

MONTHLY REVIEW



The West Virginia economy is changing rapidly, with manufacturing playing an increasingly significant role.

FEDERAL RESERVE BANK OF RICHMOND

SEPTEMBER 1964



WEST VIRGINIA

An Economic Profile

Few states in the nation have experienced such sweeping economic change as has West Virginia during the last 15 years. Stated in broad terms, the State has been going through a period of major readjustment. Prior to and during World War II, coal mining and agriculture were thriving activities, providing the bulk of employment. Even before the war, however, agricultural employment had begun a steady decline. In the 1950's, mining employment fell off drastically, due to both reduced demand for coal and large-scale automation by the mining companies. While employment declines in both of these activities have slowed, the heart of the State's problem remains that of finding new industries and employment opportunities.

Recent expansion of the manufacturing sector has begun to partially fill the job gap. More important for the long run, the State and Federal governments and interested private groups are cooperating in programs to retrain workers and bring new job-creating investments into the State. The fight is far from won, but developments in the last few years have been encouraging.

Natural Resources West Virginia has an abundance of natural wealth. Today, as in the past, these resources provide a broad base for economic activity. The State is especially well endowed with minerals, but timber, water, and land are also important resources.

Although, in large measure, current economic problems have stemmed from developments in the mining industry, bituminous coal must be counted as the State's most valuable single asset. West Virginia bituminous is a high-quality coal, with a wide variety of uses, and total reserves are estimated at 103 billion short tons, about 6.2% of all coal reserves for the nation. At present, only about half of these are classified recoverable, but a larger fraction should become available over time as technology continues to improve.

As shown by the map at the bottom of page 3,

bituminous reserves are distributed over most of the State. Mining activities, however, are centered in the southwestern and northcentral sections, and during recent years, more than two thirds of total annual production has come from the two areas.

Natural gas and crude petroleum are also available in substantial quantities, though reserves are but small fractions of the nation's stocks. Estimated recoverable natural gas reserves at the present time are almost two trillion cubic feet; recoverable natural gas liquid reserves, approximately 59 million barrels; and crude oil reserves, 56 million barrels. Depletion of these reserves has not become a matter for concern, as new discoveries have generally matched or exceeded consumption.

Deposits of other mineral resources occur in commercially significant quantities in various parts of the State. These include different types of limestones, building stone, rock and brine salt, sandstone, glass sand, clays, and sand and gravel.

West Virginia's stock of hardwood timber is one of the largest in the East. Softwoods also are found in various parts of the State, but are relatively much less important. In all, the State has almost 9.9 million acres of commercial forest land, and the estimated growing stock is almost 100 million cords. Measures have been taken to preserve the timber and in recent years new growth has exceeded volume cut by about 50%.

Water resources are abundant, and in most parts of the State potentially more than adequate for agricultural, recreational, and industrial use. Usable water, however, is not evenly distributed over the State, and further development is needed in many areas. In the river valleys, where chemical plants, paper mills, mines, and other industries use the rivers for waste disposal, pollution has caused some problems. Even some of the mountain streams have suffered, due mainly to the washing operations of small mining companies. Currently, both government and industry are taking action to eliminate these difficulties. Flooding is also a problem in some river-

valley areas, and while there has been substantial investment in flood control, the task is not finished.

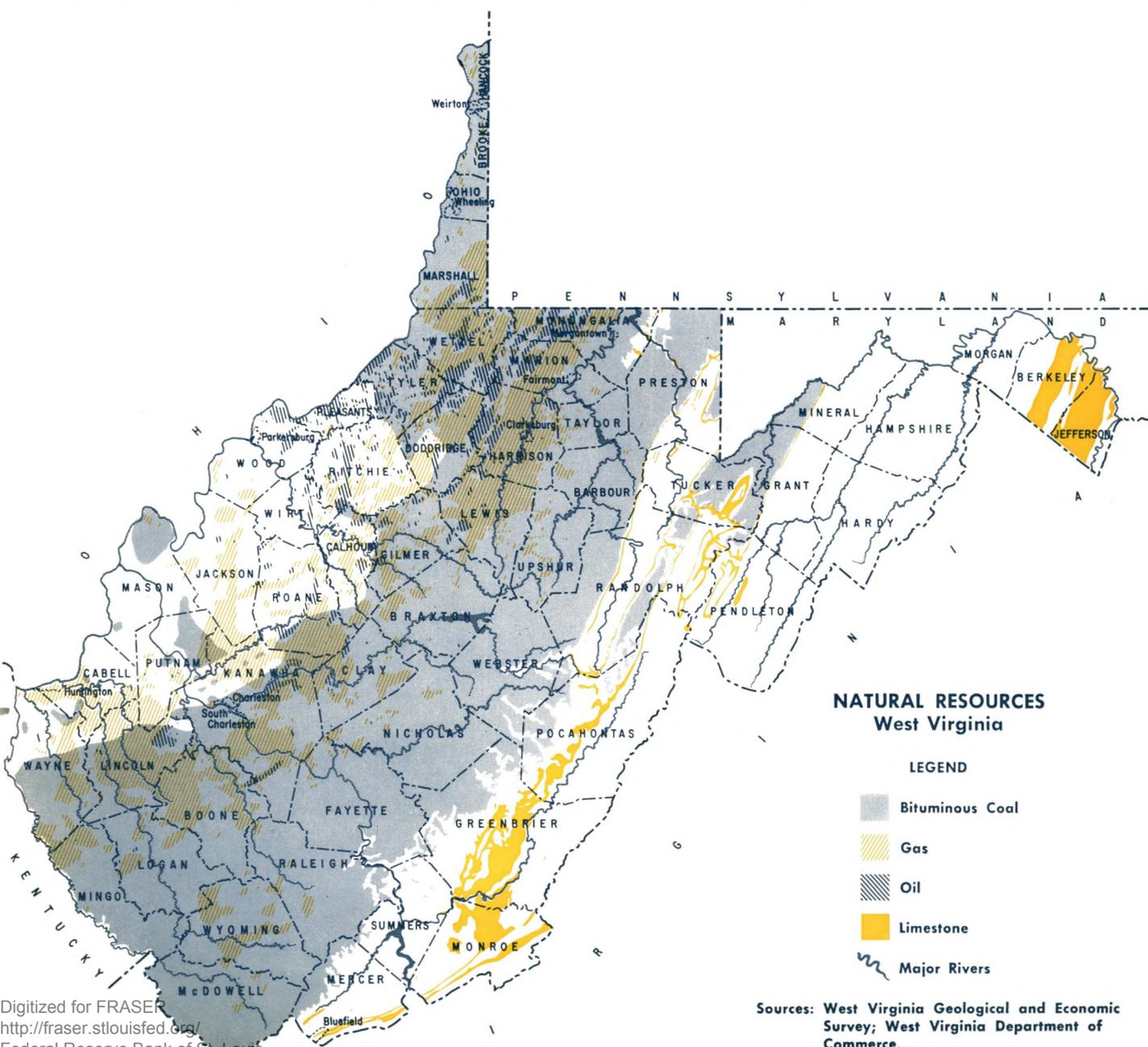
Two national forests, nine State forests, and twenty State parks give West Virginia a total of almost two million acres of developed recreational land. Within the next few years, five new State parks will be opened. With the rapid growth of tourism, recreational areas are assuming an increasingly significant role in the State's economy. Indeed, development of this recreational acreage may well prove to be one of the State's wisest investments.

Population Characteristics In 1963, West Virginia had a total population of 1,778,000, ranking thirtieth among the states of the nation. Since 1950, however, population has been declining steadily, and between the last two census years, the total fell

by 7.2%. While this decline contrasts sharply with experience in the nation and in all bordering states, it should probably be viewed as a natural part of the State's economic readjustment. Only with the coming of new industry and job opportunities can the trend be expected to reverse.

About three fifths of all West Virginians live in towns with populations of 2,500 or under and are classified by the Bureau of the Census as "rural residents." Urban population is concentrated in seven cities—Charleston, Huntington, Wheeling, Parkersburg, Weirton, Fairmont, and Clarksburg. Approximately one half of the entire urban population lives in these cities, the locations of which are shown on the map at the bottom of page 4.

Not surprisingly, the decline in total population



**DISTRIBUTION OF NONFARM EMPLOYMENT BY INDUSTRY
WEST VIRGINIA AND THE UNITED STATES, 1950 AND 1963**

Industry	1950		1963	
	West Virginia	United States	West Virginia	United States
	(Per Cent)			
TOTAL NONFARM	100.0	100.0	100.0	100.0
Manufacturing	25.1	33.5	27.4	29.3
Nonmanufacturing	74.9	66.5	72.6	70.7
Trade	16.9	22.3	18.8	21.8
Government	11.6	13.7	16.2	16.9
Services	8.0	10.8	11.6	14.3
Transportation, Com- munication, and Public Utilities	10.2	8.7	9.0	6.7
Contract Construction	3.4	5.1	3.8	5.0
Finance, Insurance, and Real Estate	1.8	3.9	2.9	4.9
Mining	22.9	2.0	10.2	1.1

Note: Details may not add to totals because of rounding.
Sources: West Virginia Department of Employment Security and
U. S. Department of Labor, Bureau of Labor Statistics.

In transportation, communications, and public utilities, employment has fallen, but the share of total employment accounted for by the sector has increased. Employment in mining has decreased both absolutely and in relative importance, while the trade, services, government, and finance, insurance, and real estate sectors have gained both absolutely and relatively.

Personal Income Between 1940 and 1963, West Virginia's total personal income increased by 328%, from \$777 million to \$3.3 billion. Most of the increase took place during the relatively prosperous 1940's, but even during the period of readjustment in the 1950's and early 1960's, the rise was a substantial 54%. Per capita personal income rose by an even greater percentage during the 24-year span, advancing 360% from \$407 to \$1,872. During the period 1950 through 1963 the increase was 75%.

The seeming paradox of rising income during the recent period of declining employment is explained mainly by substantial wage increases in the manufacturing industries and in the mining sector. Wages in the Kanawha Valley's chemical industries, for example, are among the highest in the nation today.

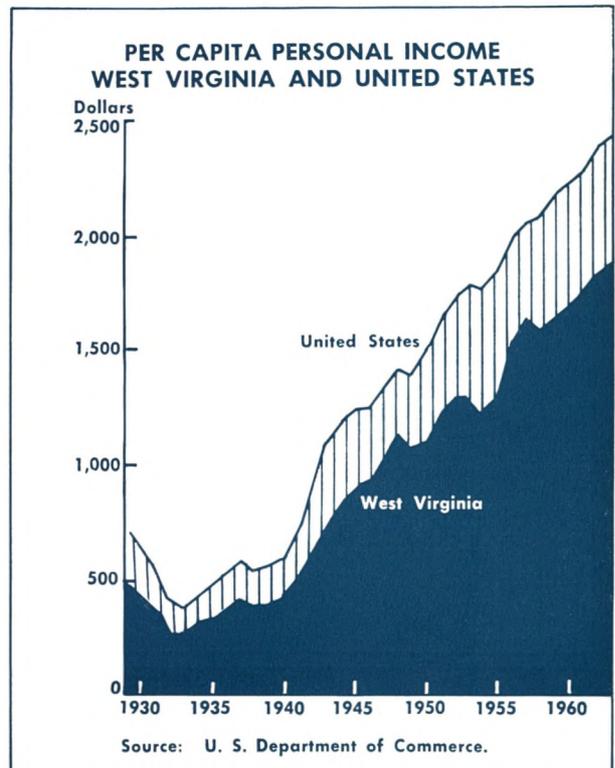
Although income increases in the State have been appreciable, they have been less than those in the nation as a whole and in all bordering States (Kentucky, Maryland, Ohio, Pennsylvania, and Virginia). As shown in the chart on this page, the gap between West Virginia's per capita personal income and the national average has widened substantially since the early 1940's.

Forms and Sources of Income Slightly more than two thirds of all income received by West Virginians is in the form of wages and salaries. Proprietors' income (earnings of self-employed persons and owners of unincorporated businesses), property income, and transfer payments account for the bulk of the remainder. Currently, the division of income by major form is quite similar to the division in the nation and in bordering states.

Between 1950 and 1962, however, the share of total income derived from wages and salaries decreased in West Virginia, but increased in the nation and in all bordering states. At the same time, transfer payments became relatively more important in the State. The same trend was evident in the nation as a whole, although the increase in relative importance of transfer payments was only half as large.

Nine tenths of West Virginia's total personal income originates in the private nonfarm sector of the economy. About 9% is generated by Federal, State, and local government units; only 1% comes from the farm sector. It is of special interest to note that income from the three levels of government is a smaller part of the total in the State than in the nation or in any bordering state, and that the government's share of the West Virginia total has declined since 1950. In the private nonfarm sector,

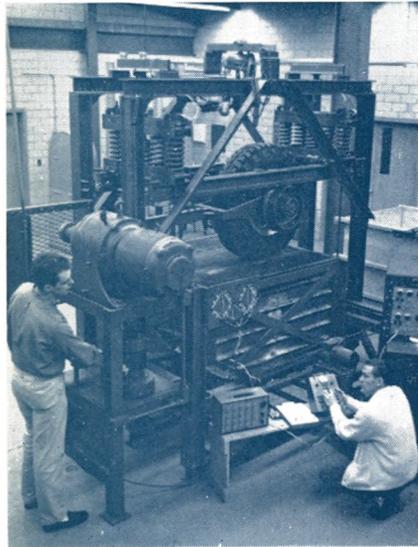
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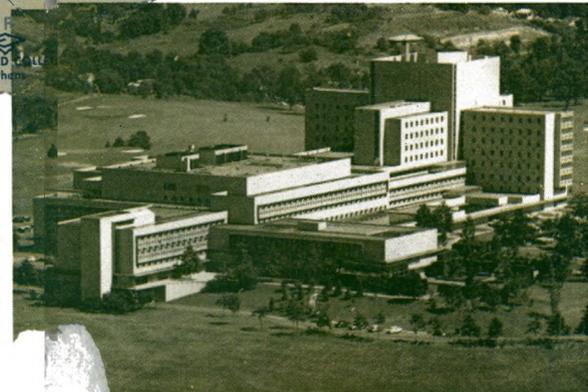
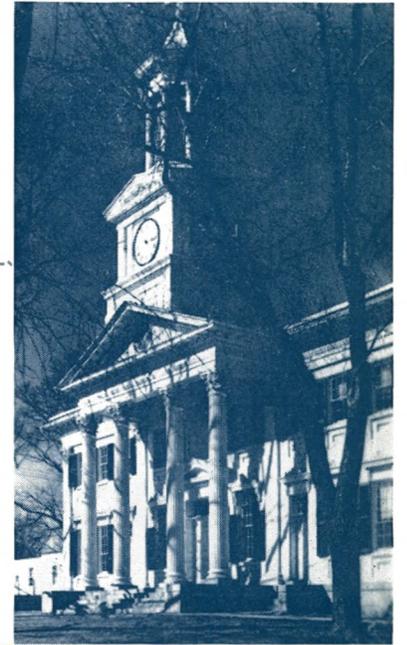
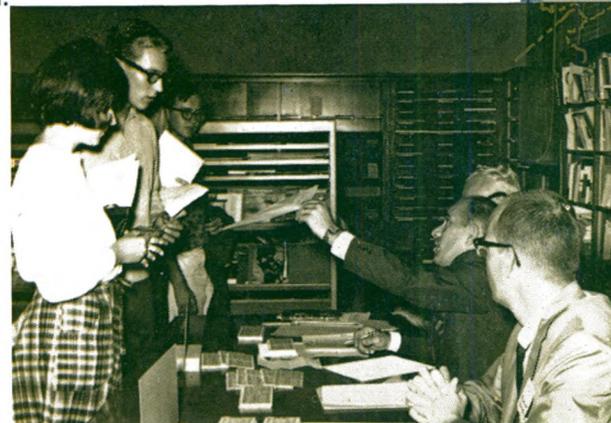
West Virginia Educational Institutions

Facilities for higher education in West Virginia include two universities, fourteen liberal arts colleges, one technological institute, and three technical colleges. Of the twenty institutions, eleven are State-supported. West Virginia University at Morgantown is by far the largest of these institutions, with an enrollment of about 10,000.

Total enrollment at the State's colleges and universities in 1963 was approximately 35,000. This compares with a total of 24,300 in 1950 and a pre-World War II level that never exceeded 14,500. About 4,000 bachelor's degrees and 500 higher degrees have been awarded annually by the State's colleges and universities since 1960.



Top—Working in conjunction with the State Road Commission, engineering students at West Virginia University test the durability of road-building materials. Center—In classrooms like this one at Morris Harvey College, students pursue their varied academic interests. Bottom—Faculty members at West Virginia Wesleyan College assist students during registration.



Top—The architecture of the State's college campuses varies from the very modern to the more traditional. McMurrin Hall at Shepherd College exemplifies the latter. Center—Each year new facilities are added to accommodate increasing enrollments. Pictured is the new student center at Concord College. Bottom—This modern, \$31 million complex, is West Virginia University's new Medical Center. The entire project was financed, in less than five years, by a special tax on soft drinks.

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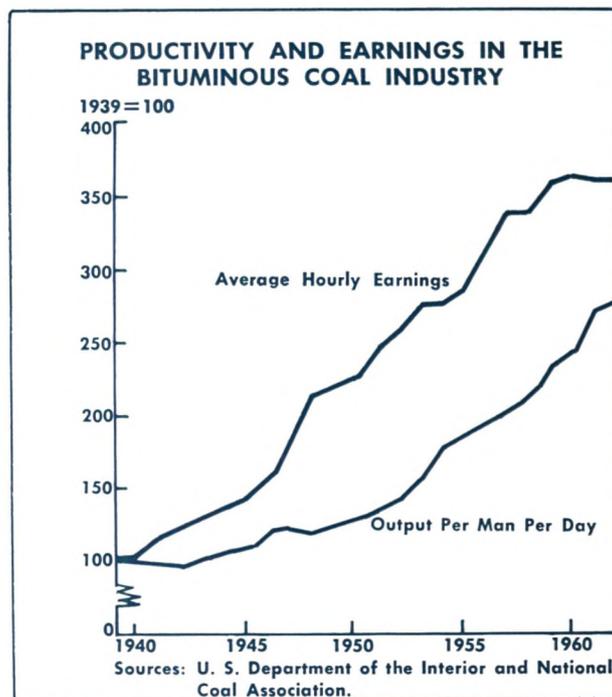
approximately half of all civilian income received for participation in current production comes from commodity-producing industries. Another fourth comes from distributive industries; the balance from service industries. Since 1950, the share of the State's current production income from manufacturing has increased substantially, while the share from mining has fallen by more than half.

Bituminous Coal Mining The State's recent economic history has paralleled closely the vicissitudes of the bituminous coal industry. During the 1940's, when activity in the industry was at a high level, production reached an all-time record of 176 million tons in 1947 and employment reached a high of 125,000 in 1948. This was reflected in general prosperity in the State. Then during the 1950's and early 1960's, the demand for coal fell off and production declined, reaching a low of 113 million tons in 1961. As production fell so did employment. The employment problem was intensified as major coal companies responded to upward wage pressures by automating rapidly. Although there were other contributing factors, the substantial decline in mining employment was largely responsible for the State's overall economic downturn.

The production slump during the 1950's was attributable in large measure to reduced demand in the industrial, home-heating, and export markets. The most serious single blow to the industry occurred when railroads switched from coal-burning locomotives to diesels. In 1947, railroads consumed about 109 million tons, or one fourth of all United States production; by 1961, this figure had dropped to less than two million tons.

The decline in employment proceeded against a background of wage increases well in excess of productivity gains. During the period from 1939 through 1963, average hourly earnings increased from \$.86 to \$3.29. Until 1958, as the chart on this page shows, these increases exceeded gains in productivity by an average of approximately 1% a year, encouraging the larger coal companies to mechanize. Most important has been the introduction of continuous cutting and loading machinery, which has substantially raised productivity but has displaced miners in large numbers.

During the last few years, the downward production trend appears to have reversed. Production in 1963 rose to more than 129 million tons, and preliminary estimates for this year indicate a further increase. Increased sales in the electric utilities and export markets have been primarily responsible for



this upturn. Last year, electric utility users consumed approximately 62 million tons of West Virginia bituminous, roughly half of total production, and another 30 million tons went to the export market, mostly to metallurgical users in Western Europe, Japan, and South America.

Expansion in the important electric utilities market has been possible only because the cost of coal has been kept competitive with other energy fuels. The companies, by automating, have kept the cost "at the mines" relatively stable over the past ten years, and the railroads, which move about three fourths of total annual production, have recently introduced numerous cost-saving techniques, reducing transportation costs. The transportation factor, of course, has been important in expanding sales in the export market also.

Demand of electric utility users may be expected to rise even further if the development of "mine-mouth" power generating stations catches on among the electric companies. Also, current research efforts indicate that a number of new uses for bituminous may be feasible in the not-too-distant future. It is possible today, for example, to produce gaseous and liquid fuels, including gasoline, from coal. If these processes can be made economical, the increased demand for coal as a source of derived fuels could be substantial. Other possible new sources of demand include the use of coal in processing sewage and industrial waste, the use of coal fly-ash as a soil conditioner and as a lightweight foamed ceramic,

and the use of coal as the base for an electricity-producing cell.

The hope for significant expansion of mining employment, however, is apparently slight. Automation within the industry is continuing, perhaps at an increasing pace. Even if production rises well above the 1947 record, only a limited employment increase is likely.

Manufacturing The State's manufacturing sector has grown rapidly since World War II. Between 1947 and 1962, the increase in total value added by manufacture was 145%, about the same as the national gain and greater than the increases in the bordering industrial States of Ohio and Pennsylvania.

In 1962, value added by manufacture totaled \$1.6 billion, a sum slightly more than twice as great as the value of mineral production and almost sixteen times greater than cash receipts from farm marketings. Nevertheless, manufacturing was relatively less important in West Virginia than in the nation and in all bordering states except Kentucky.

Chemicals, primary metals, and stone, clay, and glass products are the State's major manufacturing industries shown in the table at the bottom of this page. Combined, these industries account for about three fourths of total value added, and each provides roughly one fifth of manufacturing employment.

The structure of manufacturing in West Virginia presents an interesting contrast to that in the nation. In the State, the manufacture of nondurable goods accounts for more than half of total value added but for only about a third of manufacturing employment. Nationally, nondurables account for about half of both value added and employment. This difference is explained principally by the relative importance of the State's chemical industry, where value added per worker is extremely high.

All of the State's manufacturing industries have shared in the increase in value added since 1947. The largest gains have been in chemicals, primary metals, and food processing. Between 1947 and 1962, value added by chemical production almost quadrupled. In primary metals, the gain was close to 200% and in foods, about 150%. Most of the gains in value added were the result of rising output per worker. As noted earlier, total manufacturing employment actually fell during the period.

Geographical Concentration of Manufacturing West Virginia's manufacturing is concentrated in the northern panhandle, around Weirton and Wheeling, and in the Charleston and Huntington areas.

In the panhandle, firms producing primary metals, fabricated metals, and glass account for almost a fourth of the State's manufacturing employment and a third of its total value added by manufacture. In the Charleston area, chemicals, food products, and stone, clay, and glass products industries generate about a fifth of the employment total and a fourth of value added. Establishments in the Huntington area, mainly in food and stone, clay, and glass lines, account for about a tenth of both employment and value added. Clarksburg, Fairmont, Morgantown, and Parkersburg are smaller, but significant, manufacturing areas.

Investment in Manufacturing One of the most promising trends in West Virginia manufacturing has been the substantial volume of new investment. Between 1951 and 1962, expenditures for new plant and equipment totaled about \$1,700 million. These expenditures were for both plant establishment and expansion. Most significantly, the annual rate of increase in plant and equipment expenditures was approximately equal to the rate for the nation and exceeded the rates in all bordering states except Maryland.

Agriculture Agriculture is a small and declining part of the West Virginia economy. In 1963, cash receipts from farm marketings totaled \$98 million, about 6% of total value added by manufacture and 14% of the value of mineral production. Farm employment was less than 2% of the State total, and

MANUFACTURING IN WEST VIRGINIA

1962

Industry	Employees		Value Added	
	Number	Per Cent of Total	Amount (\$ Thous.)	Per Cent of Total
TOTAL	112,393	100.0	1,625,502	100.0
Textile Mill Products	1,419	1.3	7,790	0.5
Food and Kindred Products.....	7,132	6.3	67,651	4.2
Apparel and Related Products....	3,024	2.7	10,240	0.6
Lumber and Wood Products.....	6,564	5.8	24,197	1.5
Chemical and Allied Products....	21,546	19.2	688,361	42.3
Paper and Allied Products.....	1,557	1.4	14,867	0.9
Printing and Publishing.....	3,678	3.3	18,893	1.2
Leather and Leather Products.....	895	0.8	6,245	0.4
Stone, Clay, and Glass Products	20,769	18.5	209,138	12.9
Primary Metal Industries.....	22,095	19.6	360,060	22.2
Fabricated Metal Products.....	6,660	5.9	69,974	4.3
Transportation Equipment	1,872	1.7	23,675	1.4
Administrative and Auxiliary....	3,397	3.0
Other	11,785	10.5	124,411	7.6

Source: U. S. Department of Commerce, Bureau of the Census.

farm income accounted for only about 1% of total personal income.

Employment in agriculture dropped by more than half during the 1950-1963 period, declining more than in any other state in the nation except New Hampshire, and the number of farms also fell by almost half. Farm output, as reflected by cash receipts, declined by 14%.

Tourism Tourism is the fastest growing industry in the State today. Though still a relatively small industry, tourism could become a major economic activity. This year, the West Virginia Department of Commerce estimates that more than eight million tourists and vacationers will visit the State, bringing approximately \$250 million into the economy and providing jobs for about 25,000 men and women.

Especially in the central and eastern sections, the State has much to offer the vacationer. Principal attractions for the summer vacationer are State parks and forests which offer not only natural beauty, but also comfortable lodging or improved camping sites, swimming, boating, riding, game courts, fishing, and hunting. For the winter vacationer and sports enthusiast, there are four developed ski resort areas—Bald Knob near Beckley, Chestnut Ridge near Morgantown, Oglebay Park near Wheeling, and Weiss Knob and Cabin Mountain near Davis. The State also has numerous additional attractions for the tourist, including an exhibition coal mine at Beckley, the Coal Town Museum at Stotesbury, 20 hand-blown glass factories around the State, and several historical pageants during the summer months. The only significant drawback to the expansion of tourism as an industry is the need for a better highway system, a matter which is treated below.

Needs for the Future From the standpoint of economic development in the intermediate-term future, West Virginia is faced with special problems in two important areas. The first of these is public education; the second, the highway system.

While the State's public school system confronts numerous problems common to many other state school systems, there are special problems as well. Expenditure per pupil is only about two thirds the national average and is lower than the comparable figures in all bordering states except Kentucky. Also, the average annual salary of public school teachers is more than \$1,000 below the national average and is lower than the average in all bordering states except Kentucky. Perhaps the most pressing problem is the existence of a relatively large number of rural schools

with seriously limited physical plants. In 1962-1963, more than 500 of the rural schools were one-room facilities.

These problems have been attacked on a broad front, and in recent years significant progress has been made. Since 1950, almost 2,000 one-room schools have been closed and the students moved to larger consolidated schools. Both average teacher-salaries and expenditures per pupil have more than doubled. The State Department of Education is currently embarking upon a program of improvement which calls for expanded curriculum, additional physical facilities, and further pay increases for teachers.

The State's need for an improved and expanded highway system will not be easily met. Because of terrain, construction is difficult and costly. Also, because of annual temperature variation in many parts of the State, pavement does not hold up well and substantial annual expenditures are required for maintenance.

Expenditures for highway construction have risen continuously in the last ten years. Between 1950 and 1963, net addition to the primary road system totaled about 200 miles, and 51 miles of the new Interstate Highway System were built. When West Virginia's presently projected share of the Interstate System is completed in 1972, approximately 520 miles of four-lane, limited-access highway will crisscross the State, linking the major industrial areas to each other and to markets east and west and making the vacation areas more readily accessible to tourists. But while the projected improvements should go a long way toward solving the State's transportation problem, it seems clear that more years of high level expenditures for all types of roads will be needed to give the State an adequate system of highways.

Conclusion West Virginia, then, is a State in transition. Its economic problems are incident to a readjustment which, in all probability, will not soon be completed. Large-scale job losses in agriculture and bituminous coal mining have necessitated an adjustment of major proportions, and history has shown that such changes are neither quick nor painless. Still, appropriate actions are being taken and recent progress has been substantial.

This article is the fifth of a series of economic profiles of states in the Fifth Federal Reserve District. Booklets describing the Virginia, Maryland, North Carolina, and South Carolina economies are now available on request, and a similar study of West Virginia will be published later this year.

THE FIFTH DISTRICT



Fifth District business activity continues at a high level. Although the pace in some sectors slowed a little during late spring and early summer, the latest statistics suggest that the District economy is again moving up, perhaps at a quickening pace. In July, seasonally adjusted bank debits rose to an all-time high, 2% above the previous record reached in April and 9% above July a year ago. Seasonally adjusted nonfarm employment also rose to a new high after small gains in three consecutive months made up for the April decline. Seasonally adjusted manufacturing man-hours likewise increased slightly, continuing the seesaw behavior that has characterized factory man-hours since the all-time high in March. Seasonally adjusted department store sales were down in July, but prosperity elsewhere seems to have boosted consumer optimism, for department store business jumped 9% to a new high in August.

Most usable economic capacity now appears to be in operation despite some unemployment. Informed spokesmen from many areas indicate that most District enterprises are handling about as large a workload as they reasonably can, and many feel that supplies of suitable labor, as far as their particular industries are concerned, are just about exhausted.

Strength Widespread District employment statistics reveal substantial stability and strength in almost every sector. In June, seasonally adjusted employment increased by small amounts in both durable and nondurable goods manufacturing, in mining, in transportation, communication, and public utilities, in trade, and in finance, insurance, and real estate. In construction and services, the number of workers remained unchanged. The government sector alone reported fewer jobs in June. In July, nonfarm employment rose in all major categories except nondurable goods manufacturing.

Mixed movements in July produced a small net gain in durable goods man-hours but no change in nondurables. In the durable goods sector, strong gains in primary metals, lumber, and stone, clay, and glass, aided by a small increase in furniture, more than offset declines in fabricated metals, machinery, and transportation equipment. Strength in nondurables was centered in tobacco, chemicals, and ap-

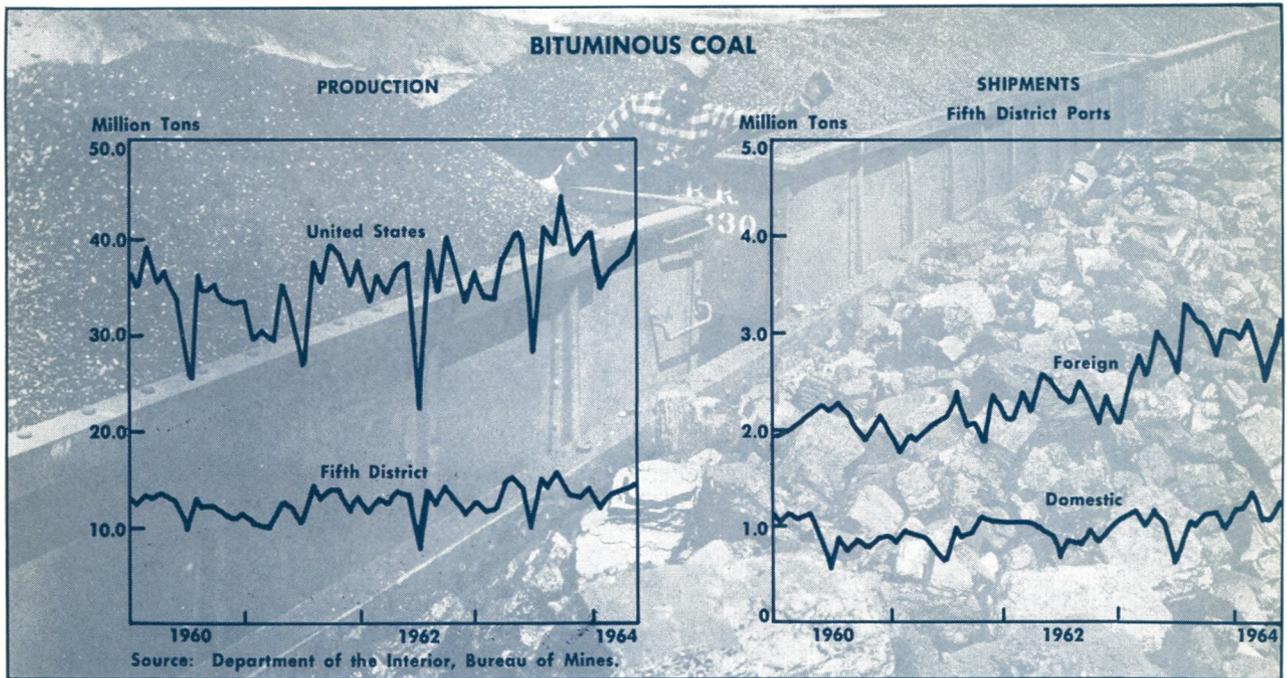
parel, but declines in foods and paper products counterbalanced these gains. Man-hours in textiles and printing remained at about the June level.

Prosperity in Textiles In the textile industry the current picture is particularly bright. Order backlogs are large, and new business has maintained good average volume. Prices are firm, even rising a little now and then on individual items, though not enough perhaps to have a noticeable effect on the recent slightly downward trend of textile prices generally.

The present improvement has been in progress since the elimination of two-price cotton. Before the cotton price policy was changed, unfilled orders for broad woven cotton goods had been declining and in April were at a level equivalent to only 9.1 weeks of production. Backlogs changed direction in May, and all evidence indicates that they have since continued to rise. Recent trade reports, for instance, show a substantial volume of orders placed for delivery later this year and in early 1965 at prices equal to or just slightly below those recently charged for immediate delivery from generally tight supplies.

Firm prices and rising volume point to a continuing uptrend in textile mill dollar sales in both the District and the nation. In the first half of this year, national sales reached \$8.7 billion, 7% above the comparable figure for 1963. More significantly, profits earned over the next year or so are also likely to be higher. How much higher is hard to tell because a number of mills have recently announced pay hikes averaging around 5%, and these may well spread through the industry as did similar increases last fall. It seems unlikely, however, that these or other higher costs will offset the effects of the equalization payments.

Textile industry profits in 1963 totaled about \$350 million after taxes even though domestic mills paid for cotton, over and above its market value at world prices, an amount roughly equal to after-tax profits. Department of Agriculture experts estimate that domestic consumption of cotton in the current crop year will reach 9.6 million bales, a volume on which price equalization payments would probably exceed \$300 million. The impact of these payments on



prices and profits will be determined by supply and demand conditions in many markets, but the strong current demand for cotton textiles suggests that some share will lodge in mill profits in the months ahead.

Bituminous Coal Conditions in the District's bituminous coal industry have been improving gradually for the past several years. Despite stiff competition from other fuels, coal demand has continued to gain strength at a fairly steady rate. Developments overseas, stemming mainly from economic growth and the rising cost of coal production, have increased the flow of United States coal to foreign markets. Domestically, sales to electric utilities and other traditional users have continued to increase, and extensive research has improved coal's practical potential as a future source of liquid and gaseous fuels and of useful organic raw materials.

The charts above picture the industry's more important developments during recent years. As shown in the first chart, output turned a corner in 1961 and followed a mildly upward trend through 1962 and 1963, although the declines of late 1963 seemed a little greater than seasonal. Production then continued to rise during the first half of the current year and exceeded last year's output on a cumulative basis by 2.8% in the District and by 2.7% nationally.

The second chart, showing coal shipments through District ports to both foreign and domestic destinations, indicates that the volume of exports also moved into a firm uptrend in 1961. The seasonal pattern calls for heavier shipments toward the end of the year,

and foreign loadings declined as usual in the first half of this year as compared to the second half of last year. For the first six months, however, District coal exports are up 11% this year over last.

Domestic users accounted for less than one third of total shipments in 1960. Although the volume of coal passing through District ports to domestic destinations has gradually increased, it now represents only about one fourth of total District port loadings. About 8% more coal has been shipped through District ports for domestic use so far this year than was shipped in the comparable period of 1963.

Although District coal production reached 13.4 million tons per month in 1963, up 12% from 1961, 1963 mining employment averaged only 69,200, down 6% since 1961. Thus, the industry's continuing efforts to compete with other fuels involve more extensive use of labor-saving equipment and have resulted in declining prices for most types of coal. Price reductions during the past year have ranged from 4% on domestic stoker coal to around 2% on larger domestic sizes and 1% or less on screenings for industrial use. Prices for high grade metallurgical coal remained unchanged, but those for low and medium volatility grades decreased 1% or more.

PHOTO CREDITS

6. & 7. West Virginia University; Morris Harvey College; West Virginia Wesleyan College; Shepherd College; Concord College 12. Bituminous Coal Institute.