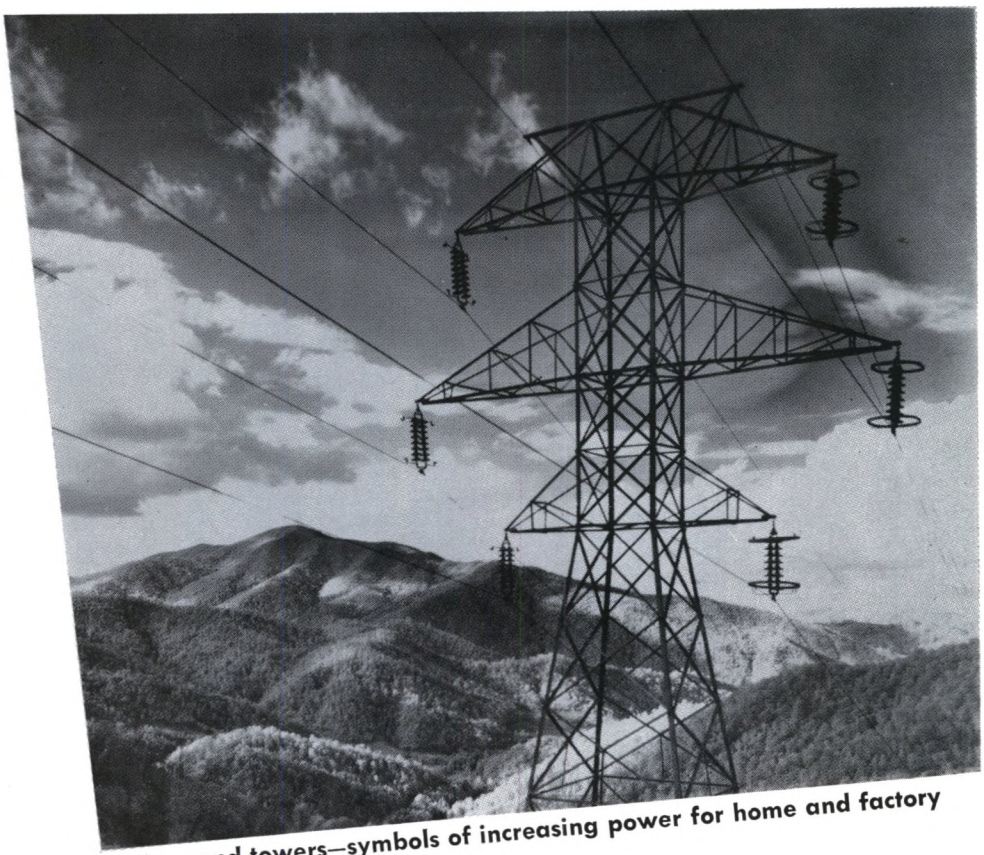
MONTHLY REVIEW



Lines and towers—symbols of increasing power for home and factory

FEDERAL RESERVE BANK OF RICHMOND NOVEMBER 1958

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Power for Progress

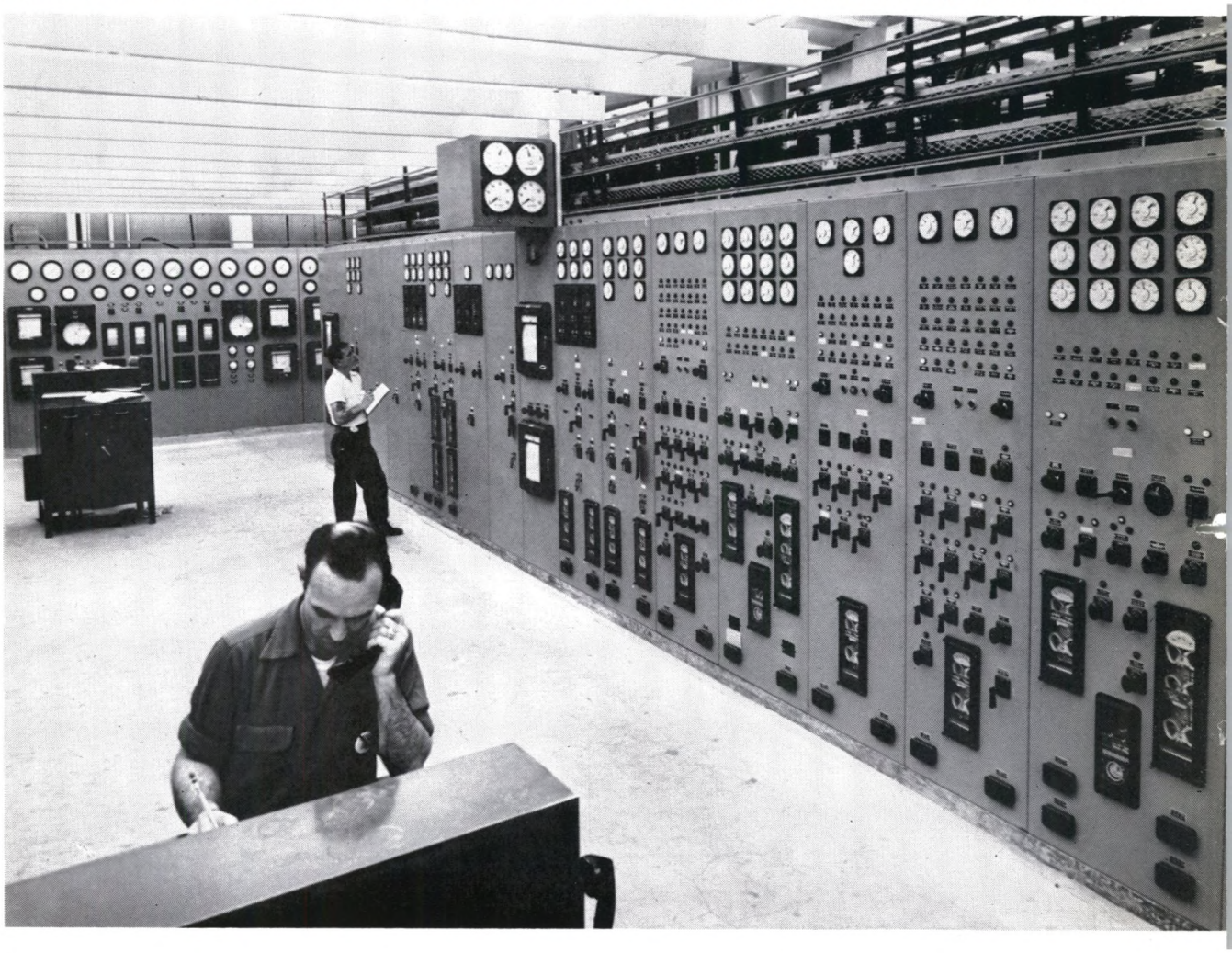
Man's rise from a primitive state has depended heavily upon his use of energy resources, and an important form of this use in recent years has been electric power. New and more widespread uses for electricity have brought about a doubling of output every ten years since 1920, and the future promises still further rapid growth. Homes and businesses alike look to electric power for heat, cooling, light, and power, and all are continually increasing their consumption as new ways appear to use more watts in the search for the easier and better way.

WATER VS STEAM Electricity presently comes from two principal sources: waterpower and thermal generation, the latter being mainly steam plants. Waterpower, captured by dams to spin large turbines, accounts for one-fifth of total generating capacity in the nation and one-fourth in the District.

As in other regions, there are wide variations among District states in this proportion. South Carolina, for example, depends on hydroelectric plants for more than half the state's total capacity. It is in North Carolina, however, that the District's largest hydro generating capacity is concentrated in 41 dam sites owned by Carolina Power and Light Company and Duke Power Company.

Water has steadily declined in importance as a source of power in the District. Just a decade ago hydro plants accounted for one-third of the District's total generating capacity. Expansion since then has come largely in steam plants, however, as coal-fired boilers promised better operating results than did many of the remaining hydro

Dispatchers control the flow of power from control panels such as this one at South Carolina Electric and Gas Company's Urquhart Station.



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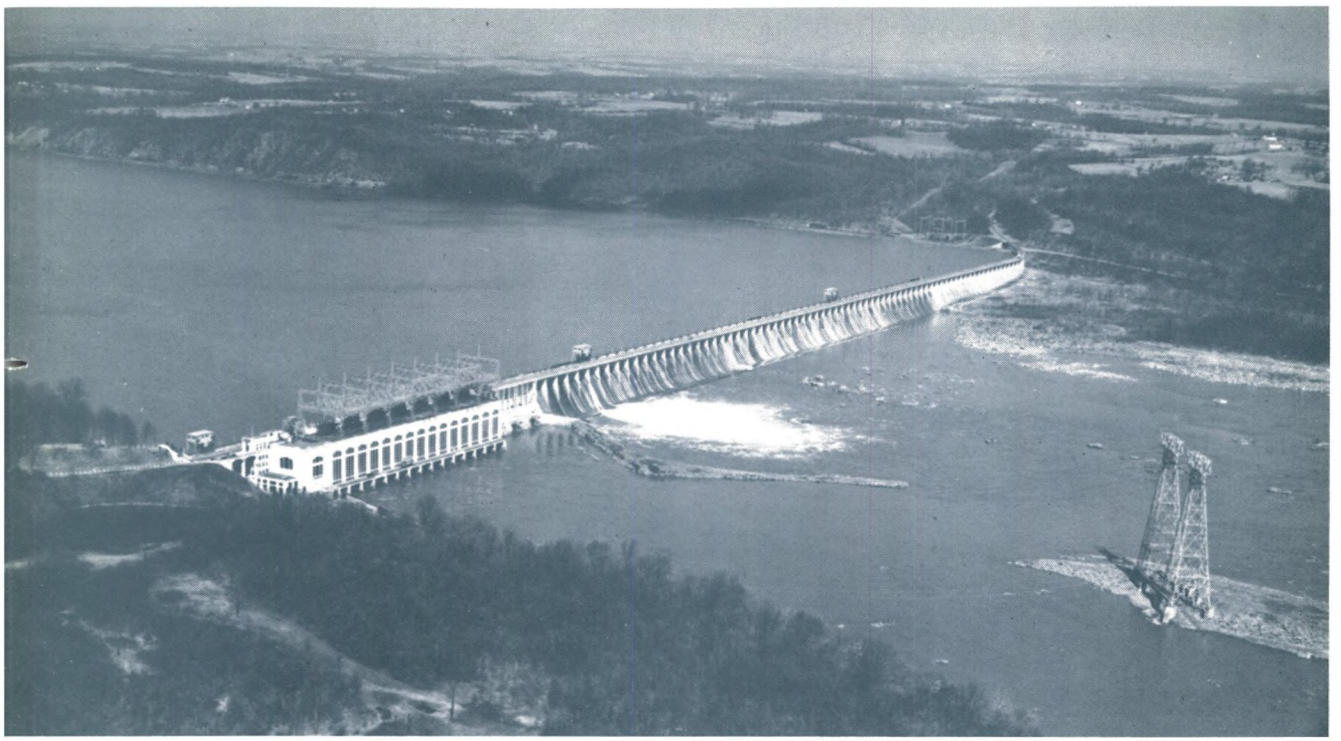

The Conowingo Project located on the Susquehanna River in Maryland is the District's largest private hydroelectric generating plant.

sites. This is likely to be the trend of the future also, as undeveloped suitable power sites become increasingly scarce.

BITUMINOUS COAL CUSTOMERS Thermal generating plants in this District are generally steam plants which use finely crushed bituminous coal as a source of heat. In modern plants this powdered coal is blown into large boilers where it burns almost instantaneously to produce high-pressure and high-temperature steam. Steam is fed into turbines which drive the generators that produce the electric power.

Steam plants of electric utilities in Fifth District states burned nearly 18 million tons of coal in 1956, and most of it was bituminous coal from District mines. In the country as a whole, electric power generation consumed 161 million tons last year, making public utilities the most important consumer group for the coal industry.

Plans are under way for further additions of steam generating capacity in the District and in the nation, pointing to further increases in coal consumption. Steady progress has been made in increasing the efficiency of coal-fired boilers for power plants, with the result that 0.93 pounds of coal would produce in 1957 as much electric power as did 1.19 pounds in 1950. This 21% cut in fuel requirements is an important consideration for an industry in which fuel cost bulks so great among operating expenses.

While bituminous coal is the principal fuel used in the District, accounting for about 93% of thermal output, natural gas is coming to be of increasing importance. In South Carolina gas-fired boilers account for three-fifths of total thermal generation. Fuel oil plays only a minor role in the face of the price competition of coal, and nuclear energy is still in the future as a commercial source of heat for electric power.

This pattern of fuel use differs from that of the country as a whole due to the extensive coal deposits in the District. Nationally coal is used for seven-tenths of thermal generation with gas producing more than one-fifth and fuel oil the remainder.

LOCAL INDUSTRY Electric power moves from generator to consumer over a network of high voltage lines. These provide interconnections between generating stations and between power systems so that power may be "wheeled" quickly and smoothly from one area to another to meet temporary or unexpected needs. In general, power generation and distribution is essentially a local industry in which individual companies operate over an area comparable to a state or less.

Power output of most individual generating sta-

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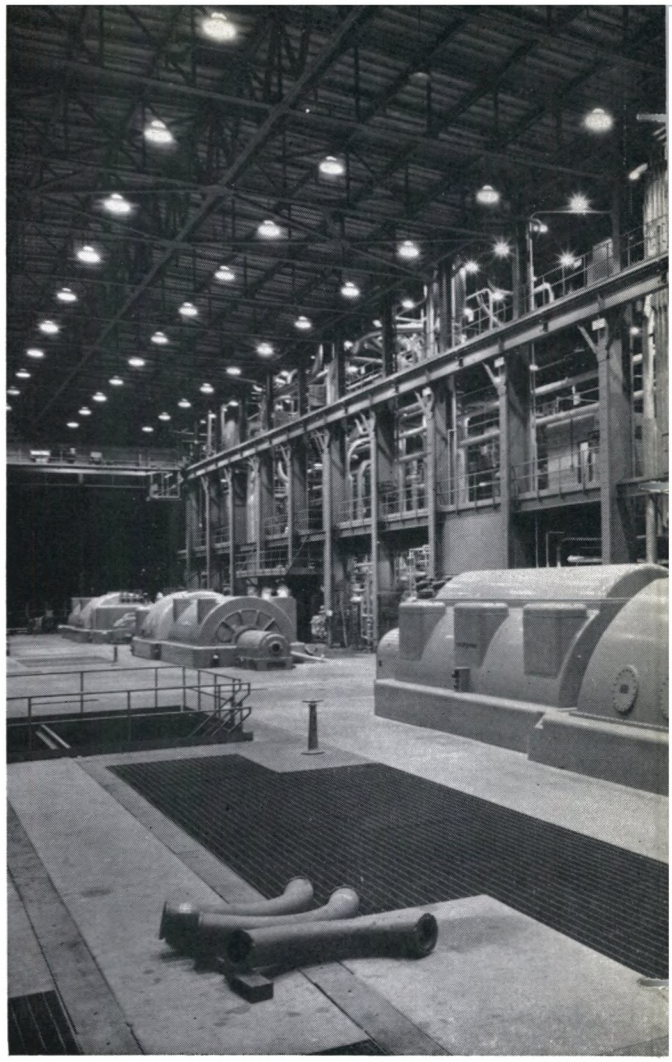

These powerful turbines are located at Monongahela Power Company's steam generating plant in Albright, West Virginia.

tions is used primarily within the general vicinity of the station. It may be supplemented by power from adjacent stations or a portion may be used to help other stations serve nearby areas. Sometimes both occur simultaneously, so that the network of transmission lines serves to relay power from a surplus area to one where needs temporarily outrun production.

The coordination of output and use is done by dispatchers located in central control stations. Watching indicators of power use and guided by careful analyses of the daily and seasonal patterns of use, they control output at generating stations and direct its distribution through the system.

INDUSTRIAL CONSUMPTION LAGS A fairly small number of utility companies account for most of the electric power sold in this District. To be more specific, nine private companies sell around 90% of the total sold by investor-owned companies and government plants in the Fifth District. This has been a declining percentage, for in 1948 these same companies accounted for almost 97% of the total.

The amount of electricity sold last year represented a gain of 125% over the 1948 total. This growth was slightly less than the national increase of 133%, due to a somewhat less robust gain in sales to industrial consumers. Although such sales doubled in the District, the nation saw an increase of 130%.

The lag was due mainly to differences between the industry mix in the District and in the nation. For the most part the leading manufacturing industries of the District are the ones that have experienced lower-than-average increases in use of electric power in relation to labor input. For example, the average electric power consumption per production worker in the textile industry increased only 65% from 1947 to 1956 as against a gain of 108% for all manufacturing establishments. In South Carolina this low rate of increase was offset by better-than-average increases in employment and in the number of establishments, but this was not generally the case in other states and in the other leading manufacturing industries of the District.

Commercial sales of power in the District have grown at a rate that has outstripped U. S. growth somewhat. Both totals have benefited from the widespread installation of air-conditioning equipment in stores and office buildings, as well as the phenomenal growth of suburban areas with their huge shopping centers.

RESIDENTIAL SALES BOOM One of the major factors in investor interest in the public utilities of this District has been the extraordinary growth in the residential sales of electricity by these companies. In 1948 these sales comprised 19% of total electric power sales in the Fifth District; by 1957 this proportion had risen to 28% of the total. The District gain in residential sales has far outstripped the national increase, mainly as a consequence of better-than-average gains in the Carolinas and Virginia. These have, in turn, reflected population increases in these three states that have exceeded the nation's rate of growth.

Other factors responsible for the substantial rise in residential consumption of electric energy in this District have been rather extensive rural electrification and significant improvement in per capita income in the lower income brackets. Both have led to extensive additions of electrical household appliances.

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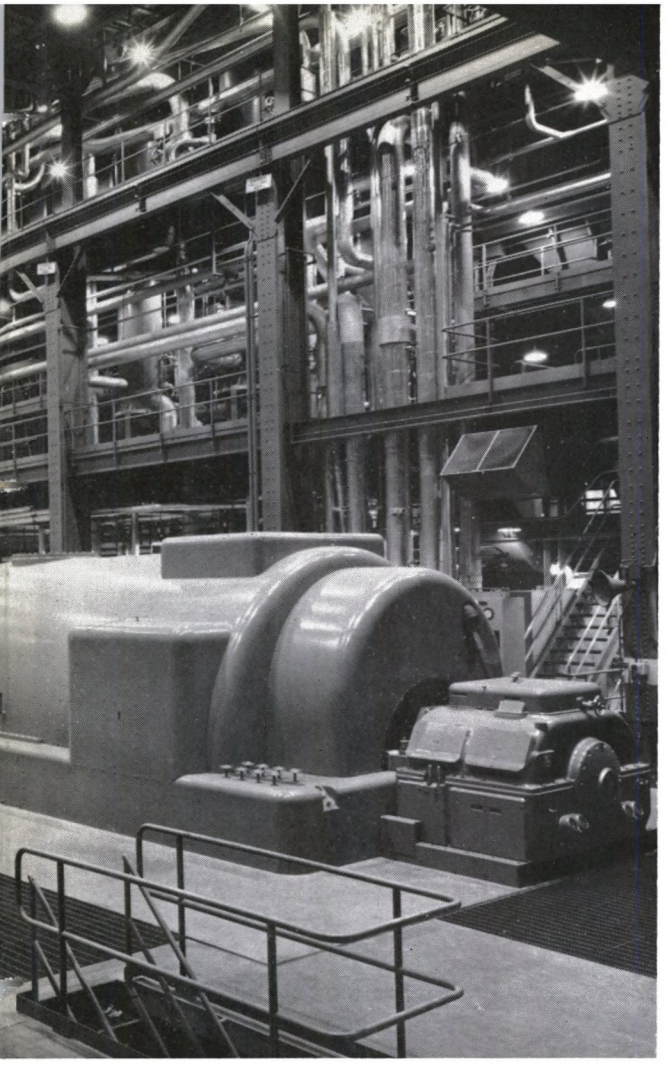

A factor that could possibly be of major importance within a few years in boosting residential consumption of electricity is heating by electricity. A relatively new device called the heat pump performs a year-round job of keeping an interior at a comfortable pre-set temperature winter and summer. It is electrically operated and extracts heat from the outside air, from the ground, or from water. A gas is raised to the desired number of degrees for interior use by means of a compressor and is then circulated through pipes in the house. Reversing its action automatically, the heat pump operates on the principle of a refrigerator to cool the house, much as does a conventional air-conditioner.

Relatively high costs currently limit residential heat pumps to a small and well-to-do market. If the pump follows the course of other household fixtures and appliances, however, the cost will decline markedly as output grows. A heat pump expands household consumption of electricity as much as eight times, and it is obvious that its widespread use would increase residential sales of electric power tremendously. Of further benefit to the power companies would be the smoothing out of seasonal rises and dips in demand which alternately tax and idle generating equipment.

The marked growth of residential sales in recent years has been achieved despite a slowing down in the rate of family formation. In a few years, however, a sharp upswing is expected in marriages and new households that will carry statistics to record heights. Few businesses are as certain to have their sales reflect the direct impact of this expansion as are the public utilities.

PUBLICLY OWNED PLANTS In addition to investor-owned utility companies, 19 municipalities, one state, the Federal Government, and some manufacturing companies generate electric power in the Fifth District. Excluding the power plants of manufacturing companies—which produce power mainly for their own use—municipal, state and Federal government installations provide about 16% of total generating capacity in the District.

Included in this tally are three public service authorities: the South Carolina Public Service Authority, a state agency; the Southeastern Power Administration, an agency of the U. S. Department of the Interior; and the Tennessee Valley Authority. The latter has seven dams in North Carolina, three of which have power generating facilities.

ATOMIC POWER PLANTS Because utility companies must be ready to supply the communities of tomorrow with vitally necessary light and power, they must plan for their future generating and distributing facilities years in advance of actual need. One of the important considerations in present plans is the use of nuclear fuels in the generation of electricity.

It was not until four years ago that private utility companies were permitted by Congress to own and operate nuclear power plants. Progress has been rapid since then. Utility companies already have on line three atomic reactors, and by 1964 ten more nuclear power plants will have been constructed and will be generating electricity for civilian consumption. One of these will be located at Parr Shoals, S. C., and will be truly a Fifth District joint venture since it will represent the combined endeavors of four District utility companies: Carolina Power & Light, Duke Power, South Carolina Electric and Gas, and Virginia Electric and Power.

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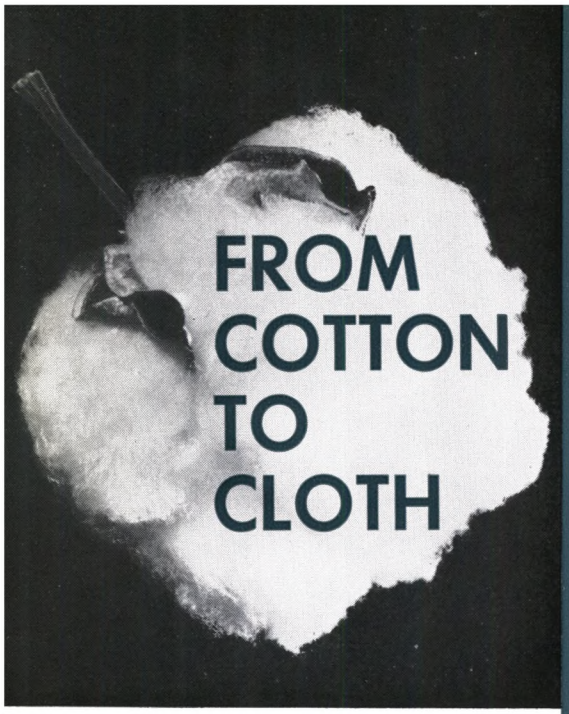
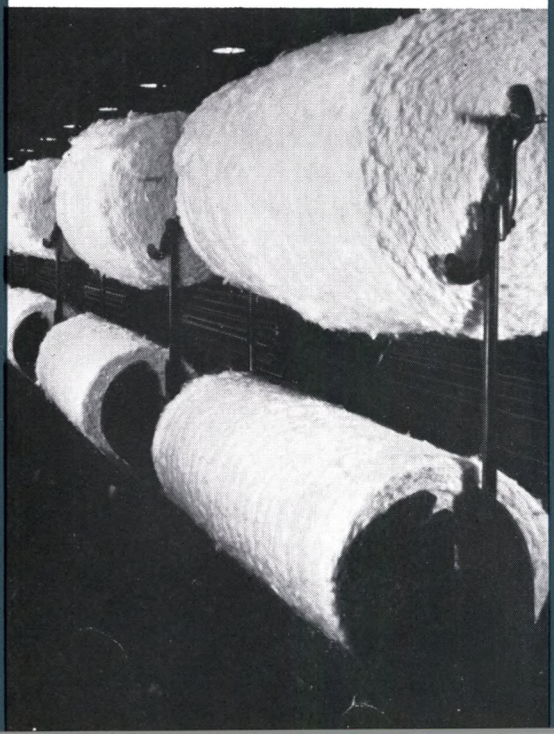


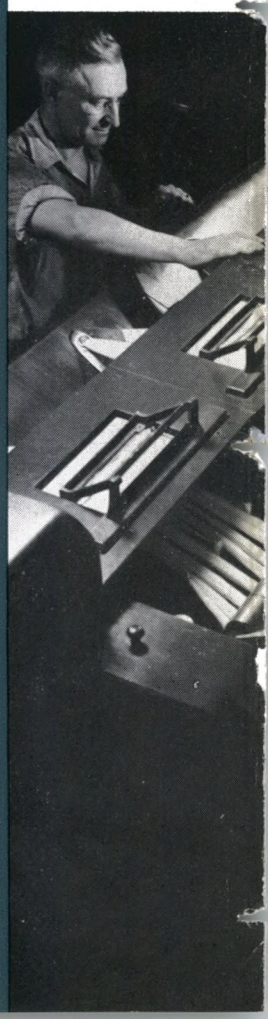
FROM COTTON TO CLOTH

THERE WAS A TIME when the story of cotton was set to the humming of field hands and of stevedores shipping it off to New Orleans and Liverpool. But like the land that produced it, the story has changed and is set now to the humming of machinery. Here is the story of cotton, from the time it is seeded, partly cleaned, and packed into bales at the gin (below) until it rolls off the loom.

THE CARDING MACHIN
volving cylinder which
direction, partly untang
cleaning process. The fil
off the cylinder into a
molds it into a "sliver."
several slivers into a str
out twisting to about the

THE BALES are opened at the spinning mill where various types of cotton are blended to produce uniform yarn. This is done in a "blending feeder," which also breaks the packed lint into smaller pieces. A picker machine continues the cleaning process and forms the cotton into "laps"—rolls about 18 in. thick and 45 in. wide. Laps, resembling oversize rolls of absorbent cotton, are then ready for carding.





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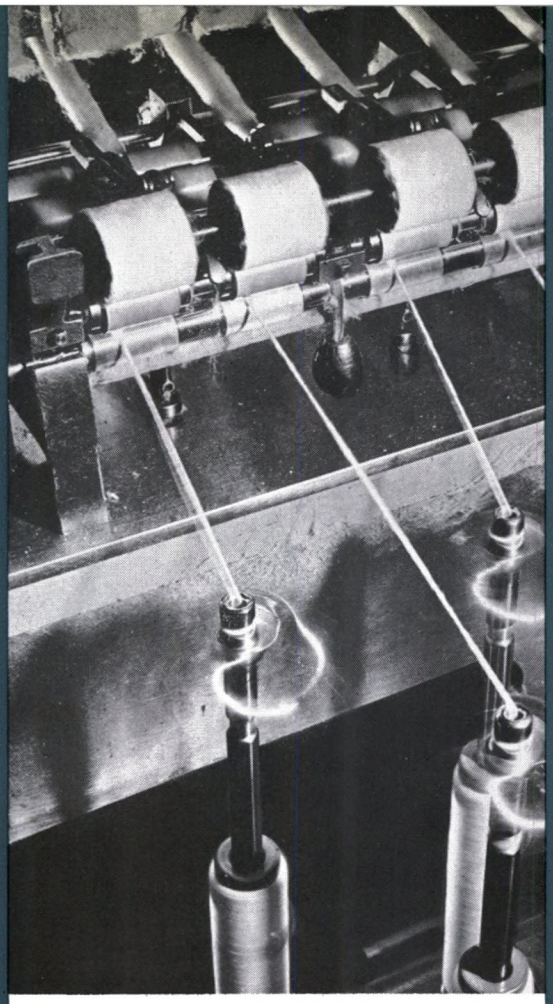
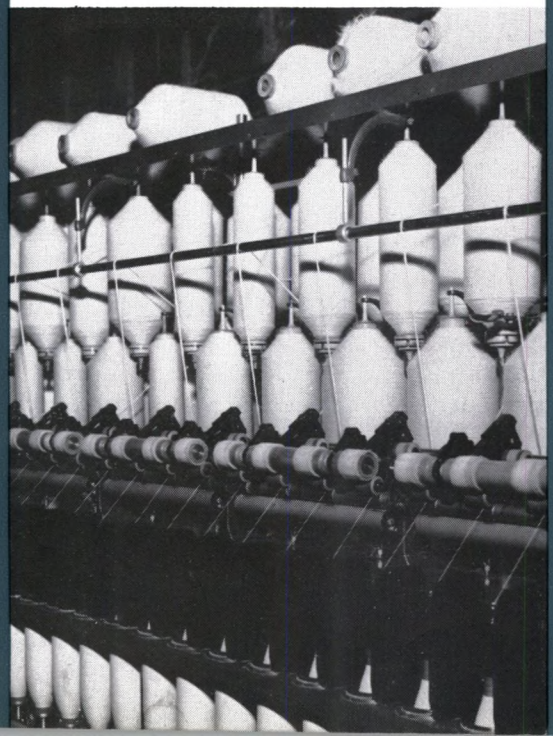
passes the lap onto a re-
lls the fibers all in one
them, and finishes the
sheet of cotton is drawn
nnel-shaped device which
rawing (below) combines
which is pulled out with-
ame size as a single sliver.



FOR WEAVING, warp yarns—the strands that run the length of the cloth—are rewound onto large "warper beams," several hundred threads at a time. As harnesses raise and lower the warp yarns on the loom, a shuttle carrying the weft—the filling thread—is driven quickly back and forth between the upper and lower layers of yarn. After the cloth is taken from the loom, it is inspected by sharp-eyed checkers.

THE CONDENSED SLIVERS are taken to the "slubber," the first of a series of machines that give the cotton strand a mild twist while drawing it into smaller and smaller diameters until it becomes the proper size for spinning. This "roving strand" is fed to the spinning frame (below) where it is further drawn out, twisted into yarn of required size, and wound on bobbins—all in one operation.



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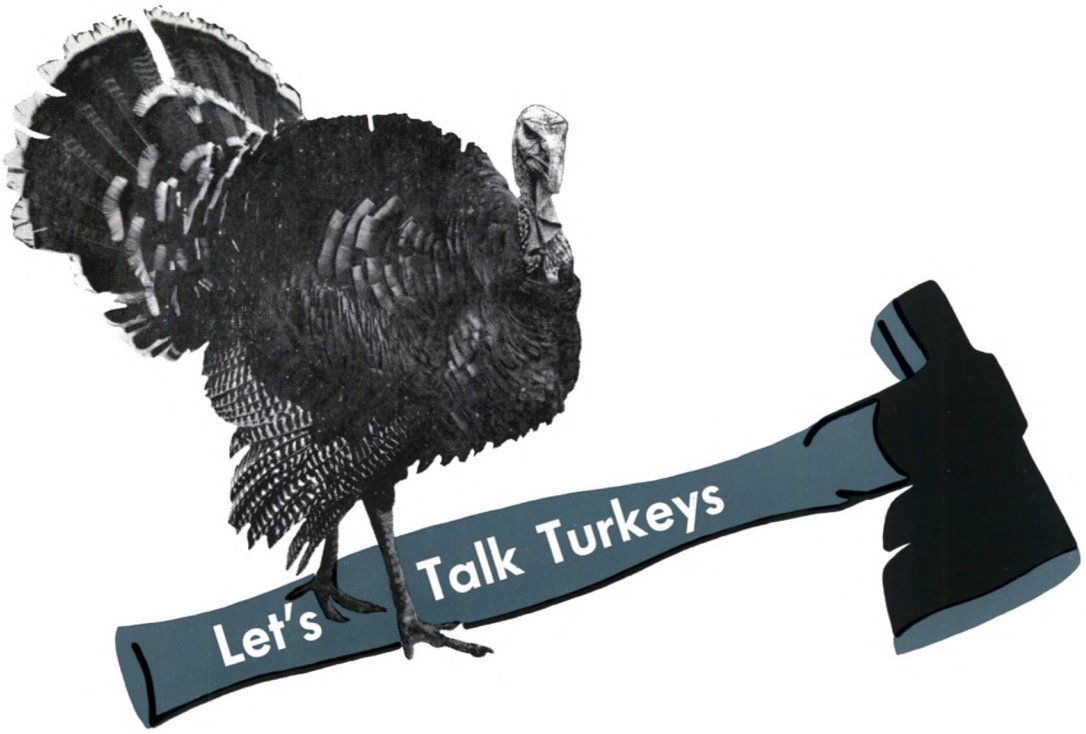

Having turkey for Thanksgiving dinner? Then chances are it was grown and processed in the Fifth District, for turkeys have become a big business in many sections of this five-state area.

Last year when national production of turkeys passed the 80-million mark, one out of every seven birds was raised by District producers. And Virginia has been the country's third largest turkey producing state for several years. More turkeys, in fact, are raised in Rockingham County, Virginia, and more turkey hens are kept for breeding by Rockingham County farmers than in any other county in the nation.

The story of the turkey reaches back to earliest American history, for there were wild turkeys in this and many other sections of the country when the first settlers arrived. Today's fancy well-bred birds, in fact, are descended from those wild native turkeys whose meat was relished by the Indians and early settlers alike.

TURKEY INDUSTRY GROWS For many years, turkeys were a side line on most farms. A farmer would keep a few hens and a gobbler and raise a small number of young turkeys for extra money.

Today growing turkeys has long since ceased to be a side line on the general farm and has become a highly specialized enterprise, returning a fairly tidy sum to District producers—as high as $49 million in 1952 but, with lower prices, around $40 million for each of the last several years. As managerial know-how has increased, individual flocks have grown bigger. Turkeys by the thousands are now the rule rather than the exception on farms in the major producing areas. Some producers specialize in market turkeys, others in breeding flocks. Most buy their baby poults from hatcheries rather than hatching them on the farm.

Growth of the turkey business in the District has bordered on the spectacular. In 1929, when annual records were first begun, production totaled 1,380,000 birds and provided about $5 million in cash income to the farmers. Turkey numbers increased gradually during the thirties and then climbed more rapidly in the forties. Production by 1949 was two and one-fourth times what it had been ten years earlier, and total cash farm income from turkeys amounted to nearly $25 million. Dramatic expansion has occurred since, and in 1957 a record 12,120,000 turkeys were raised. Output in the District had tripled in eight years, while that in the nation had doubled.

WHY THE GROWTH Many factors have contributed to the mushrooming of the turkey industry in the District. Of great importance is the improvement in the efficiency of production and in the market quality of turkeys by better breeding and disease control.

Through better breeding, for example, has come the small "family-size" turkey developed by the United States Agricultural Research Center at

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Beltsville, Maryland. With an eye for the small-family trade, many producers began raising these small birds, and today the light-breed crop comprises slightly more than half of all turkeys raised in the District. Broad-breasted varieties which have consumer appeal for many have also been developed and are grown in large numbers.

The tremendous progress that has been made in marketing has also been a big factor in the expansion. In years past most families ate turkey only at Thanksgiving and Christmas, and farmers in the turkey business raised only one crop a year, timed so the birds would be ready for the holiday trade. They sold their turkeys at small local markets or shipped them to large northern markets.

Today modern processing plants throughout the District provide turkey farmers with year-round markets. These plants turn out ready-to-cook turkeys on an assembly-line basis. The birds are then either packed in ice or packaged in plastic bags and put through a quick-freezing process which, with the aid of refrigerated trucks, permits them to be sold temptingly fresh in many distant markets. Gone are the days when most families bought their turkey live and had to do their own killing and dressing.

Providing Mr. and Mrs. Average Consumer with both small and large-size birds, conveniently packaged and ready for the oven, has helped bring about year-round consumption of turkeys. The average person thus eats considerably more turkey each year than he used to. Thirty years ago, for instance, the average consumer ate slightly less than one and one-half pounds of turkey a year. Today he is eating nearly six pounds annually.

Growing turkeys under contract has been another factor in the expansion. These contract arrangements usually provide financing for the grower, reducing his financial needs and risks. They typically specify that the contracting firm will furnish the baby poults, feed, medicine, and general supervision and that the grower will provide housing, equipment, other supplies, and labor. It is also usually agreed that the contractor will pick up the turkeys when they are ready for market and that he will pay the grower a specified price plus a bonus based on production efficiency.

WHAT OF THE FUTURE? Should the nation's population increase from the current 175 million to the 204 million anticipated for 1970, this growth will provide the base for a steadily expanding turkey market. Added to this fact is the probability that turkey will continue to be served more and more often throughout the year. Both small and large ready-to-cook turkeys are now available the year round at prices competitive with other meats. Housewives are becoming accustomed to this convenience and are increasing their purchases of turkey meat.

The small turkey, especially suited to the needs of small families, fills an important place in the turkey trade. (Below) Attractively packaged ready-to-cook birds have a great deal of consumer appeal and are available the year round.

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The Fifth District

Rising employment continued to hold attention in the District in September and October. The number at work increased in September, as did the number of hours they worked, and a decline in unemployment figures indicates that jobs increased further in October. Construction contract awards were high again in September, and it is obvious that much construction activity is assured for the months ahead. Department store sales turned up again in October after a decline in September.

EMPLOYMENT September's further increase in nonfarm employment in District states raised the total by some 50,000 persons to a level 2% below September 1957. About half the increase was in government workers, reflecting the return of public school teachers to the rolls of the employed, but significant gains also occurred for manufacturing and trade workers. The service industries broke their seven-month record of increases to show a slight decline that was possibly somewhat less than might have been expected at this season.

Insured unemployment declined again in September and in the early weeks of October. Reports indicated that some part of this decline was due to an expiration of insurance benefits, while the remainder reflected higher employment levels.

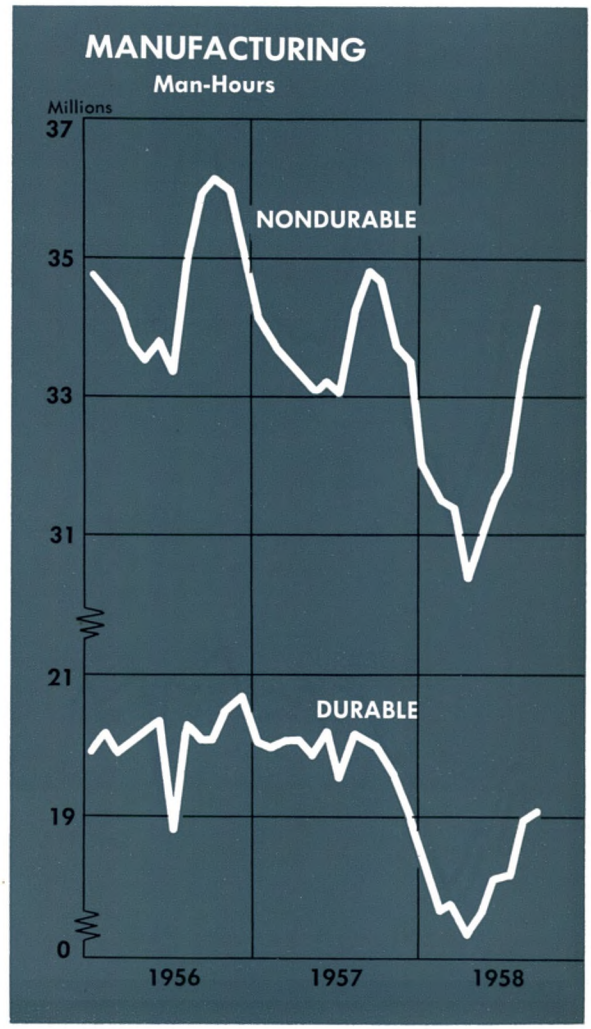
Manufacturing employment rose 5% from its May low to September, and a longer work week helped to raise total man-hours by more than twice that percentage. Successive gains in this total for the nondurable industries had by September brought it close to its year-ago level. Textiles and apparel account for more than one-half the man-hours in nondurables, and much of the improvement has been due to better operations in these industries. The important food and tobacco processing industries ran well ahead of September 1957.

Durable industries showed a smaller but substantial increase that was less related to seasonal forces than were the nondurables gains. Some lines, such as electrical machinery and lumber production, exceeded their year-ago man-hour levels, and most moved to close the gap between current man-hours worked and those of the corresponding month last year.

CONSTRUCTION September added the fifth month to the truly impressive recent record of construction contract awards. While this latest monthly total was down 4% from August, it was one-third above September 1957, and it brings the five-month total above that of any five consecutive months in the past. Public works and public utility awards were down only slightly from the record level of $89 million reached in August, and residential building contracts rose to $115 million for their second best month of the year.

RETAIL TRADE September department store sales in the District dropped back from the record level reached in August to a total comparable with that of the spring months and September 1957. Early reports for October indicate an upturn, however, that will place that month perhaps 3% ahead of

Man-hours in manufacturing have risen steadily for five months, reflecting gains of considerably more than seasonal magnitude.



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Between the Coast Line's planned headquarters in Jacksonville and the Seaboard's new building in Richmond lie most of the two railroad systems now being studied for a possible merger.

September and 6% ahead of October of last year.

TO MERGE OR NOT? Just as the Seaboard Air Line Railroad was settling down last month in its handsome new office building in Richmond and the Atlantic Coast Line Railroad was about to break ground for a modern 15-story headquarters building in Jacksonville, the presidents of the two roads joined in the announcement of a study of the possible advantages of a merger of their lines. Their joint statement said that "preliminary consideration of a merger . . . indicates that tangible economies and greater efficiencies may be achieved, with resulting benefits to the public."

Should the merger ultimately pass through the study stage to action by directors and stockholders of the two railroads, the resulting carrier would rank high in size among the major railroads of the country. The Coast Line operates approximately 5,300 route miles and the Seaboard some 4,150. While one purpose of a merger would be to cut out duplicate tracks, even a reduced total would still place the combined system within the ten largest roads.

The two railroads have for more than a half-century competed for freight and passengers to the Southeast. Each having a northern terminus at Richmond, their main lines cross and recross as they provide service to an area stretching to the southern part of Florida and west as far as Birmingham. In many cities they compete directly in offering transportation to important centers. Once this competition was desired and encouraged as a means of exerting pressure on each road for improved service at a lower cost, but more recently Federal Government concern has shifted to the burden on the industry of operating the duplicate facilities required for interrailroad competition, since motor vehicles and planes provide strong competition for the railroad industry.

This competition has reduced railroads' share of the transportation business. By 1956 the railroads' share of intercity freight traffic had dropped to less than one-half the total, compared with three-fourths in 1929, and their share of passenger miles was down to 35% from 71% in 1929. In short, the railroads no longer hold a monopoly in the transportation field, and their declining relative importance has been reflected in recent years in declining employment and uncomfortably steady total revenues in the face of increasing costs. The 1957 recession was quickly reflected in cutbacks of railroad operations and revenues, and the closing months of last year saw aggregate net working capital of the railroads shrinking well below what had previously been considered a minimum safe level.

One result was a series of hearings last winter by a subcommittee of the Senate Committee on Interstate and Foreign Commerce. Its report issued in the spring urged the railroads as a means of self-help to interest themselves in such matters as mergers, joint use of facilities, reduction of duplications in services, and abandonment or consolidation of nonpaying branch and secondary

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lines, as well as adoption of more efficient traffic practices and more modern rate structures. Acting upon a recommendation of the subcommittee, the Senate authorized a further study of the transportation industry to include renewed consideration of Federal policy on consolidations and mergers in the transportation industry.

The Seaboard and the Coast Line have fared somewhat better than the industry as a whole in the postwar years. Combined operating revenues in 1957 approximated their recent peak in 1952—the Seaboard showed a slight increase—and their net from operations has also held up better than industry totals. Yet steady increases in the share of operating revenues going to expenses and constant competitive pressure from trucks, busses, and airlines lend special attraction to the possible efficiencies of consolidated operations.

Merger discussions will bring forth many questions more difficult than the relatively simple one of which new headquarters building will be the headquarters. For instance, the Coast Line owns one-third of the Louisville and Nashville Railroad —with larger operating revenues and more track than either the Coast Line or the Seaboard—and shares a lease on the 300-mile Clinchfield Railroad with the L. and N. No mention was made of either of these roads in the joint announcement, but obviously they would enter into any merger study. So also would choices of the tracks, stations, freight yards, and repair shops that would continue to link together the Southeast.

More mergers are considered than consummated, and officials of both roads have been careful to avoid public statements anticipating the results of the study. It may well be, however, that the decision to merge or to stay separate will be less important to Virginia and the Carolinas than the increased efficiencies and added financial strength likely to come as a result of the study of duplications in service and facilities.

TEXTILES Perversely the biggest recent development in textiles has been the widespread announcement of mill shutdowns at Thanksgiving and Christmas. Mills which represent a substantial proportion of cotton weaving capacity plan to close on Wednesday, November 26, for the remainder of that week and again on Tuesday, December 23, until the following Monday. Some synthetics mills are reported to plan similar holidays in production.

This program reflects the basic problem which still confronts the makers of the print cloths that go into many types of cotton clothing and that account for more than one-third of cotton woven goods production. Mill inventories of unfinished cloth have continued to run somewhat high and to exert downward pressure on prices. Production cutbacks are intended to reduce these stocks and thus to improve the producers' position in booking orders for future delivery.

Prices were raised last month on some industrial fabrics, and there was some question as to whether the new prices would continue. Demand for these fabrics—used for automobile interiors, furniture upholstery, and the like—was good in October and provided the basis for the increase.

Mill operations have shown some improvement in recent months. Reports of work weeks increasing from their reduced levels have been confirmed by higher cotton consumption and by increases each month in man-hours worked in the major branches of the industry.

Knitting mills continue to enjoy an improved business, centered as earlier in ladies' seamless hosiery. Production of men's and children's hose is reported as being at the year's best level due to a strong retail demand.

BITUMINOUS COAL Output of District mines rose further in September to bring average daily production one-fourth above the recession lows of April and May. The first two weeks of October saw a continuation of operations at this improved rate.

Foreign shipments through District ports have shown decided weakness this fall. European coal stocks are reported to have increased further recently, and cutbacks in shipments from this country are expected. Loadings for domestic shipment by water continue to run even below the levels reached earlier this year, as competitive fuels are offered to Tidewater industrial users at reduced prices.

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