MONTHLY REVIEW

The cost of transportation, long a hindrance to coal's competitive position, is one of several areas of intensive research.

FEDERAL RESERVE BANK OF RICHMOND

MAY 1962

AN INDUSTRY SURVEY

There are so many facets to coal that any brief treatment of the subject is bound to be inadequate. Its history began in the dim past when primitive men discovered its flammability, but there was little reason to dig for coal while wood was plentiful. Around the year 1710 someone made the discovery that started coal on its way to importance. When baked without air it yields a hard, porous carbon fuel called coke, and coke worked better than the traditional charcoal in the process of smelting ore. In the 1760's experimentation with simple steam engines used to pump water out of English coal mines led to improvements enabling steam power to operate machines of all kinds. Thus coal became the source of energy that built and operated modern, large-scale transportation and industry.

Later, chemists began to probe the rich organic content of coal. So far they have found about 350 basic derivatives, and the number of useful substances formed by selecting and combining these is said to exceed 200,000. Coal products include paving and building materials, fertilizers, insecticides, dyes, refrigerants, preservatives, artificial flavorings and other synthetic food substances, antiseptics, medicines, drugs, and synthetic rubber and many other plastics, some of which are suitable materials for textile fibers and filaments.

SCIENCE AND ECONOMICS Despite coal's versatility, economic difficulties developed, largely occasioned by progress in other fields. Petroleum and natural gas, which could be extracted, transported, and utilized more cheaply and conveniently, cut into some of coal's biggest markets. Although much progress was made in extending coal's usefulness elsewhere, the thousands of tons no longer needed to run railroads and heat homes could not readily be absorbed in other uses. Most coal chemicals, for instance, must still be regarded as by-products of coke. Without a growing demand for coke to feed blast furnaces, or until new methods are developed, few of these useful substances can be produced economically in greater volume.

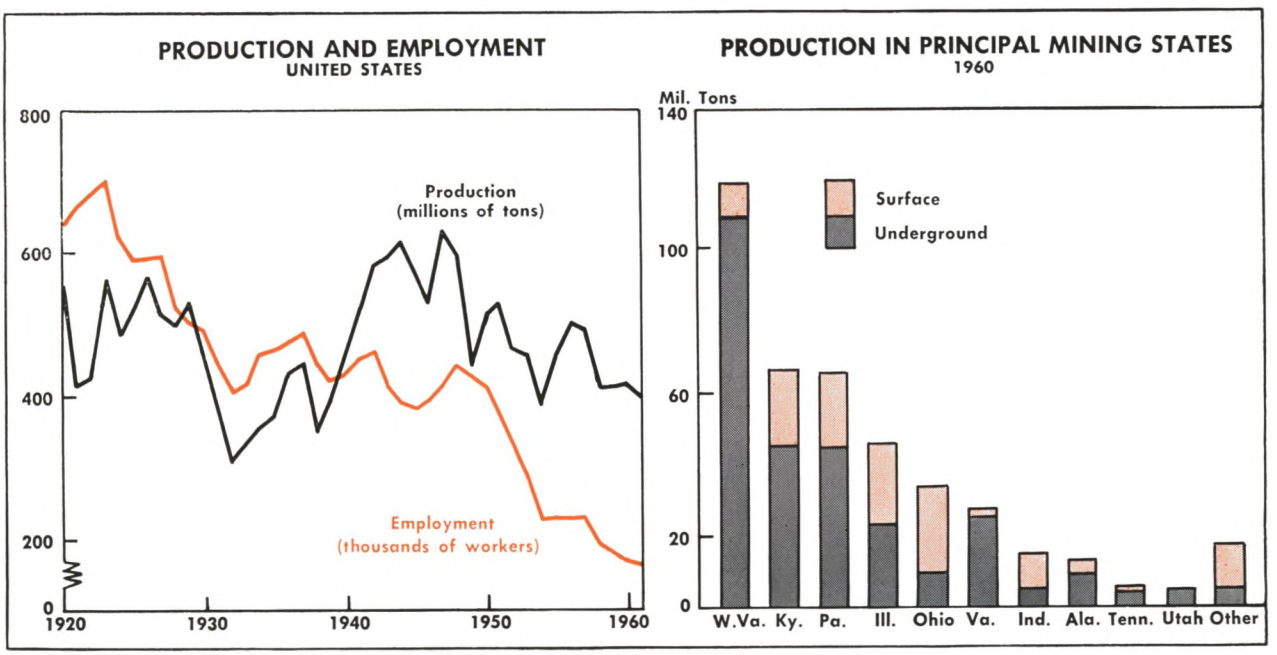
Coal industry research, therefore, continues to concentrate on projects that seem most likely to have a quick and favorable impact on volume. Cost reductions obviously fall in this category. Machines like those pictured in this *Review* were developed for this purpose and are constantly being improved. Coal processing—sorting, cleaning, crushing and sizing, or powdering to meet the needs of particular users—has reached an advanced stage but is still studied for the purpose of improving both service and efficiency.

Transportation costs vary considerably but have recently averaged about one-fifth of the delivered price of coal. Progress here could mean savings for consumers and increased volume for producers. Present efforts center on three main ideas. First, coal pipelines similar to one already operating successfully in Ohio may come into more general use. Such a pipeline has been franchised to move powdered coal suspended in water from the Northern Appalachian coal region to the huge market areas of the Northeast. Many problems remain to be solved, however, before a right of way can be established and actual work begun. Second, the railroads' answer to the pipeline may be an "integral train" of specially designed coal cars moving nonstop directly from the mine to the customer. The third idea has been called "coal by wire." It involves construction of steam-powered generators at mine sites and transmission

of power at much higher voltages and over longer distances than have ever been attempted before. Each of these possible answers to the challenge of transporting coal is still experimental to some degree. Which one or what combination of the three may finally meet the test of economic survival remains to be seen.

UTILIZATION STUDIED The efficiency with which coal can be converted to useful energy is a matter of key importance and is constantly under examination. Recent experiments indicate, for instance, that combustion equipment can be built to handle powdered coal in water right from a pipeline without incurring the added cost of separate settling and drying. Other aspects of coal's efficient conversion to heat and power are also being subjected to extensive research and may result in totally new equipment for handling solid coal. The more revolutionary solution, however, may lie in converting the coal itself to gaseous or liquid fuels. A specific project of this type involves a gas turbine to generate electricity using fuels derived from coal. Other studies seek wider use of coal products in fertilizers, soil conditioners, and paving materials, and the recovery of aluminum and other metals and chemicals from coal mine wastes. The steel industry is gradually learning to produce more than the traditional ton of steel for each ton of coal used, but so far, in terms of coal consumed, increased steel production has more than offset greater efficiency. The aluminum industry, which uses the energy equivalent of 6.8 pounds of coal to produce a pound of metal, has found coal-generated electricity competitive with water-generated power when proximity to markets is also considered. Researchers expect to find ways of helping coal serve these important users more efficiently.

ECONOMIC TRENDS Coal's recent economic history is reflected in the accompanying charts. The graph of production and employment begins with the year 1920, when output was still close to the 600-million-ton levels of World War I. At that time coal employment was rising toward its all-time peak, just over 700,000, reached in 1923. World War I climaxed the long upward trend in bituminous coal production that paralleled the growth of modern industry. After 1920, production gradually declined. The depression years of the Thirties hastened this process, but then the demands of World War II and subsequent temporary power shortages raised coal output to 600 million tons again. After 1947 the downtrend resumed, and output now is about the same as it was in the late 1930's. In contrast to these somewhat intermittent declines in production, employment dropped sharply and almost continuously. In less than 40 years the number of employees fell 78%, from 700,000 to 150,000, from 2.5% to a third of 1% of total nonfarm workers. This chart's production and employment scales are matched in such a way that points where the lines intersect represent periods when productivity was close to an annual rate of 1,000 tons per employee. Productivity was below this level in the early years but has been well above it most of the time since 1940, and now approximates 2,700 tons per employee.

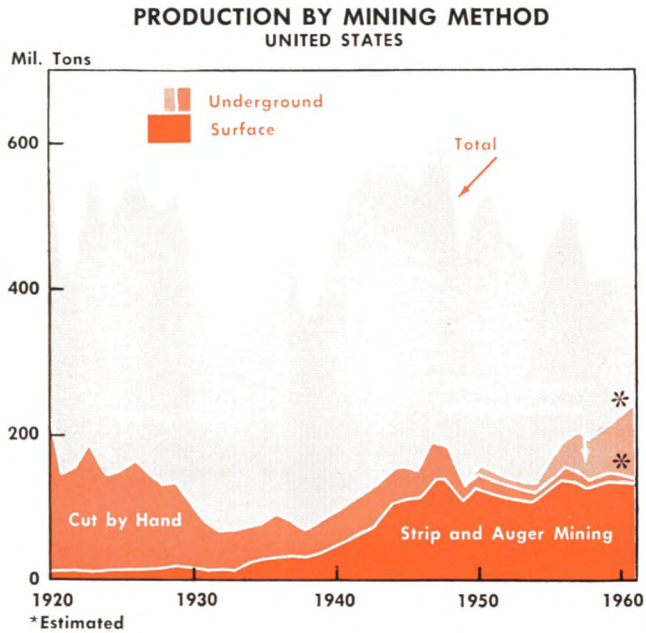


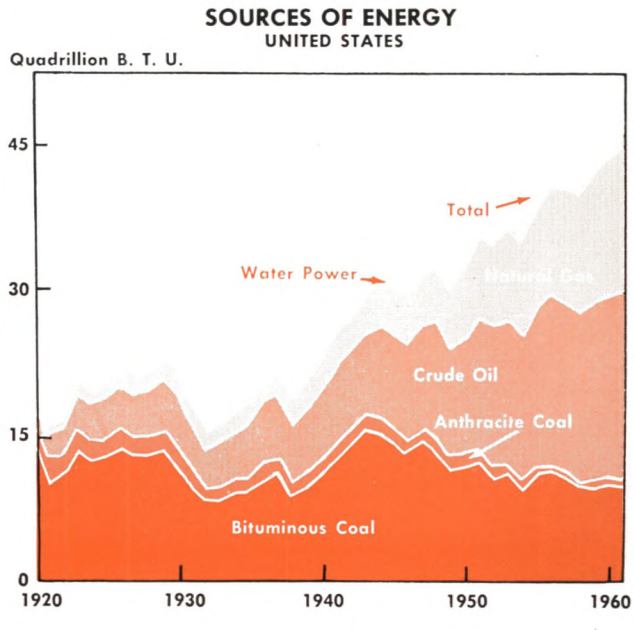
Coal's regional importance is roughly indicated by the production statistics for principal coal states charted on page 3. In West Virginia, coal currently accounts for about 11% of total nonagricultural employment, a substantial change from the 1930's when coal mining provided more than one-fourth of all the jobs in the Mountain State. Employment losses have been less critical in other coal states. Kentucky's coal miners now represent a little over 4% of total employment, Pennsylvania's less than 1%. Virginia ranks sixth as a coal producer but third in order of the relative importance of coal employment.

PROBLEMS PINPOINTED The charts at the bottom of this page summarize the trends that have kept coal mining in economic turmoil. The shaded bands on the first chart show changes in mining methods and reflect the trend toward greater use of expensive but more efficient equipment. The growing use of continuous mining machines is steadily increasing the over-all productivity of underground operations. In surface mines, the new method known as auger mining, although still too small in volume to appear separately on the chart, has proven capable of more speed and efficiency than any other mining method. The mining machines have helped coal to meet its competition but unemployment was the by-product.

Despite this greater productive efficiency, coal's status as a source of energy has continued to decline. The second of these charts shows why. Although the scale is calibrated in quadrillions of British Thermal Units, a measure of energy that has little meaning for the layman, the relationships shown are easy enough to interpret. In 1920 bituminous coal provided nearly two-thirds of all the energy consumed in the United States. Since then energy use has more than doubled and has been rising at a rate that might double it again by the year 2000. Bituminous coal consumption, however, has dropped 25% since the 1920's. It now accounts for about one-fifth of total energy consumed, and until recently was declining from its wartime peak at a rate that, if maintained, would have completely eliminated coal as a source of energy by the year 2000. Research projects such as those outlined earlier make such an eventuality seem most unlikely. Furthermore, despite the general declines apparent in the graph of consumption patterns, three markets have remained strong. First, electric utilities have needed more and more coal to satisfy America's fast growing appetite for electricity. Second, although steelmakers use coke more and more efficiently, sometimes by augmenting it with natural gas, their total demand has remained fairly stable. Third, other manufacturers have been consuming fairly constant amounts of coal and constitute a market area in which researchers particularly expect to stimulate important new growth. The greater stability apparent in most coal data since 1958 is already a reflection of these new trends.

Coal's chief competitors, petroleum and natural gas, account for nearly three-quarters of all energy consumed currently in the United States. Several factors explain this. The primary one is price per

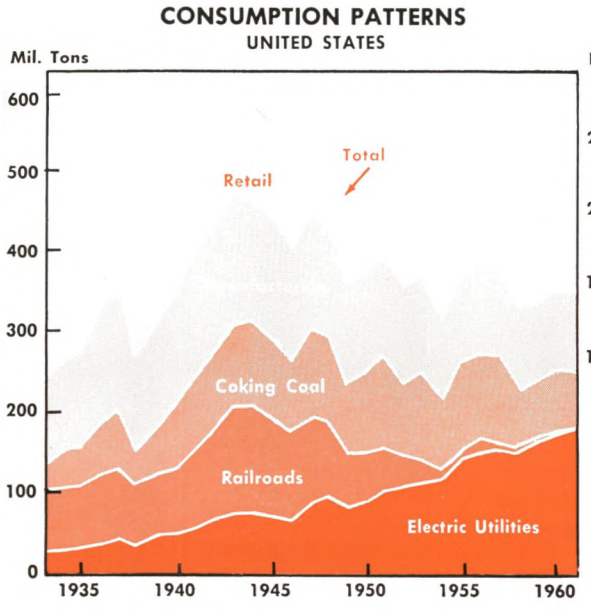


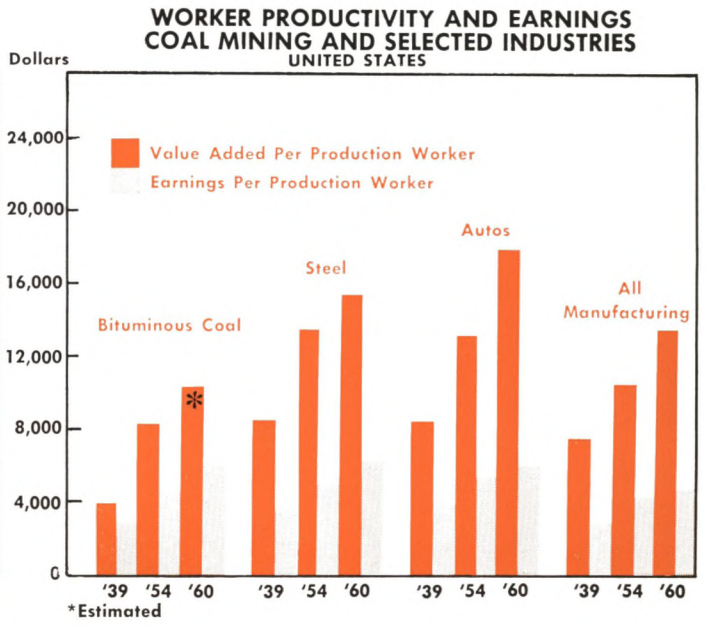


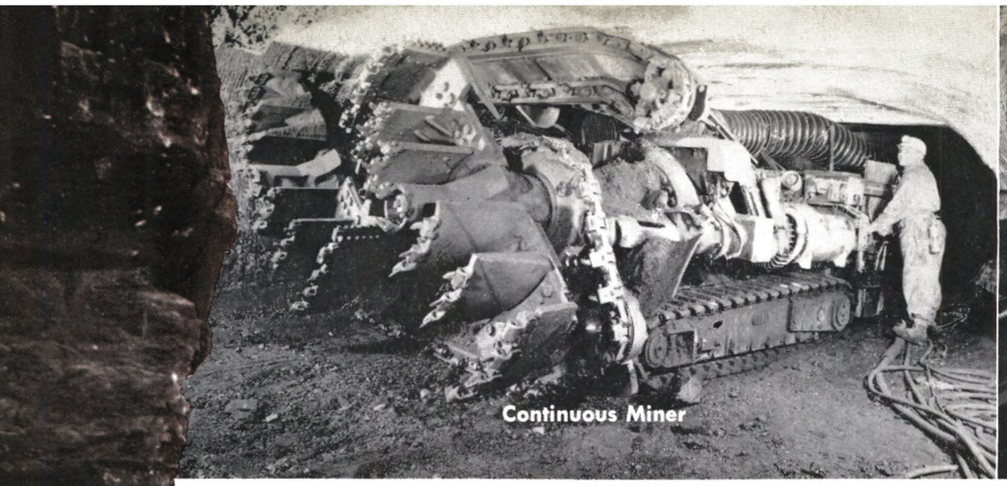
unit of power delivered to the point of utilization. Natural gas has low extraction and transportation costs. "Residual oil," the petroleum product that competes most directly with coal in many uses, is, as the name implies, a residue of the refining process and is usually disposed of at whatever price supply and demand may set. This is tough competition for coal. Present quotas on residual oil imports help a good deal, and coal men hope to compete more effectively in both price and service.

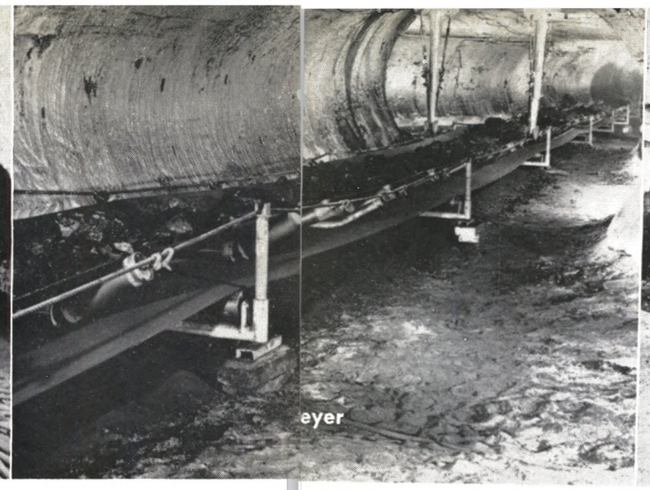
WAGES AND PROFITS Coal mining has been a well-paid line of work. Average hourly earnings have been consistently higher than in steel mills and automobile plants and substantially higher than for manufacturing industries generally. Annual earnings, however, provide a somewhat different picture because of differences in hours worked. The final chart shows that until recently the average miner earned less per year than did steel and automobile workers. Miners' annual earnings, however, have consistently exceeded those of manufacturing workers generally. The chart also compares workers' earnings with value added, which is, roughly, the difference between receipts from sales and expenditures for materials, supplies, and power. Value added per production worker in automobiles, steel, and all manufacturing exceeded the approximately comparable figures for bituminous coal. Therefore, the favorable comparison between miners' earnings and those of workers in other industries means that the fraction of value added going into workers' pockets was substantially larger in coal mining than in any of the other groups.

In recent decades, except during wartime, coal companies typically have been less profitable than other industrial firms. For instance, in 1934 less than one-third of the corporations engaged in coal mining reported net earnings. Other mining companies fared about the same; construction firms, considerably worse; manufacturing, a little better. In 1939 the fraction of coal corporations reporting net income was smaller still, but the others had improved, and by considerable margins in construction and manufacturing. In 1947, however, spurred by postwar fuel shortages, 75% of incorporated coal firms showed net profits as compared with 71% of similarly chartered construction companies, 66% of franchised manufacturing plants, and 60% of the mining group as a whole. By 1959 the proportion of profitable corporations had declined only slightly in manufacturing and moderately in construction but had dropped to 46% for coal mining firms. The latest data on profits are for the fiscal year ended June 30, 1960, a year complicated by both a steel strike and a recession. Coal mine earnings after taxes were 0.4% of sales compared to 2% in total mining, 1% in construction, and 4% in manufacturing. Conditions suggest that many uncertainties still exist in both the production and marketing phases of the coal business. It may be several years before the new coal trends settle into new and stable patterns of employment, production, and earnings.






Continuous Miner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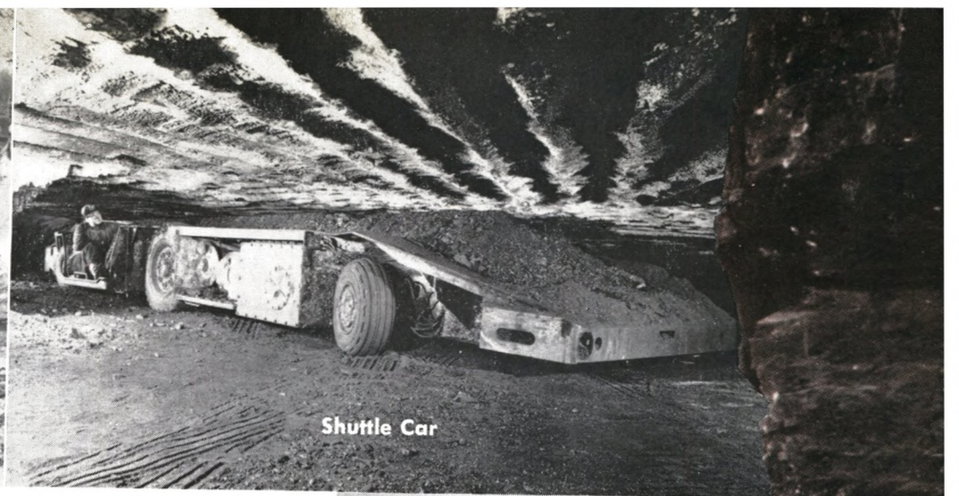
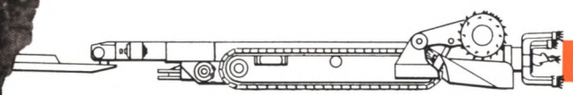

Shuttle Car

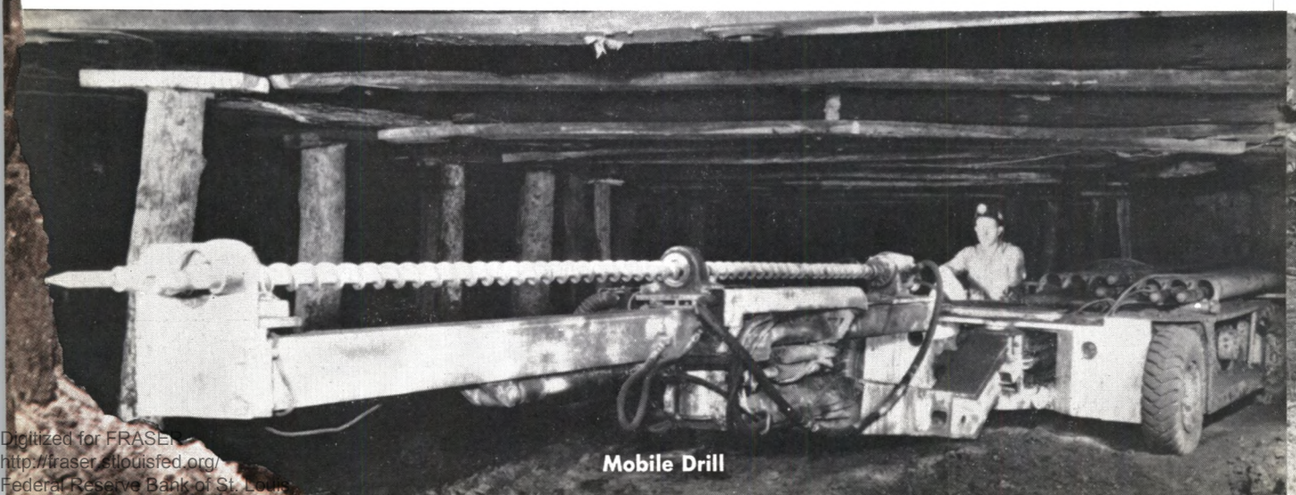


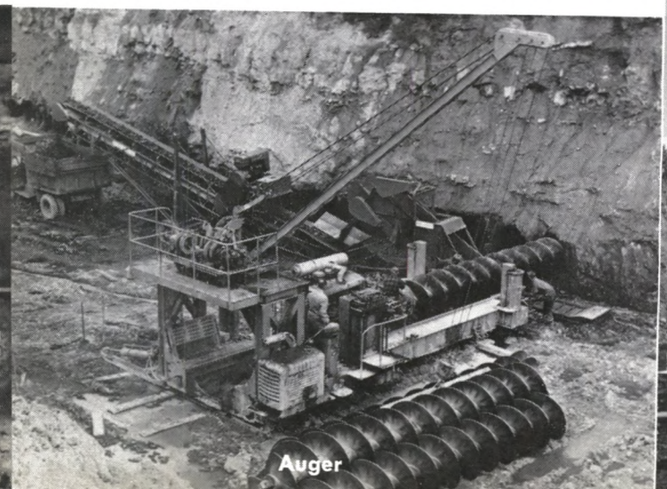
MECHANIZED MINING

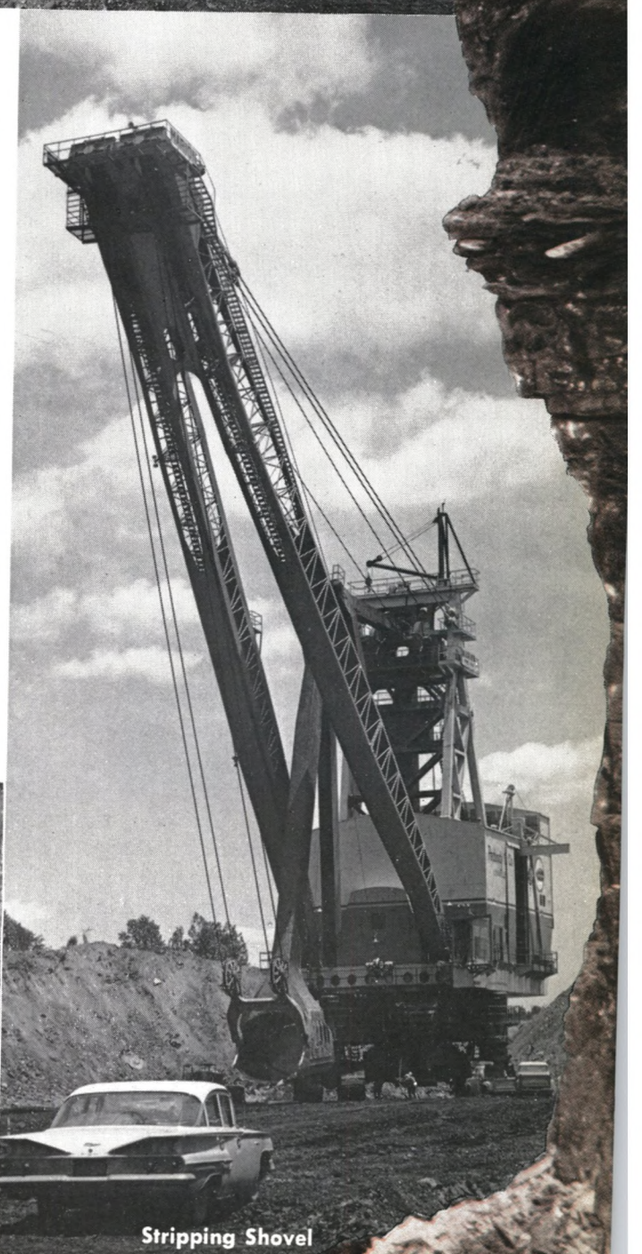
The implications of modern industry's dramatic rise in productivity challenge the imagination. Coal has been an aid to progress in two ways, supplying power to step up production in other industries and developing highly specialized machinery to do its own job more efficiently. The machines pictured here show how much mining really has changed since the days of the pick and shovel. As long ago as 1920, 60% of all coal mined was cut by machine but still had to be loaded by hand, and output per worker was then four tons a day in underground mining and seven tons a day at surface mines. Now the average is ten tons a day underground, 23 tons in strip mines, and 29 tons using the new auger technique.

In one form of underground mining, mobile drilling machines bore into the seam to a depth of several feet and use blasts of compressed air to shatter the coal for mechanical loading. The most advanced underground techniques, however, are embodied in continuous mining machines. One type is pictured here. This "mechanical mole" digs eight tons of coal a min be carried away by an extendible conveyer belt. Whal must be moved under low ceilings, electric shuttle car take several tons per trip. The one shown is nine fee, 25 feet long, six-wheeled, and hinged in the middlese it over bumps and up or down ramps.

Where of coal are near the surface, huge stripping shovels, suthe one pictured on the right, rip away the covering and rock with scoops as big as small houses, so that smovels can move in to load the coal into trucks. Auger mins been developed in the past decade to take over whep mining leaves off. The boring machine moves to ce of a seam exposed by strip mining but thence too buried, and cuts into it with an auger matching the th of the vein—up to 52 inches in diameter. The streaal from the auger is carried by conveyer and loaded inks. The auger can usually be extended section by sec a length of about 200 feet, but several times that dista possible under optimum conditions.


Mobile Drill


Auger


Stripping Shovel

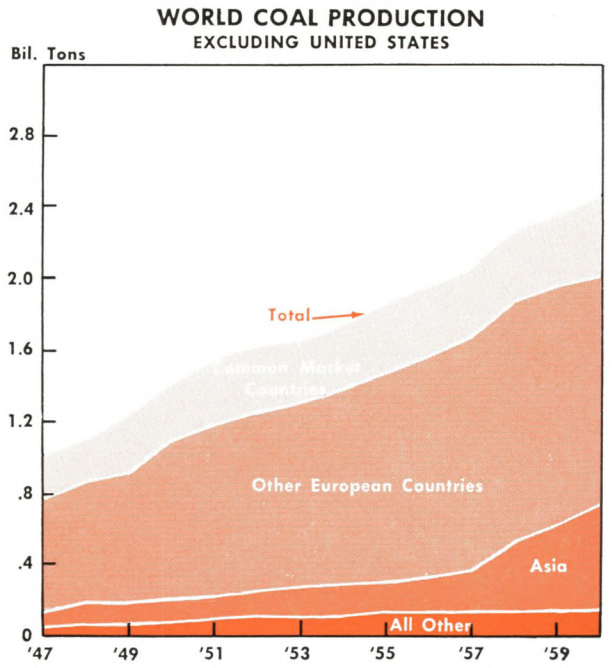
EXPORT MARKETS FOR COAL

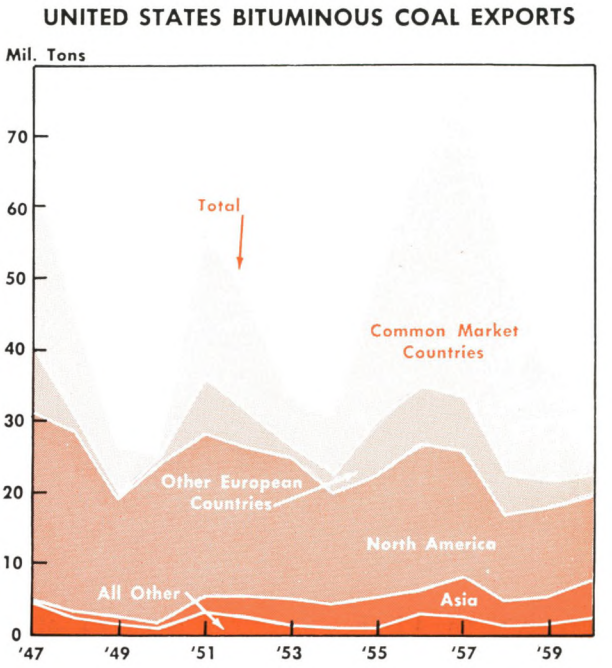
The figures shown on the outline map above represent one estimate of the continental distribution of world coal reserves. These are interesting statistics even though they are the sort that must be interpreted with reservations. These percentages are based on estimates that total something over 5 trillion tons, reflect available geological surveys, and probably indicate well enough the distribution of usable supplies of coal.

MINING MORE DIFFICULT OVERSEAS The United States enjoys important natural advantages over and above a substantial share of the world's coal. American deposits are largely of high quality lying relatively near the surface in comparatively thick layers that seldom deviate more than a few degrees from horizontal. In contrast, most of the remaining English coal exists well beneath the surface in seams that are frequently narrow and sharply tilted. Workable deposits on the European continent are generally so deep in the earth that operating costs are high, and expansion costs are almost prohibitive. Coal is plentiful in many parts of the Asiatic continent, but developmental capital is scarce, and, in any case, Communist ownership precludes Free World access to these deposits in the foreseeable future. Much of Japan's coal is of mediocre quality and occurs in twisted and segmented veins caused by volcanic activity. South America, a complex of nations eager to industrialize, has relatively little coal, and the bulk of this is located in Columbia.

The factors limiting coal production in various other parts of the world are reflected in the first of the accompanying charts. The bands on the chart represent a broad geographical distribution of world output outside the United States. Mining activity in the Common Market countries has changed little since 1952. For the rest of Europe, the increases that continued through 1957 occurred for the most part behind the Iron Curtain. The principal gains in world coal production since 1957 have occurred in Asia. It was reported that China doubled output between 1957 and 1958 and added a substantial increment annually thereafter. India has mined more coal each year, although on a considerably smaller scale than that reported for China. Japan's recent annual output has ranged between 52 million and 57 million tons. It is clear that many of the principal nations with which the United States regularly trades have plenty of coal, but little of it is well suited to more rapid exploitation.

EXPORTS IRREGULAR BUT RISING The wide fluctuations in United States coal exports since World War II tend to obscure the fact that the trend has been upward. An acute coal shortage prevailed in Europe during the first half of the period charted, and exports to Europe were largely determined by the amount of Federal aid available to finance them. As a result of the oil scare that culminated during the 1956 closing of the Suez Canal, European nations stockpiled coal, importing large amounts in 1955, 1956, and 1957. By 1958 stocks were unduly large, concern over the possibility of an oil shortage had





subsided, West Germany actually embargoed coal imports, and this nation's exports nose-dived, stabilizing again only after 1959.

Recent exports to other countries primarily reflect economic rather than political events. Exports to Canada, the national coal industry's largest and steadiest external customer, have trended downward as that nation has increased its domestic output of petroleum and natural gas. Elsewhere, native sources of fuel have not been adequate to meet the needs of the growing steel and electric power industries—particularly in Japan, Brazil, Argentina, and Chile. The resulting exports to these areas have provided a bright side to the recent picture of overseas markets.

POTENTIAL GROWTH In most parts of the world there are important factors limiting the expansion of coal output. The United States is the conspicuous exception. Coal's competitive situation in world markets which can also be served by petroleum or natural gas is frequently a question of price with only a slight advantage needed to tip the balance one way or the other. Water power potential is limited in many areas by inadequate rainfall and, where feasible, requires large capital outlays. Atomic reaction and other revolutionary sources of power are still largely experimental. Superficially, at least, these facts seem to point to sizable future markets overseas for United States coal if present trends toward higher productivity and lower prices continue.

Some specific trends abroad can be cited to support this view. Japan's coal production has been fairly stable in recent years despite phenomenal growth in her general economy. In the five years between 1956 and 1961, for instance, pig iron production nearly tripled and thermal-generated electric power considerably more than tripled. During the same interval, Japan was able to increase water-generated power by only 15%. In Europe, West Germany increased steel production 40% between 1956 and 1961; France, 30%; Italy, 50%; Sweden, 50%; Belgium, a little over 10%; and Great Britain, a little less. For the same five-year period, increases in production of electric power were about 40% in West Germany, France, and Italy; 50% in Great Britain and Sweden; and 30% in Belgium. In South America, steel production rose 60% in Argentina and 20% in Chile, while increases in electric power production in the principal countries ranged from 20% in Brazil and Chile to 50% in coal-rich Columbia and over 100% in oil-rich Venezuela.

The statistics quoted above are not exact. Their purpose is to create a general impression of growth rates, in various parts of the world, in the two industries that consumed the most coal. In contrast, coal output actually declined between 1956 and 1961 in Western Europe, and recorded only moderate gains in South America and Japan. There is, of course, no way of knowing how economic forces may shift. But the present trends—lower costs in the United States, rising demands and limitations on output overseas—seem to point to a period of rising export opportunities for the United States.

THE FIFTH DISTRICT

It would be presumptuous at least to attribute to business analysts a measure of courage greater than Sir Winston Churchill's. And yet, speaking of eventualities more arbitrary but approximately as complex as the behavior of the American economic system, Sir Winston once said, "I cannot forecast. . . . It is a riddle wrapped in a mystery inside an enigma." Forecasting is clearly something that economists *can* do, with varying degrees of success, despite the necessity of dealing with economic enigmas surrounding corporate mysteries enclosing individual riddles. If widely held expectations fail to materialize, however, as happened two years ago when the new decade's initiation took the unexpected form of recession, then the forecaster turns his attention to the past, hoping to improve the tools of his trade by finding out what went wrong. Last year most analysts were again optimistic and, as expected, the American economy in general and the Fifth District in particular recovered rapidly following the February 1961 low. Then toward the end of the summer, although business was still at a relatively high level, progress became slow and halting. The causes of such behavior and the reasons for its persistence are not readily apparent.

WEATHER WATCHERS The easiest variable to accuse when business deviates from expectations is the weather, and this has certainly been the case this year. Winter storms interfered with outside work and respiratory ailments also took their toll. Occasionally, bad weather coincided with a survey date, making the statistics unusually gloomy and difficult to interpret. The apparent nonchalance of consumers was also attributed to a late Easter. As good weather came and Easter drew near, seasonally adjusted department store sales estimated for April still showed no improvement over March.

Although weather has been given a good measure of blame, its most tangible effects have been in the opposite direction. Labor market reports from coastal regions noted sizable increases in hirings of construction workers and other laborers to clear away debris and repair the damage that resulted from the unusually severe storm that struck the area early in March. Available evidence indicates that areas where weather has had prolonged effects are very limited, and that periods when it had widespread effects were very short.

STRENGTH WITHOUT VIGOR Whatever the reasons may be, the recent pace of business improvement seems less than satisfactory for a rising phase of the business cycle in an economy serving a growing population. The difficulties involved in setting a standard for business performance are complex but

Clearing and rebuilding storm-battered coastal areas gave additional local lift to an otherwise routine spring employment upturn.

can be illustrated quite simply. Between 1950 and 1960, Fifth District population grew at an average rate of 1.6% per year, a little slower than the 1.7% pace attained by the country as a whole. Personal income, reflecting rising living standards, increased at considerably faster rates—5.7% per year in the District and 5.9% per year nationally. During the same decade, consumer prices rose 23% and the purchasing power of the consumer's dollar decreased by nearly 19% in the process. When personal income figures are adjusted accordingly to reflect real growth, the annual rates become 3.5% for the District and 3.7% for the nation. The differences between these rates and population growth—1.9% for the District and 2.0% for the nation—roughly measure the rise in general well-being.

For comparison with the behavior of current indicators, the real personal income in the District during the 1950's can be changed to a monthly rate. This comes to 0.29% and the gain that would result from nine months of progress at this rate would be about 2.6%. There is, of course, no basis for deciding that the rates of economic growth attained in the decade just past are the "right" rates. Everyone would surely like to see them improved, however, and past performance supplies a basis for deciding if and by how much they are improving.

DISTRICT PROGRESS MEASURED How much prosperity has the District recently experienced? The question cannot be answered meaningfully simply by quoting statistics and making the usual comparisons with figures of a month and a year earlier. Computations based on the past decade produced average growth rates of 0.13% per month for District population and 0.29% per month for District personal income adjusted for price changes. Nonfarm employment increased during the 1950's at a rate of 0.16% per month, according to available figures. Due to statistical revisions, however, the actual may differ slightly from the computed rate. Such revisions are a still greater problem with man-hour statistics and limit the period of computation to the years 1958 through 1961 when the monthly growth rate averaged 0.2%.

These growth rates operating over a period of nine months would produce increases of 1.2% in population, 1.4% in nonfarm employment, 1.8% in man-hours, and 2.6% in price-adjusted personal income. During the last six months of 1961 and the first three of 1962, however, seasonally adjusted nonfarm employment in the District increased by only 0.9%, but man-hours rose 2.0%, a better gain than would be expected on the basis of the previous three years. How "good" these gains are must remain a matter of judgment. Considering the fact that the underlying trend and the business cycle were both rising, the 0.9% increase in employment certainly looks weak. Although the 2% gain in man-hours compares favorably with the average rate of recent growth, a stronger rise would be expected because of the relatively wide fluctuations which business cycles induce in manufacturing.

PERSONAL INCOME GAINS Fifth District personal income statistics do show substantial gains. Preliminary data released last month by the Department of Commerce and summarized in the accompanying table indicate that District personal income gained 4.6% and the national figure rose 3.6% between 1960 and 1961. In both absolute and per capita terms, the District made a better showing than did the rest of the country. Paradoxically, however, the gains for both the District and the country were smaller in 1961, a recovery year, than in recession-ridden 1960 and fell considerably short of the 5.7% and 5.9% average growth rates that characterized personal income in the District and the country, respectively, during the 1950's. Last year's 4.6% increase raised District personal income from $30.7 billion to $32.1 billion. The previous year's gains were just under 5% for the District and slightly more than that figure for the nation as a whole.

All District states registered gains in both total and per capita income in 1961 though these were far from uniform. Maryland's 6% increase in total income was the District's largest, but Virginia and North Carolina were close behind with 5% advances. South Carolina's 4% gain matched the national average, while the District of Columbia and West Vir-

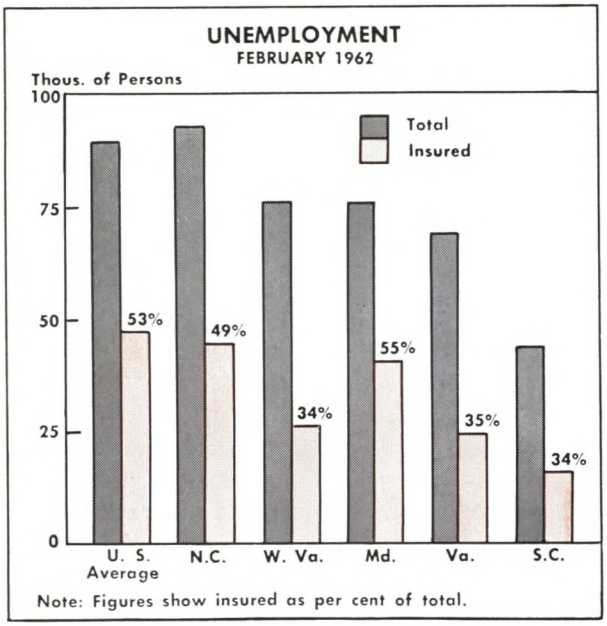
FIFTH DISTRICT PERSONAL INCOME

State or Area	Total		Per Capita	
	1961	Change from 1960	1961	Change from 1960
	$ Million	Per Cent	Dollars	Per Cent
Maryland	7,901	+5.9	2,478	+3.5
District of Columbia	2,328	+1.6	3,059	+1.7
Virginia	7,755	+5.5	1,911	+3.4
West Virginia	3,125	+0.5	1,689	+0.9
North Carolina	7,566	+5.3	1,640	+4.2
South Carolina	3,468	+3.8	1,441	+3.1
Fifth District*	32,143	+4.6	1,904**	+3.3
United States	414,362	+3.6	2,265	+1.9

* Includes five West Virginia counties not in the District.

** Based on population estimates as of July 1, 1961.

Source: U. S. Department of Commerce, SURVEY OF CURRENT BUSINESS, April 1962.



ginia recorded smaller increases, respectively, 2% and 1%. In 1960 the two Carolinas led the District with advances in total personal income of 6%.

On a per capita basis, the District's 1961 income gain compares even more favorably with the average increase for the nation. Income per District resident climbed from $1,844 in 1960 to $1,904 last year, an increase of 3.3% as compared with the national gain of 1.9%. Between 1959 and 1960, per capita income rose about 4% in the District and about 3% nationally. In every year since 1957 personal income has shown a larger percentage increase in the District than in the nation as a whole. Despite this, per capita District income in 1961 was still only 84% of the national average.

Figures for individual District states are, of course, affected by variations in state population as well as changes in total income. For this reason per capita increases by states do not necessarily parallel increases in total income. On a per capita basis, incomes advanced most in 1961 in Maryland and North Carolina, each of which scored a 4% gain. At the other extreme, West Virginia showed only a 1% increase. Virginia and South Carolina scored 3% gains, while the District of Columbia experienced a 2% rise.

Although relatively small, the income rise in the District of Columbia was nonetheless sufficient to place the nation's capital at the head of the per capita income list. In 1960 it was in second place, behind Delaware. At $3,059, 1961 per capita personal income in the District of Columbia was 35% above the $2,265 national average. Maryland was the only District state to better the national average, and ranked eleventh nationally in both 1960 and 1961. Other Fifth District states in 1961 continued well below the national per capita norm, although the preliminary figures indicate that all but South Carolina moved up in national ranking. Virginia, in a tie for thirty-sixth place in 1960, moved to thirty-fourth place on the basis of the preliminary 1961 data. West Virginia stepped from forty-first to fortieth, while North Carolina advanced from forty-fourth to forty-second. South Carolina remained in forty-eighth place on the list of 50 states.

While both the District's and the nation's workers received larger incomes in 1961, they also paid slightly higher prices for the things they bought. Consumer prices rose a little more than 1% over the year, and this reduced by a corresponding amount the gains in purchasing power that the higher income figures represent.

DISTRICT LABOR FORCE Monthly estimates of labor force, employment, and unemployment are now being published (with delays of a month or six weeks) by all five District states. In February, the latest month for which all reports are currently available, the District labor force, exclusive of the District of Columbia, totaled 5,748,000 or 8.2% of the nation's work force. The 5,390,000 who had jobs represented a slightly larger percentage of the corresponding national total. The unemployed in the District, however, numbered 357,000—7.9% of the national figure, and the rate of unemployment in the District was 6.2% compared with 6.5% for the nation.

The accompanying chart shows the February relationship of insured to total unemployment for each of the District states and the average of all states. The variations in these figures emphasize the need for care in drawing conclusions from the weekly insured unemployment statistics even though they constitute one of the most promptly available of all economic indicators. Differences among the states reflect legal differences with respect to insurance coverage, waiting periods, and duration of benefits. Furthermore, examination over the past few years of the national ratio of insured to total unemployment reveals much erratic variation in addition to the more regular business cycles and seasonal fluctuations.

PHOTO CREDITS

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