Monthly Review

FEDERAL RESERVE BANK OF ST. LOUIS

Volume XXX MAY 1, 1948 Number 5

The Potential Demand for Wood in the Eighth District

Throughout the Eighth District, civic, business and agricultural leaders with the aid of governmental bodies and private organizations are attempting to devise means of attaining a better balance between the agricultural and industrial components of their local economies. Common to almost all programs, whether advanced at the regional, state or local level, is a plan for encouraging the expansion of manufacturing industries.

The addition of new manufacturing plants as such, regardless of their relationship to the district's resources, represents a desirable objective in long-range community plans. It would, however, seem even more desirable and economically sound to develop new industries that are intimately related to the natural resources at hand.

The forests of the Eighth District are among the major resources with which nature has endowed the people of this region. These timber stands constitute the major source of raw material supply for a large number of manufacturing plants now in the district. The location of these plants was determined largely by the availability of an adequate supply of timber.

The present wood-processing and converting industries are important to the region's economy. Are there possibilities for expanding or building upon the present industry in the future? And if such expansion is indicated to be possible, would it be desirable in terms of the regional economy as a whole?

An answer to these questions, from the point of view of the district as a whole and of individual communities within the district, depends upon a number of factors. It is obvious that capital and labor are prerequisites. It is evident, too, that any specific expansion should be preceded by a careful analysis of the present and potential market for the particular products to be manufactured. In addition

This article attempts to appraise current and potential demand for wood in the Eighth District and consider that demand against current and potential supply. It is a further development of the story begun in the December, 1947 Review, "The Forest Resources of the Eighth District," and continued in the March, 1948 issue, "Wood Processing Industries in the Eighth District."

The major points developed in those articles were:

1. The Eighth District proper contains 54 million acres of forest land—43 per cent of the district's total land area. In the full seven district states, forest land area totals 86 million acres with sawtimber volume estimated at 112 billion board feet.

2. Much of this forest land (37 per cent) is seedling, sapling, poorly-stocked, or denuded. Other (20 per cent) is in pole timber. Only 43 per cent is classed as sawtimber stands. Two-thirds of this is hardwood and past cutting practices have resulted in large quantities of low-quality hardwoods.

3. Current growth of all timber just about balances current drain from all sources, but sawtimber growth is substantially (about one-third) less than drain.

4. Case studies indicate that good forestry management practices can triple growth rates.

5. The district has a substantial wood-processing industry in existence. It is, however, heavily weighted on the timber basic industry side where value of output per worker is smaller than in other wood-processing industries.

6. Expansion of the district's wood-using industry could take place by (a) growing on the present pattern, (b) expanding through new industries, (c) shifting emphasis from basic to finished lumber production.

to these considerations, however, are the raw material requirements, which essentially are for timber. Thus the feasibility of an increase in manufacturing activity dependent upon the forests for raw materials, becomes a problem of improving that raw material and relating its supply to potential demand.[1]

COMMODITY DRAIN AND TIMBER GROWTH

In 1944, about 2.6 billion cubic feet of timber were taken from the forests of the seven district states for use or were lost by destruction. Just what these 2.6 billion cubic feet of timber were used for, no one knows precisely. An indication of the general purposes for which timber was cut in three states in 1944 can be obtained from figures covering drain by commodities in Arkansas, Mississippi, and Tennessee and shown in Table I. The total drain in these three states represented 67 per cent of total drain in all district states and sawtimber drain was equal to about 80 per cent of that in seven states. The pattern of use in these states probably is not precisely representative of the seven-state area or of the Eighth District alone since variations in the four remaining states might change the relative importance of the amounts cut for some of the minor uses. However, in general, the pattern shown in the table is fairly representative of both the district states and the Eighth District proper.

The estimates of drain, by commodities, in Arkansas, Mississippi, and Tennessee do not purport to measure the amount of wood *consumed* in these three states. Neither are the estimates of drain referred to earlier for the district states to be regarded as measures of wood *consumption* in the seven states. A large part of the lumber sawed in Arkansas, Mississippi, and Tennessee probably was shipped to other district states or to points outside this region. From 1940 to 1943, direct shipments from these three states to markets outside the district states averaged 1.3 billion board feet annually. Thus, in any given area, the amount of timber cut for commodities is not to be construed as equivalent to wood requirements in that area.

TABLE I

TIMBER REMOVED FROM COMMERCIAL FORESTS OF ARKANSAS, MISSISSIPPI AND TENNESSEE BY CUTTING AND DESTRUCTIVE AGENCIES IN 1944 [1]

	All Timber [2] (000,000 cu. ft.)	Sawtimber [3] (000,000 bd. ft.)	Pole-sized Trees [4] (000 cords)
Total cut for Commodities	1,621	6,604	3,604
Lumber	809	4,024	.....
Fuelwood	310	790	2,057
Pulpwood	118	351	617
Cross ties	109	496	22
Fence posts	24	59	168
Veneer	58	258	6
Cooperage	66	280	9
Other	124	343	704
Lost by Destructive Agencies	156	307	1,464

[1] Commodity drain for 1944 preliminary and subject to revision; drain by destructive agencies estimated average per 10-year period 1934-1943.

[2] Drain from all trees 5″ diameter at breast height and larger, bark not included.

[3] Drain (lumber-tally basis) from sawtimber trees; pines 9″ d.b.h. and larger; hardwoods and cypress 13″ d.b.h. and larger.

[4] Drain from trees below sawtimber size and not smaller than 5″ d.b.h. bark included.

Source: Reappraisal Project, Southern Forest Experiment Station.

It also is difficult to arrive at a satisfactory estimate of the total amount of wood actually required in the district or in the district states for construction, industrial uses (that processed into finished wood products or converted into pulp, chemicals, etc.), fuelwood, and the like. Essential basic data are lacking for statewide as well as county estimates. U. S. Forest Service estimates of wood requirements of the secondary wood processing plants in the district states in 1940 totaled 2.3 billion board feet of sawtimber including lumber, veneer, and logs and bolts.[2] If demand for construction, fuelwood, and all other requirements were included, total wood requirements probably were between 8 and 9 billion board feet, and in 1947 amounted to perhaps as much as 10 billion board feet.[3]

Thus it appears that in the district states, under present management practices and with demand at even the estimated 1940 level, total annual requirements of sawtimber exceed annual growth. The above also suggests that for the district states, total demand, under present conditions, can be met only at the expense of our timber land—by "mining" or over-cutting our timber—and by importing from other parts of the country.

District States vs. Eighth District—While annual timber growth in the district states is less than the amount required each year for all uses in these states, timber growth in the Eighth District proper apparently is equal to or is in excess of present consumption requirements.

From 1940-43, the seven states combined imported an average of 2.2 billion board feet of lumber, or

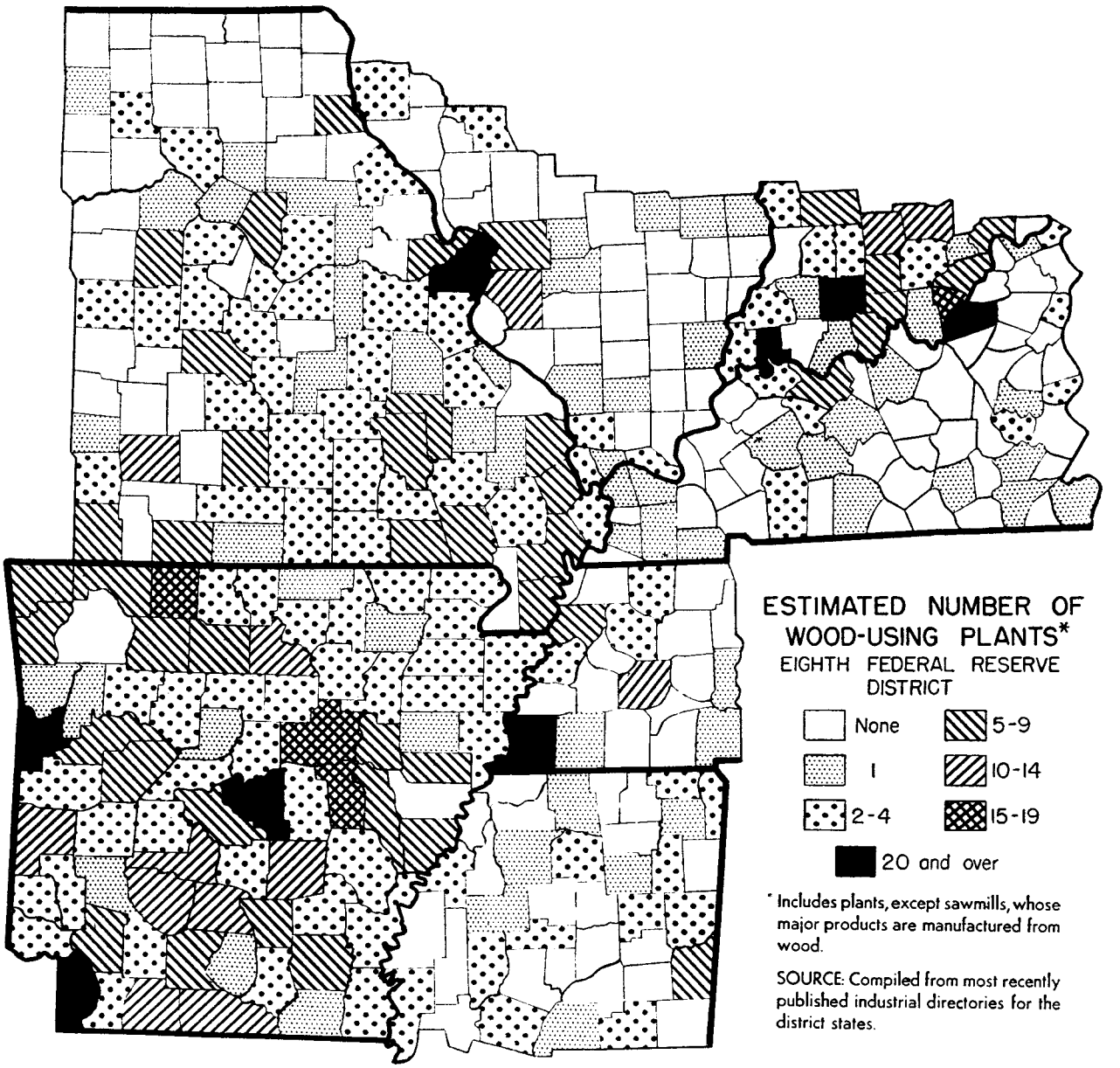
[1] Lumber statistics are at best confusing for they are reported in terms of cubic feet, board feet, cords, posts, etc., and conversion from one to another measure is difficult. They also are reported in terms of total timber and sawtimber. Cubic feet is a fairly common denominator and total timber usually is expressed in cubic feet. Sawtimber is expressed in board feet, poles in cords, etc.

Difficulties in converting from one measure to another, stem from many factors. For example, a cord is a stack of wood measuring 4 feet by 4 feet by 8 feet. A cord of small stock has more cubic feet of wood than a cord of large stock simply because the pieces fit more closely together. Also, cubic feet on the stump processes into less cubic feet because of manufacturing loss.

For rough conversion factors 1,055 board feet of sawtimber are equivalent to about 204 cubic feet; a cord of fuel wood to about 68 cubic feet; and a cord of pulpwood to about 83 cubic feet.

[2] Lumber used in manufacture 1940.

[3] Estimated on the basis of available data and by adapting techniques indicated in the U. S. Forest Service report on "Potential Requirements for Timber Products in the United States."



830 million board feet more than was exported. But nearly 65 per cent of the imported lumber was shipped into Illinois and Indiana and processed largely in portions of these states outside the Eighth District. On the other hand, almost 45 per cent of the lumber shipped outside the district states originated in Arkansas, which is entirely within the Eighth District. An additional 37 per cent of the lumber exported originated in Mississippi where one-third of the forest land and 30 per cent of the state's lumber production is in the Eighth District. This would suggest that substantial amounts of lumber cut from sawtimber trees are available in the district proper and might be further processed here into finished goods.

POTENTIAL SUPPLY AND CONSUMPTION

An attempt to build up Eighth District industry by curtailing shipments of district raw materials to out-of-district plants is rather narrow regionalism, however. Basically this type of regional expansion is desirable only if it can stand on its own feet—that is, if economic factors indicate that existing industry should shift here. It would be better to expand district industry on the basis of expanding raw materials supply and expanding markets.

Applications of better forest management practices could increase timber growth sufficiently to take care of current wood requirements without

depleting our resources and also to take care of potential expansion of wood using industry.

The large volume of low quality hardwoods and pole-sized trees in the district also represents a source of supply for processing plants capable of utilizing timber of this size and quality. The pole-sized trees recommended for harvesting would be those commonly pulped and not those which, if left to maturity, ultimately would provide more valuable products. Such plants might include those manufacturing wood specialty products; they might also include wood pulp mills. New products, some of which are discussed later, also might be manufactured from this type and quality of timber.

It should be noted, too, that there is ample room for increasing the value of production, even under present conditions of growth and drain, by improving the quality of goods now being manufactured. Higher quality lumber, or better furniture, for example, would mean larger income. Obviously all 86 million acres of timber in the district states or the 53 million acres in the district proper will not be transformed overnight into properly managed timber. However, the trend in that direction is developing in some parts of the area and if continued, would ultimately result in a large increase in growth. A slow-down period in production, however, may be essential to effecting a successful conversion in order to allow the building up of stock or timber capital to a point where the growth or interest can approach its potential.

If the minimum potential sawtimber growth per acre (that was indicated in an earlier article to be possible) were realized on the present commercial forest acreage in the district states, annual sawtimber growth could be increased from the current 6.2 billion board feet to more than 16 billion board feet.[4] At that rate, annual growth would be almost double the estimated total consumption requirements of wood in the district states in 1940 and would support a total commodity cut nearly twice as large as in 1944. If achieved in the three states whose commodity drain is shown in Table I, sawtimber growth would be increased from 4.6 billion board feet to more than 12 billion board feet per year.

Under such conditions, the emphasis in developing new wood-using industries would be considerably different than under present growth conditions. At present the supply situation is more conducive to the establishment of many small plants than large industries. An increase in acreage put under proper management would increase the practicability, if not the necessity, of developing industries with large raw material requirements.

TRENDS IN WOOD CONSUMPTION BY EXISTING INDUSTRY

The future expansion of wood consumption will be contingent not only upon the supply of timber; other long-term trends will become increasingly important. Some of these can be considered primarily in terms of their effect on total timber drain while other developments are essentially problems influencing the industrial demand for wood.

The major expansion possibilities appear to be in the increased use of veneer, pulpwood and lumber, including in the latter the finished wood products industries.

Lumber—In the manufacture of lumber there appear to be greater income-producing opportunities in the improvement of quality than in the development of new lumber manufacturing plants. In 1942 there were at least 6,800 operating sawmills in the district counties—an average of 18 mills per county and equivalent to more than one out of every six sawmills in the United States. The present number of mills in the entire district is not known, but the total in Arkansas and the district portions of Mississippi and Tennessee in 1946 was 6 per cent larger than in 1942, according to the Bureau of the Census. The number of plants in the Mississippi counties declined from 1,217 in 1942 to 981 in 1946, but in Arkansas they increased from 1,439 to 1,736, and in the Tennessee counties the number rose from 382 to 528. Lumber production in Arkansas and in the district portion of Mississippi was smaller in 1946 than in 1942 but was larger in the Tennessee counties. Data showing the trend in the remainder of the district proper are not available, but combined output in those four states (Illinois, Indiana, Kentucky, and Missouri) was 48 per cent larger than in 1942. Total U. S. production was less than 1 per cent larger than in 1942.

At the present time lumber manufactured in this district ends up in an amazing assortment of places and products. It goes underground in mines and it sails the seven seas. It is used to build new houses and factories and to patch up old ones. Baseball fans sit on it in Yankee Stadium and it helps get base hits for the St. Louis Cardinals. In the form of crates it carries Arkansas' strawberries to market and as cooperage it helps age Kentucky's whiskey. It is treated with preservatives and used for rail-

[4] See table in Monthly Review, December, 1947, for estimates of potential growth per acre for district states.

road ties and telephone poles. Acetic acid and acetone are made from it and as wood flour it goes into linoleum and explosives. In infancy children play with toys made from the district's lumber and, having lived their lives, may be buried in caskets manufactured in the region.

How much more lumber, produced in the district, could be processed into finished goods in the district is contingent upon a number of factors. One consideration is the increased competition from other materials.

The U. S. Forest Service has classified finished wood products into two general groups, based on the extent to which wood as a major raw material has been displaced by other materials. Wood continues to be favored in the production of furniture, handles, matches, toys, caskets, sporting goods, radio cabinets, patterns, and similar items which in total account for 80 per cent of the lumber used in the manufactured wood products industries. The second group includes items in which wood has been replaced to a large extent by metals and other materials. These are refrigerators, motor vehicles, trunks, agricultural equipment, cigar boxes, and the like, which account for the remaining 20 per cent of the lumber used in finished wood products.

Obviously, the competitive position of wood as a raw material is significant and plans for the development of new industries must take it into account. However, in the district proper even those industries in the first group above are relatively underdeveloped in terms of timber supply and the volume of lumber produced in the district.

Lumber requirements of manufactured wood products plants vary considerably, depending on the scale and type of operation. As a community industrial development, a plant which provides a large market for local timber is more attractive than a small plant. But where timber and lumber are available and are not being utilized to the fullest advantage, even the possibilities of a small processing plant should not be overlooked.

For example, a small plant employing only two or three men in the manufacture of 500 screen doors and 5,000 window sash per year would provide a market for upwards of 30,000 board feet of lumber per year.[5] At the present average rate of sawtimber growth in the district states, a plant of even this size could absorb the annual growth from 400 acres of sawtimber or from eight or more average farm woodlots.

A plant manufacturing handle blanks at the rate of 150,000 blanks annually would require the average annual growth from 3,000 acres of sawtimber in the district states, or all the sawtimber growth from upwards of sixty farm woodlots.

The economic effects of a larger scale operation would be spread over a wider area. A furniture manufacturing plant employing 160 workers and with an annual production of 13,000 bedroom suites and 50,000 upholstered chairs would require about 2 million board feet of lumber. At the present average rate of sawtimber growth, 27,000 acres of sawtimber could be utilized to supply this factory with lumber. In Mississippi, where average growth is the most rapid of the district states, it would require only 17,000 acres but in Missouri, where average sawtimber growth per acre is lowest, it would take the annual growth from 95,000 acres. For the district states as a whole, the sawtimber on perhaps 500 farm woodlots could be cropped each year to meet the wood requirements of a plant this size.

All of these illustrations are based on averages which, except by chance, would not be applicable to any specific community. In some localities, for example, the broad economic effects of a furniture plant of this size would be spread over a much smaller area than in other communities. But while they are not universal in their application, these examples indicate the extent to which the income of an entire community, including that of farm woodlot owners, could be affected by an industrial development based on timber resources.

Veneer—Veneer is wood that is cut into sheets. These may be used singly, as in the manufacture of baskets and boxes, or glued to other pieces of wood to form an exterior surface, as in the case of furniture. When glued together in several thicknesses, it becomes plywood, a material that has a wide variety of uses industrially and in construction. Nationally, production of plywood is centered on the West Coast. A number of mills are located in the district states but the supply of logs suitable for the production of veneer is not large relative to demand. However, the industry might be developed in this area as the quality of lumber improves with better management practices.

Pulp—The location of a paper pulp mill is determined primarily by the availability of an adequate supply of pulpwood and water. In this district there is a large supply of pulpwood, and in recent

[5] Wood requirements and employment figures used in this section were furnished by the Forest Economics Section of TVA and are based on a survey of wood-using industries in the Tennessee Valley Region in 1946. Each is an average based on four or more establishments.

years several pulping plants have been established. However, the present timber stand, particularly in Arkansas, is believed to be capable of supporting a sizable addition to current capacity. This possibility is enhanced by the development of a new technique in paper making which the National Bureau of Standards estimates may increase by as much as 75 per cent the amount of hardwoods used in the manufacture of wood pulp. In view of the relatively large supply of pulp-sized hardwoods in this region, the commercial application of this process may prove beneficial to this district.

As a community industrial development project, a wood pulp mill has one major disadvantage—the large capital requirements for a modern mill. Few if any communities in the pulpwood areas of the district could promote a pulp mill in the way other types of wood-using industries could be sponsored. However, local groups in such areas might well call attention of the industry to their natural resource advantages. The importance of a pulp mill, in terms of wood consumption, is evidenced by the fact that the average sulphate mill in the South requires upwards of 180,000 cords of pulpwood per year.

Other Lines—Some of the present sources of timber drain listed in Table I, which involve little or no manufacturing, appear to be faced with a long-term declining trend. Fuel wood, the second largest source of demand for timber in the district, may be one such case. On a national basis the consumption of fuel wood decreased steadily from 1941 through 1945. This decline is attributed by the U. S. Forest Service to a scarcity of labor for woodcutting and to the migration of farm population from agriculture into other industries.[6] But other data (which may be imperfect) point to a long term declining trend. Future demand probably will be reduced by increased competition from other fuels, such as butane gas, and by the further extension of electric power lines into rural areas. A decline in fuel wood consumption would be more important in terms of timber drain than in its effect upon industrial activity since little if any processing in the accepted sense of the word is involved in the production of fuel wood. Also, the effect on the timber stand would be gradual and probably not apparent in any one year.

Similarly, the amount of wood taken from the forests for fence posts probably will show little if any significant increase above present levels. Competition from steel plus a greater use of treated posts probably will hold consumption to approximately the present amount. As in the case of fuel wood, the effect in terms of industrial activity would be negligible since most fence posts are cut by woodlot owners and used primarily on the farm from which they were cut.

The remaining commodity classifications shown in the table involve varying degrees of manufacturing or processing. The outlook for some of the industries represented, as indicated by present trends, suggests that at best the future level of consumption will be only slightly higher than at present and possibly may be below present levels.

One of these is the cooperage industry. Nationally, wood consumption in the cooperage industry declined steadily during the thirty years prior to 1939. In 1939 it was 64 per cent less than in 1909 and 50 per cent smaller than in 1929. Although requirements increased in the late 1930's, in part as a result of the repeal of prohibition, the industry used considerably less wood at the peak of the 1930's than in previous years. Competition from paperboard and other materials has been and is an important reason for a slackening in the production of the cooperage industry. Present developments in the container field indicate increasing competition can be expected. Most of the competitive products, of course, use wood as a raw material, so that the decline of the cooperage industry does not necessarily imply an absolute decrease in demand for wood.

The cross tie industry is in the peculiar position of constricting its market as it improves the quality of its output. Development of wood preservative processes has lengthened the average life of a cross tie, properly laid, to 25 to 30 years as compared with 6 to 10 years for untreated ties. In 1943 about 17 per cent of the cross ties on Class I railroads were untreated and the replacement of these ties constitutes a sizable future market. From 1929-1943, annual replacement averaged 129 ties per mile and in 1942 it was 148 per mile. The replacement rate is expected to decline to about 135 per mile in the near future and eventually to about 120 per mile as the number of treated ties in use increases.[7] Since the demand for ties is determined largely by the mileage of track operated, which is not likely to increase substantially, and by the average life of treated ties, the future timber drain from this source is not likely to increase appreciably.

[6] "Potential Requirements for Timber Products in the United States," U. S. Forest Service.

[7] "Potential Requirements for Timber Products in the United States," U. S. Forest Service.

NEW USES FOR WOOD

Throughout the preceding discussion little attention has been devoted to important new uses for wood and for wood waste that have been developed in recent years. Many of the products of the laboratories have been demonstrated to be physically or chemically feasible. However, in more cases than not, costs have yet to be lowered to a point where production can be undertaken on a profitable basis. Also, a number of these products admittedly have limited uses. Many are special-purpose products with a restricted market under present conditions. Still they offer possibilities for future demand.

Among the new materials are such products as impreg, a laminated wood product that has been impregnated with resin-forming chemicals, dried and cured. It resembles natural wood, is much harder and has a higher degree of moisture resistance than natural wood. It is believed to have commercial application in window frames, doors and interior wall panels. By replacing the curing treatment in the process with hot pressing at varying pressures, a product called compreg is produced. During the war this material was used for airplane propellors and other aircraft parts and it is thought to have potential uses in furniture. However, production costs are high.

Considerable progress has been made in the development of products made from wood wastes, which are potentially the basis for a number of new industries. The U. S. Forest Service has estimated that a total of 89 million tons of wood waste a year results from normal operations of logging camps, sawmills, planing mills, millwork plants, and the like. Not all this waste would be available for converting into other products but a considerable amount could and probably would be collected for utilization if outlets for the waste were available. In the case of the average furniture plant discussed above, about 35 per cent of the annual wood requirements result in waste. One-half of the waste in this plant is burned, one-fourth is sold and one-fourth remains unused. About 25 per cent of the wood bought by the handle blank factory ends up as waste but in this case utilization is higher—50 per cent being burned and the remainder sold.

Wood wastes can be converted into a number of products. For example, one ton of dry sawdust can be converted into 1,100 pounds of high protein stockfeed. White pine sawdust and shavings are ground into wood flour, a material with a fineness approaching that of wheat flour and which is used largely as a filler in inlaid linoleum. It is used also in the manufacture of dynamite and other explosives and as a filler in plastics it is found in phonograph records, radio dials, knobs and many other items of everyday use.

Chips and sawdust also can be converted into sugar which in turn can be fermented and manufactured into ethyl alcohol. Alcohol also can be obtained by fermentation of the waste liquor discharged at pulp mills in the sulfite pulping process. In Europe this is standard practice at many sulfite mills. Waste sulfite liquor also can be treated with an alkali to obtain synthetic vanillin. However, one day's operation of the sulfite mills in the U. S. produces enough waste liquor to meet the nation's vanilla consumption requirements of one year.

Molasses made from practically any species of wood may prove to have a profitable future. At the present time the process requires a plant with a capacity of at least 30 to 50 tons of waste wood per day. However, the Forest Products Laboratory is conducting experiments designed to lower these requirements to 5 to 10 tons daily. Utilizing chip and/ or sawdust, this process may provide a profitable outlet for waste materials from many small sawmills or other woodworking plants.

Many of the experimental uses of waste material are based on the utilization of lignin, the binding agent that cements the cellulose fibers together in wood. For example, it is possible to convert lignin into crude oil, hand lotions, hair tonic, and fertilizer. Many of these dramatic uses as yet are impractical. However, for a number of years lignin contained in wood chips has provided the basis for the wallboard industry in the U. S. The Masonite process of converting chips into wallboard is essentially a means of utilizing the lignin in natural wood. Recently a new process for manufacturing wallboard from wood has been developed and is considered by many people in the industry to offer real opportunities for promotion.

While there is considerable glamour to some of the products mentioned above and others that have been developed on an experimental basis, most of these are yet to be produced on a basis that would justify the capital investment that would be required. However, there are newly developed products that appear to offer real possibilities for practical commercial operations. One of these is the cross-laminated flooring developed by the engineers at the T.V.A. in cooperation with other research organizations.

This flooring is produced on a continuous strip basis, utilizing the low-grade wood for the center

and bottom layers and high-grade wood for the top surface. In TVA's pilot plant work, all three grades were obtained from stand improvement cuttings, by selective grading of the thin strips produced from such log-grade hardwood trees or logs. Final conclusions with respect to some of the production problems have yet to be reached. Pilot plant operation indicate that this product can be manufactured on a profitable basis. A commercial tryout demonstrated the need for mechanical improvements in the gluing machine, and production attempts were stopped pending such improvements. Developed as a means of utilizing the large quantity of low-quality hardwoods in the TVA region, the process might be well adapted to the Eighth District. Such a plant would provide a market for a large amount of timber growing in the district which normally is not merchantable. By providing such a market it would increase the income of woodlot and other timberland owners and at the same time would provide added industrial employment. In addition, by offering a profitable incentive to clear low-quality timber from the woods, it would also tend to increase the value of the area's timber stand.

CONCLUSIONS AND SUMMARY

The evidence indicates that in terms of timber supply there are opportunities for a considerable increase in the industrial utilization of timber grown in the Eighth District. However, there are several fundamental principles that should be given careful consideration in evaluating the merit or desirability of any proposal to increase the industrial demand for timber in this region. These evolve directly from the close relationship between industrial consumption of timber and the whole complicated problem of maintaining and preserving or increasing the quality as well as the quantity of one of our basic natural resources.

First, any addition to the wood-processing or wood-using industrial capacity should be based on an expectation of long-term operations, not on a desire for quick profits which too often results in an irresponsible policy of overcutting or "mining" of timber rather than in "cropping" the forests.

New wood-using plants should provide a market for the types and quality of timber we now have in the district and in specific localities, as well as a market for the quality of timber we *might* have in the future. It would seem highly desirable for the district as a whole and particularly for individual localities that future expansion of the wood-processing industry be directed at least in part toward greater use of low-quality hardwood trees.

New industries should be related to the present pattern of timberland ownership. Most of the acreage classed as forest land is in the form of small woodlots owned by individual land owners. This condition should be taken into consideration not only as a factor that may influence the availability of raw material for a processing plant, but also because a well-located plant could provide woodlot owners with an added incentive to properly manage their timber. Wood-using industries, both new and established, should prepare themselves to sell forest management to timberland owners and wood suppliers alike.

Further expansion should be consistent with the present and potential level of labor skills in the community. Some types of wood-processing operations, notably those employed in the manufacture of furniture, require highly-skilled craftsmen, while other plants, particularly those in the basic lumber industries, have somewhat lower-average requirements. In many parts of the district highly-skilled wood workers are not available. However, the wartime experience of industry demonstrated the adaptability and versatility of labor and suggests the possibility of a fairly rapid development of many labor skills not now conceded to workers in this region.

With few exceptions, industry in this area typically is on a relatively small scale. Large operations are confined principally to the industrial centers of the district where necessary capital, labor and other requirements are available on a sufficiently large scale. In small communities, however, where capital and labor are less plentiful, but where an ample supply of timber is at hand, attention might well be given to the establishment of wood-processing plants as a means of utilizing not only the available financial and labor supply, but also the timber resources of the communities. In so doing, income not only would be increased through added industrial employment, but also by the additional income provided to the suppliers of the raw material.

All these factors and perhaps more should enter into the question of the feasibility and desirability of expanding the industrial uses of wood in the district. In general these principles are directed toward the objective of developing the industry in a manner that will provide new and steady employment for district workers and a stable market for the region's timber. However, in no case should expansion occur at the expense of the basic forest resources.

Weldon A. Stein

Retail Credit Survey

This article summarizes the results of the sixth annual Retail Credit Survey in the Eighth Federal Reserve District. The Survey results on a national basis will be available later in a publication prepared by the staff of the Board of Governors. Additional copies of this article or copies of the national results may be obtained from this bank upon request.

For the 1947 district Survey, reports were obtained from 455 retail outlets in nine trade lines. Sales volume of respondents in 1947 approximated $430 million. Reporters furnished data on total sales, sales by type of transaction, inventories, markups, receivables (open account and instalment), instalment paper sold and bad debt losses. All respondents included in the Survey grant some credit. Stores selling only for cash automatically are excluded from the Survey.

Coverage for the district Survey differs in one major respect from that for the nationwide Survey. Many of the nationwide chain stores report data in consolidated form directly to the Board of Governors and these data cannot be allocated to the various Federal Reserve districts. District respondents thus consist mainly of independent retailers and regional chains.

Sales—The nine trade lines covered by the Survey, in combination, had 10 per cent more sales (in terms of dollars) in 1947 than in 1946. There were, however, substantial differences in sales gains among the different lines. Automobile dealers and household appliance stores, as might be expected, registered the largest sales increases. The backlog of consumer demand for goods sold by these types of retailers remains heavy, and sales were (and continue to be) limited by supplies available.

Among the other durable goods lines, the increase in sales of furniture stores approximated the average for the nine lines combined. Furniture store sales were at a high level, but the gains came earlier than in other durables lines so that 1947 represented but a moderate increase over the already large volume of 1946. Hardware store sales gains were slightly above average. Automobile tire and accessory stores showed a 6 per cent decrease, mainly due, it is reported, to the increased supply of new cars which lessened demand for accessories for older models. Jewelry store sales also were off, reflecting a movement back toward a more normal

relation of jewelry sales to total sales. During the war years and immediately thereafter, with many items in short supply, high purchasing power tended to focus on luxury goods. That situation gradually has become better adjusted.

The chart shows the composition of sales by type of transaction for each trade line in 1946 and 1947. The general pattern is for a relative shrinkage in cash sales and for relative growth in credit sales as proportions of total sales. And this relative movement is fairly uniform throughout all lines covered by the Survey, even though actual proportions differ appreciably from line to line.

Cash sales increased absolutely at only three trade lines—automobile dealers, household appliance stores, and hardware stores. Open credit sales in the durable lines were up in dollar volume at all lines except automobile tire and accessory stores. With instalment credit restriction first eased and then eliminated in 1947, instalment sales increased in all lines.

Among the various lines, open credit sales accounted for more than half of total sales in 1947 at auto accessory, women's apparel and men's wear stores. Furniture store and auto dealers showed

the smallest proportions of such sales—16.6 per cent and 18.9 per cent, respectively, of total sales.

In instalment sales relative to total sales, furniture stores stood out well ahead of any other line—60 per cent of total sales being made on the instalment plan. In several lines—men's clothing, women's apparel, hardware, and department stores—the dollar volume of instalment sales was relatively small in comparison to total store volume but nevertheless recorded gains relative to total store volume.

Receivables—Total receivables at the close of 1947 were up substantially from the close of 1946 for all trade lines covered by the Survey. Gains ranged from 23 per cent at hardware stores to 82 per cent at appliance dealers. The easing of credit terms in most lines is indicated by the fact that the rise in receivables outstripped the gain in sales on credit percentagewise at all surveyed lines except automobile dealers and hardware stores.

The table shows that the ratios of receivables to total sales (cash and credit) rose at all lines except auto dealers in 1947. The most pronounced increases in these ratios occurred at furniture and jewelry stores in the durables lines and women's wear shops in the nondurables lines.

Bad Debt Losses—The ratio of uncollectable credit accounts to total credit sales increased generally throughout the nine lines of trade but still were quite small. Bad debt losses showed the largest increases at men's clothing, women's apparel, and jewelry stores. At the end of the year about ¾ per cent of all credit sales of jewelry stores were reported as being uncollectable in comparison with about ½ per cent at women's apparel and men's clothing shops.

Bad debt losses on open credit accounts gained appreciably more at men's wear and department stores than at other stores, but were only ⅓ per cent of sales in each case. Women's apparel stores, which have the largest proportion of open credit sales to total sales, reported that slightly less than ½ per cent were counted bad debt losses. At jewelry and furniture stores, although open credit sales increased relative to total sales, the ratio of bad debt losses on open credit accounts declined in the year.

Ratios of bad debt loss on instalment sales to total instalment sales increased in all but hardware stores where there was no change from the end of 1946. Furniture stores reported a little more than ½ per cent of instalment accounts were listed as bad debt losses, a fractional increase over 1946. The largest increases in this ratio were shown in lines of trade where relatively small amounts of instalment credit were granted. At reporting women's apparel and men's clothing stores, 4 per cent and 2 per cent, respectively, of instalment accounts were listed as bad debt losses.

Alfred C. Kearschner

DEPARTMENT STORES

	Net Sales			Stocks on Hand	Stock Turnover	
	March, 1948 compared with		3 mos. 1948	Mar. 31,'48		
	Feb., 1948	March, 1947	to same period '47	comp. with Mar. 31, 1947	Jan. 1, to March 31, 1948	Jan. 1, to March 31, 1947
Ft. Smith, Ark.	+42%	+19%	+ 6%	+10%	.94	.94
Little Rock, Ark.	+38	+19	+ 6	+23	.97	1.07
Quincy, Ill.	+43	+10	+ 7	+49	.86	.97
Evansville, Ind.	+63	+49	+30	+18	.86	.77
Louisville, Ky.	+44	+19	+14	+25	1.02	1.06
St. Louis Area[1]	+35	+10	+ 9	+ 7	.96	.91
St. Louis, Mo.	+35	+ 9	+ 8	+ 6	.97	.91
E. St. Louis, Ill.	+45	+23	+39			
Springfield, Mo.	+51	+17	+ 8	+20	.75	.83
Memphis, Tenn.	+38	+11	+ 3	+18	.86	1.00
*All other cities	+49	+15	+ 6	+35	.68	.82
8th F. R. District	+39	+14	+ 9	+14	.93	.95

*El Dorado, Fayetteville, Pine Bluff, Ark.; Harrisburg, Jacksonville, Mt. Vernon, Ill.; New Albany, Vincennes, Ind.; Danville, Hopkinsville, Mayfield, Paducah, Ky.; Chillicothe, Mo.; and Jackson, Tenn.

[1] Includes St. Louis, Mo., East St. Louis, Alton and Belleville, Ill.

Trading days: March, 1948—27; February, 1948—24; March, 1947—26.

Outstanding orders of reporting stores at the end of March, 1948, were 11 per cent less than on the corresponding date a year ago.

Percentage of accounts and notes receivable outstanding March 1, 1948, collected during March, by cities:

	Instalment Accounts	Excl. Insta Accounts		Instalment Accounts	Excl. Instal. Accounts
Fort Smith	...%	49%	Quincy	29%	59%
Little Rock	27	55	St. Louis	36	55
Louisville	26	50	Other cities	25	59
Memphis	31	48	8th F. R. Dist.	32	53

INDEXES OF DEPARTMENT STORE SALES AND STOCKS
8th Federal Reserve District

	Mar. 1948	Feb. 1948	Jan. 1948	Mar. 1947
Sales (daily average), Unadjusted[2]	318	258	239	288
Sales (daily average), Seasonally adjusted[2]	318	307	291	294
Stocks, Unadjusted[3]	319	298	265	279
Stocks, Seasonally adjusted[3]	329	331	309	288

[2] Daily Average 1935-39=100.
[3] End of Month Average 1935-39=100.

SUMMARY DATA 1947 RETAIL CREDIT SURVEY SHOWING SALES, INVENTORIES, AND RECEIVABLES BY KIND OF BUSINESS—EIGHTH FEDERAL RESERVE DISTRICT

Kind of Business	1947 Compared with 1946: Total Net Sales	Cash and C.O.D. Sales	Open Credit Sales	Instalment Sales	Dec. 31 Inventories	Ratio of Total Net Sales to Inventories: 1947	1946	Ratio of Receivables to Total Net Sales: Open Credit 1947	1946	Instalment 1947	1946
Automobile Dealers	+54.5%	+56.6%	+36.0%	+72.7%	+35.7%	10.9	9.5	1.75%	2.33%	0.92%	0.90%
Auto Tire and Accessory Stores	— 6.2	—19.9	— 5.4	+98.3	+28.3	4.0	5.6	6.43	5.57	2.83	0.84
Department Stores	+ 3.9	— 4.7	+11.7	+41.7	+ 2.0	4.9	4.8	9.26	7.55	2.17	1.43
Furniture Stores	+10.0	—14.9	+10.6	+23.6	+20.6	2.9	3.1	5.43	4.54	22.21	15.92
Hardware Stores	+13.2	+ 4.9	+23.0	+80.6	+13.5	3.6	3.6	5.35	5.16	0.81	0.52
Household Appliance Stores	+32.8	+14.2	+32.4	+68.5	+54.8	4.2	4.7	3.74	2.75	8.15	5.94
Jewelry Stores	— 5.3	—19.9	+ 6.3	+14.6	— 4.4	1.3	1.3	8.33	5.32	12.53	6.97
Women's Apparel Stores	— 0.7	—11.1	+ 8.0	+18.8	+ 8.3	5.2	5.7	14.34	10.23	0.73	0.53
Men's Clothing Stores	+ 6.6	— 5.8	+21.5	+36.0	+14.0	4.8	5.2	10.57	8.55	0.17	0.14

Survey of Current Conditions

Recently published estimates of anticipated plant and equipment expenditures by American business indicate considerable strength in this part of the economy for the balance of 1948. According to a survey by the Securities and Exchange Commission and the Department of Commerce, industry in this country (excluding agriculture) expects to invest about $18.7 billion in new plant and equipment in 1948. Expenditures at this rate would be 15 per cent larger than actual outlays in 1947, the all-time record (but slightly below the very high rate of fourth quarter, 1947), and even when adjusted for the difference in price level would be at or above the 1947 level and larger than in 1929 or 1941, the pre-war peak years.

While these estimates are based on expected expenditures, and thus are subject to change as general business sentiment changes, they are significant in several respects. In view of the fact that this survey was made prior to the call for an increased defense program, which has increased the pressure for preparedness expenditures, these estimates indicate that businessmen generally have considerable confidence in the capacity of consumer demand to support production and profits at a high level during the remainder of the year.

These estimates also have significance in terms of production costs, prices, and profits. A large part of the $18.7 billion is expected to be spent for new machinery and other equipment. In 1947, purchase of these production goods amounted to $10.9 billion, or two-thirds of the total. The addition of new equipment should tend to increase production efficiency and to offset increased labor and other costs. In many instances the installation of modern machines also should result in an actual reduction in unit labor requirements.

EMPLOYMENT

Employment in the Eighth District increased slightly between February and March, after trending downward during the preceding two months. However, the increase in March, which lifted employment to a level approximately the same as in January and 2 per cent higher than a year ago, was less than seasonal. At the same time, the total number of man-hours worked was substantially higher in March than in February, when adverse weather, and fuel oil and gas shortages resulted in more temporary layoffs and a shorter average work week.

The number of persons unemployed in March was somewhat smaller than in February and was about the same as a year ago. During the past year, the composition of the unemployed segment of the labor force has changed. The number of unemployed veterans has decreased and the number of unemployed women has increased. The average length of time that individuals were seeking work was about nine weeks in March, 1948, which was considerably less than a year ago.

The fact that current employment is larger than a year ago, while the level of unemployment shows little change, is accounted for by an increase in the total labor force. It should be noted that during the past year the expansion in the number of women in the labor force was larger than would be expected from the increase in population. This would indicate that many women who gave up their jobs after the war apparently are returning to the labor force due to economic necessity and to an increased demand for their services.

SPECIALTY STORES

	Net Sales: Mar. 1948 compared with Feb. 1948	Net Sales: Mar. 1948 compared with March 1947	Net Sales: 3 mos. 1948 to same period '47	Stocks on Hand: Mar. 31,'48 comp. with Mar. 31,'47	Stock Turnover: Jan. 1, to Mar. 31, 1948	Stock Turnover: Jan. 1, to Mar. 31, 1947
Men's Furnishings	+76%	+ 3%	— 1%	+23%	.71	.84
Boots and Shoes	+95	+32	+19	+ 8	1.03	.97

Percentage of accounts and notes receivable outstanding March 1, 1948, collected during March:
Men's Furnishings ..... 55% Boots and Shoes..... 46%
Trading days: March, 1948—27; February, 1948—24; March, 1947—26.

RETAIL FURNITURE STORES **

	Net Sales: March, 1948 compared with Feb.'48	Net Sales: March, 1948 compared with Mar.'47	Inventories: March 31, 1948 compared with Feb.'48	Inventories: March 31, 1948 compared with Mar.'47	Ratio of Collections Mar.'48	Ratio of Collections Mar.'47
St. Louis Area[1]....	+32%	+37%	—18%	+22%	39%	41%
St. Louis	+32	+38	—18	+22	40	41
Louisville Area[2] ..	+27	+22	— 2	+16	19	27
Louisville	+23	+28	— 4	+ 9	16	25
Memphis	+94	—13	+ 4	+44	20	25
Little Rock.....	+23	- 0 -	+10	— 5	24	31
8th Dist. Total[3]....	+33	+24	— 5	+17	30	35

*Not shown separately due to insufficient coverage, but included in Eighth District totals.
[1] Includes St. Louis, Missouri; East St. Louis and Alton, Illinois.
[2] Includes Louisville, Kentucky; and New Albany, Indiana.
[3] In addition to above cities, includes stores in Blytheville, Fort Smith, and Pine Bluff, Arkansas; Hopkinsville, Owensboro, Kentucky; Greenville, Greenwood, Mississippi; Springfield, Missouri; and Evansville, Indiana.
** 46 stores reporting.

PERCENTAGE DISTRIBUTION OF FURNITURE SALES*

	Mar. '48	Feb. '48	Mar. '47
Cash Sales	14%	16%	21%
Credit Sales	86	84	79
Total Sales	100	100	100

*Last month, figures appearing in the second two columns were incorrectly reported. They should have read: Cash Sales, Jan., '48—17%, Feb., '47—23%; Credit Sales, Jan., '48—83%; Feb., '47—77%.

The labor market is expected to become increasingly tight during the spring and summer months in the Eighth District as well as in the nation. However, this district apparently has a larger supply of labor relative to prospective demand than does the nation as a whole. Employment increases are forecast for most of the major industries, with the largest gains expected in agriculture and construction. Although the only serious general labor shortage probably will be in farm workers, spot shortages may develop elsewhere and the recruitment of workers may become increasingly difficult.

Total employment in the St. Louis Metropolitan Area remained stable between January and March, 1948. Employment in service and finance, insurance, and real estate increased. Construction, public utilities, and manufacturing employment held steady, while Government employment declined. In manufacturing lines, increases in durable goods industries were offset by decreases in nondurable goods industries. The transportation equipment industry showed a large gain and the food industry a large decline during the two months. During the next few months, employment increases are forecast for construction, manufacturing, public utilities, trade, and service.

Currently, about 8,000 more workers are employed in St. Louis than a year ago, with 5,000 of this increase due to gains in the manufacturing industries. Employment in durable goods manufacturing dropped by 1,000 during the year as decreases in both electrical and nonelectrical machinery and in basic and finished lumber products more than offset increases in transportation equipment and in primary and fabricated metal products. In the nondurable goods industries, the increase is estimated at 6,000 workers with the principal gains occurring in food, chemicals, textiles and apparel, and leather industries. Paper was the only nondurable goods industry to show a decline. All nonmanufacturing employment except Government increased during the year. Construction, trade, finance, insurance, and real estate showed increases ranging from one to two thousand persons, while the public utilities and service industries had relatively minor gains.

The long-term trend in manufacturing employment in the district states is indicated by figures published recently by the Bureau of Labor Statistics. In the seven states, about three-quarters of a million more people were employed in manufacturing industries in 1946 than in 1939. Most of the gain occurred in the durable goods industries which increased 58 per cent as compared with 24 per cent in the nondurable goods industries. Total manufacturing employment increased 41 per cent in the district states and 43 per cent in the United States between 1939 and 1946. Kentucky, Mississippi, and Tennessee had the largest percentage increases in the district.

INDUSTRY

Over-all industrial activity in the Eighth District in March was at a somewhat higher level than in February. In some lines the gains reflected primarily the longer work month. In others, increases on a daily average basis were registered, while in still others absolute declines took place. Compared with March of last year, however, most parts of the industrial economy operated at a higher level. Production of coal (because of the strike) was considerably less than in February. Oil ouput also was smaller. Scheduled operations in the steel industry remained the same and lumber production increased slightly. Manufacturing plants averaged about the same rate of operations as in the previous month, while large gains were indicated in construction activity. During the first quarter of 1948, industrial activity in this district apparently averaged 5 to 10 per cent higher than in the first three months of 1947.

Total consumption of electric power in the district's industrial centers in March was 14 per cent larger than in February and 16 per cent above March, 1947. Gains over the previous year were registered in all reporting cities and, except for

INDUSTRY

CONSUMPTION OF ELECTRICITY

(K.W.H. in thous.)	No. of Customers*	Mar., 1948 K.W.H.	Feb., 1948 K.W.H.	Mar., 1947 K.W.H.	Mar., '48, Compared with Feb., '48	Mar., '48, Compared with Mar., '47
Evansville	40	9,490	8,048	8,088 R	+ 18%	+ 17%
Little Rock	35	4,044	4,368	3,071 R	— 7	+ 32
Louisville	80	70,793	61,418	63,079 R	+ 15	+ 12
Memphis	31	5,407	5,190	5,291	+ 4	+ 2
Pine Bluff	24	6,071	4,677	1,076	+ 30	+464
St. Louis	99	76,548	67,267	68,207 R	+ 14	+ 12
Totals	309	172,353	150,968	148,812 R	+ 14%	+ 16%

* Selected industrial customers.
R—Revised.

CRUDE OIL PRODUCTION

(In thousands of bbls.)	Mar., '48	Feb., '48	Mar., '47	March, 1948, compared with Feb., '48	March, 1948, compared with Mar., '47
Arkansas	86.8	87.3	80.4	— 1%	+ 8%
Illinois	170.0	174.1	191.7	— 2	—11
Indiana	17.7	18.2	17.7	— 3	- 0 -
Kentucky	25.1	26.0	27.1	— 3	— 7
Total	299.6	305.6	316.8	— 2%	— 5%

LOADS INTERCHANGED FOR 25 RAILROADS AT ST. LOUIS

Mar., '48	Feb., '48	Mar., '47	First Nine Days Apr., '48	First Nine Days Apr., '47	3 mos. '48	3 mos. '47
125,361	116,736	142,714	34,892	39,966	362,820	389,983

Source: Terminal Railroad Association of St. Louis.

Little Rock, all cities showed a month-to-month increase. However, on a daily average basis, power consumption by industries in March was nearly 6 per cent less than in February but was 6 per cent higher than a year ago. In the first three months of 1948, industrial power consumption was 12 per cent above that of the same period of last year.

Manufacturing—March operations in most manufacturing plants were scheduled at about the same rate as in February. Aggregate output was generally higher, but it was due in a number of cases to the longer work month. On a daily average basis, production of automobiles, lumber, whiskey, and rubber products showed increases over the previous month, whereas a lower rate of operations was indicated in the manufacture of chemicals, electrical equipment, food products, metals and metal products, stone, clay and glass products, and transportation equipment. In terms of total output for the month, increases were indicated in all the above mentioned industries.

Steel—Operations of the basic steel industry in the St. Louis area in March were scheduled at 65 per cent of capacity, the same as in the previous month but substantially less than the 77 per cent of capacity operations scheduled in March, 1947. Operations of the open hearth furnaces in this area were relatively unaffected by the loss of coal production. In the first three months of 1948, steel operations averaged 69 per cent of capacity, about the same as in the first quarter of last year.

Lumber—Production of lumber was at a higher level than in February but below that in March, 1947. Average weekly production at southern pine mills increased 12 per cent in the month but was 8 per cent less than a year ago. Reporting southern hardwood mill operations at 78 per cent of capacity were unchanged from February, and only fractionally less than a year ago.

Whiskey—At the end of March, 53 of Kentucky's 63 distilleries were in operation, 8 more than at the end of February but 5 less than at the same time last year. Reflecting the possibility of a re-application of restrictions on grain usage, the Kentucky distilling industry has increased output considerably and trade reports indicate that, if the present production rate continues, it could result in overproduction in terms of present prices and demand. In February, production of whiskey totaled 7 million tax gallons, more than two and one-half times larger than in the previous month but 36 per cent less than in February, 1947. According to trade reports, consumption of whiskey has decreased sharply recently.

Meat Packing—Meat packing operations in the St. Louis area in March on a daily average basis were at about the same level as in February, but total Federally inspected slaughter increased about 22 per cent. In the nation, total meat slaughter decreased about 2 per cent. In the area, there were 486,000 animals slaughtered under Federal inspection as compared with 400,000 in February and 347,000 in March, 1947. The largest gains over February were indicated in the slaughter of calves and sheep, which increased 58 and 37 per cent, respectively. The large March slaughter brought the first quarter total to 1.4 million animals, 15 per cent more than in 1947 but nearly 20 per cent less than in the seasonally high fourth quarter of 1947.

Shoes—District shoe production remained at a high level in February. On a daily basis, production was about the same as in January, although aggregate production was about 4 per cent less. According to preliminary estimates, output in February totaled 8.4 million pairs as compared with 8.7 million pairs in January and 7.6 million pairs in February of last year. Trade reports indicate that fall prices of the lower grade lines are scheduled to remain at about present levels, due in large part to the recovery in hide prices plus the possibility of increased Army and Navy orders. However, makers of the better grade women's shoes have indicated that prices will be lowered somewhat as a result of considerable consumer resistance to present price levels.

Mining and Oil—Daily average production of crude oil in the district in March declined during the month. The 300,000 barrel daily average production was 5 per cent less than in March, 1947. In all producing district states, output decreased slightly during the month and, except in Arkansas, was less than a year ago. In the first quarter, production averaged 303,000 barrels per day, 4 per cent less than in the first three months of 1947 and slightly less than in the fourth quarter of last year.

With U.M.W. mines not operating a good part of the time, coal production in the district in March dropped to 7.3 million tons as compared with 10.5 million tons in February and 11.4 million tons a

CONSTRUCTION

BUILDING PERMITS
(Month of March)

(Cost in thousands)	New Construction Number		New Construction Cost		Repairs, etc. Number		Repairs, etc. Cost	
	1948	1947	1948	1947	1948	1947	1948	1947
Evansville	80	82	$ 867	$ 285	94	110	$ 80	$ 77
Little Rock	100	105	581	530	182	233	104	64
Louisville	204	145	1,072	987	107	61	109	44
Memphis	1,177	656	4,998	1,613	186	196	147	180
St. Louis	232	266	2,049	1,444	267	225	379	372
Mar. Totals	1,793	1,254	$9.567	$4,859	836	825	$819	$737
Feb. Totals	951	1,031	$4,372	$2,720	440	585	$526	$688

year ago. Daily average production was 42 per cent below that of the previous month as compared with a decrease of 30 per cent in aggregate production.

Construction—The value of building permits awarded in the major district cities in March, totaling $10.4 million, was more than double the February total and 86 per cent larger than in March, 1947. The largest increase over February occurred in Evansville, although Louisville, Memphis, and St. Louis also registered substantial gains. All the reporting cities showed gains over last year, with increases ranging from 186 per cent in Memphis to 15 per cent in Louisville.

The value of new construction permits totaled $9.6 million or 92 per cent of all awards. More than one-half ($5.5 million) was for residential buildings, which increased 171 per cent over the previous month and 119 per cent over March of last year, with substantial month-to-month gains reported in all the cities.

Measured in terms of dwelling units, Memphis again led the district cities with a total of 490 family units. Permits issued in Louisville provided for 136 new dwellings; in Little Rock 72 new units were authorized, and Evansville permits were issued for 42 new dwellings. In St. Louis City, 83 additional family units were provided, and in the county most of the 245 permits issued for new construction were for single residential dwellings.

WHOLESALING

Lines of Commodities Data furnished by Bureau of Census, U. S. Dept. of Commerce*	Net Sales March, 1948 compared with Feb., 1948	 Mar., 1947	Stocks Mar. 31, 1948 compared with Mar. 31, 1947
Automotive Supplies	+11%	—35%	—%
Drugs and Chemicals	+13	+ 1	—
Dry Goods	+31	+18	—
Groceries	+35	+12	- 0 -
Hardware	+ 9	+10	+26
Plumbing Supplies	+39	+38	—
Tobacco and its Products	+15	+18	+ 8
Miscellaneous	+ 9	+18	+10
**Total all lines	+15%	+12%	+16%

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

PRICES

WHOLESALE PRICES IN THE UNITED STATES

Bureau of Labor Statistics (1926=100)	Mar., '48	Feb., '48	Mar., '47	Mar., '48 comp. with Feb., '48	Mar., '48 comp. with Mar., '47
All Commodities	161.4	160.8 R	149.5	+ 0.4%	+ 8.0%
Farm Products	186.0	185.3	182.6	+ 0.4	+ 1.9
Foods	173.8	172.4	167.6	+ 0.8	+ 3.7
Other	147.7	147.5 R	131.1	+ 0.1	+12.7

R—Revised.

CONSUMER PRICE INDEX

Bureau of Labor Statistics (1935-39=100)	Mar. 15, 1948	Dec. 15, 1947	Mar. 15, 1947	Mar. 15, '48, Comp. with Dec. 15, '47	Mar. 15, '48, Comp. with Mar. 15, '47
United States	166.9	167.0	156.3	—0.1%	+6.8%
St. Louis	167.8	167.9	155.8	—0.1	+7.7
Memphis	172.4	173.5	158.8	—0.6	+8.6

RETAIL FOOD PRICES

Bureau of Labor Statistics (1935-39=100)	Mar. 15, 1948	Feb. 15, 1948	Mar. 15, 1947	Mar. 15, '48, Comp. with Feb. 15, '48	Mar. 15, '48, Comp. with Mar. 15, '47
U.S. (51 cities)	202.3	204.7	189.5	—1.2%	+6.8%
St. Louis	210.9	212.8	198.9	—0.9	+6.0
Little Rock	203.8	206.1	190.8	—1.1	+6.8
Louisville	193.9	198.0	183.9	—2.1	+5.4
Memphis	219.9	224.5	205.1	—2.0	+7.2

TRADE

Sales volume in many reporting retail lines in the district in March increased more than seasonally from February but comparisons with a year ago were mixed. The value of durable goods sales generally was larger than in February and showed gains over a year ago. Department stores also registered increases over both a month and a year earlier. Most nondurables stores showed March sales substantially higher than in the previous month but in a few lines sales were less than in the same month last year.

March sales volume at reporting department stores in the district and in the nation as a whole was larger than in the previous month and in the comparable month a year ago. Seasonally adjusted sales volume in March in this district was 318 per cent of the 1935-39 average as compared with 294 per cent in March, 1947. On the basis of preliminary reports in April the year-to-year gain of 9 per cent apparently will be maintained.

The gain over a year ago at district department stores was due primarily to a large increase in sales of homefurnishings, particularly mattresses, floor coverings, and major appliances. The dollar volume of apparel and other nondurable goods sold during the month was slightly larger than in March, 1947, but the gains were somewhat smaller than those registered in heavy goods—despite the fact that March volume this year included Easter buying. It should be noted also that the rate of increase over last year in total sales volume was larger in the basement store divisions than in the main store divisions. In some lines, notably women's and misses' apparel, increases over last year occurred in the basement stores while upstairs, where prices are higher, sales of apparel fell below March, 1947. In the main stores as well as in basement divisions, sales of women's and misses' accessories increased considerably more than sales of apparel as compared with last year. The percentage increase in sales of inexpensive dresses, blouses, skirts and sportswear was considerably larger than the increase in sales of suits, coats and better dresses.

Department stores apparently have adopted a rather cautious outlook with respect to the future level of their sales. This is being demonstrated by a decline in volume of outstanding orders. Since the latter part of January, outstanding orders have

declined in comparison with the same period in 1947. At the end of March, they were 11 per cent below March, 1947. In January, they were 2 per cent larger than a year earlier, and in February were only 3 per cent less than a year ago. It should be noted, however, that in the first quarter of 1947 the volume of outstanding orders was at a high level, and declined fairly sharply in the second quarter. On a seasonally adjusted basis department store inventories at the end of March, 1948, were below the February level, the first time in six months that stocks have failed (on an adjusted basis) to exceed the preceding month.

The dollar volume of sales at district apparel stores in March increased substantially over February and was slightly above March, 1947. At women's specialty stores, sales gained 47 per cent over the previous month and were 4 per cent above the comparable month a year ago. Men's store sales, 76 per cent larger than in February, were 3 per cent over March, 1947. Inventories at both types of stores at the end of March showed little change from February, but were up 17 per cent and 23 per cent, respectively, at women's specialty and men's wear stores as compared with March, 1947.

Furniture sales at reporting stores increased 33 per cent over February and were 24 per cent greater than in March, 1947. An increasing number of lines were featured in special sales promotions in the first quarter of 1947, indicating that in some lines supplies are beginning to catch up with demand. Furniture store inventories on March 31, 1948 were about one-sixth greater than at the end of March, 1947, in terms of dollar value.

BANKING AND FINANCE

Commercial, industrial, and agricultural loans at weekly reporting member banks in this district declined $32 million from mid-March to mid-April, continuing the downward movement of the past five weeks. The decline for the weekly reporting banks in this district conforms to the moderately downward trend of such loans throughout the nation from mid-January to date. Business loans in this district on April 14, however, were $103 million ahead of a year ago.

Real estate loans for the same group of 34 banks also showed a slight decrease, $125,000, from March, but were up $24 million over a year earlier. "Other loans", largely consumer credit, rose almost $2 million for the month and were $38 million over April 16, 1947. As compared with a year ago, total loans were ahead $134 million, even after a decline of $30 million in the month.

PRINCIPAL ASSETS AND LIABILITIES FEDERAL RESERVE BANK OF ST. LOUIS

(In thousands of dollars)	Apr. 21, 1948	Change from Mar. 24, 1948	Change from Apr. 23, 1947
Industrial advances under Sec. 13b	$	$	$ .....
Other advances and rediscounts	11,658	— 2,120	— 1,460
U. S. securities	1,126,031	—10,867	+18,966
Total earning assets	$1,137,689	$—12,987	$—17,506
Total reserves	$ 654,875	$+30,998	$+40,471
Total deposits	703,719	+19,855	+56,779
F. R. notes in circulation	1,084,276	— 8,155	+ 6,598
Industrial commitments under Sec. 13b	$ 580	- 0 -	$— 3,060

PRINCIPAL ASSETS AND LIABILITIES WEEKLY REPORTING MEMBER BANKS EIGHTH FEDERAL RESERVE DISTRICT

(In thousands of dollars) Assets	Apr. 21, 1948	Change from Mar. 24, 1948	Change from Apr. 23, 1947
Total loans and investments	$2,018,936	$— 23,818	$— 49,350
(Commercial, industrial, and agricultural loans, open market paper)	540,223	— 27,841	+ 97,145
Loans to brokers and dealers in securities	5.575	— 1,448	— 1,336
Other loans to purchase and carry securities	29,415	+ 40	— 30,181
Real Estate loans	146,359	+ 23	+ 23,402
Loans to banks	2,560	+ 496	+ 936
Other loans	190,906	+ 6,408	+ 42,549
Total loans	915,038	— 22,322	+ 132,515
Treasury bills	39,076	— 10,645	+ 1,038
Certificates of indebtedness	112,909	+ 15,222	+ 4,888
Treasury notes	82,642	— 3,521	— 70,405
U. S. Bonds including guaranteed obligations	724,434	+ 485	— 118,410
Other securities	144,837	— 3,037	+ 1,024
Total investments	1,103,898	— 1,496	— 181,865
Cash Assets	725,137	+ 32,072	+ 42,464
Other Assets	25.008	+ 1,315	+ 686
Total Assets	$2,769,081	$+ 9,569	$— 6,200
Liabilities			
Demand deposits—total	$2,103,065	$+ 12,223	$— 14,983
Individuals, partnerships, and corporations	1,386,967	+ 28,701	+ 45,111
Interbank demand deposits	550,286	— 15,819	— 58,630
U. S. Government deposits	41,454	+ 2,313	— 17,003
Other demand deposits	124,358	— 2,972	+ 15,539
Demand deposits—adjusted*	1,305,142	+ 12,515	+ 33,095
Time Deposits	474,807	+ 1,193	+ 8,676
Borrowings	5,000	— 3,000	— 6,900
Other liabilities	14,859	— 1,638	— 1,364
Total capital accounts	171,350	+ 791	+ 8,371
Total liabilities and capital accounts	$2,769,081	$+ 9,569	$— 6,200

*Other than interbank and Government deposits, less cash items on hand or in process of collection.

DEBITS TO DEPOSIT ACCOUNTS

(In thousands of dollars	Mar. 1948	Feb. 1948	Mar. 1947	Mar. '48 comp. with Feb. '48	Mar. '48 comp. with Mar. '47
El Dorado, Ark.	$ 20,994	$ 17,619	$ 17,862	+19%	+18%
Fort Smith, Ark.	39,680	31,167	34,945	+27	+14
Helena, Ark.	7,747	6,545	7,076	+18	+ 9
Little Rock, Ark.	121,419	98,420	111,513	+23	+ 9
Pine Bluff, Ark.	23,067	18,546	22,778	+24	+ 1
Texarkana, Ark.-Tex.	10,660	7,863	8,932	+36	+19
Alton, Ill.	25,691	20,008	21,085	+28	+22
E.St.L.-Nat.S.Y., Ill.	110,945	92,620	102.100	+20	+ 9
Quincy, Ill.	29,868	26,444	26,844	+13	+11
Evansville, Ind.	108,691	90,413	88.379	+20	+23
Louisville, Ky.	507,579	441,851	441,854	+15	+15
Owensboro, Ky.	25,973	25,928	26,870	- 0 -	— 3
Paducah, Ky.	15,081	12,946	13,595	+16	+11
Greenville, Miss.	18,418	15,643	17,951	+18	+ 3
Cape Girardeau, Mo.	10,679	9,254	9,514	+15	+12
Hannibal, Mo.	7,332	6,167	7,500	+19	— 2
Jefferson City, Mo.	39,609	44,565	34,858	—11	+14
St. Louis, Mo.	1,576,993	1.273,459	1,336,105	+24	+18
Sedalia, Mo.	6,365	8,621	9,329	—26	—32
Springfield, Mo.	53,126	46,482	50,077	+14	+ 6
Jackson, Tenn.	16,831	14,410	15,370	+17	+10
Memphis, Tenn.	544,488	440,062	473,511	+24	+15
Totals	$3,321,236	$2,749,033	$2,878,048	+21%	+15%

Total investments continued to run below the preceding year, a movement in evidence since the first week in June, 1946. As of April 14, 1948, total investments of weekly reporting member banks were $17 million below the preceding month and $170 million below April 16, 1947. While the decrease from a year ago has been greater in dollar volume in the long-term Treasury bonds ($107 million as compared with $64 million for bills, certificates and notes combined) the change in the shorter term securities has been greater relatively (44 per cent compared to 13 per cent).

Earning assets, as a result of these two diverse movements ($134 million increase in loans and $170 million decrease in investments), decreased $36 million for the year. The effect on bank earnings of this decline in earning assets is in part offset by the higher rate of return obtained on loans as compared with investments.

Reflecting the contraction that has taken place in bank earning assets, total demand deposits were $40 million less than on April 16, 1947. The increases in demand deposits of individuals, partnerships, and corporations of $27 million and in "other" demand deposits of $14 million were more than offset by decreases in U. S. Government and interbank deposits. Interbank deposits were reduced during the year by $59 million and U. S. Government deposits by $22 million. Time deposits were $9 million ahead of mid-April, 1947.

AGRICULTURE

Substantial shifts will be made by farmers in Eighth District states in wheat, oats, soybean and tobacco acreages during 1948 if they are able to carry out their March 1 plans. These plans called for increases over last year of 19 and 14 per cent, respectively, in wheat and oats acreages, and for substantial reductions in soybean and tobacco acreages. The table gives these and other comparisons.

The increased wheat acreage may be attributed to the encouragement given farmers by last year's high prices. Oats acreage increases were scheduled in order to renew feed stocks left low or depleted by the short 1947 corn crop. The gain over last year also reflects the fact that 1947 plantings of oats were held down because of weather. Fields for the additional oats will be provided for by the reduction in soybean acreage noted above. However, unfavorable weather during the latter part of March and the first two weeks of April has limited field work. As a result, some of the intended oats acreage probably again will be planted to soybeans or corn.

As shown by the table, contemplated tobacco acreage has been reduced less in district states than nationally. This reflects the fact that burley tobacco acreage (predominant in district states tobacco growing regions) was reduced only 2 per cent compared with reductions up to 26 per cent in acreages of other types.

For all crops combined, weather permitting, a slightly larger acreage will be seeded in the 1948 crop year than in 1947, both in the district states and for the United States as a whole.

Prospective winter wheat production in the United States, according to latest estimates, is expected to be nearly one-fifth less than the 1947 record crop, but in district states a substantial increase is expected. On both a regional and national basis, this would be a good harvest—23 and 25 per cent, respectively, above the average crops for the ten years, 1937-46.

The wheat crop in each of the three important district states is expected to be substantially higher than in 1947, ranging from a 25 per cent increase in Missouri to 11 per cent in Indiana and 8 per cent in Illinois. If this crop is realized, Eighth District states will produce 14 per cent of the nation's winter wheat in 1948, compared with 9 per cent in 1947.

PROSPECTIVE PLANTINGS 1948

	Indicated Acreage		1948 Indicated Acreage compared with 1947	
	United States	8th District States	United States	8th District States
	(Thousand Acres)		(Percent Change)	
Corn	86,131	26,216	- 0 - %	+ 2%
Wheat	78,437	6,309	+ 1	+19
Oats	45,709	8,716	+ 8	+14
Soybeans	11,659	6,630	—10	—10
Tobacco	1,328	454	—12	— 7
Barley	12,660	289	+ 5	+ 1
Rye	3,726	633	+ 1	+ 4
Potatoes	2,162	158	+ 1	— 8
Hay	74,215	13,658	— 1	— 2
Rice	1,666	360	— 1	- 0 -

Source: BAE, Crop Production, March, 1948.

AGRICULTURE

CASH FARM INCOME

(In thousands of dollars)	Feb., 1948	Feb. '48 comp. with Jan., 1948	Feb. '48 comp. with Feb., 1947	12 month total March to Feb. '47-'48	'47-'48 comp. with '46-'47	'47-'48 comp. with '45-'46
Arkansas	$ 36,832	+44%	- 0 -%	$ 501,198	+ 9%	+63%
Illinois	115,370	—33	—11	1,882,980	+25	+54
Indiana	63,336	—23	- 0 -	1,090,276	+25	+55
Kentucky	28,097	—66	—38	525,723	+13	+35
Mississippi	33,852	+39	+12	486,146	+68	+46
Missouri	65,337	—22	—10	1,077,779	+18	+51
Tennessee	30,046	—39	—19	481,874	+15	+45
Totals	$372,870	—29%	—10%	$6,045,976	+23%	+51%

RECEIPTS AND SHIPMENTS AT NATIONAL STOCK YARDS

	Receipts			Shipments		
	Mar. 1948	Mar.'48 comp. with Feb. '48	Mar.'48 comp. with Mar. '47	Mar. 1948	Mar.'48 comp. with Feb. '48	Mar.'48 comp. with Mar. '47
Cattle and calves	90,715	—31%	—34%	26,004	+ 34%	—55%
Hogs	241,330	+17	+36	66,332	+ 21	+37
Sheep	39,692	+36	+25	6,822	+195	—50
Horses	1,802	+16	—47	1,802	+ 16	—47
Totals	373,539	+ 1%	+ 7%	100,960	+ 29%	—18%