduced from the middle of January to the middle of February owing mainly to the work stoppage in the steel industry. Shipments of agricultural commodities, coal, and general merchandise, however, remained at high levels.

## Commodity Prices

Federal price policies were modified in the middle of February to permit increases in ceilings made necessary by Federally approved wage-rate advances and sellers now may ask for immediate price relief rather than waiting six months. Accompanying this action steel prices were raised by 8 to 9 percent. Ceiling prices for a number of other manufactured products, including certain foods, cotton goods, paper, and lumber, have also been increased in recent weeks.

## Bank Credit

Treasury deposits increased by more than one billion dollars in the five weeks ending February 20, reflecting large Treasury tax receipts, reduced expenditures, and sales of savings bonds and tax savings notes in excess of securities redeemed. Deposits, other than Government and inter-bank, showed little change during this period, in contrast to developments in former post-drive periods when funds were shifted rapidly from Treasury balances to accounts of businesses and individuals. Bank loans made for purchasing and carrying Government securities were further reduced, while commercial, industrial, and agricultural loans continued to increase.

Banks continued to increase their holdings of Government securities, purchasing bonds in the market and Treasury certificates from the Federal Reserve Banks. Nonreporting banks drew upon their balances with city correspondents to increase their loans and investments. City banks met this and other drains in part by selling bills to the Reserve Banks.



## Indexes of Department Store Sales and Stocks

Daily Average for 1935-1939 = 100

	Adjusted for Seasonal Variation			Without Seasonal Adjustment		
	Jan. 1946	Dec. 1945	Jan. 1945	Jan. 1946	Dec. 1945	Jan. 1945
<b>SALES:</b>						
Akron (6).....	258	246	236	196	389	179
Canton (5).....	243	223	217	187	387	167
Cincinnati (9).....	218	216	189	178	365	155
Cleveland (10).....	195	193	172	162	305	142
Columbus (5).....	247	242	213	200	426	172
Erie (3).....	235	230	194	183	405	151
Pittsburgh (8).....	207	190	172	156	303	129
Springfield (3).....	247	234	230	180	417	168
Toledo (6).....	205	211	197	152	358	146
Wheeling (6).....	202	186	173	141	351	121
Youngstown (3).....	235	236	210	181	382	161
District (97).....	214	211	186	167	338	145
<b>STOCKS:</b>						
District.....	157p	149	149	138p	124	130
p Preliminary						

## Fourth District Business Statistics

(000 omitted)

	January 1946	% change from Jan. 1945	December 1945
<b>Fourth District Unless Otherwise Specified</b>			
Savings Deposits—end of month:			
39 banks O. and W. Pa.....	\$1,430,982	+21	1,413,225
<b>Retail Sales:</b>			
Department Stores—97 firms.....	\$ 40,886	+15	79,552
Wearing Apparel—17 firms.....	\$ 1,852	-0-	3,287
Furniture—65 firms.....	\$ 2,487	+66	3,356
Building Contracts—Total.....	\$ a	a	50,028
—Residential.....	\$ a	a	9,659
Commercial Failures—Liabilities.....	\$ 50	+72	143
—Number.....	2	00	2
<b>Production</b>			
Pig Iron—U. S..... Net tons	a	a	4,323
Steel Ingot—U. S..... Net tons	a	a	6,085
Bituminous Coal—			
O. W. Pa., E. Ky..... Net tons	20,260	+ 8	17,244
Cement—O. W. Pa., W. Va..... Bbls.	a	a	756
Electric Power—			
O. Pa., Ky..... Thousand K.W.H.	a	a	2,772
Bituminous Coal Shipments:			
Lake Erie Ports..... Net tons	a	a	1,384
a—Not available.			

## Bank Debits in 29 Fourth District Cities

In January, bank debits in the Fourth District as a whole were two percent above a year ago, which however nominal was the largest percentage gain since last June. Of the 29 reporting centers, only six showed declines in dollar volume.

There was considerable variation among cities and, as has been the case in recent months, the dollar volume shows a relatively larger increase in the smaller cities.

## 10 Largest Centers:

**Columbus**—Bank deposit turnover in Columbus ran 15 percent ahead of a year ago in the past three months, with debits aggregating over \$1,100,000,000. This percentage gain was the largest reported by any of the 10 largest centers.

**Youngstown**—With a three-month debit total of nearly \$290,000,000, Youngstown debits were more than five percent ahead of the similar preceding period, or the second-best showing among the largest centers.

**Dayton**—In Dayton, debits for the past three months were also nearly five percent ahead of a year ago with a volume of over \$475,000,000.

**19 Other Centers**—As has been customary in recent months, the more spectacular gains were reported among smaller cities.

**Zanesville**—With a 27.2 percent (or \$11,000,000) year-to-year gain, Zanesville leads the list of all cities for the past three months. The rise in debits was particularly noticeable in the month of January when a 30.1 percent increase was reported.

**Lexington**—After several months in first place, Lexington dropped to second rank with a 26.9 percent margin over the same period a year ago.

**Lorain**—With a better than \$5,000,000 increase in debits for the three months, Lorain stands third with a percentage gain of 18.6 percent over last year's figures.

(In thousands of dollars)

	January 1946	% change from year ago	3 months ended Jan. 1946	% change from year ago
<b>ALL 29 CENTERS.....</b>	\$5,021,007	+ 2.0	\$15,543,374	- 1.7
<b>10 LARGEST CENTERS:</b>				
Akron..... Ohio	\$ 188,066	- 3.7	\$ 559,918	- 9.0
Canton..... Ohio	77,632	- 7.2	238,108	- 7.9
Cincinnati..... Ohio	714,478	+ 8.5	2,137,130	+ 0.8
Cleveland..... Ohio	1,387,869	+ 0.1	4,265,048	- 2.6
Columbus..... Ohio	360,382	+17.8	1,159,122	+15.4
Dayton..... Ohio	159,089	+ 7.4	478,719	+ 4.8
Toledo..... Ohio	245,400	+ 4.0	776,891	- 4.5
Youngstown..... Ohio	92,725	+12.6	288,468	+ 5.2
Erie..... Penna.	62,836	+20.1	198,060	+ 3.8
Pittsburgh..... Penna.	1,261,878	- 6.3	4,047,334	- 8.6
<b>Total.....</b>	\$4,550,355	+ 1.2	\$14,148,798	- 2.7
<b>19 OTHER CENTERS:</b>				
Covington-Newport, Ky.	\$ 31,229	+17.3	\$ 93,193	+18.0
Lexington..... Ky.	91,738	+ 7.0	229,826	+26.9
Hamilton..... Ohio	24,075	+10.8	71,596	+ 0.2
Lima..... Ohio	30,573	- 1.9	90,089	- 0.4
Lorain..... Ohio	11,121	+18.2	34,925	+18.6
Mansfield..... Ohio	25,043	+23.0	75,400	+ 8.8
Middletown..... Ohio	24,252	+24.3	67,833	+ 8.0
Portsmouth..... Ohio	13,705	+13.0	44,950	+17.7
Springfield..... Ohio	34,089	+ 6.8	104,456	+ 1.8
Steubenville..... Ohio	17,026	+11.5	52,392	+13.7
Warren..... Ohio	23,930	+ 0.5	75,081	- 5.4
Zanesville..... Ohio	16,807	+30.1	51,611	+27.2
Butler..... Penna.	19,530	- 4.6	61,106	- 5.3
Franklin..... Penna.	6,457	+13.4	19,867	+ 5.6
Greensburg..... Penna.	13,584	+16.5	43,803	+14.3
Homestead..... Penna.	5,447	+14.8	16,450	+ 9.0
Oil City..... Penna.	15,719	- 9.7	46,389	- 9.9
Sharon..... Penna.	16,530	+ 5.0	54,338	+ 4.4
Wheeling..... W. Va.	49,797	+18.8	161,271	+12.6
<b>Total.....</b>	\$ 470,652	+ 9.9	\$ 1,394,576	+ 9.5

## Wholesale and Retail Trade

(1946 compared with 1945)

	Percentage Increase or Decrease	
	SALES	STOCKS
	Jan. 1946	Jan. 1946
<b>DEPARTMENT STORES (97)</b>		
Akron.....	+10	+ 2
Canton.....	+12	a
Cincinnati.....	+15	+ 4
Cleveland.....	+14	+10
Columbus.....	+16	- 2
Erie.....	+21	+ 6
Pittsburgh.....	+20	+ 2
Springfield.....	+ 7	a
Toledo.....	+ 4	+11
Wheeling.....	+17	+10
Youngstown.....	+12	a
Other Cities.....	+27	- 1
District.....	+15	+ 5
<b>WEARING APPAREL (17)</b>		
Canton.....	- 4	-15
Cincinnati.....	-14	-26
Cleveland.....	+ 6	-14
Pittsburgh.....	+ 7	- 4
Other Cities.....	-0-	-10
District.....	-0-	-13
<b>FURNITURE</b>		
Canton.....	+34	- 9
Cincinnati.....	+77	+ 7
Cleveland.....	+63	+37
Columbus.....	+59	+17
Dayton.....	+94	-0-
Pittsburgh.....	+29	a
Allegheny County.....	+71	a
Toledo.....	+44	a
Other Cities.....	+100	+20
District.....	+66	+16
<b>WHOLESALE TRADE**</b>		
Automotive Supplies (4).....	+35	a
Beer (6).....	+24	+13
Clothing and Furnishings (3).....	-0-	a
Confectionery (4).....	+27	a
Drug and Drug Sundries (4).....	+22	a
Electrical Goods (3).....	+60	a
Fresh Fruits and Vegetables (9).....	+10	+12
Furniture & House Furnishings (3).....	+ 7	a
Grocery Group (40).....	+24	+17
Total Hardware Group (18).....	+19	-0-
General Hardware (4).....	+53	+ 1
Industrial Supplies (6).....	+ 3	a
Plumbing and Heating Supplies (8).....	+10	- 6
Jewelry (8).....	+74	+ 6
Machinery, Equip. & Sup. (exc. Elect.) (3).....	+58	a
Meats and Meat Products (3).....	+26	+48
Paints and Varnishes (3).....	+36	a
Paper and Its Products (4).....	+ 5	a
Tobacco and Its Products (13).....	+31	+62
Miscellaneous (16).....	+21	+31
District—All Wholesale Trade (147).....	+22	+24

\*\* Wholesale data compiled by U. S. Department of Commerce, Bureau of the Census.

a Not available.

Figures in parentheses indicate number of firms reporting sales.

