Frederick L. Deming

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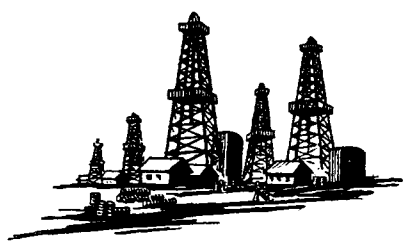
Oil IN THE EIGHTH DISTRICT



OIL HAS BECOME a significant source of energy in the national and district economies.

In the Eighth Federal Reserve District oil is an important income producing factor. Crude oil production here has varied widely and last year was 5 per cent of national output. Exploration and development of oil fields have been active and proved reserves have increased. Lack of conservation, however, has taken its toll of the Illinois-Indiana-Kentucky fields.

In addition to production, the movement of oil and its products is an important part of the industry. District refining centers are served by a large system of pipelines. Barge shipments are important, too.

Refinery locations reflects the influence of many factors. Some plants were established in producing areas, and some close to large markets. Capacity is being increased to meet the needs of defense and a growing economy.

The oil industry offers a base for further development and income growth in the district.

Federal Reserve Bank of St. Louis

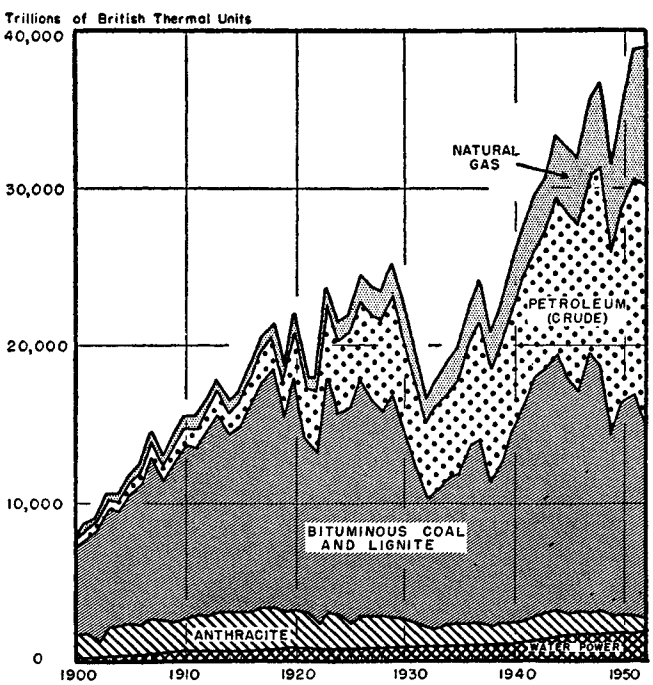
Oil has become a significant source of energy in the national and district economies.

MAN'S PROGRESS toward a higher material standard of living has been speeded by the application of improved techniques to natural resources. The unequalled flow of goods and services in the United States today is sustained on the one hand by our abundant (but not unlimited) resources and, on the other, by increased knowledge and production methods substituting mechanical and electrical energy from mineral sources for human and animal energy. In fact, the march of civilization, with its greater and improved energy use, has been related to the output and control of oil—that fabulous liquid, Black Gold.

In the past fifty years, petroleum has become a significant source of our total energy supply. Primary energy from crude oil has increased some forty times since 1900; energy from mineral fuels and water power meanwhile has increased only five times. To put it another way, the proportion of energy supplied from oil to the total of mineral fuels and water power has risen from 5 per cent in 1900 to 22 per cent in 1925 and 39 per cent in 1952.

CHART I

Energy supplied by crude oil and natural gas has increased rapidly in the United States.



The United States used 7.3 million barrels of petroleum per day in 1952, twice the rate of consumption in 1940. Approximately 50 per cent of 1952 demand was for transportation purposes, including motor vehicle travel on streets and highways, consumption by railroads, boats and airplanes. Residential and commercial uses required about 20 per cent of the total consumption, primarily in the form of residual, diesel, and distillate fuel oils and kerosine. Industry and agriculture used slightly less than one-fourth of the total, largely fuel oil, but some gasoline and diesel oil. Miscellaneous and non-fuel uses consumed the remaining part—9 per cent of the total.

The supply of crude oil and petroleum products has been met primarily by domestic production, which in 1952 supplied 88 per cent of the total, imports supplying the remaining part. However, since the United States acts both as an exporter and importer of crude oil and petroleum products, there was a net import of 7 per cent of the total demand or supply in 1952. The following table indicates the United States supply and demand for oil.

TABLE I

UNITED STATES OIL SUPPLY AND DEMAND 1952

(Thousands of barrels daily)

Demand		
	Domestic Demand	7,281
	Exports	436
	Increase in Stocks	109
	Total Demand	7,826
Supply		
	Production	6,868
	Imports	958
	Total Supply	7,826
	Net Imports	521

Source: United States Bureau of Mines

This report tells part of the story of production, transport and refining of oil in the Eighth District economy.

In the Eighth Federal Reserve District oil is an important income producing factor.

In a region, the energy sources available will be one of the major determinants of the size, characteristics, structure, and rate of growth of the economy relative to other regions. England is an example of a region which grew to economic greatness in part because of her coal resources. Texas, an area with a surplus supply of oil in relation to its needs, has also made mighty strides toward industrialization, reflecting in large part the low-cost energy resources available there.

In the Eighth Federal Reserve District the oil resources are not a large part of the national supply. However, the capacity of refineries in the district in relation to the national total is somewhat greater than the proportion of oil produced or of proved reserves. In part, this greater activity in refining is due to the location of this district, intermediate between the large production areas of the Southwest and the large consumption areas of the northeastern part of the nation. Approximately two-thirds of the crude oil produced in the nation originates in Texas, Louisiana, Oklahoma, and Kansas.

On the other hand, approximately one-half of the gasoline consumption in the nation, but less than 5 per cent of the crude production, is in the states north and east of Indiana.

The income flow of the district derived from the production of crude petroleum, the transportation of it to refineries, and the refining, distribution and marketing of oil products is a significant part of the total. Income is generated as a result of each of these activities, in part by satisfaction of demands of district residents and industries, and in part by the export of oil after production or refining to other regions.

A regional analysis of the oil industry raises some questions: What is the position of the Eighth District with respect to the national supply of oil? And to what extent will this energy source bring additional industry into the district and thus provide the basis for a rising level of income?

Crude oil production here has varied widely and last year was 5 per cent of national output.

In the Eighth District, oil is found in two major locations: 1) The Eastern Interior Basin located in southern Illinois, southwestern Indiana, and adjacent areas in northern Kentucky; and 2) the southern Arkansas field (which continues geologically into northern Louisiana).[1] In addition, relatively small amounts of oil are produced in southern Kentucky in a field geologically unrelated to the Eastern Interior Basin.

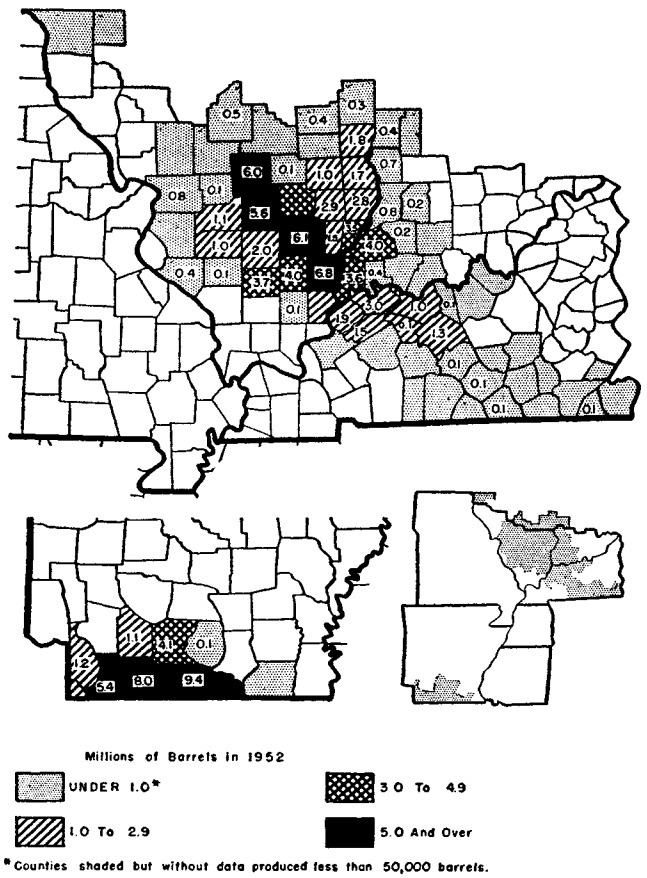
The earliest commercial production of district oil began in Illinois in 1904 with the successful drilling of a shallow well in Clark County. The peak in production from such shallow wells was reached in 1908. As a result of the Illinois success, drilling was extended to nearby areas and production was obtained from shallow wells in southern Indiana and northwest Kentucky. A second period of development of this Basin began in 1937 with the successful completion of deeper drilling tests. Another peak of production was reached in Illinois in 1940 when 147 million barrels of crude oil were produced. Similar to earlier experience, drilling in geologically related formations in Indiana and Kentucky led to increased production there.

In 1952, crude oil output in Illinois, Indiana, western and south-central Kentucky amounted to 82 million barrels. Of this amount, 60 million barrels were produced in Illinois, 12 million barrels in Indiana, and 10 million barrels in western and south-central Kentucky. Approximately 1.5 million barrels of crude were produced last year in eastern Kentucky fields located outside the Eighth Federal Reserve District. Production in the Eastern Interior Basin area, plus that in south-central Kentucky (300,000 barrels), was 3.6 per cent of the national total in 1952.

[1] Oil is produced in a few counties of Illinois and Indiana adjacent to the Eighth Federal Reserve District; they are included in this analysis. There is also some minor production in northeast Indiana and eastern Kentucky.

CHART II

Crude oil production is centered in two areas of the district.



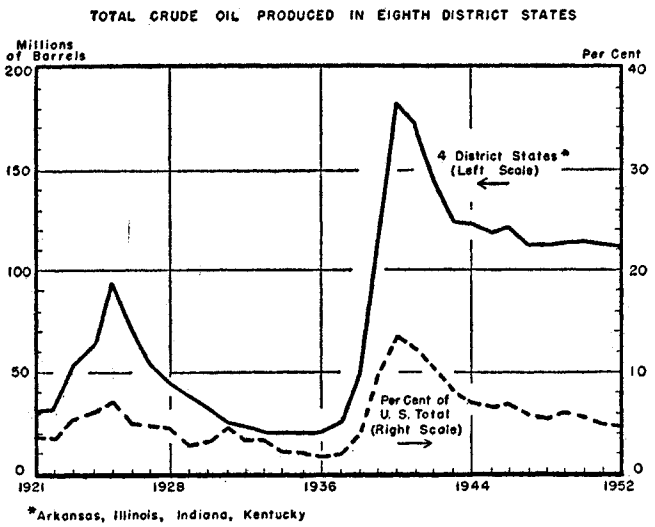
In Arkansas, as in the tri-state region of Illinois, Indiana, and Kentucky, oil development can be divided into two major periods: first from the shallower wells and the second from the deeper ones. The discovery of oil near El Dorado in 1920 set off one of the wildest drilling campaigns in the history of oil exploration. In that year ten million barrels of oil were produced from that pool. Additional discoveries—especially the Smackover pool in 1922—led to peak production of 77 million barrels of oil in 1925. By 1930, however, this period of development was practically exhausted, and until 1937 drilling activity was almost exclusively in existing pools.

In 1937, the second period of development of greater depths began. This led to increased output, but never reached as much as one-half of the 1925 peak production. In 1952, crude oil produced in Arkansas totaled 29 million barrels, representing 1.3 per cent of the total United States output.

In recent years production in the Eighth Federal Reserve District has declined relative to the national total, as indicated by Chart III. And it has

CHART III

Crude oil production has varied widely, and declined in recent years.



declined even more in terms of the total United States demand, since imports of oil have increased. In 1940, the output from district states was 13 per cent of national production, but by 1946 it had fallen to 7 per cent, and by 1952 it had declined further to 5 per cent.

One of the sources of income for the district is crude oil production. The value at the well of crude oil produced indicates the general size of this income (gross). In 1952 it was about $306 million in the four states of Illinois, Indiana, Kentucky, and Arkansas.

TABLE 2
VALUE OF CRUDE PETROLEUM AT WELLS, 1952
(In Millions)

Arkansas	$ 73
Illinois	167
Indiana	33
Kentucky	33
Total four states	$306

For the United States as a whole, the value at the well was about $5.8 billion in 1952.

Exploration and development of oil fields have been active, . . .

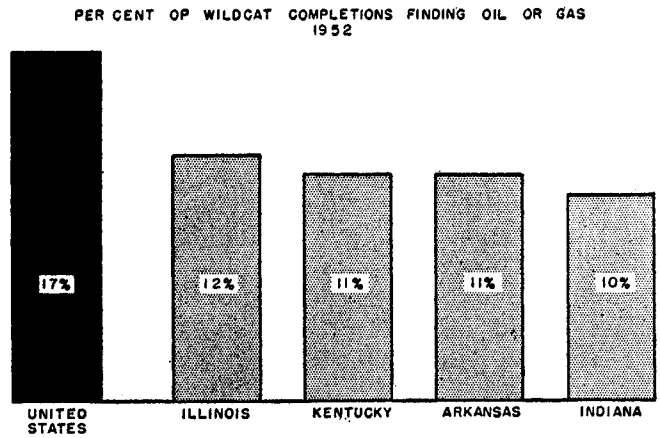
Due to the increasing demand for oil, finding reserves to provide an adequate base for the expanding production has become a ceaseless job. Considerable improvement has been made over the years in the methods and efficiency with which oil is discovered. Currently, geological formations are plotted on the basis of geophysical methods which reveal the pattern of the underground formations. Seismograph, gravimeter and magnetometer tests and cores of wells are studied for underground structural formations. Wells are then drilled on locations considered favorable for the location of oil. The volume of such drilling activity is one of the chief measures of exploration.

The cost of finding, developing, and producing crude oil and natural gas has increased in recent years. Drilling and equipment costs are higher, payrolls are up, and leases are more costly to acquire. In addition, the percentage of dry holes has been rising sharply, requiring an even greater number of well drillings in order to expand reserves in line with the stepped-up demand. Holes are now drilled to greater depths than previously. However, in the face of this rising cost trend, prices of crude oil have not changed since the end of 1947.

In 1952, 14 per cent of the total wildcat wells (those put down in unproved territory) drilled in the United States were drilled in the four district states of Illinois, Indiana, Kentucky, and Arkansas. This activity in wildcatting has been accompanied by a lower ratio of success in the district states than in the nation as a whole. In 1952, only about 11 per cent of the wildcat wells completed were successful in producing either oil or gas, as compared with a success ratio of 17 per cent for the United States. In the postwar period, the success ratio has declined sharply in district states, compared with a relatively constant success ratio for the United States. In part this reflects a greater relative volume of wildcatting here.

CHART IV

Wildcat wells drilled were less successful in the district than in the nation.



SOURCE: Oil and Gas Journal

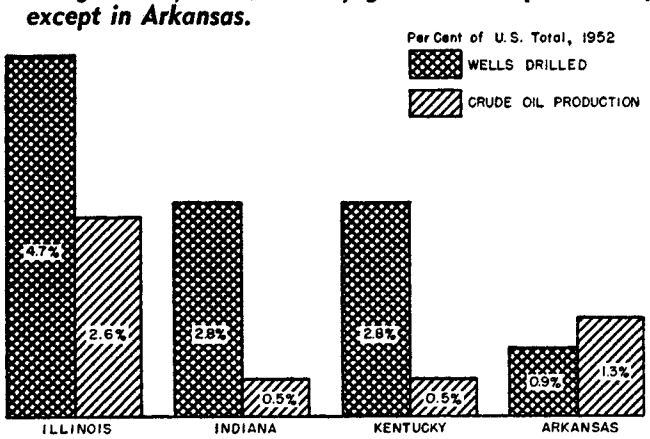
The volume of wildcatting relative to output in the three states of Illinois, Indiana, and Kentucky is higher than the United States average or that in Arkansas.[2] This reflects in part the absence of production controls in the tri-state area, where a well of given productive capacity can pay out faster than it would in an area where production is rationed. In addition, the prospect of finding oil

[2] Output is used here only as a rough yardstick against which to gauge wildcatting in district states in relation to that elsewhere.

at shallow depths and consequently lower total drilling costs than in many other areas makes it relatively easier for independent operators in the tri-state area to obtain necessary financing. Also it reflects, to some extent, the absence of well spacing limitations in Kentucky and more liberal spacing requirements in Illinois and Indiana than in the major producing states in the Southwest.[3]

CHART V

Drilling activity was relatively greater than production, except in Arkansas.



The total number of wells drilled measures the amount of exploration and development in a given area. In the Eighth District, the number of wells completed during 1952 totaled 5,130, or 11 per cent of the national completions. As in the case of exploratory wells, the number of wells drilled in the three states of Illinois, Indiana, and Kentucky was a higher proportion of the United States total than was production. In Arkansas, however, the number of wells drilled relative to the United States was less than the relative amount of production. (See Chart V.) The ratio of wells finding oil or gas to the total wells drilled, including both exploratory and development drilling, in the four district states was less than for the United States. In 1952 Indiana had the lowest success ratio (33 per cent), followed by Illinois (39 per cent), Kentucky (49 per cent), and Arkansas (51 per cent). In the United States last year, 58 per cent of the wells completed found oil or gas. As indicated in Chart VI, well drilling success in district states has declined more rapidly than in the nation.

. . . and proved reserves have increased.

As a result of the exploration and development of a field, the amount of oil which can be economically recovered can be estimated. Reserves of crude oil remaining in the ground in proved fields are an inventory of known oil. They do not, however, represent the oil that may be in unproved portions of partly developed fields or in untested prospects, or oil that may become available by secondary recovery where such methods have not yet been applied. These estimates of proved reserves are only part of the supplies that will become available in the future. Additions to future proved reserves will come from the continued discovery and development of the total amount of oil lying undiscovered in the earth.

It should be pointed out that, despite the large increases in proved reserves in recent years, the total amount of crude oil in the earth is limited. Continued depletion of this fixed total (which is unknown), reduces the amount of crude oil left in the ground for future use. At some time in the future either the failure to obtain new reserves to support the growth of production or the increased cost of discovery and development, pushing oil costs relatively higher than other fuels, will act to divert demand to those other fuels or to obtaining liquid fuels from oil shale, coal, or other substitute sources.

Proved reserves of crude oil and natural gas liquids in the four states of Illinois, Indiana, Kentucky, and Arkansas, as of December 31, 1952, were estimated at 1,163 million barrels, of which 1,083 million barrels were crude oil. Proved reserves in these states have increased 44 per cent since 1945,

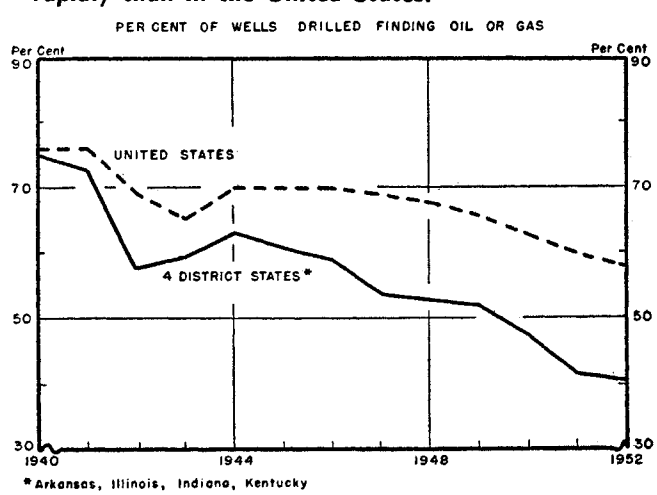
TABLE 3
ESTIMATED PROVED CRUDE OIL RESERVE AND PRODUCTION
(Millions of Barrels)

State	Reserve December 31, 1952	Production 1952	Per cent Production to Reserves
Arkansas	352.3	29.4	8.3
Illinois	619.5	60.1	9.7
Indiana	55.5	12.1	21.8
Kentucky	55.6	12.0	21.6
Total	1,082.9	113.6	10.5
United States	27,960.6	2,292.0	8.2

Source: Reserve figures from American Petroleum Institute.

CHART VI

Successful drilling in the district has declined more rapidly than in the United States.

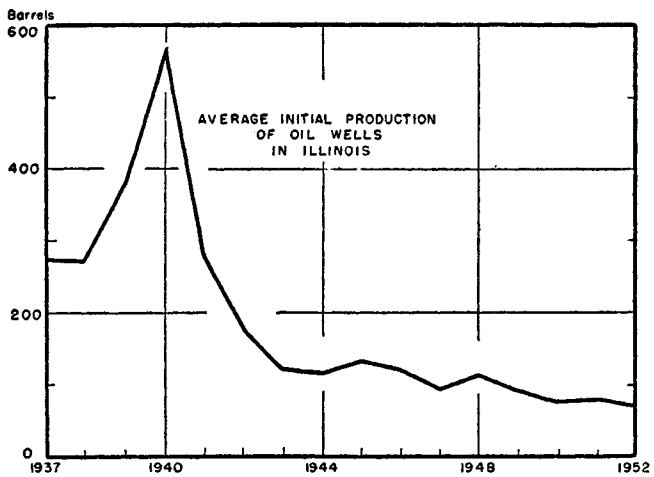


[3] In Illinois and Indiana a minimum of ten acres of surface area is required for an individual well drilled into a sandstone formation and twenty acres for one drilled to limestone. In Texas and Oklahoma, requirements vary from forty to eighty acres. The spacing depends in part upon the "tightness" of the oil-bearing formation, and the volume of oil reserve.

compared with a 34 per cent increase in the United States. Most of this increase has occurred in Illinois, where substantial revisions of oil reserves resulted from the additional supplies made economically available by use of the secondary recovery method of water flooding. Actually proved reserves in Illinois decreased in 1952 according to estimates by the American Petroleum Institute, and no major oil field has been discovered there since 1941. And average initial production of wells has continued downward, roughly indicating discovery of smaller pools or reserves (See Chart VII).

CHART VII

Average initial production of oil wells in Illinois has declined.



Lack of conservation, however, has taken its toll of the Illinois-Indiana-Kentucky fields.

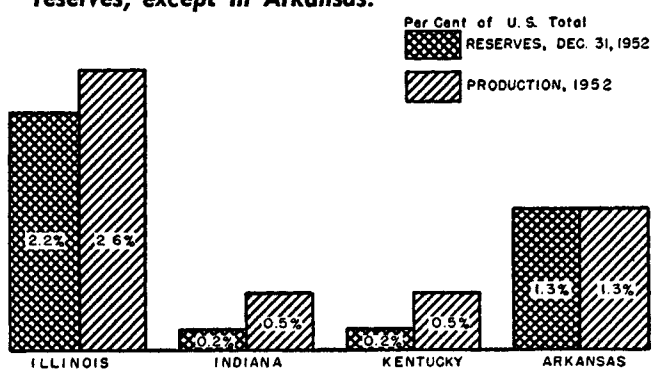
Oil exists in the porous spaces of sand, lime, and shale formations, and is usually associated with gas and water under pressure. When the well taps the oil reservoir, the natural pressure in the oil bearing formation frequently forces the crude out of the well. Such production is termed flush production. The natural energy of a formation can be conserved if the gas associated with crude oil production is pumped back. In addition to maintaining the pressure in the reservoir, return of the gas helps to preserve the fluidity of the crude and makes possible the recovery of a greater proportion of the oil in the pool. After the natural energy is exhausted, oil can be removed by pumping or by artificially injecting pressure into the pool. This latter method, called secondary recovery, usually involves pumping water into the reservoir and also increases the proportion of oil recovered from the pool. Generally secondary recovery operations are more expensive than the maintenance of natural pressure by return of the gas and water associated with the oil production.

In Illinois, Indiana, and western Kentucky, the flaring (burning off) of gas produced with oil is not prohibited, unless marketing facilities are available. As a result, considerable gas has been wasted because of inadequate conservation controls. In Illinois, for example, from 1939 through 1952 an estimated 624 billion cubic feet of gas has been flared.[4] In 1940, when production was at a peak in Illinois, an estimated 250 million cubic feet of gas was flared per day from the pools near Salem. However, in recent years, as a result of the depletion of energy in the producing formations, the amount flared has declined. In 1952, an estimated 22 billion cubic feet was flared in Illinois fields, equivalent to about one-half the annual consumption of St. Louis city and county.

Conservation, while it was originated to correct conditions of overproduction, allows production of crude oil and gas at maximum efficient rates. In addition, it increases the total proportion of petroleum recovered from the pool reserve. Illinois, Indiana, and Kentucky have no proration of output, while Arkansas has. One result of this lack of control in the tri-state area can be seen in the higher ratio of production to proved reserves than in the rest of the United States. Arkansas, which has proration, compares more closely with the rest of the United States (See Chart VIII).

CHART VIII

Crude oil production was relatively higher than proved reserves, except in Arkansas.



Production in Illinois since the 1940 peak has settled down with the rapidity typical of fields allowed to "blow" themselves out. Production in Illinois rose sharply from 7 million barrels in 1937 to a peak of 147 million barrels in 1940, then declined to 60 million barrels in 1952.

Despite the absence of prorationing, the lack of spacing control in Kentucky and liberal spacing requirements for oil wells in Illinois and Indiana is reflected in lower average production per well in those states relative to the United States average. On the other hand, in Arkansas average output per well is above the national average.

4 Estimated by the Illinois State Geological Survey.

TABLE 4
AVERAGE PRODUCTION PER PRODUCING WELL PER DAY—1951

State	(in barrels)
Arkansas	21.8
Illinois	6.0
Indiana	8.7
Kentucky	2.0
United States	13.1

Source: United States Bureau of Mines.

In addition to production, the movement of oil and its products is an important part of the industry.

Since oil is a bulky product, and large consumption areas are often distant from the producing wells, its transportation involves the movement of large volumes over considerable distances. As a consequence, transportation costs make up an important part of the market value of refined petroleum products. Over the years, railroads have carried proportionately less, while pipelines, barges and boats have transported an increasing share of the total moved. Today, about 80 per cent of the total domestic receipts of crude oil at United States refineries is moved by pipelines. Boats and barges carry 18 per cent and only 2 per cent is obtained by railroad or truck tank cars.

The relative uses of these transportation methods reflect the cost of each method, taking account of the physical limitations of water transportation. Only the cost to the user rather than the social cost is considered here. Water carriers have the lowest transportation costs, while pipelines have a considerable advantage over other land carriers. The following tabulation indicates the relative costs in 1946:

TABLE 5
COSTS OF TRANSPORTING OIL

Carrier	Cost per ton mile (in cents) 1946
Truck	6.12
Railroad	1.70
Pipeline (gasoline)	0.44
Pipeline (crude)	0.34
Water	0.08

Source: Report of the President's Advisory Committee on the Merchant Marine.

In the United States, there are about 135,000 miles of crude and product pipelines. In general crude oil pipelines run from producing areas to Gulf ports (where tankers take the petroleum to the eastern section of the United States) and from the Southwest or West to the northeastern United States. It is these latter pipeline flows which are important factors in the location and development of refineries in the Wood River-East St. Louis, Illinois, area. The map indicates the major pipeline flows of crude oil serving that area.

District refining centers are served by a large system of pipelines.

The refineries in Arkansas are supplied almost exclusively by oil produced in Arkansas, with some small proportion of the crude—less than 3 per cent in February, 1953—being obtained from Louisiana. The operating refinery capacity in Arkansas is only 68,000 barrels daily while crude oil production in the state amounted to 80,600 barrels daily in 1952. The excess of production over that used in Arkansas refineries goes to Louisiana (23,900 barrels daily in February, 1953) and to Ohio (7,100 barrels daily) via pipelines.

TABLE 6
MILEAGE OF PIPELINE COMPANIES REPORTING TO THE INTERSTATE COMMERCE COMMISSION
December 31, 1951

State	Grand Total	Trunk Line Total	Trunk Line Crude Oil	Trunk Line Refined Oil	Gathering line Crude Oil
Arkansas	1,118	847	535	312	271
Illinois	8,749	5,876	5,026	850	2,873
Indiana	3,340	3,034	2,594	440	306
Kentucky	364	277	277	.....	.....
Mississippi	1,269	895	563	332	374
Missouri	5,812	5,812	4,733	1,079	.....
Tennessee	262	262	153	109	.....
United States	131,457	83,828	64,992	18,836	47,629

Source: Interstate Commerce Commission.

Oil produced from the Illinois-Indiana and western Kentucky fields goes both to refineries located in that area and to refining plants located outside the Eighth District. Operating refineries located in southern Illinois and Indiana and western Kentucky (including Louisville) on January 1, 1953, had capacity for handling 127,000 barrels per day. Crude production of this area was 224,000 barrels per day in 1952, leaving some excess of crude produced over that shipped to refineries in the area for transmission to other refining districts. Most of the "exported" crude from the Eastern Interior Basin goes to Ohio plants, although some goes farther east or north (See Table 7, next page).

Crude oil production in the Eighth District, therefore, amounts to about 300,000 barrels daily, of

CHART IX

Large crude oil pipeline capacity serves the Wood River area.

(Thousands of barrels daily)

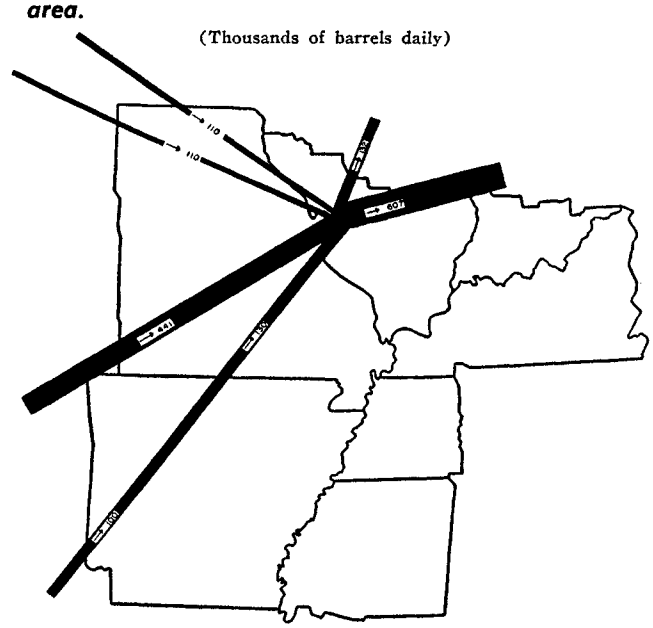


TABLE 7
REFINING RECEIPTS OF DOMESTIC CRUDE OIL
1952

(Thousands of barrels daily)

Destination	Receipts from Arkansas	Total from Illinois, Indiana Kentucky, Ohio
New York—West	.....	15.5
Pennsylvania—West	.....	3.9
West Virginia	.....	1.6
Illinois-Minnesota-Wisconsin	.....	68.5
Indiana	.....	16.8
Kentucky-Tennessee	1.2	38.7
Michigan	.....	14.2
Ohio—East—West	4.5	82.2
Louisiana-Alabama-Mississippi	23.0	0.4
Arkansas	55.7	.....
Total	84.4	241.8

Source: *Monthly Petroleum Statement, No. 361,* United States Bureau of Mines.

which about 90,000 barrels is transmitted to other areas for refining. Offsetting these exports of crude oil are the imports of crude for refineries in the Wood River area and Memphis. The Memphis refinery has a crude capacity of 7,000 barrels daily, which is supplied entirely by Mississippi River barge transport from southern Louisiana oil fields.

The Wood River area has four large plants with a refining capacity of 284,000 barrels daily, entirely supplied with crude oil from the Southwest and West. In order to supply this demand and that of other refining centers to the north and east, the pipelines carrying crude into Wood River have a daily capacity of 791,000 barrels, counting all those crossing the Mississippi River in the vicinity of St. Louis. This includes 681,000 barrels per day from the Southwest and 110,000 barrels per day from Wyoming. This latter supply represents the present capacity of a pipeline completed late in 1952. In January, 1953, this line carried 50,000 barrels per day, but the construction of two feeder lines in Colorado and Nebraska will add considerable volume.

With a pipeline capacity of 791,000 barrels per day from which a maximum of 284,000 barrels per day can be used for refining at Wood River and 425,000 barrels for Chicago and Ohio refineries supplied through Wood River, there exists an excess of 82,000 or more barrels per day for increasing capacity at Wood River plants or at points north and east. Furthermore, the capacity of a pipeline can be increased by putting in more pumping stations and increasing the speed of the oil flow.

Refined products are also moved by pipelines from refineries to terminals. The Eighth District is served by product pipelines as indicated in the following map.

The use of pipelines to move products is a more recent development than the movement of crude oil, extensive construction being initiated around 1930. Pipelines are moving an increased proportion of petroleum products each year. For example, about 35 per cent of the gasoline was delivered by pipelines in 1952, compared with only 23 per cent in 1946.

Barge shipments are important, too.

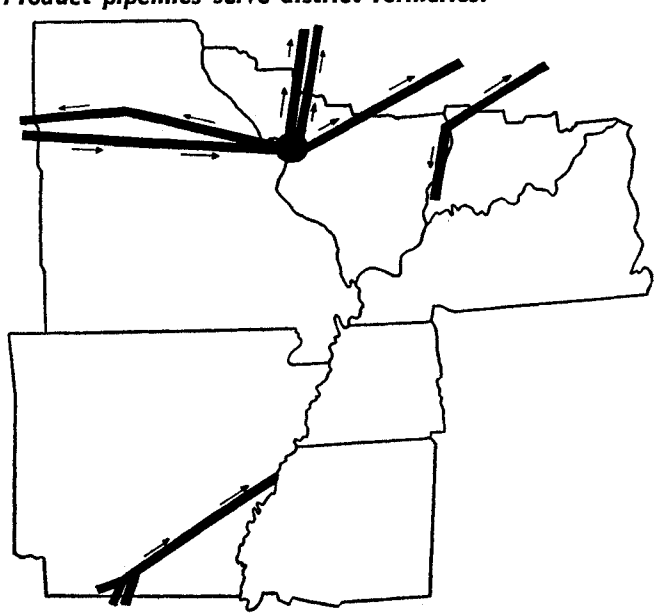
Movement of crude oil and petroleum products by barge is extensive on the Mississippi River and its tributaries. In 1949, there were 486,000 barrels per day of petroleum and its products in waterborne movement on these rivers. For example, gasoline and oil is carried from the El Dorado refineries to Helena, Arkansas, by pipeline and from there it is barged to terminals along the Mississippi, Ohio, and Tennessee rivers. Refineries at Wood River also make use of water transportation, moving products up the Mississippi River as far as Minneapolis, up the Ohio River as far as Cincinnati, and to points along the Illinois River. One company, with refineries in Ohio and Kentucky, recently established a refined products terminal in the Wood River area. Products are transported to this terminal by river barge.

Refinery locations reflect the influence of many factors.

The refining process, basically utilizing heat, pressure, and catalytic methods to separate the crude oil into its component parts, has undergone substantial changes in techniques. In the early part of the century, demand was primarily for kerosine, but as automobiles became more numerous, gasoline came to be the product in greatest demand. Variation in demand over the years and by the season made economically necessary a refining process that could efficiently maintain equilibrium between supply and demand for each petroleum product.

CHART X

Product pipelines serve district refineries.



Early refineries were small and located mainly close to the producing fields, but later larger and more complex refineries were built, some located closer to the large consuming areas or at transshipment points. Today Texas, for example, produces about 45 per cent of the nation's crude oil, but refines only about 27 per cent. Two examples in recent years demonstrate the trend toward concentrating refining capacity in larger plants. Shell Oil Company, in 1946, closed its Chicago refinery and subsequently expanded its Wood River plant. Refined products are now piped to Chicago from Wood River where formerly crude oil was sent. Sinclair Refining Company closed its Kansas City refinery in the postwar period and in 1950 purchased and enlarged a refinery in the Wood River area.

Since pipeline charges for crude oil are slightly less than for gasoline, some advantage is obtained by placing the refinery closer to the marketing area. In addition, residual fuel oil is still largely shipped by railroad, and gasoline shipped to areas not served by pipelines or barges must be transported by the higher cost surface carriers. This, too, makes refinery location close to the marketing area advantageous. Furthermore, market areas are less likely to shift as much as the supply from a given producing area, making it prudent to locate refineries close to the former. Larger refineries are considered to operate more economically than smaller ones. Thus, another factor making for advantageous location of refineries close to large marketing areas is the ability to obtain the labor supply necessary for operating the large plants. Other considerations important in the location of a refinery are a large supply of water for cooling purposes, adequate and low-cost transportation for shipment of refined products to terminals, and low-cost fuel to supply the large heat requirements in refining. (The amount of heat used in refining equals about 12 per cent of that contained in the product.)

Some plants were established in producing areas, . . .

In the Eighth Federal Reserve District, as was noted in the discussion of pipelines, refineries are located in the southern Arkansas and southern Illinois and Indiana oil producing areas, in the Wood River area (part of the St. Louis metropolitan area) and in Louisville and Memphis. Table 8 indicates the geographic distribution of these refineries and their capacity in terms of crude oil input per day.

The plants in producing areas of Arkansas and Illinois were located in response to the availability of the crude supply. The large plants in El Dorado, for example, were established there after the discovery of the nearby oil fields. A number of small refineries were established in southern Illinois following the rapid increase in production from 1937 to 1940. However, most of these plants went out of business between 1940 and 1946 as production of crude decreased and the plants lost their sources of supply. In contrast to this trend of abandonment of smaller plants, two large plants (at Lawrenceville and Robinson, Illinois) have been expanded considerably in the postwar period. In addition, the capacity of the refinery at Mt. Vernon, Indiana, has been doubled in the same period to 8,000 barrels daily.

TABLE 8
PETROLEUM REFINING CAPACITY IN THE EIGHTH FEDERAL RESERVE DISTRICT
January 1, 1953
(In barrels per day)

	Total	Operating	Shut down
Arkansas	68,200	67,800	400
Southeastern Illinois and Southern Indiana[1]	124,700	109,100	15,600
Wood River Area	285,100	284,100	1,000
Louisville	17,800	17,800	.....
Memphis	7,000	7,000	.....
Total	502,800	485,800	17,000
Per cent of U. S.	6.2	.....	.....

[1] Includes a 4,500 barrel daily capacity refinery at Pana, Illinois, close to the Eighth District. Crude oil for this plant is supplied from the nearby Illinois fields.

In addition to the capacity for refining crude oil into petroleum products, petroleum products are also produced by condensation of natural gas. In the Eighth Federal Reserve District, natural-gasoline plants are located in the Arkansas and Illinois oil fields. In Arkansas, eleven natural gasoline plants produced 1.3 million barrels of gasoline in 1951, while in Illinois seven plants produced 2.5 million barrels.[5]

. . . and some close to large markets.

In the Wood River area, refining capacity has increased at a faster rate than in the nation. In large part this more rapid growth reflects the economic advantages of the location: the large marketing area reached by barges and pipelines, the availability of labor, water and fuel at economically advantageous rates. In addition, the economies of large scale operation have made it feasible to expand existing plants. In 1930, the crude oil capacity of refineries in the Wood River area was 85,500 barrels per day, or 2.3 per cent of the total capacity in the United States. By 1940, plants at Wood River had been decreased to 76,700 barrels per day. But the national capacity had increased so that the Wood River proportion declined to 1.7 per cent of the United States capacity. On January 1, 1953, the crude capacity at Wood River refineries was 284,100 barrels daily, 3.7 per cent of the national total.

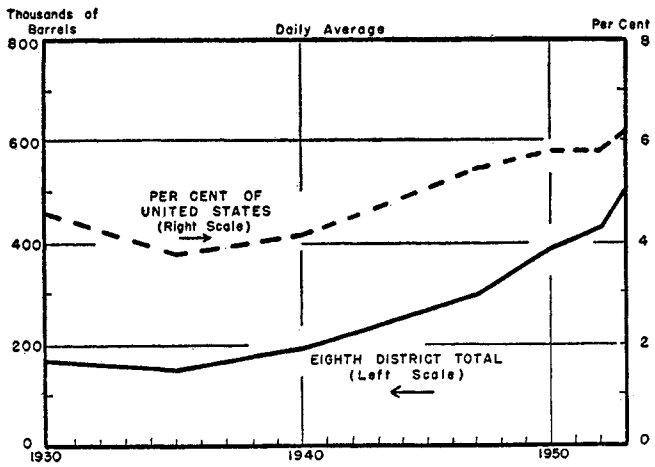
[5] *1952 Yearbook*, National Oil Scouts Landmen's Association.

Capacity is being increased to meet the needs of defense and a growing economy.

As a result of the increasing demand for gasoline and other oil products, substantial expansions

CHART XI

Refining capacity in the district has increased more rapidly than in the nation.



of refining capacity are currently underway. Part of these expansions will not add to the crude capacity of the refineries but will increase their capacity to turn out a greater proportion of gasoline with increased efficiency. Such expansions enable the refinery to earn a higher return, since they increase the refiner's ability to produce the various petroleum products in the proportions demanded by consumers.

Since petroleum is essential to the conduct of our national defense, the expansion of refining capacity has been one of the major goals of the defense mobilization program. In order to facilitate reaching these goals and to encourage the investment required, rapid amortization of all or part of the cost of such expansions has been allowed. In the Korean war period, through April 1953, certificates of necessity allowing rapid amortization have been issued on petroleum refining facilities in the Eighth Federal Reserve District totaling $128 million. Most of this has been for expanding facilities in the Wood River area ($100 million). In addition, rapid write-off of storage facilities costing about $3 million has been allowed. Facilities being expanded in the southeastern Illinois area have been aided to the extent of $12 million, and a like amount has been awarded for plant additions at Arkansas refineries. The Memphis refinery has been expanded and rapid write-off of $1.7 million of the investment has been authorized. In Louisville, refining facilities have been increased and a certificate of necessity for $1.2 million was issued.

The oil industry offers a base for further development and income growth in the district.

Because of the greater refining capacity located in the district than crude production, there is a net import of crude oil into the Eighth Federal Reserve District. However, more crude oil is refined in the district than is consumed, and the district has on balance a net export of refined products. In 1948, gasoline service stations located in the Eighth District had retail sales of $378 million. This was equivalent to 5.8 per cent of the total United States sales by such stores, compared with total retail sales in the district of 5.4 per cent of the nation. Fuel oil sales, however, are a somewhat lower proportion of the nation.

The net export of refined products augments the income flow of the district. In addition, the gross production of the nation is increased as a result of the regional specialization in economic activity. Further development of the comparative advantage of this district in the refining of oil will increase exports and the income derived from the oil industry.

The oil industry, including the exploration, drilling, production, transportation, and refining, affords large employment opportunities in the Eighth Federal Reserve District. Nationally, about 500,000 persons are employed in petroleum refining and crude oil and natural gas production, and an estimated 30,000 are at work in similar phases in the Eighth District. In addition to the job opportunities provided by the oil industry, this employment affords high average income per worker. In the St. Louis metropolitan area, for example, the average weekly earnings of production workers in the petroleum and coal products industry were $86.87 in December, 1952, compared with an average for all manufacturing production workers of $71.00. Average hourly earnings were $2.24 for petroleum and coal products workers, compared with $1.72 for all manufacturing production workers.

The oil industry offers an excellent base for further development of the industrial structure of the district. Petroleum refineries are no longer solely producers of oil products. Recent trends have been toward production of allied chemical products. A whole new field of industry now springing up is that of petrochemicals, which is based upon petroleum resources, primarily natural gas. Further expansion of the petroleum refineries, both to accommodate the growing demand for gasoline and oil products and also the fast growing demand for chemicals, seems in prospect and will add to the district's per capita income.

WILLIAM H. KESTER

Survey of Current Conditions

PRODUCTION AND CONSUMPTION of goods remained high in both the Eighth District and the nation during the six weeks to mid-May. Developments in the financial field attracted considerable attention.

Financial interest focused on the rise in rates. Money and capital market rates rose during the period under the impact of continued large demands for capital and credit by business and consumers and increased borrowing by the Federal Government. The prime rate of interest charged by banks was increased from 3 to 3¼ per cent, and yields on high-grade corporate and Government bonds increased more rapidly than in other recent periods. Following the peak in early May, rates, particularly the Treasury bill rate, eased somewhat.

The near-peak activity of business in the district continued. Employment was about the same in April as in March, allowing for seasonal gains in agriculture. The high level of industrial production was typified by an increase in the use of electric power by manufacturing firms in the district, an expansion in steel ingot production, and growth in lumber output: this April running above April last year. Construction awards were up 70 per cent during April. And the tabulation of sales at reporting district retailers indicated that the spring selling season of March-April was better than last year. District banking figures, on their part, continued to reflect a strong demand for consumer credit, as these loans rose from the end of March through mid-May. The district farm economy had the dominant minus factors, as wet weather delayed spring field work and agricultural prices declined. However, winter wheat prospects improved.

Nationally, the Federal Reserve Board index of industrial production remained virtually unchanged in April at 242 per cent of the 1935-39 average. Through mid-May, steel production continued operations at near capacity and auto production was running 50 per cent higher than for the same period last year. However, two strikes resulted in the closing down of some auto assembly lines. Among other durables, production cutbacks were put into effect by at least one national manufacturer of TV sets and by several producers of refrigerator and freezing units.

Prices remained relatively steady. The index of consumer prices showed little change from March to April and was only one per cent higher than a year earlier. Retail food prices declined slightly from mid-March to mid-April, but in the last half of the month they rose somewhat. Wholesale price averages rose slightly from mid-April to mid-May. Spot primary market prices as a group showed little net change in the period.

Employment

Employment conditions in the nation showed little change during April and early May. Civilian employment, totaling 61.2 million, was down slightly from a month earlier but one million higher than in April, 1952. Nonfarm employment decreased somewhat from March, chiefly because of reductions in trade activity after Easter and a shift of some workers into agriculture. Nevertheless, about 1.5 million more persons were employed at nonfarm work this year than a year ago. Agricultural employment rose seasonally to 6.1 million in April but continued below the level of last year. Unemployment decreased slightly to approximately 1.6 million in April, about the same number as were unemployed a year earlier.

In the seven district states, on the other hand, unemployment rose slightly during April and early May, according to the trend of unemployment in-

WHOLESALE PRICES IN THE UNITED STATES

Bureau of Labor Statistics (1947-49=100)	Apr.,'53	Mar.,'53	Apr.,'52	April, 1953 compared with Mar.,'53	Apr.,'52
All Commodities....	109.4	110.0	111.8	— 1%	— 2%
Farm Products...	97.5	99.8	108.7	— 2	—10
Foods.....	103.2	104.1	108.0	— 1	— 5
Other.....	113.3	113.4	113.3	-0-	-0-

CONSUMER PRICE INDEX*

Bureau of Labor Statistics (1947-49=100)	Apr.,'53	Mar.,'53	Apr.,'52	April, 1953 compared with Mar.,'53	Apr.,'52
United States.....	113.7	113.6	112.9	-0-%	+ 1%

RETAIL FOOD*

Bureau of Labor Statistics (1947-49=100)	Apr.,'53	Mar.,'53	Apr.,'52	April, 1953 compared with Mar.,'53	Apr.,'52
U. S. (51 cities).....	111.5	111.7	113.9	-0-%	— 2%
St. Louis.....	111.6	112.4	114.9	— 1	— 3

* New series.

surance claims. For the week ended May 9, 152,000 claims were filed against district state programs, compared with 139,000 filed four weeks earlier.

In St. Louis, over-all manufacturing employment showed little change from mid-March to mid-April. Seasonal decreases in shoe, textile, and apparel plants offset gains in transportation equipment and other metalworking plants. Construction employment gained slightly and trade employment increased as in other areas following the Easter buying season.

In Louisville, nonfarm employment in April increased both over March and over April, 1952. The increase in the month amounted to 2,500 workers, as manufacturing industries stepped up production. The bulk of the employment increases were at plants producing defense goods, primarily machinery, ordnance, and explosives. Production of civilian goods also led to additional employment at plants producing lumber products and furniture, farm equipment, and electrical appliances. However, the seasonally slack period of production in the tobacco industry caused a layoff of about 300 workers. In comparison with a year earlier, nonfarm employment in the Louisville area was up approximately 18,000, an increase of 8 per cent. Nearly all manufacturing industries except food products plants and distilled liquor plants have made substantial gains during the past twelve months. In addition, nonmanufacturing industries have also expanded in keeping with the increased level of business activity.

In Memphis, nonfarm employment changed little in the month ending April 15. Some slight increase in manufacturing employment, due primarily to seasonal gains in food, chemical and lumber plants, was partially offset by decreases in nonmanufacturing activities during the period. Retail trade employment declined following the Easter shopping season, and gains in construction were slight due to unfavorable weather conditions. While the changes over the month were relatively minor, the year-to-year gain was somewhat more substantial. Nonfarm employment was up 2.5 per cent. Manufacturing employment was up 5 per cent with the largest gain in the paper products industry where nearly 1,000 more employees were at work.

In Evansville, employment declined slightly from March to April, primarily because of layoffs at aircraft defense plants. Nonfarm employment, nevertheless, was still 17 per cent higher than a year ago. Employment at the refrigerator plants also declined slightly from March to April, but was still about two-thirds higher than a year earlier. Meanwhile, employment at the automobile assembly plant continued to increase slightly and was nearly double the number at work in April, 1952.

In Little Rock, nonfarm employment increased slightly from mid-March to mid-April and was 5 per cent higher than a year earlier. Employment in construction projects increased substantiallly from March to April, while changes in other industries were relatively small. In comparison with April, 1952, the largest employment increases were at metalworking manufacturing plants, in contract construction and government offices.

Industry

The high level of industrial activity in the district of the past eight months was continued in April and early May.

Manufacturing—The strength of manufacturing activity in the district was shown by a further slight gain in the use of electric power at industrial firms during the month of April and a 10 per cent gain over last year. Greatest gains during the month

CONSUMPTION OF ELECTRICITY

Daily Average*

(K.W.H. in thous.)	April, 1953 K.W.H.	March, 1953 K.W.H.	April, 1952 K.W.H.	April, 1953 compared with Mar.,'53	Apr.,'52
Evansville	1,010	969	826	+ 4%	+22%
Little Rock	144	170	148	—15	— 3
Louisville	4,007	3,872	3,825	+ 3	+ 5
Memphis	1,632	1,581	1,407	+ 3	+16
Pine Bluff	551	481	487	+15	+13
St. Louis	5,267	5,404	4,784	— 3	+10
Totals	12,611	12,477	11,477	+ 1%	+10%

*Selected manufacturing firms.

LOADS INTERCHANGED FOR 25 RAILROADS AT ST. LOUIS

First Nine Days

Apr.,'53	Mar.,'53	Apr.,'52	May,'53	May,'52	4 mos.'53	4 mos.'52
115,663	121,107	110,501	34,756	32,345	453,390	443,023

Source: Terminal Railroad Association of St. Louis.

CRUDE OIL PRODUCTION—DAILY AVERAGE

(In thousands of bbls.)	April, 1953	March, 1953	April, 1952	April, 1953 compared with Mar.,'53	Apr.,'52
Arkansas	77.3	77.4	76.2	-0-%	+ 1%
Illinois	162.8	164.5	168.0	— 1	— 3
Indiana	35.4	33.9	29.7	+ 4	+19
Kentucky	29.8	29.6	35.6	+ 1	—16
Total	305.3	305.3	309.5	-0-%	— 1%

COAL PRODUCTION INDEX

1935-39=100

Unadjusted			Adjusted		
Apr., '53	Mar., '53	Apr., '52	Apr., '53	Mar., '53	Apr., '52
121.8 P	127.5 P	130.3	187.4 P	134.2 P	200.4

SHOE PRODUCTION INDEX

1935-39=100

Unadjusted			Adjusted		
Mar., '53	Feb., '53	Mar., '52	Mar., '53	Feb., '53	Mar., '52
170.0 P	173.7	154.0	166.7 P	163.9	151.0

P—Preliminary.

were shown by the non-electrical machinery and rubber products industries. Firms in the important food and chemical industries used about the same amount of power in April as a month earlier. A seasonal tapering-off was reflected in figures on power used by some industries—shoes, for example.

Steel ingot production rose from 78 per cent of capacity in April to 92 per cent for the first three weeks of May. April shoe output appeared to be at about the same level as a year ago. And for the future, trade reports in general were that manufacturers' fall volume of orders was running about the same as last year. However, rises in hide prices have created some delay in placing orders. Lumber production was better in April despite heavy rains in many areas. The average weekly production of Southern pine increased 6 per cent from March to April and the operating rate of Southern hardwoods was 3 per cent higher. Both were also higher than during April, 1952.

Whiskey production continued at a low level. In both April and March, only 28 of the 60 Kentucky distilleries were in operation. There were 29 operating in April, 1952.

Coal and Petroleum—Cool April temperatures in the district helped the retail coal merchants reduce stocks somewhat, but little change was shown in the amount produced by mines. Figures for the month ran 5 per cent below last year. Crude oil wells in district producing states continued the daily average production of a little better than 300,000 barrels.

Construction

During April, outlays for new construction in the nation rose 8 per cent from March and exceeded those of a year ago by 5 per cent. Seasonal gains in roadbuilding and increased spending for Atomic Energy facilities brought public expenditures to $837 million, a 14 per cent gain over March. Total private expenditures were $1.8 billion, an increase of 5 per cent, reflecting mainly a rise in residential and public utility construction.

The permissible interest rates on mortgages guaranteed by the Veterans Administration and most home mortgages insured by the Federal Housing Administration were raised to 4½ per cent. This represented an increase of one-half per cent for the VA and one-fourth per cent for the FHA mortgages. The higher rates were expected to bring more funds into the mortgage market.

Another strengthening factor in the building picture was a further pickup in contract awards. In the 37 states east of the Rockies, contract awards

BUILDING PERMITS

Month of April, 1953

(Cost in thousands)	New Construction				Repairs, etc.			
	Number		Cost		Number		Cost	
	1953	1952	1953	1952	1953	1952	1953	1952
Evansville	111	95	$ 269	$ 988	119	109	$ 93	$ 72
Little Rock	79	75	810	737	220	198	151	182
Louisville	180	238	2,042	1,115	123	111	142	143
Memphis	1,860	1,896	4,640	2,514	269	252	162	203
St. Louis	342	330	12,972	1,521	366	227	1,057	726
April Totals	2,572	2,634	$20,733	$ 6,875	1,097	897	$ 1,605	$ 1,326
March Totals	2,189	2,415	$14,829	$10,147	883	845	$ 1,276	$ 1,101

during April rose 29 per cent from March and were 9 per cent above a year earlier, F. W. Dodge Corporation reports show. Nonresidential building awards rose 21 per cent over April, 1952, to $680 million, while residential building contracts slipped one per cent to $674 million. Contract awards for public works and utilities increased 9 per cent over the year to $387 million. For the first four months of the year, all categories of construction awards were up 10 per cent over January-April, 1952.

Housing starts were also somewhat higher during April. Despite unusually rainy weather even for this month of showers, they reached a seasonally adjusted annual rate of 1,174,000. There were 110,000 starts this April, 4 per cent more than in April, 1952. The entire gain came in private housing.

In the Eighth District, construction contract awards increased 70 per cent during April to total $134 million. This month-to-month increase was second only to the March-April change of last year, in postwar records, but still left the district running behind the nation in comparative performance during the first four months of the year. The district had a decline of 17 per cent in the cumulative four-month total, while the national figure (37 states east of the Rockies) was up 10 per cent. The district decline was due to an 8 per cent reduction in residential awards and a 26 per cent drop in nonresidential awards.

Trade

Retail sales during April for the district as a whole totaled somewhat larger than in either the previous month or in April, 1952, on the basis of the experience reported to this Bank. The gains were achieved even though unfavorable weather conditions in much of the district limited the effectiveness of seasonal promotions both before and after Easter. The percentage increase in sales over a year earlier was greater in durable goods (including automobiles) than in nondurables. Furniture store sales volume was above that in the previous month and was equal to the comparable month a year ago. Department store sales totaled slightly

higher while men's and women's specialty store sales dropped below those in either period.

At district department stores, the gain was less-than-seasonal from March, placing the adjusted index of daily sales at 99 per cent of the 1947-49 average. In comparison, the index was 107 per cent a month earlier and 98 per cent in April, 1952. The slackened sales volume this April brought the rate of gain for the March-April spring selling season down to 3 per cent over that in the comparable two-month period in 1952—somewhat below the 5 per cent gain from 1952 in cumulative sales for the first four months of 1953.

Women's apparel and men's wear sales volume during April declined from that in March and in April, 1952. The rate of decline was largest at men's wear stores as volume dropped about one-eighth lower than in either period. Women's specialty store sales in the month were substantially lower than in March and were slightly below those in April, 1952.

Furniture store sales for the district as a whole were 4 per cent above those in March and were equal to those a year ago. As in comparable department store divisions, consumer spending was not particularly heavy in certain appliance lines. Television sales continued to record sizable declines from the level a year ago, except in the Little Rock area where the first TV station in Arkansas recently began operations.

Inventories at reporting lines of trade on April 30 were somewhat lower than on March 31, except at men's wear stores. In comparison with a year ago, however, they were generally larger. The year-to-year increase was 10 per cent at men's wear stores and furniture stores and was 11 per cent at department stores. Women's apparel store inventories were at about the same level as a year earlier.

The volume of outstanding orders at district department stores on April 30 was substantially lower than a month earlier but 13 per cent larger than on April 30, 1952.

DEPARTMENT STORES

	Net Sales: April, 1953 compared with Mar., 1953	Net Sales: April, 1953 compared with Apr., 1952	Net Sales: 4 mos. 1953 to same period '52	Stocks on Hand: April, '53 compared with April, 1952	Stock Turnover: Jan. 1 to Apr. 30, '53	Stock Turnover: Jan. 1 to Apr. 30, '52
8th F.R. District Total	+ 1%	+ 2%	+ 5%	+11%	1.13	1.16
Ft. Smith, Ark.[1,2]	— 1	— 5	+ 1	— 3	1.10	1.08
Little Rock Area, Ark.[2]	+11	— 2	+ 2	+11	1.06	1.13
Quincy, Ill.	+ 2	— 3	+ 1	+ 9	1.07	1.16
Evansville Area, Ind.[2]	+ 3	+11	+20	.....	.....	.....
Louisville Area, Ky., Ind.[2]	+ 8	- 0 -	+ 4	+12	1.19	1.24
St. Louis Area, Mo., Ill.[2]	— 2	+ 2	+ 4	+10	1.16	1.15
Springfield Area, Mo.[2]	— 1	— 3	- 0 -	+19	.93	.98
Memphis Area, Tenn.[2]	- 0 -	+ 5	+ 4	+ 9	1.20	1.23
All Other Cities[3]	+10	+ 2	+11	+16	.88	.97

[1] In order to permit publication of figures for this city (or area), a special sample has been constructed which is not confined exclusively to department stores. Figures for any such nondepartment stores, however, are not used in computing the district percentage changes or in computing department store indexes.

[2] The sample for these areas is unchanged from the sample previously reported for the principal cities in these areas.

[3] Fayetteville, Pine Bluff, Arkansas; Harrisburg, Mt. Vernon, Illinois; Vincennes, Indiana; Danville, Hopkinsville, Mayfield, Kentucky; Chillicothe, Missouri; Greenville, Mississippi; and Jackson, Tennessee.

OUTSTANDING ORDERS of reporting stores at the end of April 30, 1953, were 13 per cent larger than on the corresponding date a year ago.

PERCENTAGE OF ACCOUNTS AND NOTES RECEIVABLE

Outstanding April 1, 1953, collected during April, 1953

	Instalment Accounts	Excl. Instal. Accounts		Instalment Accounts	Excl. Instal. Accounts
Ft. Smith, Ark.	%	44%	Quincy	20%	59%
Little Rock	16	47	St. Louis	19	51
Louisville	19	45	Other Cities	10	46
Memphis	18	36	8th F.R. Dist.	18	47

INDEXES OF DEPARTMENT STORE SALES AND STOCKS

8th Federal Reserve District

	April, 1953	March, 1953	Feb., 1953	April, 1952
Sales (daily average), unadjusted[4]	100	99	85	101
Sales (daily average), seasonally adjusted[4]	99	107	106	98
Stocks, unadjusted[5]	148	135	122	122
Stocks, seasonally adjusted[5]	139	128	125	114

[4] Daily average 1947-49=100

[5] End of Month Average 1947-49=100

Trading Days: April, 1953—26; March, 1953—26; April, 1952—26.

RETAIL FURNITURE STORES

	Net Sales: Apr., 1953 compared with Mar.,'53	Net Sales: Apr., 1953 compared with Apr.,'52	Inventories: Apr., 1953 compared with Mar.,'53	Inventories: Apr., 1953 compared with Apr.,'52	Ratio of Collections Apr.,'53	Ratio of Collections Apr.,'52
8th Dist. Total[1]	+ 4%	- 0 -%	—10%	+ 6%	23%	27%
St. Louis	— 2	— 3	+ 3	+13	63	65
Louisville Area[2]	+10	+ 7	— 1	+ 2	12	13
Louisville	+12	+ 6	— 1	+ 2	11	12
Memphis	- 0 -	—11	*	*	12	15
Little Rock	+19	+ 1	*	*	17	21
Springfield	+ 3	+ 8	+ 2	+ 4	16	17
Fort Smith	+20	+ 1	*	*	*	*

* Not shown separately due to insufficient coverage, but included in Eighth District totals.

[1] In addition to following cities, includes stores in Blytheville, Pine Bluff, Arkansas; Hopkinsville, Owensboro, Kentucky; Greenwood, Mississippi; and Evansville, Indiana.

[2] Includes Louisville, Kentucky; and New Albany, Indiana.

PERCENTAGE DISTRIBUTION OF FURNITURE SALES

	Apr., '53	Mar., '53	Apr., '52
Cash Sales	16%	16%	12%
Credit Sales	84	84	88
Total Sales	100%	100%	100%

Banking and Finance

District Banking—During April and early May district banks expanded their loans largely to meet a continued demand for credit on the part of consumers. "Other" loans (largely consumer) rose $11 million at district member banks during the period. Consumers' credit needs were also reflected in business loan behavior. Considering the season, business loan demand was strong partly because of a growth in outstanding loans to sales finance companies and retail stores. Loans on securities and on real estate rose moderately at these urban banks.

WHOLESALE TRADE

Line of Commodities — Data furnished by Bureau of Census, U.S. Dept. of Commerce*	Net Sales: April, 1953 compared with Mar., '53	Net Sales: April, 1953 compared with Apr., '52	Stocks: April 30, 1953 compared with April 30, 1952
Automotive Supplies	-0-%	— 4%	+ 5%
Drugs and Chemicals	+ 2	+ 3	.....
Dry Goods	— 6	+ 9	+17
Groceries	— 3	+ 1	+ 2
Hardware	+ 4	+11	— 7
Tobacco and its Products	+ 6	— 1	+17
Miscellaneous	— 4	+ 7	+17
**Total All Lines	— 1%	+ 8%	+ 1%

*Preliminary.
**Includes certain items not listed above.

Banking Nationally—As in the district the demand for bank credit remained strong in the nation during April. Also, as in the district, the strength centered in a continued demand for credit by consumers. At reporting banks in leading cities of the nation "other" loans (largely consumer) rose roughly $150 million. Loans on securities and real estate were up moderately. Business loans declined $200 million in April this year compared with $600 million a year ago. Borrowing by sales finance companies and trade concerns moderated the usual April decline.

In response to the credit demand, banks sold a substantial volume of securities, mostly Treasury bills, during the month and interest rates firmed. Treasury bill yields (longest maturity outstanding) moved up sharply from early April to a long-time record peak May 5. Yields on outstanding Treasury bonds and high-grade corporate bonds also increased (as their market prices declined). And the prime bank loan rate moved up from 3 to 3¼ per cent. In the two weeks following May 5, yields on long- and intermediate-term Treasury issues eased some and, reflecting an improved supply of funds in the money market, the Treasury bill rate declined sharply.

In addition to the continued demand for credit from private and state and local government sources, the United States Government stepped up its credit demand in April and May. The Treasury obtained nearly $1.2 billion of new money through the offering of 30-year 3¼ per cent bonds dated May 1 ($400 million more of these bonds were exchanged for Series F and G Savings Bonds maturing in 1953). In addition the Treasury announced in April that it intended to raise about $1 billion of cash by increasing its weekly bill offerings. Through May about $700 million of this additional supply of bills had been issued.

Deposits and currency held by businesses and individuals increased $1.3 billion during April compared with a rise of $0.8 billion in April a year ago. The gain was largely due to a shift of deposits from the United States Government accounts to businesses and individuals more than offsetting a contraction in bank credit occasioned by the net sales of securities.

EIGHTH DISTRICT MEMBER BANK ASSETS AND LIABILITIES BY SELECTED GROUPS

(In Millions of Dollars) Assets	All Member: April, 1953	All Member: Change from Mar., 1953 To April, 1953	All Member: Change from Apr., 1952 To April, 1953	Large City Banks [1]: April, 1953	Large City Banks [1]: Change from Mar., 1953 To April, 1953	Large City Banks [1]: Change from Apr., 1952 To April, 1953	Smaller Banks [2]: April, 1953	Smaller Banks [2]: Change from Mar., 1953 To April, 1953	Smaller Banks [2]: Change from Apr., 1952 To April, 1953
1. Loans and Investments	$4,383	$— 86	$+236	$2,517	$— 70	$+133	$1,866	$— 16	$+103
a. Loans	2,044	— 39	+163	1,356	— 37	+122	688	— 2	+ 41
b. U.S. Government Obligations	1,942	— 53	+ 68	972	— 38	+ 8	970	— 15	+ 60
c. Other Securities	397	+ 6	+ 5	189	+ 5	+ 3	208	+ 1	+ 2
2. Reserves and Other Cash Balances	1,386	— 6	+ 37	863	— 1	+ 26	523	— 5	+ 11
a. Reserves with the F. R. bank	724	— 10	+ 33	464	— 10	+ 19	260	-0-	+ 14
b. Other Cash Balances[3]	662	+ 4	+ 4	399	+ 9	+ 7	263	— 5	— 3
3. Other Assets	51	-0-	-0-	33	+ 1	-0-	18	— 1	-0-
4. Total Assets	$5,820	$— 92	$+273	$3,413	$— 70	$+159	$2,407	$— 22	$+114
Liabilities and Capital									
5. Gross Demand Deposits	$4,238	$— 99	$+121	$2,566	$— 78	$+ 59	$1,672	$— 21	$+ 62
a. Deposits of Banks	672	— 14	+ 38	634	— 13	+ 36	38	— 1	+ 2
b. Other Demand Deposits	3,566	— 85	+ 83	1,932	— 65	+ 23	1,634	— 20	+ 60
6. Time Deposits	1,047	— 5	+ 40	501	-0-	+ 16	546	— 5	+ 24
7. Borrowings and Other Liabilities	131	+ 7	+ 79	118	+ 6	+ 72	13	+ 1	+ 7
8. Total Capital Accounts	404	+ 5	+ 33	228	+ 2	+ 12	176	+ 3	+ 21
9. Total Liabilities and Capital Accounts	$5,820	$— 92	$+273	$3,413	$— 70	$+159	$2,407	$— 22	$+114

[1] Includes 12 St. Louis, 6 Louisville, 3 Memphis, 3 Evansville, 4 Little Rock, and 4 East St. Louis-National Stock Yards, Illinois, banks.
[2] Includes all other Eighth District member banks. Some of these banks are located in smaller urban centers, but the majority are rural area banks.
[3] Includes vault cash, balances with other banks in the United States, and cash items reported in process of collection.

Deposit Activity—During April the amount of checks written on banks in the 22 district reporting centers remained at a high level. Debits to demand deposit accounts, except interbank and United States Government, totaled $4.2 billion. This was 7 per cent less than in March, but normally debits are about this much smaller in April than in March. Fewer debits were reported by all centers except two—Greenville, Mississippi, and Texarkana, Arkansas. For Texarkana, April was a record high. The April check cashings were about as much lower than March for each of the five largest cities of the district as they were for the 22-center total.

Agriculture

There was excessive rainfall over much of the district during most of April and the first half of May. As a result, field work at mid-May was believed to be one to two weeks behind time, whereas a month earlier it had been considered ahead of normal. Cotton planting was delayed and in a considerable number of cases fields will have to be replanted. The planting of corn and soybeans was unfavorably affected in much of district Illinois, Indiana, and Missouri. In northern district Illinois and Indiana, however, somewhat drier conditions permitted progress in getting these crops sown.

Wheat—Although the weather was none too favorable for spring-sown crops, it was helpful for development of the winter wheat crop, raising the May 1 estimates of production for every district state higher than those of April 1. For all of the district states together, the new estimate was 121 million bushels, 4 million bushels, or 2 per cent, higher than the April estimate, and 5 per cent higher than 1952 production.

Farm Land Values—Farm real estate values in the Eighth District on May 1, 1953, were unchanged from the March and November, 1952, levels. Nationally, however, values were one per cent lower than a year earlier, and 2 per cent lower than November, 1952. In district states, changes in values of farm land were mixed. During the November 1952-March 1953 period, values increased in three states, declined in three states, and were unchanged in the other.

CHANGES IN DOLLAR VALUE OF FARM LAND

	Per cent change November, 1952 to March, 1953	Per cent change March, 1952 to March, 1953	Per cent change 1935-39 average to March, 1953
Arkansas	—1%	—2%	+226%
Illinois	—2	+2	+207
Indiana	–0–	+1	+236
Kentucky	—4	—4	+242
Mississippi	+3	+4	+229
Missouri	+3	–0–	+172
Tennessee	+2	+1	+223
Eighth District	–0–	–0–	+208
United States	—2	—1	+153

Source: *The Farm Real Estate Market*, B.A.E., March 1953.

DEPOSIT ACTIVITY

	Debits[1]			Turnover	
	April, 1953 (In millions)	Percent Change from March, 1953	Percent Change from April 1952[2]	April, 1953 (Annual Rate)	Year Ended Apr. 30, 1953
El Dorado, Ark.	$ 27.4	— 5%	+ 1%	11.0	10.9
Fort Smith, Ark.	47.0	– 0 –	+13	13.5	13.3
Helena, Ark.	8.1	—11	+11	10.9	12.9
Little Rock, Ark.	160.7	— 7	+11	16.1	15.7
Pine Bluff, Ark.	35.0	— 7	— 2	12.7	14.5
Texarkana, Ark.	22.9	+ 5	+29	15.9	12.3
Alton, Ill.	32.5	— 6	+19	12.4	11.9
East St. Louis-National Stock Yards, Illinois	128.2	— 7	+ 4	26.8	27.5
Quincy, Ill.	34.5	— 2	+ 9	15.3	14.3
Evansville, Ind.	170.6	— 4	+27	18.5	16.8
Louisville, Ky.	683.0	— 5	+11	22.9	24.5
Owensboro, Ky.	38.3	— 5	— 2	13.6	15.6
Paducah, Ky.	43.5	— 6	+ 2	14.2	14.3
Greenville, Miss.	23.1	+ 5	+21	13.1	14.7
Cape Girardeau, Mo.	13.5	— 2	+12	12.5	11.2
Hannibal, Mo.	9.0	— 6	– 0 –	8.4	9.1
Jefferson City, Mo.	54.9	— 5	— 1	10.5	11.5
St. Louis, Mo.	1,979.1	— 8	+11	21.7	20.2
Sedalia, Mo.	11.5	— 3	+ 4	9.7	9.7
Springfield, Mo.	67.4	— 6	– 0 –	12.9	14.7
Jackson, Tenn.	21.2	— 1	+ 7	11.1	11.4
Memphis, Tenn.	627.3	— 9	+15	24.3	24.7
Total	$4,239.6	— 7%	+12%	20.2	19.8

[1] Debits to demand deposit accounts of individuals, partnerships and corporations and states and political subdivisions.

[2] Estimated.

CASH FARM INCOME

(In thousands of dollars)	Mar., 1953	March, 1953 compared with Feb., 1953	March, 1953 compared with Mar., 1952	3 month total Jan. thru Mar. 1953	1953 compared with 1952	1953 compared with 1951
Arkansas	$ 23,155	+ 15%	—21%	$ 71,707	—30%	—18%
Illinois	154,826	+ 31	– 0 –	453,061	+ 2	— 1
Indiana	82,145	+ 17	— 2	238,702	— 4	— 5
Kentucky	21,615	— 9	—10	172,268	+ 9	+16
Mississippi	22,041	— 8	— 7	78,494	+ 3	+12
Missouri	62,560	+ 12	—10	197,517	—11	—14
Tennessee	20,712	— 21	—20	101,349	— 2	— 4
7-State Totals	$387,054	+ 14%	— 6%	$1,313,098	— 3%	— 3%
8th Dist. Totals	$156,009	+ 9	—10	$ 564,542	— 7	— 4

RECEIPTS AND SHIPMENTS AT NATIONAL STOCK YARDS

	Receipts			Shipments		
	April, 1953	April, 1953 compared with Mar., '53	April, 1953 compared with Apr., '52	April, 1953	April, 1953 compared with Mar., '53	April, 1953 compared with Apr., '52
Cattle and calves	111,111	+ 8%	+40%	41,753	— 29%	+20%
Hogs	231,679	—16	—21	46,992	— 48	—47
Sheep	62,790	+64	+13	40,101	+173	— 2
Totals	405,580	— 3%	— 5%	128,846	— 21%	—22%

Reports indicated that values of top-grade farms have declined very little during the year. Pasture land and poor-grade farms have declined most. The reduction in tobacco acreage quotas also was a contributing factor in the decline in land prices. Demand for farms had declined substantially and the number of transfers was lowest in eleven years. Foreclosures were still at an extremely low rate, not far above the all-time low since the series was established in 1912. About two-thirds of the farms purchased involved credit, a higher proportion than at any time in the past eight years.