COAL AGE

McGRAW-HILL COMPANY, INC.
JAMES H. McGRAW, *President*
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Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

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Engineering Editor

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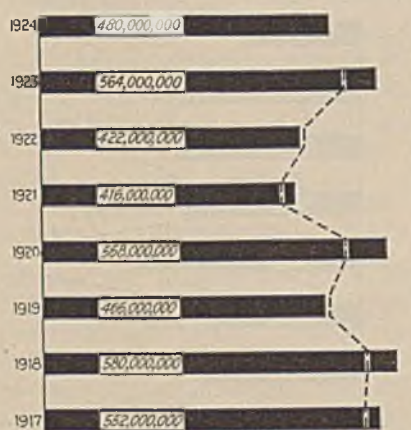
In Year Just Past Production Only 13 per Cent Less Than It Was in 1923

ON EVERY HAND we hear that we have passed through a terribly depressed year for coal mining. But really the production figures do not suggest any such expression. The natural instinct is to exaggerate a condition, which after all is not so bad as has been generally asserted. The falling off in total coal tonnage (anthracite and bituminous) has been about 13.4 per cent at most and perhaps, if the preliminary estimates of the U. S. Geological Survey are no closer than in 1923, only 12.4. It is a difficult matter to arrive at an exact estimate of the actual production in advance of the full returns. In comparing 1924 with 1923 it must be remembered that 1923 was a comparatively good year, only exceeded in its tonnage by 1918 and 1920 and scarcely at all by the latter. Consequently the wailing which we have heard has been due largely to the shift in tonnage from union to non-union fields and to the low price for the product.

Compare the condition of the coal industry with that of iron. The pig-iron output in 1924 fell off 23 per cent or nearly twice as much as the coal output and the steel-ingot production declined 16⅔ per cent. As steel enters into most industries the falling off in pig iron and ingots is symptomatic of a grievous business condition from which coal was partly protected. The public *must* buy coal for heating and lighting purposes however poor business may be, and consequently the coal industry does not slump as badly as those which are not of such an essential character. Yet to judge by somewhat general comment it would appear that the coal market fluctuates in its annual demands more than any other. It is, however, not so. Instead it should be regarded as unusually stable.

Though the tonnage declined only a relatively small percentage the bunching of the output at the beginning and end of the year and at non-union mines with good railroad facilities made the year appear at least to the union mines one of profound depression. This impression was heightened by the low price at which the mine product was at all times sold. In the past approximately 60 per cent of the total output has come from the union fields and the rest from the non-union. This year it has been the non-union fields that have produced the 60 per cent and the union fields the rest of the tonnage.

Union operators are beginning to wonder how long the mine workers are likely to persevere in upholding a contract that brings them only idleness and destitution. True, the workman's respect for the Jacksonville agreement is not unnatural for he sees that competition has in the non-union field resulted in the payment of extremely low wages and argues that some such outcome will follow in union fields if the union becomes complaisant or is swept out of existence. But in that he is quite grievously at fault, though not without some specious justification. If he would avoid his misfortune he can assure himself against it by continuing in his organization and voting for a generous, but not an impoverishing, wage reduction. But even if he breaks with the union and severally effects new and temporary arrangements with his employers, it is not likely that with the present activity of the other industries in union regions the operators would be able to make drastic reductions.



PRODUCTION AND CONSUMPTION

In this diagram the solid bars represent production of bituminous coal by calendar years. The dotted line is consumption. It is not carried to 1924 because the stocks of coal on hand in that year were not taken after Sept. 1 and so the consumption of a large part of the year was not obtainable. In but three years—1919, 1922 and 1924—was production less than consumption. In 1917, 1918 and 1923, all years of large production, there were substantial additions to stocks.

The need for men would be balanced against the advantage to be gained by lower wages. A lure of a good wage would be needed to bring men back from the regions to which they have migrated and from industries in which to a degree they have become accustomed. Furthermore the operators in the non-union fields in Pennsylvania, where other work is available, never have found it feasible, since 1893, to cut wages to the lowest levels. With increasing activity in all lines of business, conditions cannot be such as to cause reduction of the present wage scale below a level advantageous to the mine worker.

Furthermore in the endeavor to keep working in non-union regions the wages of non-union men could not be greatly reduced. In some sections already the day workers must put in 2½ days of work to get equal pay with the men in the union fields who work one day. Consequently they must work quite steadily or they will not receive a subsistence wage. The effect of a wage reduction in union fields or in what are now so denominated will be to divert some tonnage from non-

union fields, destroy the continuity of operation in those regions and so make almost inevitable an increase in wage to non-union employees.

A competition in wage reduction is a distressing way to obtain business and profits, but no evidence can be found that, even if the union should dissolve, any such action would result. Some time ago the casuists argued whether it was an obligation to keep a pledge to another party which both parties found oppressive. The operators and miners are faced with just that problem. The Jacksonville agreement suits neither, and they would be ill-advised to maintain in operation a contract that injures them both and is detrimental indeed not only to them but to the public also, for it serves in a degree to increase the cost of coal, to weaken public confidence by destroying values in a large industry and to sap the foundations of all business.

The citizens of the union regions are not slow to see that the question of German reparations, which looks so important to those who have to consider it, is not nearly so vital to the merchants and manufacturers of those regions as a condition nearer home that could be solved satisfactorily, if a contract signed by their own neighbors, the miners and operators, were treated by both as a dead letter.

This line of argument appeals strongly to union operators, men who are averse to ill-considered wage reductions and who in the past have looked upon the union as a defense against a wage competition which was unfair to the working man. That kind of competition cannot be more distressing to union labor than is a contract like the present, which makes the union man a victim of idleness infinitely more demoralizing than a drastic wage reduction.

Prices So Low Union Mines Could Not Meet Them

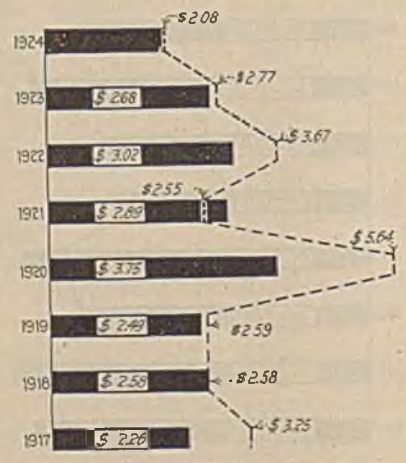
A BUYERS' MARKET with disastrously low prices marked the year 1924. Strange to say they were low even in the two opening months of the year when tonnage was higher than in any other year at that same period. However, seen from the close of the year, the prices obtained appear none too bad. In January the price was $2.21 and in February $2.25, according to *Coal Age* index. Thereafter prices followed a catenary curve declining rapidly at first, then slowly reaching a minimum and again rising slowly but never reaching a level anywhere near that which marked the beginning of the year. The lowest point was reached in July when the price, according to *Coal Age* index was $1.98. In the month of December, the same index showed $2.06 as the average spot price.

At the beginning of the year the low price for spot coal was greatly helped by contracts made when coal was in greater demand, but these sources of revenue gradually declined and the spot price little by little became more closely the actual price received by the operator for his coal.

The coming year ushers in an anthracite wages controversy, for on Sept. 1 of this year a new wage contract has to replace the old. The union in the anthracite region is strong despite its internal politics. The miners have been working steadily. A flood and outlaw strikes have reduced earnings but not materially, so the miners have money to tide them over a suspension. The union in other parts of the country is weak, however, and may be weaker yet when the conflict comes. The differences of opinion will be hard to settle.

With the recovery of business which has been unusually rapid in recent months the bituminous tonnage in 1925 should be far larger than in the year that has just passed. Oil and gas are becoming less formidable rivals; the railroads will be unable to improve their operating economy without adopting new methods of operation and may easily become less economical, because the larger demand for transportation will make it necessary to put in operation less efficient locomotives and will cause more engines to be held on side tracks where they will consume coal to no useful purpose. Water power will largely cease to make inroads.

However, it must not be overlooked that oil having been adopted as the fuel at many boiler plants and in many domestic furnaces, its use will continue for some time after its value as a fuel has been discounted, and further the electrification of railroads, which is proposed and promised, will decrease the demand for coal.



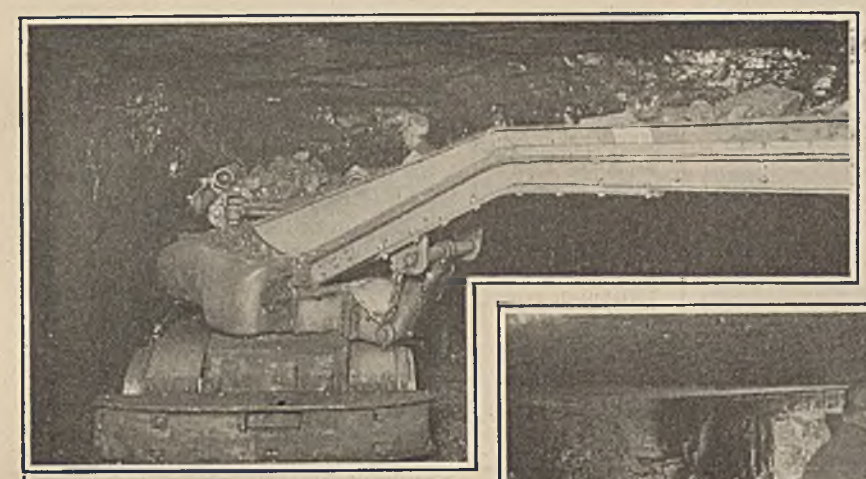
PRICES

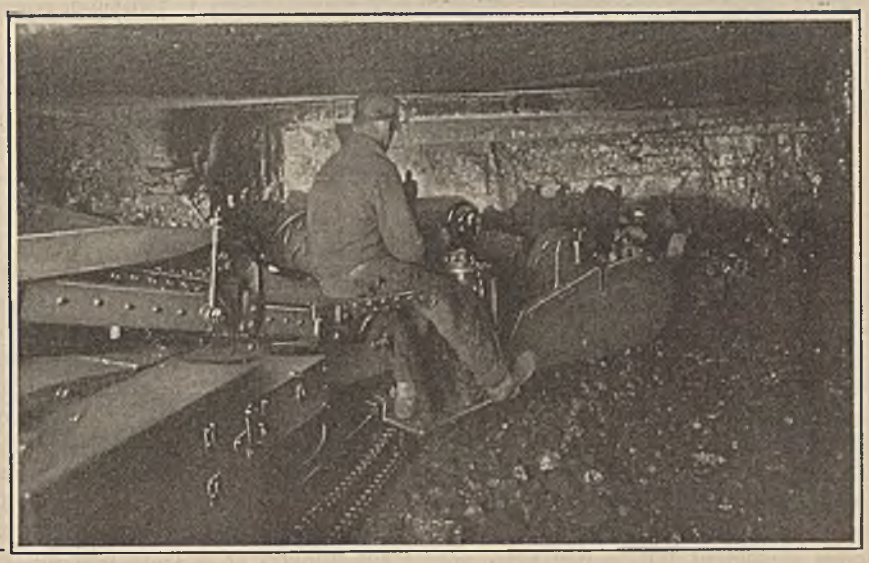
The solid bars and the figures in this diagram represent the average realization in dollars per net ton for bituminous coal, as reported by the U. S. Geological Survey, except that for 1924, which is an estimate. The dotted line shows the average spot price as reported by *Coal Age*.

Fortunately the stocks of fuel are not unduly high. It is likely that in 1925 all the coal that will be used will have to be provided by mining. Jan. 1, 1924, started with a reserve stock of bituminous coal of 62,000,000 tons. By Sept. 1 that tonnage had been reduced by 15,000,000 so that only 47,000,000 tons were on hand. Since then the stocks probably have increased but not in any great measure.

Estimating the anthracite output at 90 million net tons the decline in anthracite tonnage from the preceding year is about 4 per cent. Accepting 480,000,000 as the bituminous tonnage the decrease in the bituminous output is about 15 per cent.

Canada during the past year suffered a reduction in tonnage of four million tons, bringing its output down to 13,103,000 short tons. The strikes in Alberta and British Columbia account for much of this decline in output. In Nova Scotia less coal was mined than in 1923 by about 762,000 tons despite the subvention of $150,000 which the government paid to assist in the delivery of the fuel. The tonnage in Alberta fell 2,329,000 tons and in British Columbia, 712,000. Canada produced, as has been said, 13,000,000 tons; it imported 17,000,000 and exported 1,000,000 tons in the year 1924 and so consumed apparently 29,000,000 tons, about one-quarter of which was used by the railroads. Once more Canada is at peace and should produce a good tonnage.





Machine Loading Advanced by Bounds During Past Year

Over One per Cent of Coal Output Loaded by Machines — This Equipment Is Bringing About Concentration in Mining and Better Preparation, Both of Which Are to the Interest of the Operator

By Alphonse F. Brosky
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MECHANICAL loading took a long step forward in the year 1924. The large tonnage loaded with the assistance of machines is a material measure of this progress. The Pocahontas Fuel Co. alone loaded with twenty-two machines 1½ million tons of coal, which represents 40 per cent of its output. Inasmuch as, at the close of the year, about 400 loading machines were installed under a wide range of conditions in various mines of the country, it is difficult to say how much coal was thus loaded.

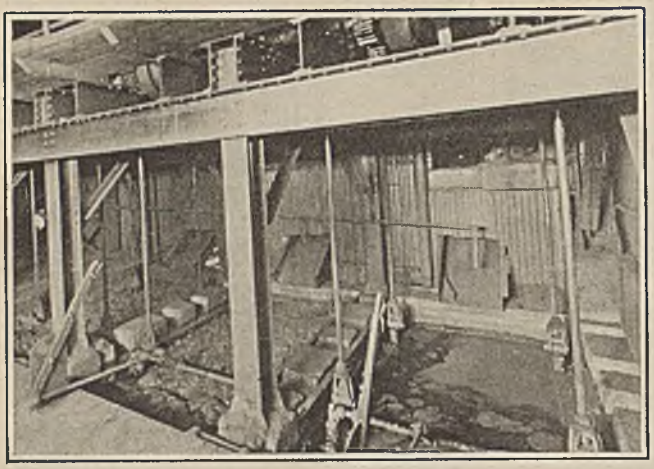
In its Norton mine the West Virginia Coal & Coke Co. shoveled on face conveyors in the "V" system about half a million tons. Other companies used face conveyors and together added appreciably to the total tonnage produced by this means. Such devices as the scraper loader and the several forms of combination cutting and loading machines contributed their quota to the tonnage produced mechanically. Though complete figures are not available, 1924's tonnage of machine-loaded coal probably can be conservatively estimated at 1½ per cent of the nation's entire output of bituminous coal.

At first thought this may appear to be a relatively small percentage but, as a matter of fact, it indicates a rather surprising growth of this new movement in the industry. Sufficient data are available to substantiate a statement that the estimate for 1924 is three to four times that for 1923. Without doubt the machine-loaded tonnage for 1925 will be greater than the combined tonnages of all the preceding years. In the next ten years, consequently, the tonnages from this source are certain to grow by leaps and bounds.

At a number of mines where these labor-saving machines were used the output per man employed was increased as much as 40 per cent. In a few cases the production per man showed even a greater gain. In every instance the cost of mining decreased and pointed the way to greater savings in the future when operating methods have been adjusted to the new machinery.

Prior to 1924 comparatively few loading-machine operations were successful. The trouble did not all lie with the machines themselves. During the last year, because the requisites of economical operation were understood more generally and completely many of the obstacles which previously had been viewed as being difficult to master were eradicated by determined effort. The mines in earlier years had tried to substitute loading machines for hand loaders without making much change in their methods. In that they failed. They at last realized the necessity for wholesale readjustments in their systems of operation and the need for a reorganization of their personnel. The result of this new vision is discernible in the methods of the intensely mechanized mines. The mine workings and the labor force are concentrated over a restricted

NOTE—The headpiece shows on the left a Joy loader working in a thick seam, on the right in one of the upper corners part of a trip of underslung cars, box-shaped, long, wide and low, constructed of steel and of a type such as loading machines will need if utmost capacity is desirable. On the right of the title of the article is the Jones loader.



Jigs Are Needed

Washing is becoming increasingly general. With loading machines that gather up spawling roof rock and broken partings, washing becomes more desirable. These jigs are of the Pittsburgh type. Each has a capacity of 50 tons per hour and washes ¾- to 2-in. material. They are installed at a mine in the Pocahontas region.

area with consequent efficiency and marked savings in cost.

Though concentrated mining had been advocated for many years, it, for various reasons, has been little practiced, chiefly because concentrated mining requires painstaking system and entails a rather delicate scheduling of interdependent duties. Labor too often has been blamed when the real cause lay in the methods employed. True, labor has been inefficient but it has been not entirely through faults of its own. Efficiency of labor cannot be attained without adequate supervision, nor in turn can the latter be provided without concentration. These facts, though elementary, are forgotten when the blame is placed for inefficiencies on the miners. However, one would do ill to overlook the fact that in some mines that are conducted with the needs of loading machines in mind the lack of cooperation of the labor personnel has made the use of mechanical loaders inefficient despite every provision that the genius of the management could devise.

Perhaps the biggest boon to the mine owner, which the loading machine bestows, is the fact that it makes concentration of the workings absolutely necessary. Without this concentration the loading machine is less efficient than hand loaders; with it the loading machine is far superior. It not only saves labor in the loading of coal but it also introduces economies in cutting, shooting, timbering, haulage and other details of mining.

It is a difficult matter in the room-and-pillar system with hand loaders to maintain a steady output. Contract miners, as a rule, will not be governed by discipline; if so disposed they "lay off" at any provocation and leave the day's work unfinished. For this reason it is necessary to employ more miners and working places than otherwise would be required. The failure of one or more miners to report for work necessitates shifting men from place to place, thus frustrating systematic operation.

More Complete Recovery

Machine loading adds stability to mine operation and assures a uniform output from a minimum of working places. Room after room and pillar after pillar can be mined in proper sequence, thus affording more complete recovery of the coal. It is possible, if so desired, to take more than one cut in a room or from a pillar in a single shift so that the area of live workings can be still further reduced.

As an example of the economies which concentration effects, let us consider the accomplishments of the West Virginia Coal & Coke Co. in its Norton mine during the last year. Prior to the adoption of the "V" system this mine was worked by rooms and pillars from which a daily output of 2,000 tons was produced. This mine is in the Lower Kittanning seam, only a 5-ft. thickness of which is merchantable. To maintain an output of 2,000 tons per day, approximately 400 acres were constantly under development, requiring 24,000 ft. of main-line haulage and 74,000 ft. of light-steel track. Twelve locomotives and 30 head of stock were used in gathering and hauling this tonnage.

Animal Haulage Eliminated

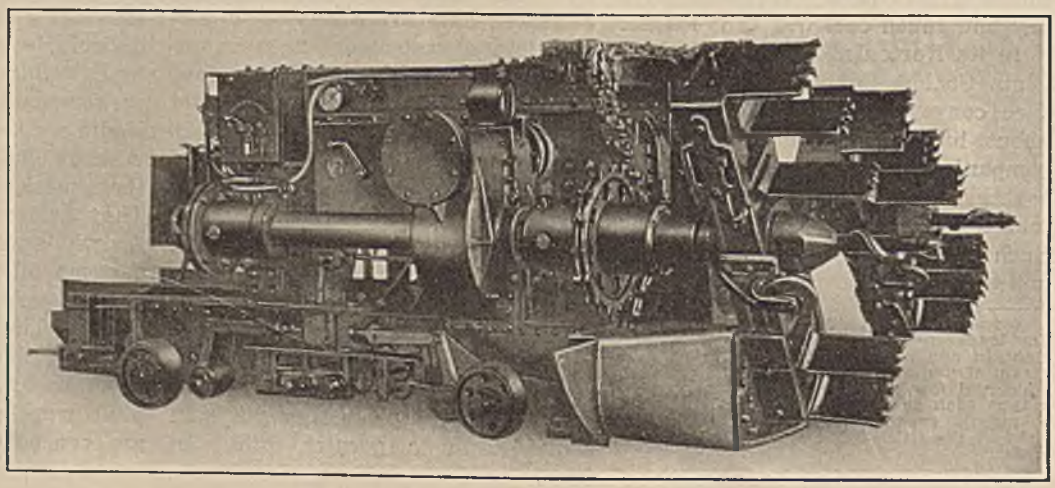
In 1924 two V-system batteries of ten working faces each were in operation. Each face was made 100 ft. long. The development for these batteries covered only 36 acres, from which a tonnage of 2,500 tons per day was obtained. Main-line haulage was reduced to 12,000 ft. and the light-steel track to 12,000 ft. In the "V" system animal haulage was entirely eliminated and, as little gathering was required, seven locomotives hauled 2,500 tons of coal per day from the workings to the tipple. On the strength of these economies the company in 1925 will open up a new mine on the "V" system.

Such are the savings which concentration in mining makes possible. Even when applied to the room-and-pillar system, it will greatly reduce the area which must be kept in active operation for the production of any given tonnage.

During the last year several companies demonstrated the ability of

McKinlay Machine

This combined mining and loading machine is successfully driving entries in the Kentenia mine of the Fordson Coal Co. It has mined and loaded 55 lineal feet of entry in six hours. The revolving heads cut circular kerfs in the coal, and the annular rings thus formed are wedged out. Revolving buckets attached to the heads sweep the coal to a conveyor.



machines to load pillar coal successfully. As a cut is loaded many times faster by machine than by hand, the roof over the machine has little opportunity to work. Consequently less protection, either of timbers or coal stumps, is required and less roof material has to be handled. So pronounced is the improvement of the condition of the roof which speedy pillar recovery affords that cuts across the open end of pillars have been loaded out repeatedly without any greater danger than exists when pillars are pocketed by hand loading. Under certain conditions pillars are being slabbed successfully by machines.

Conveyor in Y-System

The timberman is erecting a post to sustain the roof. No delay, no lifting of coal, no double shoveling, no car shifting, no waits for cars with such a conveyor. Nothing prevents continuous operation, with minimum expenditure of energy.

No Fatal Accidents

Mechanical loading makes working conditions at the face safer. Despite the larger quantity of coal loaded by this means in 1924, not a single fatal accident to a member of a loading machine crew has been reported. During the last five years the Pocahontas Fuel Co. has loaded more than 3½ million tons of coal with machines without losing a man on any of the machine crews.

So far the duties of loading machines have not been co-ordinated with those of conveyors. Almost without exception each is being operated alone. Long conveyors, extending from the face to the neck of a room, would possess little utility in room work unless they afterwards served for recovering wide pillars by slabbing. Much thought is being given to the development of a conveyor which might be laid parallel with and to the side of the mine track, extending from the end of the track to an outby point at a distance equivelent to the length of a trip of about five mine cars.

At this point the end of the conveyor would be elevated to clear a mine car for loading purposes. A loading machine would discharge on the conveyor which in turn would load one after another of the cars.

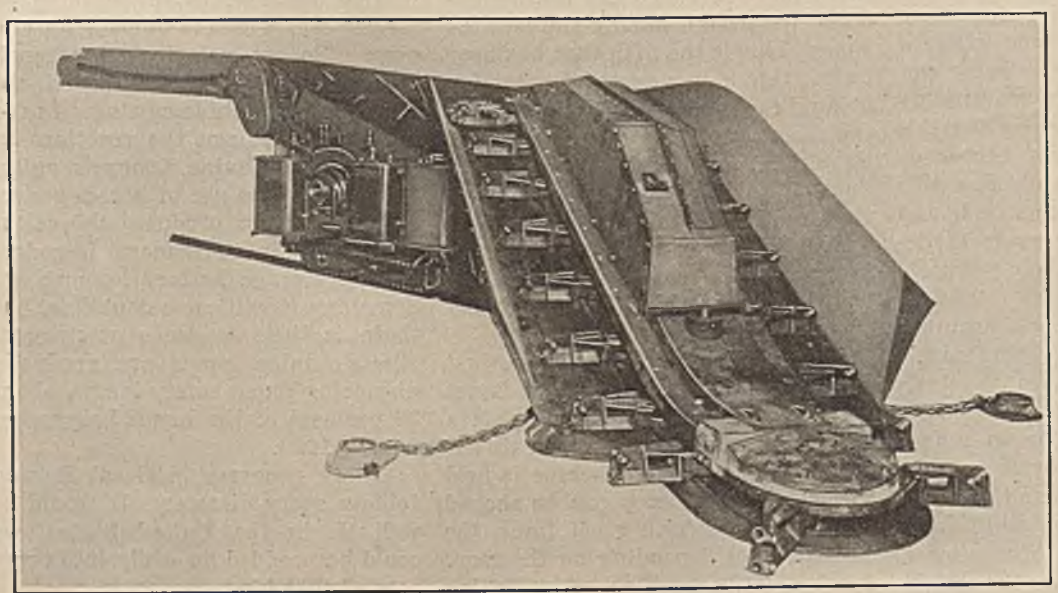
The co-ordination of loading machines with conveyors no doubt will be realized first in modified longwall mining where roof conditions are favorable.

Inasmuch as locomotives are required to handle mine cars either one at a time or in a trip for loading by machine, the use in high seams of small mine cars is no longer justified. The tendency is therefore toward a larger mine car. The standard capacity of the large car will probably be established at 5 tons. From present indications the bodies will be built box-like, without flares, and will be "squatted down" over the wheels, the upper half of which, therefore, will run in housings on the floor of the car.

These cars will be longer and wider than those now in general use. In mines designed expressly for mechanical loading the big car will have a gage of 44 to 48 in. and a slightly longer wheelbase than is now used. The box-like body and wheels of small diameter (14 to 16 in.) will make the car low and yet afford large capacity. Antifriction bearings are invariably considered a necessary part of the large car. There is some talk of using tension springs in the drawbar and compression springs in the bumper blocks, and in some instances the former already have been provided.

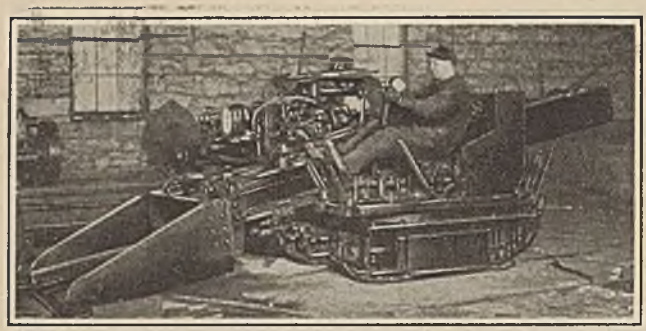
Better Preparation Required

Operators are beginning to realize that the besetting evil of machine-loaded coal, which is the difficulty of keeping refuse out of the coal at the face, can be overcome, but only by the employment of new methods in preparation. The idea that coal can be picked thoroughly as it passes over the conveyors of the loading machine has been definitely abandoned. Certain precautions, however, are being taken, and others will be evolved, to diminish the quantity of



Jones Loader

A simple scraper conveyor pushes the coal from the floor on to sloping surfaces, lifting it up to car height. Large pieces of coal can be handled. Twenty-two machines of this type produced 1½ million tons last year in the Pocahontas Fuel Co.'s mines in West Virginia where additional units are being installed regularly.



Hydraulic Shovel
At the Monitor Coal & Coke Co.'s plant, Wilkinson, W. Va. The machine weighs 9 tons and scoops 1,500 lb. of coal. It requires 6 ft. of headroom and will clean up a coal face 17 ft. wide or wider.

slate which finds its way into the mine car with the coal.

Preparation methods at the face are slowly being formulated. They concern themselves with two problems: First, the methods which will insure a reasonably clean product; second, the methods which will yield the most lump coal. To obtain a clean product from a seam having a roof with drawslate, 8 to 12 in. of head coal may be left unmined. Topcutting is a necessary part of this practice. An alternative is to shoot down the entire thickness of the seam and then pry down and gob the drawslate before a loading machine attacks the pile. A machine is needed to handle this slate and at least one company is devising such a machine.

Many Changes Necessary

Many changes in the present methods of cutting and shooting coal must be made before the greatest efficiency will be derived from loading machines and the largest possible coal size attained. Topcutting, centercutting and undercutting with snubbing are being tried with various combinations of shotting methods in an attempt to arrive at the best practice. The labor of snubbing the coal after it has been undercut is believed to be excessive, for which reason the need for some kind of snubber and undecutter is being emphasized. Experiments are already being made with a machine for this purpose. The merits of center or rib-shearing cuts in conjunction with horizontal cuts are recognized, and experiments are being made to determine the limits of their practicability.

Long before loading machines were used successfully in mines, mine owners even where the beds were reasonably clean, washed their small-sized coal in order to reduce the ash content. The better markets nowadays almost demand washed coal. Consequently, the addition of a washer to the tipple of a mine is quite a natural inovation, though the introduction of loading machines may be expected to hasten the practice.

Uses Water Pressure

A weakness in the operation of the majority of coal mines, which is widely known to exist but has been given little serious attention, is the inefficient and inadequate transmission of power underground. Under present operating systems the present transmission methods can pass muster, after a fashion, but not so where loading machines are used. Ample facilities for well-balanced power distribution are absolutely needed if the required voltage is to be afforded at every working place. Loading machines do not add much to the electrical load of a mine, but they must be supplied with a well-regulated voltage or they will fail of their purpose. They will, therefore, cause the operating forces to improve a condition that has long been a sore spot in the mine operation. If they are to do all that is expected of them sufficient generator capacity, ample copper and good bonding must be supplied.

At a mine four miles from Logan, W. Va., is a machine for loading constructed by the Goodman Manufacturing Co., which has been developing the design during the last ten years. This is the fifth that has been built. One is in successful operation at an Illinois mine. That shown in the illustration is probably already at work at Monitor No. 3 mine. An unusual feature is the unloading of the scoop into the mine car by a hydraulic pusher ram. The machine is mounted on caterpillers, and the body of the machine is wonderfully compact.

In the center of the machine, just below the pressure gage which is not meant to be left on in service, is a 15-ton hydraulic jack. When this is against the roof the machine is held solidly, and the scoop can be shoved under the coal with great force, the pressure not depending on the mere inertia of the machine. Any flaking of the roof does not affect the tightness of the jack, for the ram automatically moves so as to maintain the 15-ton pressure. Power is furnished by one 15-hp. motor and all operations except the travel are accomplished by 800-lb. hydraulic pressure.

The motor drives a three-cylinder vertical pump, each cylinder being about $2\frac{1}{2} \times 6$ in. The travel is by direct gear from the same motor. The machine swings round like a revolving shovel, the operator riding as shown in the illustration. The machine is quiet in operation because the boom and scoops are operated by hydraulic cylinders instead of gears. T. F. Downing, of Huntington, W. Va. is the general manager of the mine and A. F. Marshall, the mine superintendent.

British Progress in 1924

In the British Empire Exhibition Great Britain has laid the groundwork for progress in mining in 1925, and let us hope it is well laid, for nothing exceptional seems to have developed in British mining in the past year, though there has been the force acquired in earlier years still operating to increase progress. Judging by the report of 1923 the percussive equipment for cutting coal is increasing rapidly, but chain cutting is having an even more rapid advance. The British have further to go toward mechanization of the work of undercutting than the United States. In 1923 they were cutting 17 per cent of their coal by machine, whereas in 1922 not less than 63.2 per cent of the coal mined in the United States was being cut in that manner, to say nothing of 2.4 per cent which is mined by stripping. So we can look for much progress in Great Britain in the direction of machine cutting. In the matter of haulage the reactions to the British Equine League's agitation against the use of horses underground has not produced the calculated effect in the general introduction of storage battery locomotives. Some day it will come doubtless, but there is little evidence at present. Electric mine lamps are gradually displacing flame safety lamps, about 36 per cent of the lamps being electric in 1923.

Safety progress in Great Britain follows every disaster. It would be well if, in the United States, we could be prodded as easily into progress of that kind.

Twenty Companies in Midwest and West Rock Dust Four Hundred Miles of Entry

Much Dusting Still Remains to Be Done but Great Progress Has Been Made—Care Taken to Remove Loose Coal Before Applying Dust—Use Four-Hundred Foot Hose with Cement Gun

By E. W. DAVIDSON
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IF "ROCK DUST by Christmas" had been the slogan of the coal mines of the West and Midwest, a summary checked up on that date would have shown some real results, but the total rock-dusted mileage of coal mines in those regions would have fallen miserably short of complete coverage. The total of twenty companies dusting in six states is now 400 miles of entry.

A serious effort was made by this magazine to list every foot of entry that had been dusted. Questionnaires were sent to every coal-mining company in Wyoming, Utah and New Mexico and to every one operating in the gaseous fields of southern Colorado. The questionnaire also went to every mine elsewhere in the West and Midwest that was known to have done any dusting or had actively prepared to dust. Letters inquiring for the names of any coal-mining companies that are dusting went to every chief mine inspector in every one of the states that had not already been covered entire. The accompanying table shows the results. (To it has been added information derived from Pennsylvania, the figures for lengths of dusted heading in that state not being included in the foregoing statement.)

FAVOR LOW-PRESSURE BLOWERS

It is interesting to note that less than half the companies that dusted during 1924 adopted V-troughs as part of their dust protective system. Most of them rely on low-pressure blowers to distribute dust of 200-mesh fineness through haulage ways and many inject this fine dry material—shale, limestone from cement mills, or adobe road dust where it is available—into aircourses through holes in stoppings. However, high-pressure dusters continue to grow in favor throughout the Rocky Mountain region where cement projectors and compressor units are becoming more numerous.

The Columbia Steel Corporation with a coal mine at Columbia, Utah, has gone in for heavy projection of wet shale of 200-mesh. L. F. Rains, head of the company, says the application forms a coating $\frac{1}{16}$ to $\frac{1}{8}$ in. thick, completely covering the coal on ribs and roof, giving each entry the appearance of a rock tunnel with every crack filled. He estimates 35 lb. of wet dust is applied per running foot of entry.

MUDITING AT WATTIS MINE

At the Wattis mine of the Lion Coal Co., in which Superintendent W. J. Reid is using the muditing machine of his own invention, country shale is mixed with water in the tank of the machine and sprayed through every tracked passageway in both the old No. 1 and in the new No. 2 mine. In the old mine fresh applications are necessary every three months to keep down the percentage of coal dust accumulating on roof and ribs but in No. 2 mine, which is wet, the velocity of trips is lower, distribution of fine coal dust is thus less active and the mine needs fresh muditing only twice a year.

In the Utah Fuel Co.'s mines, A. C. Watts, chief engineer, reports that high-pressure application of dust has proved far more efficient than the service of a low-pressure blower. That company saves many moves of the compressor unit by connecting it with the water lines, thus delivering compressed air to many scattered points from one location. The company, in addition to dusting with high- and low-pressure units, is laying dust heavily on entry roadways. Already 3.66 miles have been loaded with 80 to 100 lb. of adobe dust per lineal foot hauled in and shoveled around the floor.

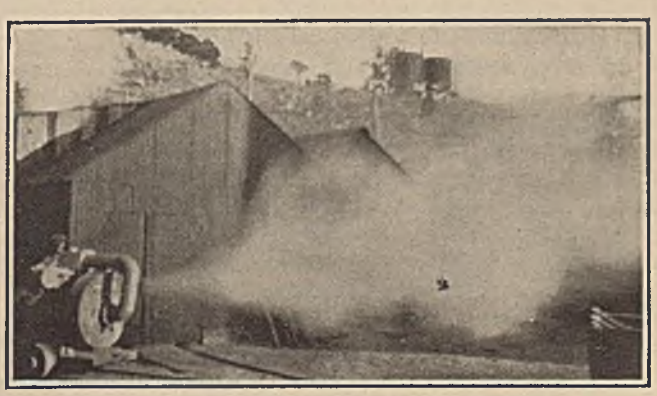
The new mine of the Scofield Coal Co., near Scofield, Utah, has dusted 2,500 ft. of haulageway from the portal to the bottom of the main slope, laying a bed of earth and shale and then dusting over it by hand about 10 lb. of fine shale per lineal foot. The main slope is the intake airway and, in that cold dry climate, is extremely hard to keep safely moist in winter during temperature ranges of 20 to 40 below zero. The dust is counted on to supplant the need for moisture. Bernard Newren, mine superintendent, says his company is thoroughly converted to rock dusting.

The Old Ben Coal Corporation's total mileage of first dusting was 205—135 miles of haulageway and 70 miles of aircourse. Second dusting covered 95 miles of haulageway and 35 of aircourse and the third application, now continuing, totaled 50 miles of haulage and 20 miles of aircourse.

Another southern Illinois company that is going in strongly for dusting is the Chicago, Wilmington & Franklin Coal Co. in its huge Orient No. 1 and its new gigantic Orient No. 2 mine. In the old mine, 22.8 miles have been dusted and 10 miles in

Rock Dust Obscures Hill

Evidently the dust has good carrying qualities, some of it mounting high into the air obscuring the hilltops on the right where the dispersion of the dust is greatest. The machine is that at the mine of the National Fuel Co.



No. 2. No barriers are to be used.

At No. 1 mine Superintendent John R. Rodenbush is especially careful to see that all loose coal dust and fine coal on the floor is loaded out before dusting. Also orders are that every loose piece in the rib must come down, for such loose coal forms pockets inviting surprisingly large accumulations of fine coal dust. When the dusting outfit comes along, traveling about three miles an hour, the best results are obtained by playing the dust stream first on one rib, then on the other, and finally down the center line of the roof. The machine slows up at the mouth of every crosscut to allow large quantities of the inert dust to drift in.

"We find," Mr. Rodenbush says, "that spraying aircourses by inserting a pipe through the stopping at certain points is not a success as the ventilation cannot be controlled so as to deposit the dust evenly. Either the air travels too slowly to carry the weight of the dust or too rapidly to deposit it where it should settle."

At No. 2 mine Superintendent H. A. Treadwell dusts all main, cross and panel entries with a blower traveling at about 1½ miles an hour. Air courses and entries without track are dusted with a cement-projecting machine using dry shale. The machine would operate successfully through a hose up to 400 ft. long furnishing 35-lb. pressure at that distance. The pressure sweeps the ribs and roof clear of coal dust and deposits rock dust in adequate amount. An 8-in. fan spreader is used as a nozzle. At this mine also, it was found that the air current could not be relied upon to make a uniform deposit of rock dust although traces of dust have been carried 2,000 ft. by the air.

The dust blower used on main haulageways is found to give an even

Rock Dusting Activity of Various Mines

Summary for West and Midwest to Christmas, 1924, and for East up to recent date

	Miles Dusted	Lb. Per Lin.ft.	Method of Application	Material	Mesh of Screen	Type of Distributor	Mill
Alabama							
De Bardeleben Coal Co.	2	3	Machine.	Dolomite	.....	Low-pressure, movable nozzle.	.....
Colorado							
Alamo Coal Co.....	2	.....	Dry by machine.	Shale.	About 200	Combination pulverizer and blower.	None.
American Smelting & Refining Co.....	2	.....	Dry by machine.	Limestone.	80%—200	Low-pressure blower.	Dust purchased from concentrator mill.
Royal Fuel Co.....	7	1.4	Dry by machine.	Shale.	100%—100	Combination pulverizer and blower.	None.
Illinois							
Chicago, Wilmington & Franklin Coal Co....	32.8	1.93 to 2.7	Dry by high and low pressure and by hand.	Shale.	About 200.	Concrete projector. Blower.	2-unit pulverizer.
Old Ben Coal Corp.....	205	3 to 6	Dry. Medium pressure blower. V-troughs.	Shale.	92%—255.	Blower.	2-unit pulverizer.
Valier Coal Co.....	20	2	Dry by blower. V-troughs.	Shale.	70%—200.	Low-pressure blower.	1-unit pulverizer.
Kentucky							
West Ky. Coal Co.....	2	4.5	Dry by machine. V-troughs.	Shale.	80%—200.	Low-pressure blower.	Impact pulverizer.
New Mexico							
Phelps Dodge Corp....	56	2	Dry and wet by hand and machine. V-troughs.	Adobe road dust, Concentrator tailing, Limestone.	60%—200.	Concrete projector. High- and low-pressure blowers.	Dust purchased.
Albuquerque & Cerillos Coal Co.....	7.5	6	Dry by machine.	Limestone.	85%—200.	Low-pressure blower.	Dust from cement mills.
Gallup-American Coal Co.....	5	4	Dry by machine. V-troughs.	Limestone.	70%—100.	Low-pressure blower.	Impact pulverizer.
St. Louis, Rocky Mt. & Pacific Coal Co.....	6.5	About 2	Dry by machine and V-troughs.	Limestone.	50%—200.	Low-pressure blower.	8-ft. ball mill.
Pennsylvania							
Allegheny-Pittsburgh Coal Co.....	14	2.3	By machine.	Limestone.	80%—200.	Medium pressure, movable nozzle.	Dust purchased.
American Zinc & Chemical Co..... Langcloth Coal Mine...	4	2.35	By machine.	Limestone.	70%—200[1].	Low pressure, movable nozzle.	Dust purchased.
Berwind-White Coal Mining Co.....	17	2 to 3	By machine.	Limestone.	50%—200[1].	Motor-driven blower[2], movable nozzle.	Dust purchased.
Hillman Coal & Coke Co.	25	2½ to 4	By machine.	Limestone.	55%—200[1]	Low and High pressure	Dust purchased.
Inland Collieries Co....	25	3	By machine.	Limestone.	55 & 72% 200[1].	Low-pressure, movable nozzle.	Dust purchased[3].
Ontario Gas Coal Co., Ontario mine.....	3½	2	By machine.	Limestone.	60%—200[1].	Low-pressure, movable nozzle.	Dust purchased.
Pickands-Mather Co. Mather Colleries.....	10	3½	By machine.	Limestone.	70%—100[1].	Low-pressure, movable nozzle.	Dust purchased.
Pittsburgh Coal Co.....	35	2½	By machine.	Limestone.	70%—200.	Low-pressure, fixed nozzle.	Dust purchased.
Pittsburgh-Terminal Coal Corp.....	11	aver. 3	By machine.	Limestone.	60%—200[4]	High-pressure, movable nozzle.	Dust purchased.
Springfield Coal Mining Co.....	0[5]	5	By machine.	Limestone now Shale later.	50%—200[1]	Low-pressure, movable nozzle.	Dust purchased[5].
Westmoreland Coal Co.	35	About 3	By machines of several types.	Limestone.	70%—200	High-pressure, movable nozzle.	Dust purchased.
Utah							
Columbia Steel Corp...	2.5	35	Plastic.	Surface shale.	About 200	Concrete projector.	None.
Lion Coal Co.....	5	5	Plastic.	Surface shale.	About 200	Muditing machine.	None.
Liberty Fuel Co.....	3	2 to 4	Dry by hand and high pressure.	Limestone.	80%—200	Compressor unit.	Dust purchased.
U. S. Fuel Co.....	12	11.27	Dry by hand and high and low pressure.	Adobe dust and limestone.	50%—200	Compressor unit. Blower.	Dust purchased.
Utah Fuel Co.....	13.16	3½–6	Dry by hand and high and low pressure.	Limestone.	70%—200	Compressor unit. Blower.	Dust purchased.
Scofield Coal Co.....	2.5	About 10	Dry by hand.	Surface shale.	.....	.....	None.
Spring Canyon Coal Co.	2.5	About 3	Plastic.	Limestone.	75%—200	Concrete projector.	Dust purchased.
Independent Coal & Coke Co.....	2.5	About 3	Dry blown on watered ribs and roof.	Surface shale.	.....	Low-pressure blower.	None.
Wyoming							
Union Pacific Coal Co..	9.5	About 2	Dry by machine.	Shale.	90%—100	Low-pressure blower.	Impact pulverizer.

[1] All through 20-mesh. [2] 6-in water gage. [3] Griffin mill and rock crusher set up but not in operation. [4] 95% through 40-mesh. [5] Had not started. Expected to do so Dec. 15 Statements show what intentions of company are. [6] New Holland crusher and a Griffin mill will be installed.

and proper coating of dust only when the nozzle is within 36 in. of the rib. If the distance is greater than that and the ventilation current or return air is of fairly high velocity the dust stream is sufficiently deflected so that the coal dust is not well removed nor the rock dust uniformly applied. The machine is always moved slower past the front of room necks, crosscuts and old workings in this way allowing the dust to float in as far as it will.

The Valier Coal Co., at Valier, Ill., is dusting all tracked ways in its big mine with a screw-feed low-pressure traveling blower of large capacity and is getting excellent results according to W. M. Dickson, acting general manager of the company. Using 2 lb. per lineal foot of entry, ground to a fineness permitting 70 per cent to pass through a 70-mesh screen, the results are so good that dust samples in rock-dusted areas uniformly analyze 70 per cent noncombustible, which is generally considered a safe quantity in that section.

This company also is throwing rock dust into intake air currents and is dusting inner airways by attaching canvas tubing to the traveling blower. The results of this aircourse dusting are not yet known.

Colorado Experimenting

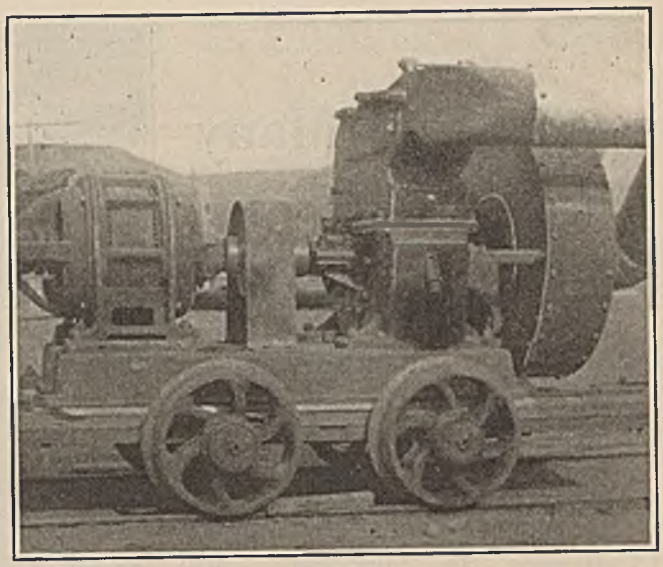
In Colorado rock dusting is still distinctly experimental, although the Royal Fuel Co., with General Superintendent Samuel Tescher's combination pulverizer and blower mounted on a single truck has already done good work in the Aguilar mine of that company. Mr. Tescher thinks 1.4 lb. of dust per lineal foot of entry is enough. His machine, taking shale in pieces up to 3-in. size, crushes the shale to 100-mesh fineness and delivers it into the entry air with the fan which draws the pulverized dust from the crusher. At Aguilar mine are two of these machines, in the care of one operator. He does most of the dusting on idle days, applying 3,500 to 4,000 lb. of dust in 8 hr. at a total cost estimated by Mr. Tescher at $6 per ton.

Superintendent H. H. Bubb for the American Smelting & Refining Co. with coke ovens near the Bon Carbo mine, in southern Colorado, hopes to have every foot of entry in the mine dusted soon. He uses cement mill dust distributed by a low-pressure blower.

Both the Colorado Fuel & Iron Co., long well-known for its extensive sprinkling and humidification, and the Victor-American Fuel Co., one of the pioneers in rock dusting as far back as 1911, are experimenting with present-day rock dusting but have not yet settled upon the proper devices or methods.

Rock-Dusting Machine

This machine, used at the plant of the National Fuel Co., crushes the rock of the mine to dust and blows it into the air current. It is hoped in this way to make it unnecessary to bring the rock to the surface and haul it back into the mines as dust.



Good Progress in New Mexico

In New Mexico is the Stag Canyon branch of the Phelps Dodge Corporation, recognized for a year as a leader in rock dusting.

This company has dry dusted 14.7 miles of motor roads and 17.3 miles of airways and has coated 24 miles of entry with mud and cement.

Rock dusting has made good progress in the mines of the St. Louis, Rocky Mountain & Pacific Coal Co., at Raton, N. M. General Superintendent F. A. Young started the program actively last July. His men have completely dusted the Swastika mine's haulage and airways and have started on two other mines. The total length of entry dusted is 26,000 ft. and 7,000 ft. of main air course. The company is erecting V-trough barriers in sets of three at each pair of cross entries. By July 1, 1925, the company expects to have all its mines thoroughly dusted.

The company buys limestone screenings from a quarry at Las Vegas, N. M. This material, 1½-in. and smaller, goes into an 8-ft. ball mill capable of pulverizing 600 lb. per hour to a fineness of 50 per cent through a 200-mesh screen. This mill serves the whole company. A home-made, low-pressure, traveling blower does most of the distributing, traveling at a speed slow enough to make the application average about 2 lb. per lineal foot of entry. Main air courses are dusted by running the blower's discharge pipe through crosscuts at 500-ft. intervals.

The Albuquerque & Cerillos Coal Co., operating near Madrid, N. M., blows cement mill limestone through its mines using an electrically driven blower unit that is moved on wheels from station to station, General Superintendent Oscar Huber reports.

The cost of sprinkling with water in a country like that in northern New Mexico where the Gallup American Coal Co. operates, is greatly reduced by the use of rock dust. General Superintendent S. Horace Moses says illumination in the mines at Gamerco has been much improved by dusting, and the miners have made no complaint against the dust. The workings are considered much safer than they ever were when complete dependence was placed on sprinkling. This company also uses V-troughs.

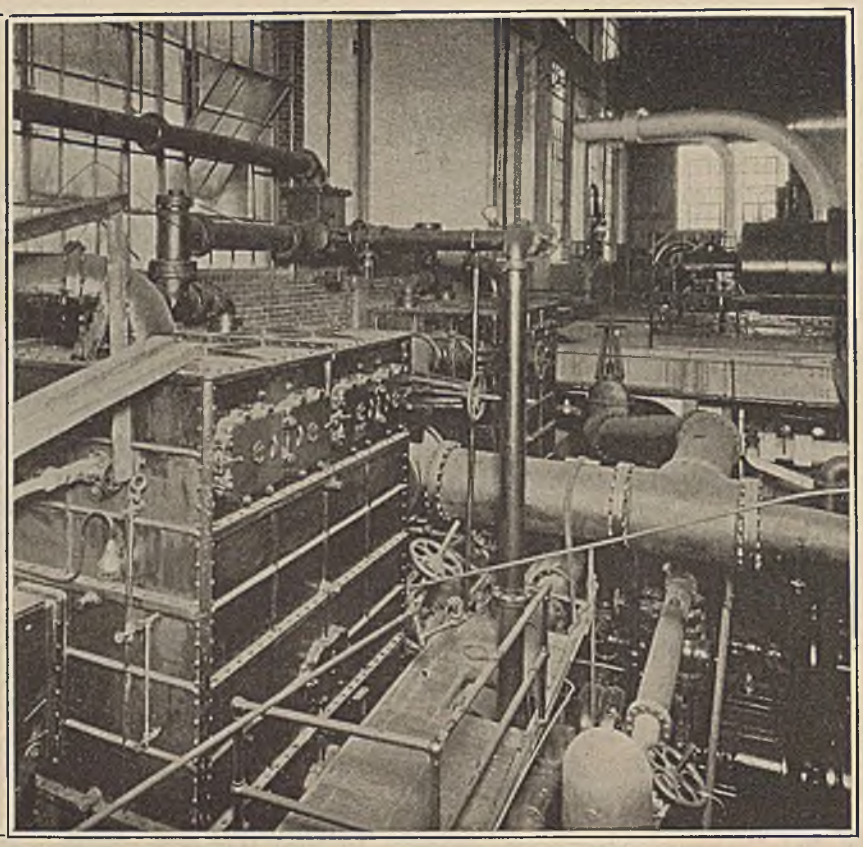
Central Plants Proposed

In Wyoming many companies are making a start but the Union Pacific Coal Co. is the only one to cover any considerable mileage with dust. Vice-president George Pryde reports the total at 7 miles. The operating men in that state have conferred on the proposal to construct central plants to crush and pulverize material for all the mines, the cost of the plant and its operation being supported by all. However, this scheme has not been put into operation. The general plan is to use low-pressure blowers and V-troughs. Superintendent T. C. Russell, for the Diamond Coal & Coke Co., has 120 tons of dust ready to be put into trough barriers now building. A blower will also be used. General Superintendent Gomer Reese has bought a combination traveling crusher and blower to go into service at once.

1924 Saw Many Improvements In Mine Equipment

New Power Methods Mark Year of Progress—Main Haulage by Conveyor Is Successful and Gathering Conveyors Appear from Pennsylvania to Alabama

BY FRANK H. KNEELAND
Associate Editor, *Coal Age*, New York City



THE year 1924 showed great progress in both mechanical loading and conveyance of coal. The advances made in loading have been covered in an article by A. F. Brosky, and no further mention of them will be made here.

Face conveyors are not alone employed in the V-system mine of the West Virginia Coal & Coke Co., in West Virginia; they are also used in the operations of the American Smelting and Refining Co., in Colorado, the Dodge mine of the Glen Alden Coal Co., in the anthracite region of Pennsylvania and in the operations of the Montevallo Coal Co. Suspended shaking chutes or conveyors are employed in one or two operations in the anthracite region for moving coal down slight grades, along the level or even up grades of small inclination. A moving pan conveyor is also in use in a mine, of the Paris Purity Coal Co., Paris, Ark.

Nor has the movement of coal underground been confined to face conveyors. The H. C. Frick Coke Co. has successfully operated its system of belts transporting the output of several mines to the Monongahela River. The careful planning and foresight expended on this installation have borne excellent results in the shape of power savings. Another somewhat similar development is said to be in prospect. Furthermore, the interest shown in this original installation warrants the belief that it will not go without imitation in the mines of other companies.

ELECTRICITY FOR STEAM

Probably in few pieces of equipment is the substitution of electric energy for steam more spectacular in its results than in the power shovel. The big electrically driven stripper placed in operation by the Cranberry Creek Coal Co., is an interesting development, for hitherto the anthracite region has not taken to the large shovel although it has had electric dragline excavators in operation for some years. Need for greater efficiency in anthracite stripping methods has long been apparent but heretofore contractors have not felt justified in making the large investment represented by one of these big machines. Self-dumping spoil cars of large size, or those discharged by means of compressed air upon the throwing of a small valve lever, also do their part toward lessening the cost of coal at the Cranberry Creek operation.

Year by year power for mine operation becomes a problem of ever increasing importance at coal developments. Powdered coal has been used as a boiler fuel in several plants at the mines during the past year. By this means coal of a quality that would give trouble in hand-fired furnaces or on stoker grates is rendered available for power generation. Thus the plant of the United States Coal & Coke Co. at Gary, W. Va. is fired with pulverized bone from the picking tables and sweepings from the railroad and mine tracks containing sometimes as much as 40 per cent of incombustible matter.

Only a few years ago powdered coal when used in boiler furnaces melted down the furnace walls and gave much trouble. The ash also tended to slag into a compact mass in the bottom of the combustion chamber decreasing its volume and making the removal of the ash difficult. Making the furnace walls hollow and circulating the air for combustion through them has done much to overcome the first of these difficulties. Lining the side and rear walls of the furnace with fin tubes which really form part of the boiler heating surface seems to surmount it entirely. Placing a water screen, consisting of a series of tubes carrying water, a short distance above the furnace bottom so cools the falling ash as to prevent slagging altogether. Increasing the height of the furnace is slightly less effective in this regard.

Several decided advantages inhere

NOTE—In the headpiece, which shows an interior view of a coal-mine power plant, water heaters and other auxiliary apparatus can be seen in the foreground. In the background are the main power units (turbo-generators).

to the use of this fuel. Among them may be mentioned the easy control and great flexibility of the fire, complete combustion of the fuel with small excess air and the high boiler ratings that may be attained without difficulty. It is not uncommon with this fuel to operate boilers to 300 or even 400 per cent of normal rating. It is certain that from now on when installations of medium to large size are to be made, either at the coal mines or elsewhere powdered coal and its possibilities will be taken into careful consideration.

Better Preparation

In the field of coal preparation many improvements have been made. In this respect the anthracite region has been particularly active. Thus the year has witnessed the introduction of the Rheo-Washer, the Hydro-weir (this name has not yet been fully decided upon) and the Mason flat slate picker. The Chance separator likewise has had a greatly extended use. Several other types of coal cleaners have also made their appearance either as models or experimental machines, the actual utility and performance of which as yet have not been fully demonstrated.

Many rock-dusting machines have been developed during the past twelve months. A few of these are operated on high air pressure but most of them employ only a fan with which to create an air blast for the distribution of dust. Some of the discharge nozzles are fixed, others movable, and still others are multiple, discharging in at least three different directions simultaneously. Like the art of anthracite preparation that of dust distribution is in a state of flux, changes and improvements taking place with almost dizzying rapidity. Probably not more than one type of dust-spreading car has as yet been manufactured on a commercial basis, practically all those now in use having been built by their owners.

Steel Pipes Made Acid-Proof

Further improvements have been made during the past year in means for coping with the acid of mine and washery waters. Not only have brass, bronze, copper and monel metal been more extensively used than previously but other materials have been employed. Both in the United States and England means have been introduced for rapidly and effectively lining steel pipe for use in conveying acidulous waters. By means of special machines of the lathe type cement grout is introduced into such a pipe while it is being rapidly revolved. The grout is thus spun to place by centrifugal force and forms a compact mass of practically uniform thickness and density upon the inner surface of the pipe. Just before the lined pipe is removed from the machine the surface of the grout is smoothed by means of a bar provided for that purpose which passes through the entire length of the pipe.

Inasmuch as pipes lined in this manner are protected to their very ends the metal may be threaded and joined in the usual manner yet the liquid conveyed can act on only the extreme end of the pipe and the metal coupling. This latter may of course be made of cast iron or some other corrosion-resisting metal. Experience has demonstrated that cement offers practically the same resistance to the inroads of acidulous liquids as does glass, porcelain or other vitreous material.

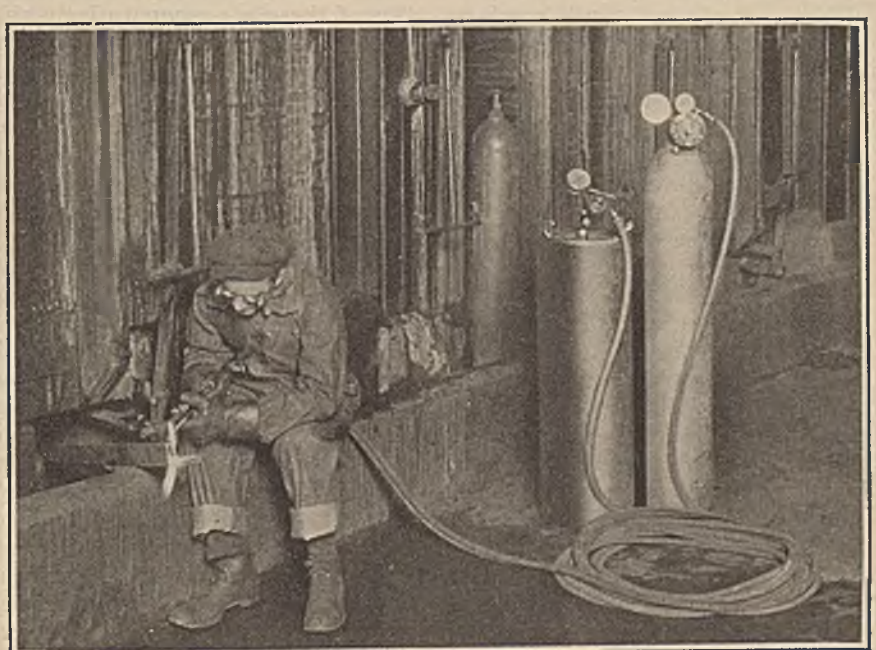
Improved Gathering Pump

Several other devices and appliances that possess strong acid-resisting qualities also have been brought out during the year. Among these should be mentioned: A gathering pump with a porcelain cylinder or working barrel, all other parts coming in contact with the water being formed of acid resisting bronze; also a line of valves of various types, all the wetted parts of which are of wood thus being practically immune from the ravages of the liquid handled.

In mining equipment it is sometimes difficult to draw any sharp line of distinction between electrical and mechanical improvements. During the year a new design of locomotive, both trolley and storage-battery, was perfected and placed on the market. This embodies nothing electrical that is new but in the chassis of the trolley type, three-point suspension is afforded, the advantages of which are at once apparent. In the storage-battery machine a system of levers practically equalizes the pressures on the four journals regardless of any slight inequalities in the track. Certain other improvements also have been embodied in the design of these machines adapted from successful steam locomotive practice on the one hand and from equally successful automobile practice on the other.

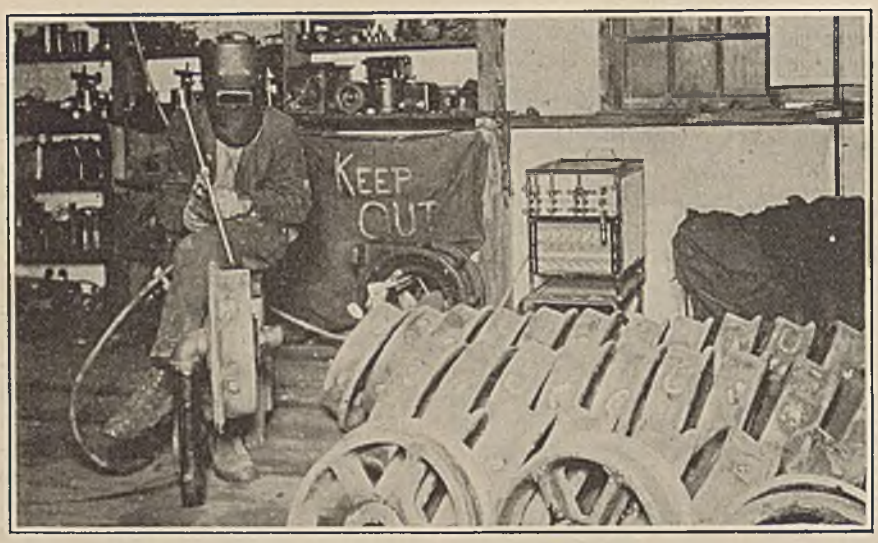
Power Drills Cut Costs

During the past year the practice of sinking shot holes by means of power drills has been still further extended. Drilling such holes by hand is hard arduous work but by power it becomes both easy and rapid. Inasmuch as such drills are usually operated by a man or men who do nothing else, they soon become experts both in the operation of the machines and in the placement of the shot holes. The use of these



Cutting with Oxyacetylene Torch

Three methods of autogenous welding are used at American coal mines, each having its own particular advantages. The oxyacetylene torch may be used for both welding and cutting and may be utilized on small jobs in places where electric current in fairly large volume is not available.



Spot Welding Worn Car Wheels

The old adage running to the effect that "a penny saved is a penny earned," is well exemplified in this picture. Few indeed, comparatively, are the car wheels that fail through breakage. The electric welder makes it possible to repair and render serviceable wheels that have developed flat spots of sufficient size to make their use undesirable or even dangerous.

drills thus decreases the cost of coal produced and increases the percentage of lump size yielded.

Mine shops are better equipped than ever before to handle the various classes of work that come to them. A few years ago autogenous welding at the mines was almost unheard of. Today many mine shops are equipped to do this kind of welding by any or all of the three methods available—thermit, the electric arc, or oxy-acetylene. Each of these methods has its place at the mine, as each is better adapted to certain classes of work than the others. Each has done much to make the operation of mine equipment more regular and lessen the amount of time lost through the breakdowns that should not, yet nevertheless do, occur. They have also been the means of keeping much equipment in use that otherwise would have gone to the scrap heap.

Driving Fans and Hoists

Where mines are electrified and power is purchased, it has become necessary to provide some emergency means for driving both fans and man-hoists. One convenient way of accomplishing this result is to install internal-combustion engines which on short notice may be geared or clutched to the machines to be driven. An alternative is to install a generator of sufficient size to furnish current for the operation of fan and hoist, (usually at reduced speed) driven by an internal combustion engine. Several manufacturers are building units designed for this express purpose. Sometimes such auxiliaries are installed where the owning company generates its own power, thus making continuity of operation, even though on a reduced scale, almost certain. Sometimes also, particularly where an auxiliary generating unit is chosen, provision is made for the operation of the pumps, or some of them in case of a power failure.

Several Secondary Improvements

Many improvements and devices of what might be termed a minor or secondary nature have been introduced during the past twelve months. One of these is a comparatively simple yet effective contrivance whereby a great number of bearings may be grease-lubricated from a single point by one man. This is particularly effective on intricate systems of shafting or on conveyor lines where several hundred bearings may be connected to and greased from a single point.

Another machine that might be classed in this same category is a vertical, two-cylinder, portable air compressor for use underground or elsewhere. In this machine the compressor is mounted directly over one axle of the supporting truck. The vibration produced by the machine's operation is thus in a vertical direction and is transmitted direct to the rail. As a result of this construction no support other than the truck wheels is necessary when this machine is being operated.

These are a few of the high spots in the mechanical developments and improvements of the year just passed. It would require far more space than is available to enumerate even briefly the many improvements and pieces of equipment that have been developed and are applicable directly or indirectly to the production of coal.

And now for a short look to the future. The real criterion of progress, is not how many new devices or improvements to old ones have been developed or have come into vogue during any specific interval of time, but rather to what extent have expensive hand or muscular methods been supplanted by mechanical methods. It may pay handsomely to employ mechanical energy in place of muscular, even though the device or machine adopted may be prodigal in its consumption of power. Suppose that it costs $4 to hire a laborer for eight hours. At best, this man can exert continously only about ⅛ hp. Human muscular energy thus costs $4 per horsepower-hour. With electrical energy available at 2c. per kw.-hr. 266 hp.-hr. may be purchased in the form of current for this same $4 in money.

With so great a difference as this in the cost of muscular and mechanical energy it is but natural that the mechanization of mines will proceed in the future as it has in the past. Great changes of whatever nature do not transpire suddenly, neither can the transformation of a mine from manual to mechanical methods be wrought over night. They must rather be the outcome of progressive policy and gradual improvement and evolution from day to day, month to month and year to year. All signs indicate that the day is not far distant when coal will be produced entirely by mechanical means—when from the time it is first exposed at the working face until it is deposited in the railroad car or other vehicle of transport it will never be touched by the human hand or by implement held in the human hand.

Brain Rather Than Brawn

Man's body is weak and from the mechanical standpoint woefully inefficient. His brain is sufficiently large and active to be capable of guiding and controlling the movement and operation of a mechanical contrivance almost infinitely more powerful than his own muscles. It will not take much longer to adapt our mines, our haulage systems and other equipment to the production of coal by mechanical means. This will mean more coal produced by fewer men; it will also mean cheaper coal of a more uniform quality.

Hauling by Battery

Savings Made by Efficient Machinery During the Old Year Point the Way for the Future

Economic Factors Compel Use of Cost-Reducing Equipment—Need for Modernization and Profits That Feed Back in Industry the Wherewithal for Further Purchases Will Bring About Unusual Advances During 1925

By Edgar J. Gealy
Associate Editor, *Coal Age*,
New York City

LAST YEAR electrical engineers, who had been striving to induce their companies to adopt efficient and labor-saving equipment, noted with pleasure that economic stresses in the industry were doing more for them than could be effected by the most persistent personal persuasion. Many mine officials have become thoroughly convinced by necessity that the future success of their properties depends upon the proper application and operation of machinery. Positive signs indicate that in some instances, at least, greater savings can be effected by mechanical efficiency than by wage reductions. Operating officials who have been reluctant to spend the necessary money to modernize their plants have found that they can no longer convince themselves that their old methods and machines are too good to be changed.

Competition for coal orders has been so keen that mining men have been impelled to turn to the use of cost-reducing machinery. Indeed, some have expressed dissatisfaction with manufacturers who have developed new equipment suitable for some coal regions but not for the peculiar mining problems encountered on their particular properties.

Anthracite Progress

The whole complexion of the anthracite field is reshaping itself. The increased efficiency, low maintenance and operating costs of new electric machinery have long before now warranted expenditures for many changes, but last year high wages, mining costs and competition made it more difficult than ever for some coal companies to finance inefficient methods and machinery. To compete successfully with other fuels and bituminous coal, anthracite companies are endeavoring to keep production costs at present levels, prepare the coal better and create a bigger market for small-size fuel. There never was a keener interest in coal-preparation equipment than during the last year.

The outstanding development in locomotive haulage has been the successful application of main-haulage battery locomotives in gaseous mines and the use of battery-carrying trucks to transport coal-cutting machines and supply them with power while at the face. Another improvement was the adoption of a standard arrangement of contactor controls on locomotives so that either drum or contactor control can be provided on all sizes, as required.

Several notable mine hoists were put in operation, one of which was the giant two-motor 4,000-hp. hoist of the Westinghouse Electric & Manufacturing Co. and the Nordberg Manufacturing Co., installed at the Orient No. 2 mine of the Chicago, Wilmington & Franklin Coal Co., at Frankfort, Ill., and another, the large General Electric Co. single-motor 2,000-hp. hoist for the Old Ben Coal Corporation in the same town.

Two other large hoists were placed in service by the Old Ben Coal Corporation at Christopher, Ill. Each of these units has a cylindro-conical drum, the small diameter of which is 8 ft. 6 in. and the large diameter 11 ft. 6 in. The drum travels at a maximum speed of 72 r.p.m. The maximum rope pull on one rope is 28,940 lb. The hoist is designed to

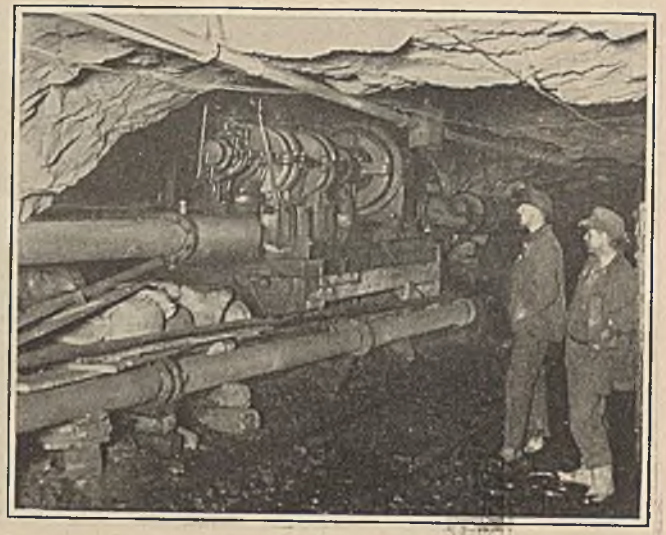
Note—As indicated by the number on the locomotive shown in the headpiece, the Hudson Coal Co. has quite a few traveling power plants. It will be interesting to follow the experience of this company with storage-battery locomotives, because as stated by one of its officials, mining in parts of its properties is further advanced than in the workings of any other large anthracite company.

make 165 trips per hour from a depth of 519 ft. This capacity was recently exceeded by one of these hoists.

The main driving motor is a 1,100-hp. direct-current unit which is supplied with power from an equalizer set. Each of the two hoists is also equipped with a 350-hp. auxiliary alternating-current motor connected to the hoist through two sets of gears. This motor can be used to operate the equipment during idle periods or when repair work is being done in the shaft. The small motor has sufficient capacity to handle the full load of the hoist at the reduced rope speed obtained through the gear train.

Automatic Pump

This pumping station requires only occasional inspection, it is completely automatic. There is but little fear that it will be operating when it should be shut down or stopped when it should be doing its bit. The Buck Run Coal Co., near Pottsville, Pa., has effected savings by its use which prove this most modern system to be thoroughly economical.



Speed and Safety

The special interlocks and safety features used on this hoist make it possible for even an inexperienced operator successfully and safely to hoist coal and men. All the mechanical and electrical equipment was furnished by the Allis-Chalmers Manufacturing Co.

A large electric hoist using electro-pneumatic contactors was installed by the Lehigh Coal & Navigation Co. at Lansford, Pa.

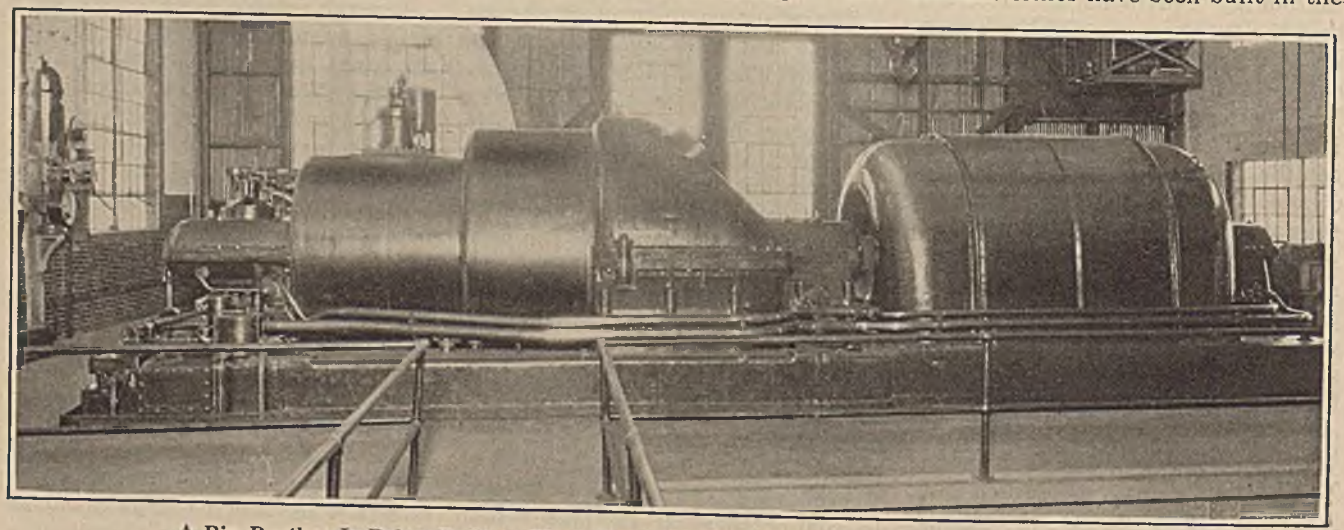
Another successful coal haulage scheme was the five-mile motor-driven belt conveyor system of the H. C. Frick Coke Co., for transporting coal from the mine to a shipping point. During one day's run it delivered 5,792 tons of coal 5 miles in 6½ hr., using 6,855 kw.-hr. of electrical energy or about 1.19 kw.-hr. per ton.

Automatic control of centrifugal pumps has proved to be both practical and economical. Many typical examples of automatic pumping stations, all of which use Barrett-Haentjens accessories, are to be found all through the coal fields. Some of the most noteworthy are in the anthracite region. The system has been made so simple that only a few pumpmen are required for occasional inspection of the equipment, and the pumps work more satisfactorily than when manually attended. Many pumps, like fans, run almost continually, and therefore the savings in attendance effected by automatic control are enormous.

During the year an improved type of multi-stage pump having a volute diffusion chamber around each runner and eliminating the use of diffusion vanes was developed by a large pump manufacturer. With this design excellent efficiencies are obtained at operating points both lower and higher than the normal rated capacity of the pumps. The internal passages of the pump are designed so that the dividing walls strongly reinforce the casing.

The application of centrifugal pumps to mine service has increased yearly, and it is quite natural to expect improvements in their design and operation. During the past year the successful use of a non-corrosive chrome-iron alloy seems to hold great possibilities for future development of centrifugal and plunger pumps.

Fan drives have attracted much attention during the year. Engineers realizing their opportunities to effect energy savings by the use of variable-speed motors have applied many different types of drives. Power-factor correction also has influenced the selection of the drives for fans. Various types of synchronous motors designed to provide high starting and pull-in torque have been applied. In the latest types of fan drives mechanical and magnetic clutches either have been built in the



A Big Brother Is Being Built to Work With the Many Turbo-Generator Units at the Four Large Power Plants of the Glen Alden Coal Co.

Alongside of this 10,000-kw. turbo-generator unit, in the Nanticoke Power Plant of the Glen Alden Coal Co., will be placed the 12,500-kw. machine now under construction at the Allis-Chalmers Manufacturing Co.'s shops. The new unit is probably the largest ever purchased by a coal mining company and fits into the general plan of electrification carried on by the coal company for many years.

motors or provided as accessories to them.

Some of the most noteworthy developments of the year were made in equipment for the generation, conversion and distribution of power. At mine power plants there was increased use of higher steam temperatures and pressures. The Glen Alden Coal Co. placed an order with the Allis-Chalmers Manufacturing Co. for the largest turbo-generator unit ever purchased by a coal company. This large unit is being built to generate 12,500 kw. at 80 per cent power factor. The turbine is designed for 250-lb. steam pressure, 150-deg. superheat and a 29-in. vacuum. The generator is to be wound for 13,200-volt, 60-cycle, three-phase power. The outfit will be installed in the Nanticoke power plant of the coal company where it will operate with one 10,000-kw. and two 4,000-kw. units made by the same company. It will also be interconnected with two other power plants located in other coal fields of the mining company.

Getting an Ear Full

Listening to "A Kiss in the Dark" these men had the thrill of hearing music sent out from the *Times* station when they were more than 400 ft. underground in the workings of the Pine Brook mine in Scranton.

Wattless Currents Cost

Power-factor correction and load factors have become such important problems for the coal industry that the activity in the application of synchronous apparatus was unusually conspicuous. Engineers and managing officials have come to realize that their power bills are unnecessarily high because of their poor power-factor loads. As a consequence there has been a marked increase in the use of power-factor corrective equipment. Mine fans, pumps and compressors have been supplied with synchronous motors.

The automatic station has become firmly established as an economic and operating necessity in the mining industry. With its inherent advantages beyond dispute, a marked advance in the application of this type of control occurred in 1924.

There were no radical changes in the design of automatic switching equipments, but many complete outfits were placed in service. The tendency during the year was to install such types as could easily be handled and standardized. For coal-mining service this standardization has progressed to such an extent that complete automatic stations are now being put in stock by the manufacturers.

To meet the requirements for coal-mine service, one type of standardized design, made by the General Electric Co., is so arranged that automatic control equipment for single machines may be used in either a single- or multiple-unit station with any number of reclosing feeders. Thus, great flexibility is obtained. These converting units may be arranged in any desired manner and later be easily changed when load conditions require.

During the year several installations of two-unit automatic substation equipments were made and the problem of operating two over-compounded machines in parallel was satisfactorily solved by the use of a load-balancing relay.

The use of automatic power-converting equipment represents one of the most advanced practices in the electrical industry and being such it is interesting to note that apparently most mine electrical engineers are convinced of the superior qualities of the motor-generator set over the rotary converter.

Records obtained early in the year show that of the many automatic power-converting substations furnished by the leading manufacturers, 73 per cent of them were equipped with motor-generator sets. This is exceptionally interesting especially when we remember that the first automatic substation in the coal field was equipped with a rotary converter, and the precedent then established—if one really was established—has been reversed.

Dangers and Track Bonds

As with many other knotty problems, indirect effects may force mining companies to better their track circuits. Electrical engineers who have long ago appreciated the fact that poorly bonded tracks are direct causes for high maintenance costs, have started to repair their bonds by either doing so as a part of a new installation job or by placing power-converting equipment near the working face. This last method is only a temporary cure because as the mining face advances the feeder and track circuits must again be extended. Then again, the haulage road to the shaft slope or drift mouth is always getting longer and the center of its load is invariably far from other load centers.

The dangers due to power leakage and stray currents from tracks and feeders increase in proportion to the number of poor joints. Premature explosion of detonators and shot charges are frequently the direct result of poorly bonded return circuits. Electric sparks make a vivid appeal to the imagination and the fireworks at poorly bonded track joints and premature explosions have no doubt been largely responsible for

the renewed resolution of the miners' union to sponsor legislation to make the use of electricity in the mines safer. Let the coal companies take heed.

For several years it has become evident that the trend of safety regulations was toward the inclosure of all types of motor starters, speed controllers, locomotive motors and rock-cutting machine drives. During the year, work along these lines was greatly advanced. Many open type starters were provided with either self-contained inclosing cases having external handles or were redesigned to accommodate inclosing cases.

Another noteworthy step was the design of induction motors of the inclosed ventilated type. These motors take in air at both ends and discharge it through holes in the side of the stator frame near the bottom.

Another important development was the so-called "frog-leg" winding for direct-current armatures. It is claimed that as a result the previous limitations of direct-current machines due to the difficulties of commutating heavy loads or rapidly fluctuating loads are now removed.

Radio Communication

The Bureau of Mines has made important investigations in underground communication, much of this work being done by J. J. Jakosky and D. H. Zellers. Much work still remains to be done in studying the possibilities of wired wireless which, under mine conditions, means transmission along metallic conductors such at water pipes, power and lighting circuits, mine-car tracks, etc.

The practicability of pure radio communication from the surface to the mine is questionable. Fairly successful results have been obtained by receiving sets located inside the mines when listening-in on high-powered transmitting stations on the surface. However, the operation of such receiving sets is said to depend largely upon carrier currents traveling along rails and wire conductors in the mines.

What's Coming

The progress which will be made in the present year will depend upon many factors. In the bituminous field and also in the anthracite region the miners will have to learn to accept changes which in the end will benefit them as much as anyone. When a new machine is installed they should promptly agree upon a wage scale for the men by whom the machine is to be operated. The miners must learn to realize that it is extremely unfair for them to demand all the benefits which new devices afford. Operators, of necessity, must add more machinery to the mines; this represents expense and the miners must co-operate with the coal companies so that the savings effected may be used to pay for the machine and return a reasonable profit upon the investment.

At some mines all the poor power-factor loads cannot be corrected by synchronous motor drives and although we will see many synchronous motor-generator sets installed there will be more synchronous- and static-condenser stations.

Automatic switches and controls will increase in number because they have been perfected to the point where they perform their functions more satisfactorily than manually operated devices. An appreciation of the enormous savings in labor and repairs effected by automatic substations, pumps and feeder circuit breakers has been realized and more such outfits will be installed even in places where attendance is now obtained from men at other work.

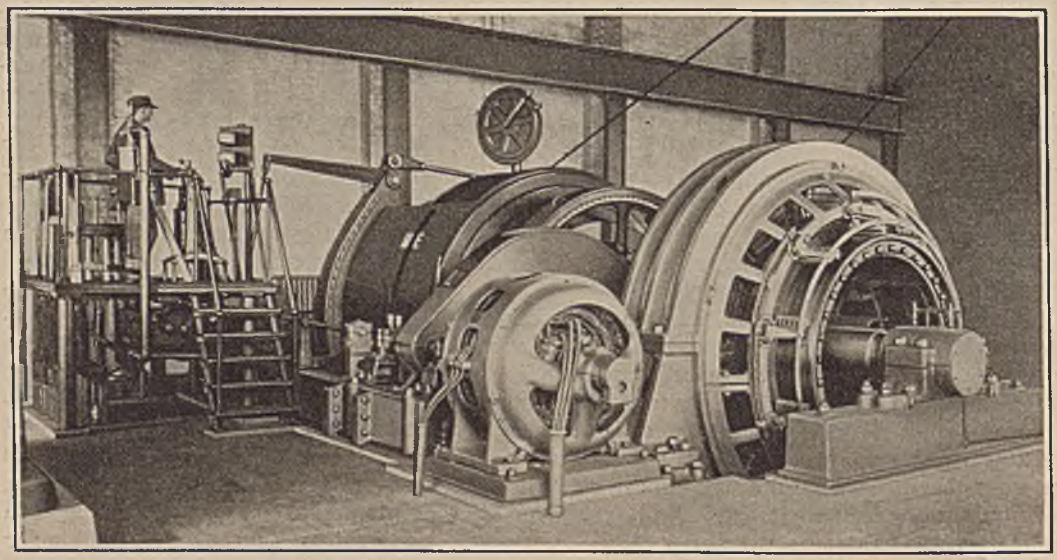
Improvements in permissible equipments and storage batteries for gaseous mines have now made it possible to have wireless mines. In gaseous workings coal-cutting, drilling and hauling will be done with power supplied by storage batteries.

In the anthracite field we can look for many changes. As the larger coal companies become segregated from the railroads, which now control them, stockholders in time will change. New financiers, some of whom will be mine engineers and their associates will want to know the how, when and why of things. More profits can be made by the savings in efficient operation than by increases in the price of coal.

An Official Problem

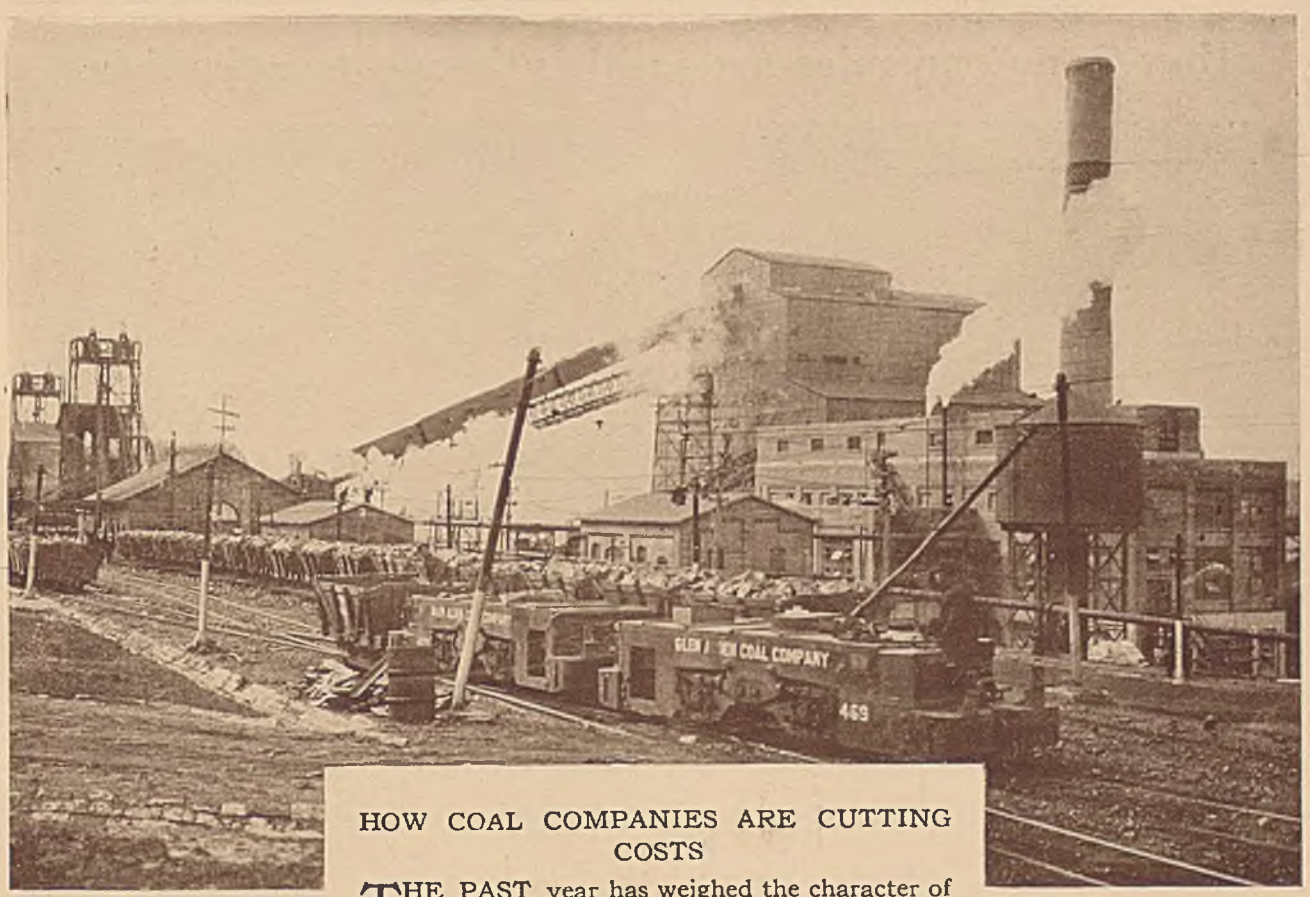
Mine officials will in future do well to be more amenable to expert suggestions. Too many important factors and problems have entered and are entering the business complex of mining for men to retain the attitude that, "I have been in the industry twenty or thirty years. Who can tell me anything or manage my affairs better than I do?" Perhaps, some good can come out of Nazareth.

If we interpret the signs of the times correctly the march of progress is started again. Those mines which were partly modernized during the dull spells of last year took time by the forelock and will be repaid. This year, with two impelling forces—necessity for modernization and profits with which to purchase machinery—we are almost sure to witness a period of unusual electrical and mechanical expansion.



At Christopher, Illinois

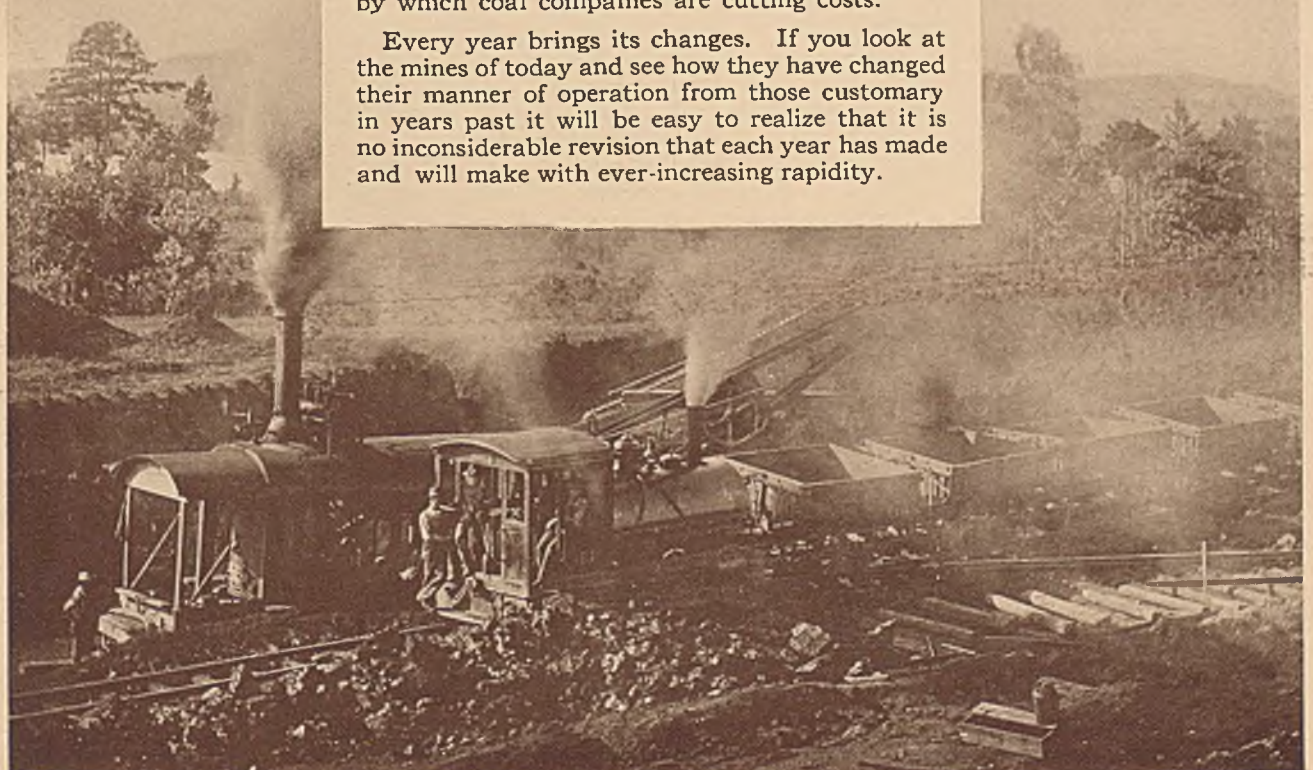
Because this hoist is equipped with two motors, one a direct-current unit and the other an alternating-current machine, it can be operated economically at all times. When hoisting the usual tonnage the direct-current motor supplied with power from a motor-generator set is used, but when slow-speed hoisting is done the alternating-current motor is put in service.



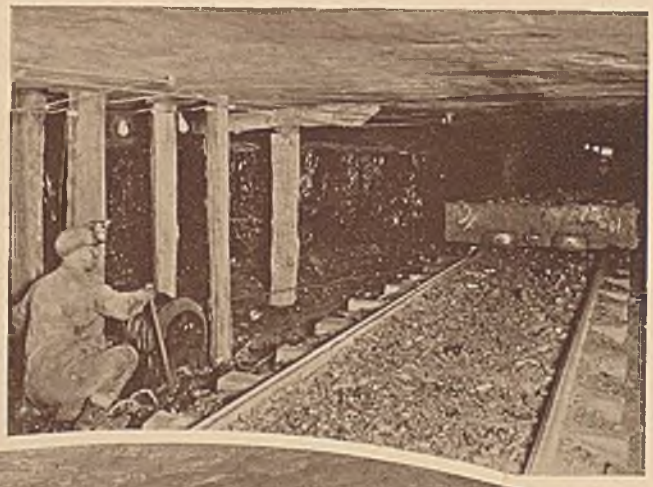
HOW COAL COMPANIES ARE CUTTING COSTS

THE PAST year has weighed the character of your equipment methods. That weighing will continue into this new year, only with more exacting standards than ever. Clipping costs is harder than clipping coupons or drawing dividends but neither coupons can be clipped nor dividends drawn if the mechanical scheme that will save cost is not installed. So we have chosen for this insert a few of the more important of the means by which coal companies are cutting costs.

Every year brings its changes. If you look at the mines of today and see how they have changed their manner of operation from those customary in years past it will be easy to realize that it is no inconsiderable revision that each year has made and will make with ever-increasing rapidity.



How Coal Companies Are Cutting Costs—Near the Face



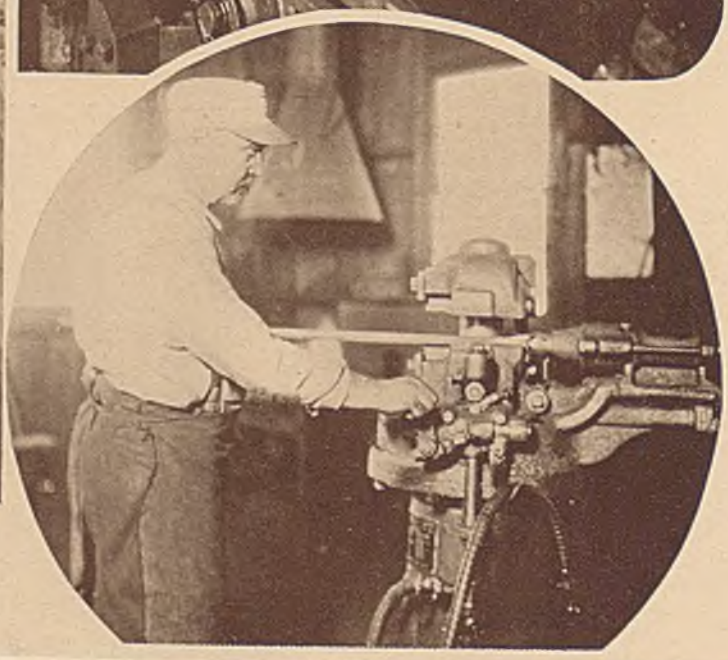
IN LOW BEDS face conveyors are being used, as on the left above. These save lifting bottom between entries and make longwall more feasible.

Room hoists also save expense and gathering equipment where grades are adverse. See illustration above on right. Low bodied cars save lifting bottom and much loading labor. The wagons will carry a large capacity despite insufficient head room.

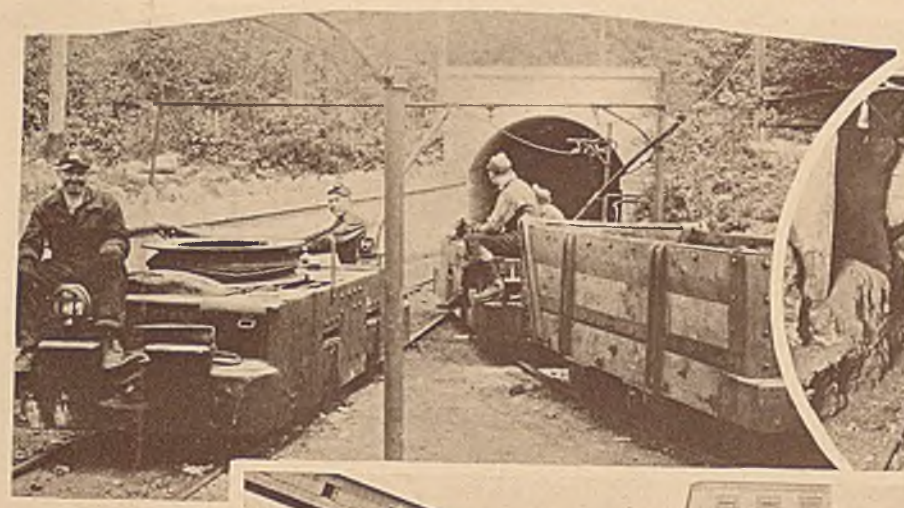
A loading machine in West Virginia is reducing the cost of lifting coal from the face and depositing it in cars. This is the machine shown at work on the right.

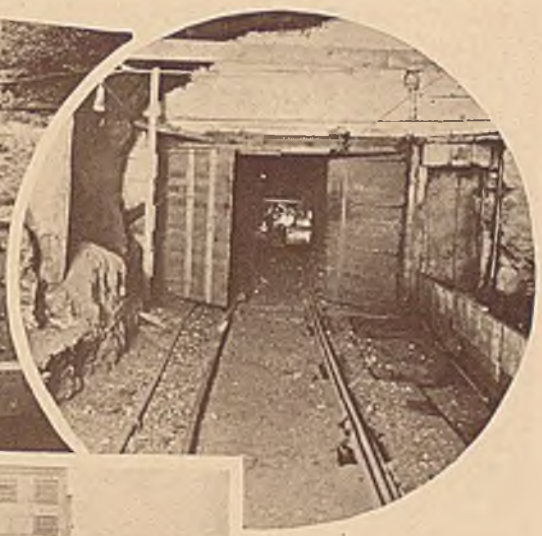
REEL locomotives gather coal expeditiously from room faces regardless of grades and coal thickness. See illustration above.

Drills may be shaped accurately and at less blacksmith cost by the drill-shaper on right.



How Coal Companies Are Cutting Costs—In Their Haulage



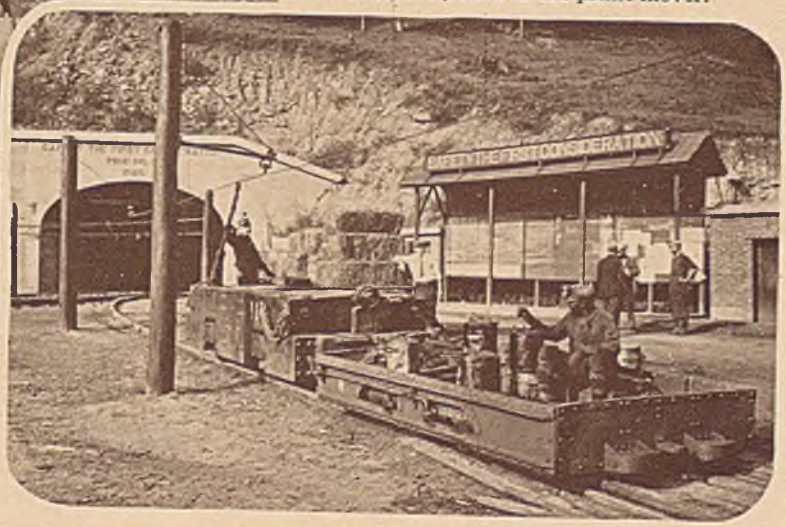


PERMANENT portals, well-laid tracks, large-capacity cars and good overhead construction as in the illustration above are other means of reducing costs. The trip-maker and the conveyors shown on right save time and money at the tipple of a big Kentucky coal operation.

SELF-ACTING doors eliminate delays, haulage accidents and door tenders. They are not left open and so make your costly air do its work, often saving lives. See illustration above.

SECTIONALIZING equipment saves power, prevents fires and accidents.

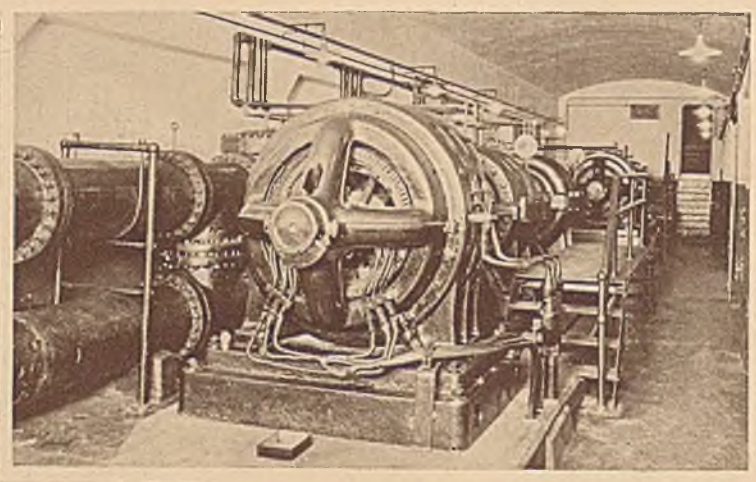
WELL-COVERED pipe prevent steam losses which may easily exceed the quantity of steam actually used in the prime mover.

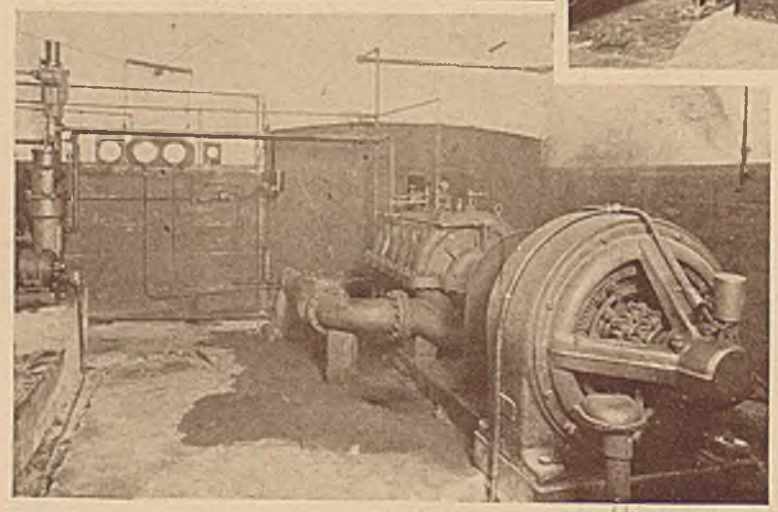


STEEL timbers, such as are shown in illustration above, afford permanency, safety, ventilation economy and saving in space, thus paying a profit on the money invested in them.

Care and system in handling powder such as shown on the right prevent expensive accidents.

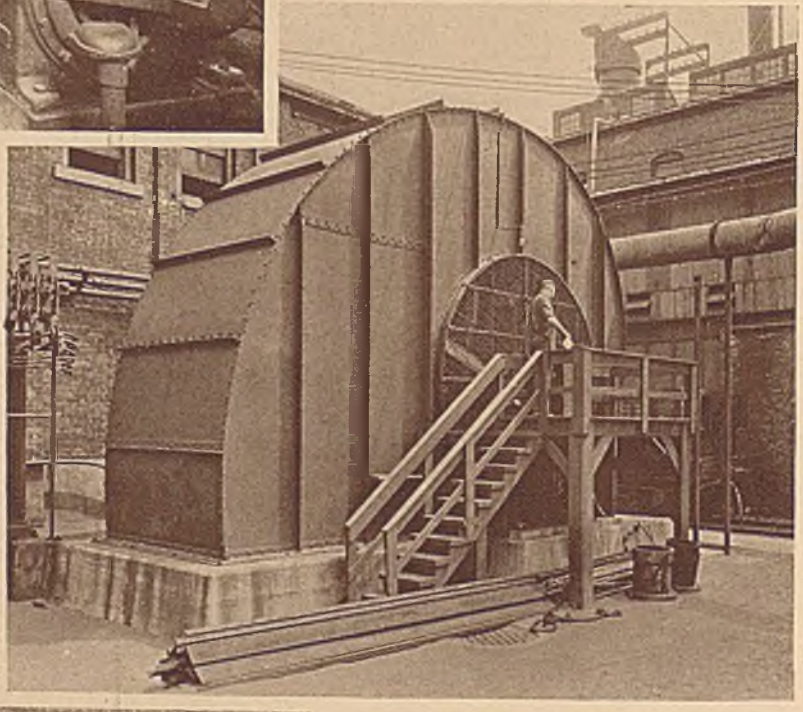
How Coal Companies Are Cutting Costs—In Fans and Pumps



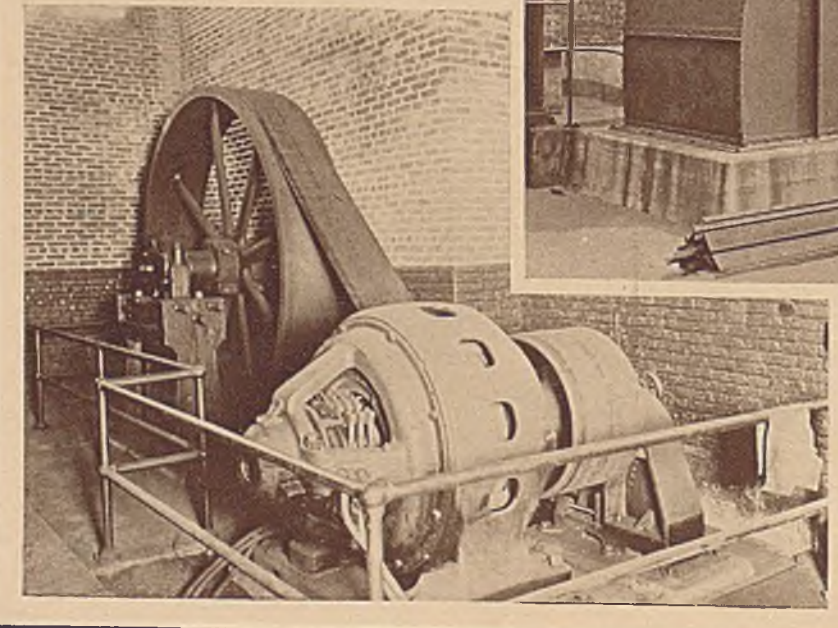


MOTOR DRIVEN centrifugal pumps as on the upper right illustration have large capacity and save in space and first cost. When they stand idle as they sometimes do there is less interest loss.

The large empty room on the upper left has been vacated by a big reciprocator and in its place, dimly seen at the rear is the centrifugal pump which has replaced it.



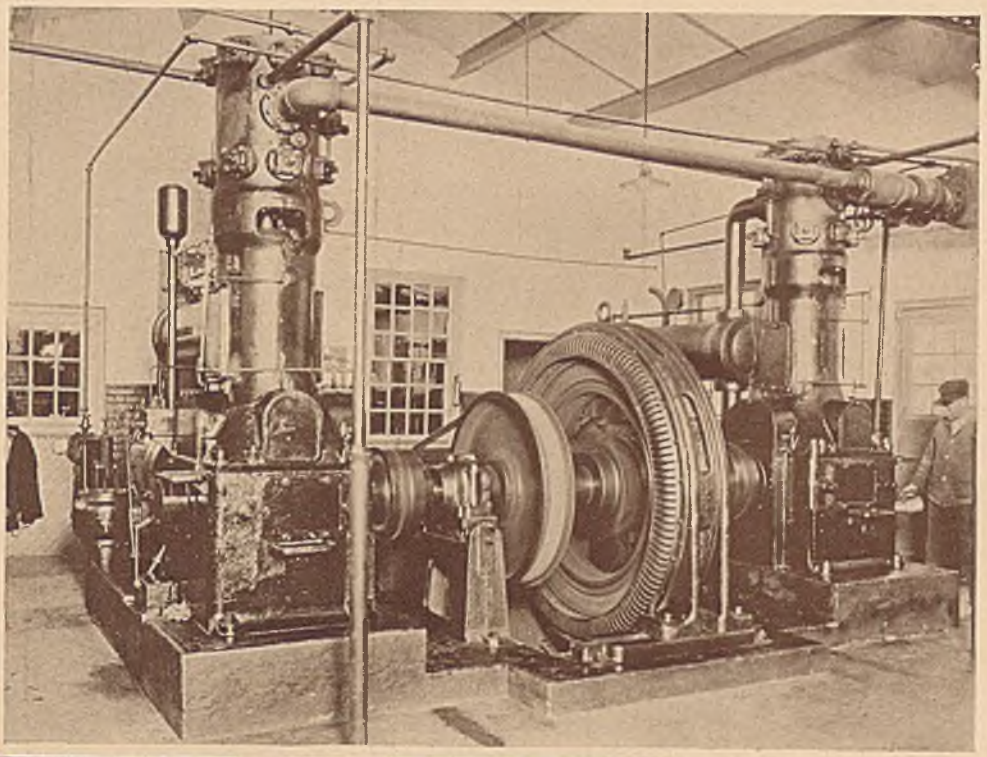
THE ILLUSTRATION above shows the pump unit that now does the work of the big reciprocating pump that formerly occupied the big room above it, doing the work more efficiently, partly because of its automatic action.

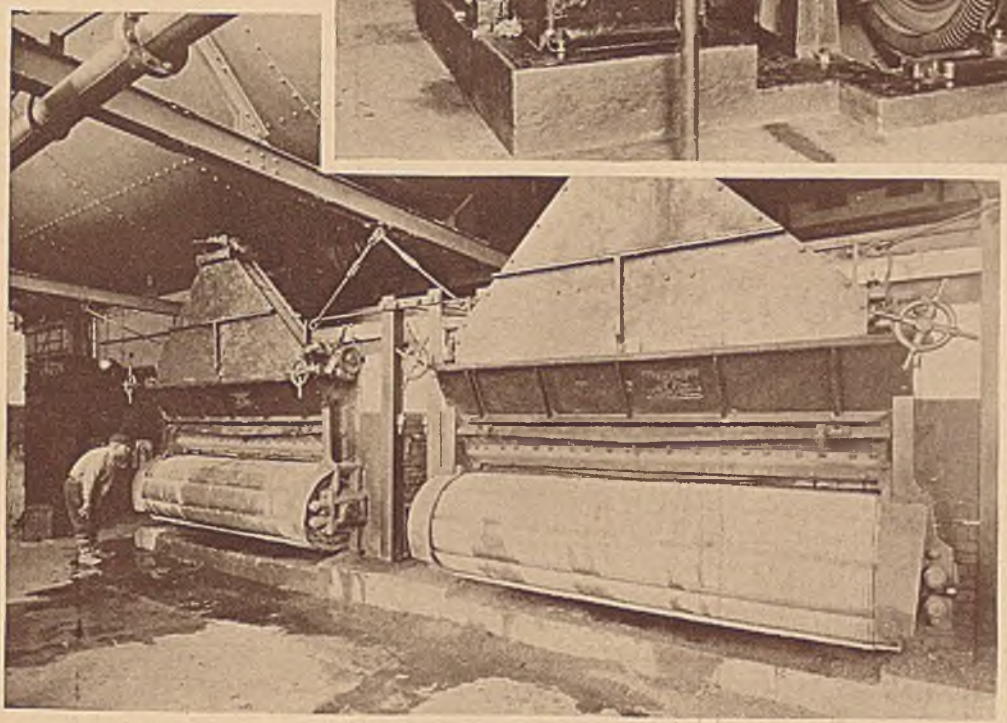


THE FAN shown above is a blower for giving suitable draft to a battery of boilers. In the rear of the left illustration is a fan shaft running on anti-friction bearings. It used to be customary to install an ordinary pedestal, but the change to the anti-friction type is earning dividends for those wise enough to provide them.

How Coal Companies Are Cutting Costs—In Power Plants

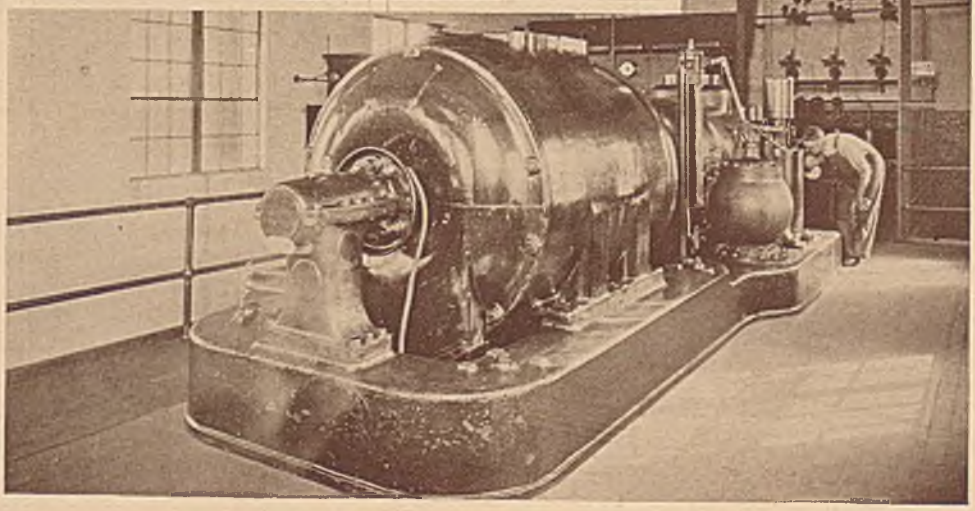
SYNCHRONOUS motors improve power factor. Operators are learning that with the use of synchronous motors they can save money. Not only load factors must be watched if economy is to be achieved. The illustration on the right is a good example of such an installation.



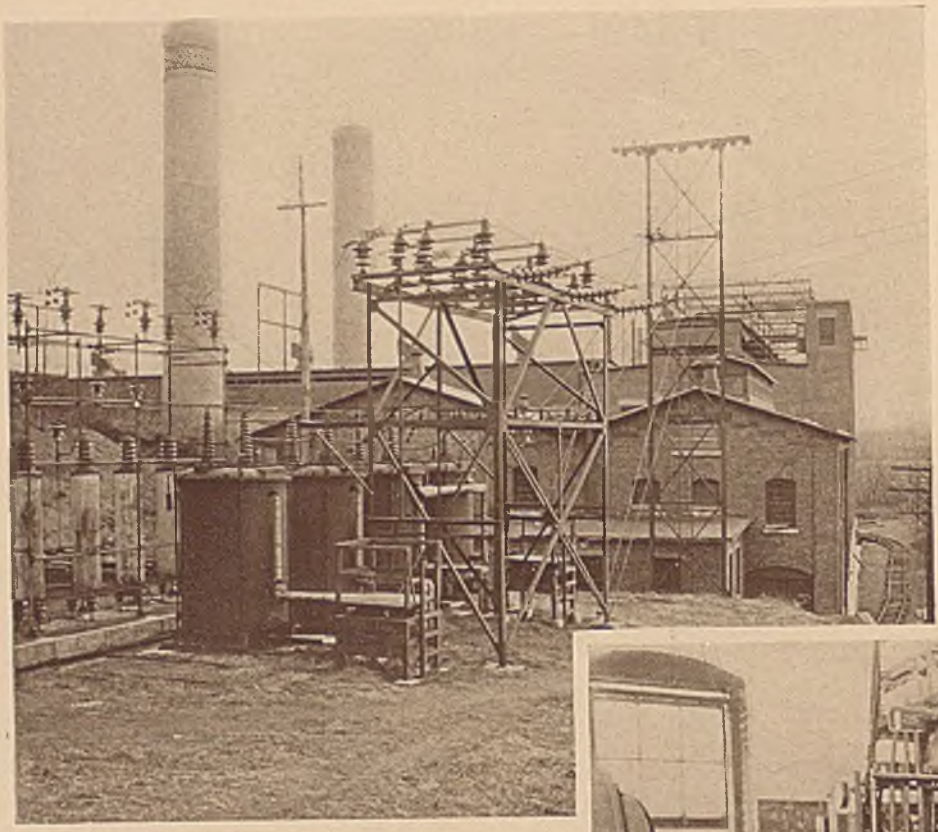


MECHANICAL stokers make it possible to burn the coal that the market refuses or buys with reluctance and at a low figure.

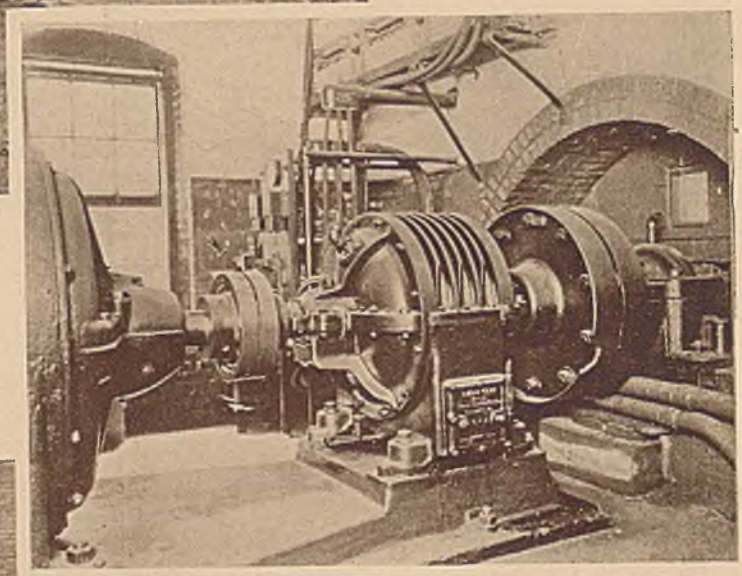
STEAM turbines make the utmost use of the steam supplied to them, saving coal and therefore labor and also occupying minimum powerhouse space. The turbine on the right is a good example of such equipment.



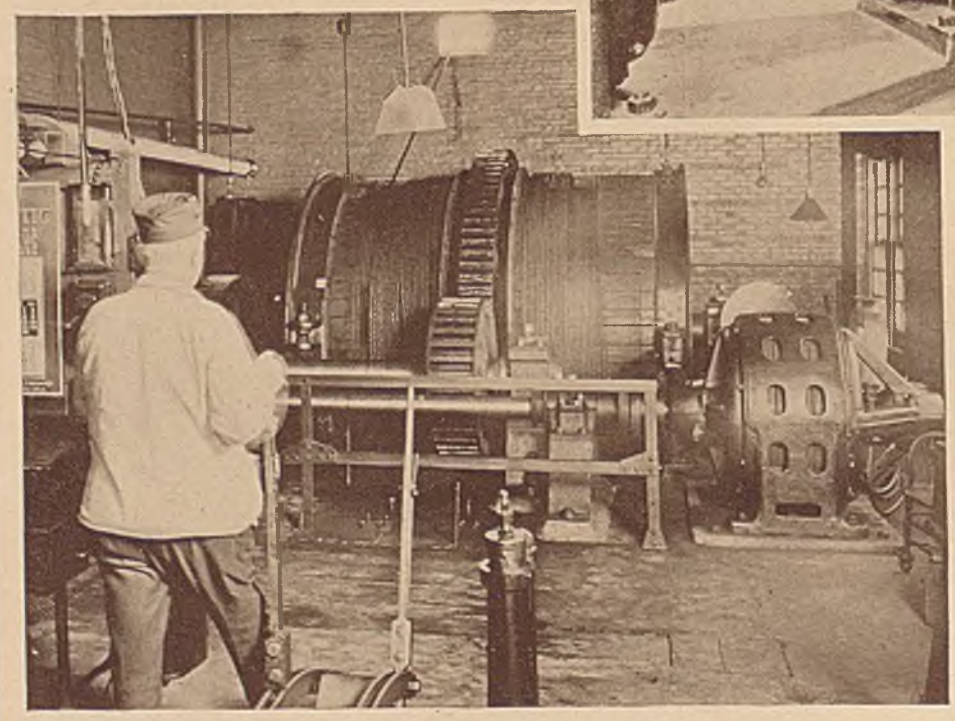
How Coal Companies Are Cutting Costs—By Electrical Means



VOLTAGE is stepped up so that power distribution conductors can be made with less copper. The illustration on the left shows a well-arranged power station with proper protection from lightning.

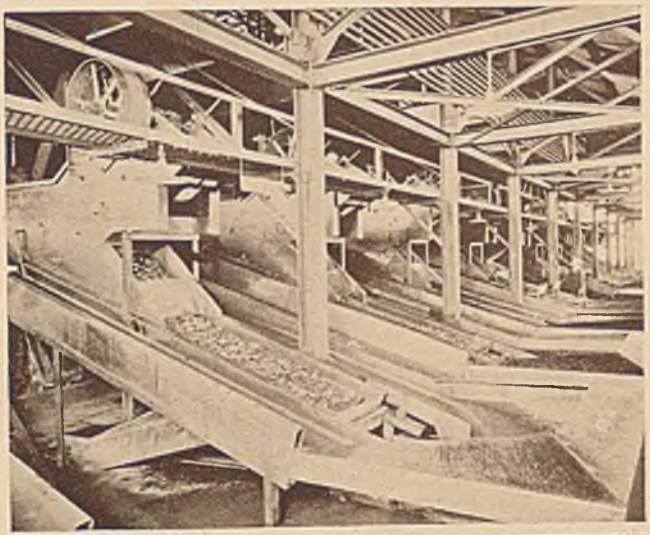


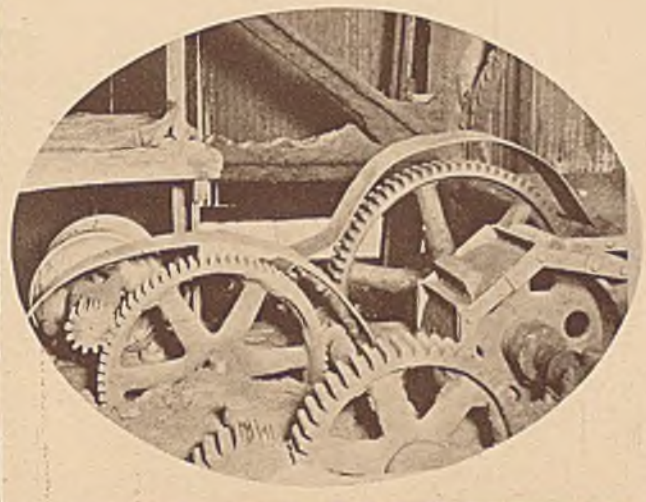
FANS electrically driven through a speed reducer save the use of long steam pipe lines which are prolific wasters of expensive energy. The speed reducer eliminates open-type gear trains which are not only subject to breakage but being dirty and ill-lubricated are uneconomical in operation.



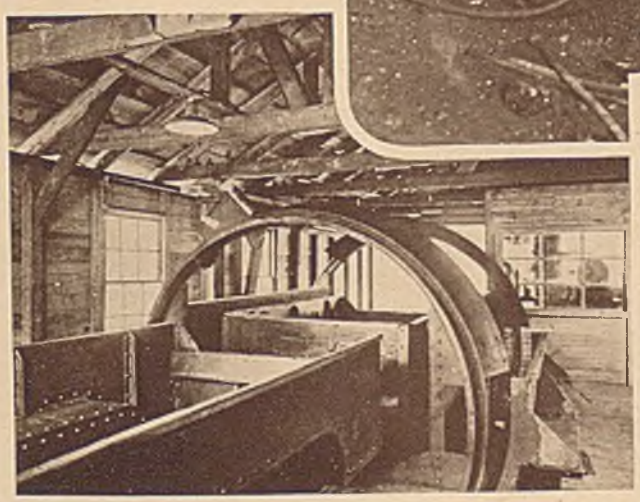
A HOIST changed from a steam to an electrical unit is shown on left. One large company is having all its hoists so converted and if a mine owner is getting all the coal he wants with the present equipment and it is still good such a change is to be recommended. It gives him the cost saving without so much expense.

How Coal Companies Are Cutting Costs—In Many Ways





MANY operators are cleaning their slate as well as their coal as in the illustration above on left. Thus no coal is lost to the refuse bank. Some still have trains of exposed gears like those on the upper right with every tooth grinding on coal dust, making a prodigious noise. Every little while the breaking of a tooth shows the bad conditions under which these gears operate. Electric welding of rail bonds, as is illustrated on the right, gives a good current return, saving the burning of equipment and loss of power. Rotary dumps as below save time in dumping.

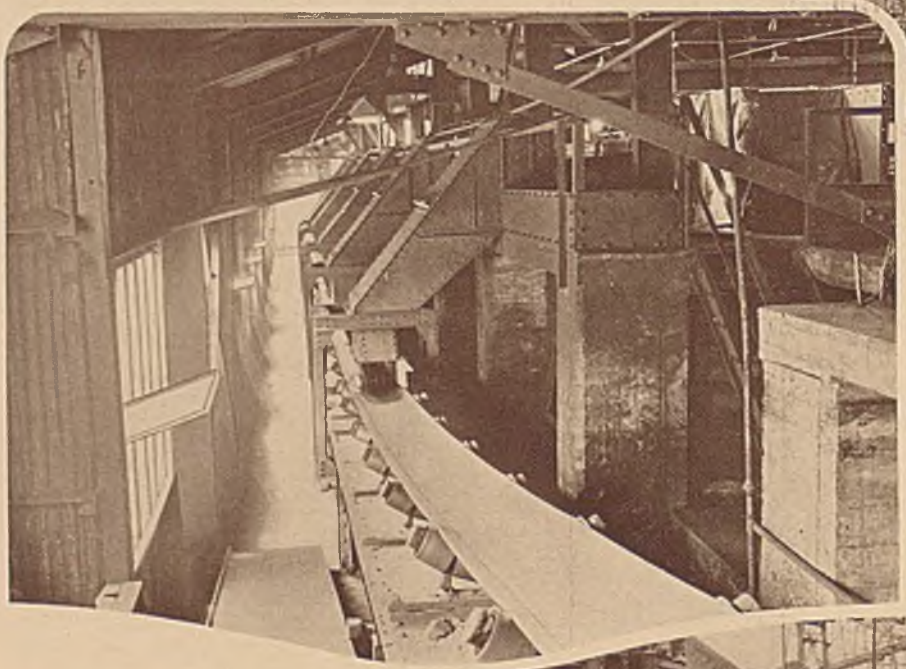


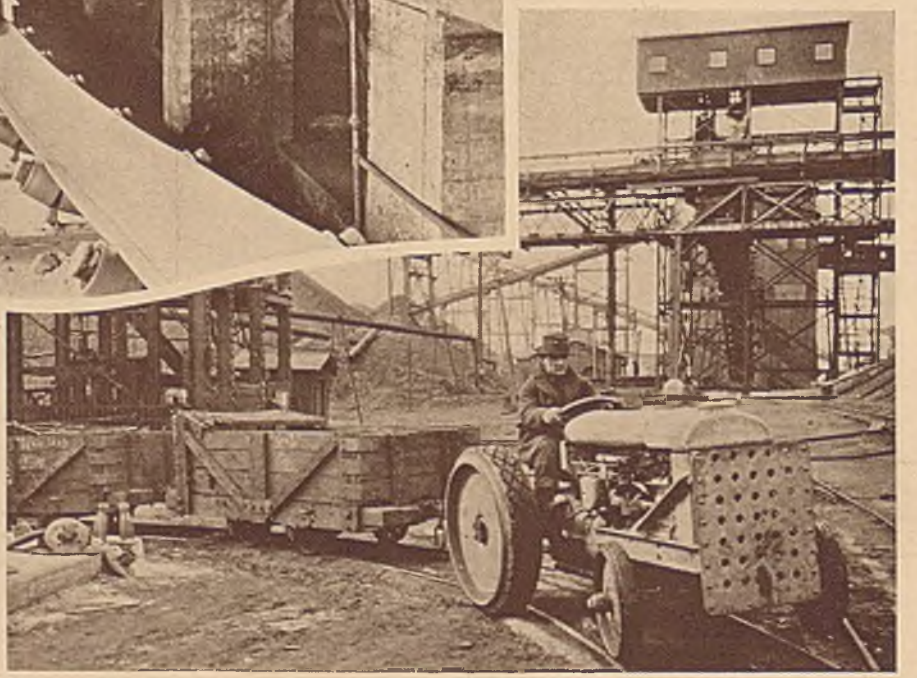
A GOOD lamp house with proper charging rack and provisions for adjusting flame safety lamps will prove an economy.

How Coal Companies Are Cutting Costs—In Unusual Ways

A WELL-EQUIPPED clean bright store like that above heightens morale, brings good workmen and profit.

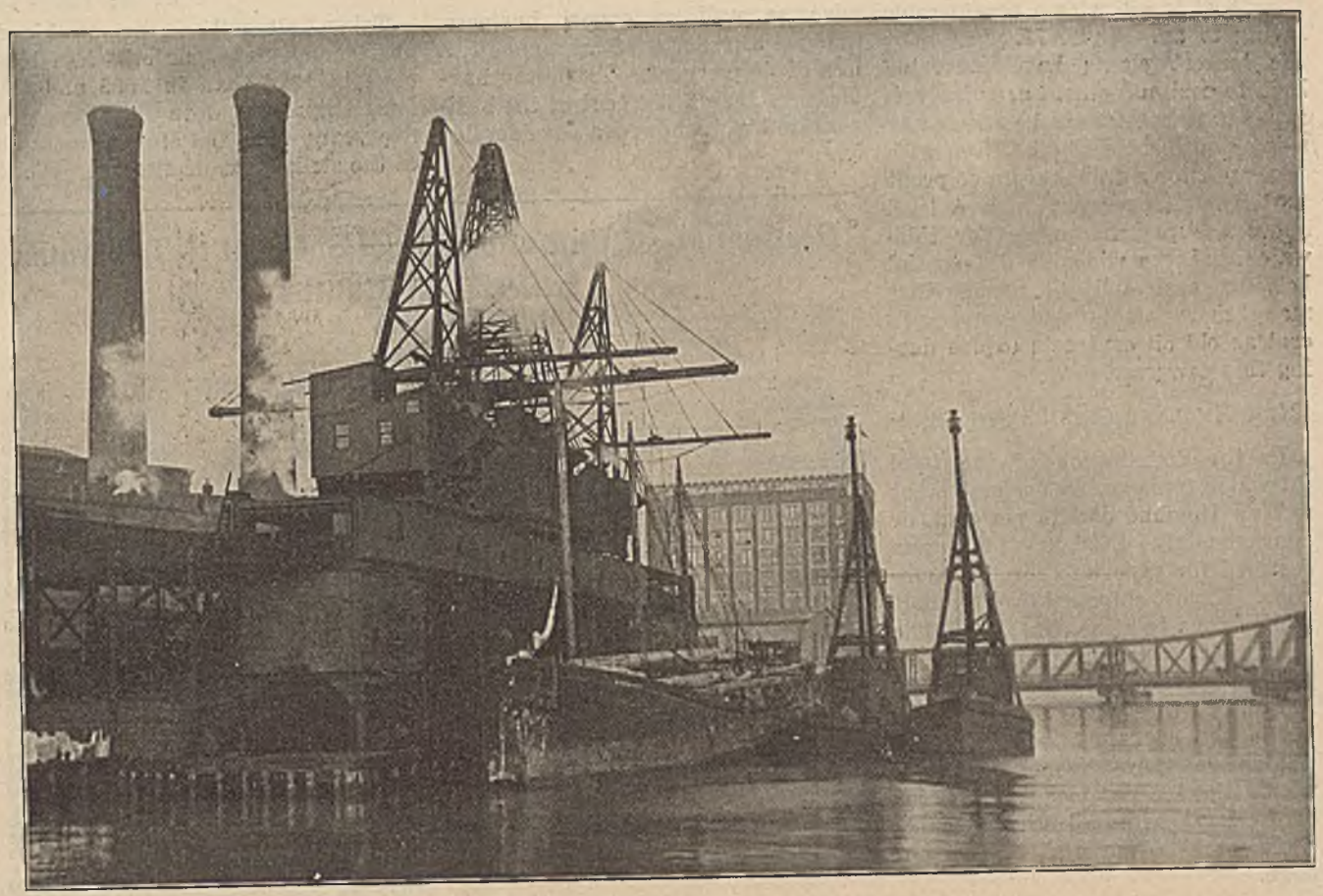
WELL-PAINTED dwellings save the lumber and create morale. A paint-spray makes the cost quite reasonable.





BELTS CONVEY material economically. They are found everywhere in industry. No one can tell why the coal industry has been so slow to give them their proper place. The illustration above shows a belt for conveying rock from the picking table.

The tractor is useful everywhere around the mine, hauling rails, logs and wagons. On the right it is proving useful in transporting mine wagons on a track.



Coal Vessels in Boston Harbor

Tidewater Coal Business in 1924 Was Lowest Since 1919 Except for Strike Year

With Few Exceptions Supply at Loading Ports Was in Excess of Demand—Low Prices Played Part in Switch from Oil Back to Coal—Exports Fell Off Nearly 10 per Cent

BY J. S. BURROWS

THIRTY-three million net tons of bituminous coal was dumped at the five principal Atlantic ports during 1924 as compared with 37,500,000 tons in 1923.

The year began with very large stocks in New England and other consuming coastwise territory which had been accumulated during the previous year, and these stocks in consumers' bins were the dominant factor in the marketing of coal throughout the entire year. The current supply of coal at loading ports, with a few exceptions, has been in excess of the demand, with the result that lower prices have obtained on tidewater coal than on coal sold at the mines for inland delivery. Undoubtedly much coal was consigned to tidewater piers to relieve the mines of surplus production, and the sacrifice of this surplus coal in the tidewater market made prices appear much lower at times than the general level of other markets.

These low prices, which have been at or below the cost of production, have not been an unmixed evil, however. In one sense the tidewater shippers have been buying back the oil-burning plants in New England which had changed several years ago

NOTE—The headpiece shows coal boats in Boston Harbor handling Pocahontas coal. The skyline at the left is marked by chimneys of Edison Electric Illuminating Co.'s power plant, a large consumer of coal.

Summary of Tidewater Bituminous Coal Business 1920-1924

(In Net Tons)

	1920	1921	1922	1923	1924
By Ports					
New York	14,825,000	11,912,000	7,440,000	10,800,000	
Philadelphia	6,191,000	3,641,000	2,158,000	3,893,000	
Baltimore	7,831,000	4,136,000	1,917,000	5,068,000	
Hampton Roads	24,026,000	17,242,000	16,626,000	17,384,000	
Charleston	911,000	392,000	332,000	376,000	
All Ports	53,784,000	37,323,000	28,473,000	37,521,000	
By Destinations					
Coastwise to New England	10,457,000	8,859,000	10,892,000	13,374,000	
Exports	21,778,000	9,633,000	1,613,000	5,122,000	
Bunker	9,171,000	8,135,000	4,577,000	5,442,000	
Inside Capes	3,410,000	3,251,000	3,332,000	4,460,000	
Other tonnage	8,968,000	7,445,000	8,059,000	9,123,000	
All destinations	53,784,000	37,323,000	28,473,000	37,521,000	

from coal to oil, with a considerable saving to themselves. A number of the largest plants have converted back to coal and others are discovering that economies can be effected by using coal instead of oil. Even with allowance for a fair margin of profit to the mine operator, with a level above the present prices for tidewater coal, the widening differential between coal and oil means that many more plants will convert to coal as old oil contracts expire during this new year.

NEW ENGLAND GETS 35 PER CENT

In the distribution of the total tidewater tonnage, 35 per cent went to New England and 14 per cent, or approximately 4,600,000 tons, was destined for export to foreign countries. Export shipments were a half million tons less than in 1923. The bunkering of steamships required 15 per cent of the tonnage, or nearly five million tons. The business done inside the capes of Delaware and Chesapeake bays from the piers within these capes took 11 per cent of the total, while all other requirements took 25 per cent of the tonnage.

HAMPTON ROADS CHIEF SOURCE

Hampton Roads, on which are located the three largest coal terminals of the Atlantic Coast, near Norfolk and Newport News, stands as the leading source of tidewater coal. These piers handled 54 per cent of the total tidewater business in 1924, and more than half the shipments from these terminals moved up the coast to New England discharging plants. Local needs are comparatively light at the cities located on Hampton Roads, so that nearly all of the tonnage loaded there in addition to coal for New England, is exported, furnished to steamers for their own use or sent to other coastwise points. The gain in dumping from year to year has been fairly constant, and has now reached the 18,000,000-ton mark, but Hampton Roads has not reached the physical capacity of its facilities.

OTHER PORTS SHOW LOSS

New York, the second largest tidewater coal port, with 27 per cent of the dumpings, showed a slight loss as compared with the previous year, and Philadelphia, with 8 per cent, also showed a loss.

Baltimore, at the upper end of Chesapeake Bay, always in competition with Hampton Roads for coastwise as well as export business, dumped 9 per cent of the tonnage, a loss of 40 per cent. Charleston handled less than 1 per cent of the business and also showed a considerable loss.

Taken altogether the combined ports handled 14 per cent less tonnage in 1924 than in 1923 and the total shipments were the lowest in five years, with the single exception of the strike year of 1922.

Destination of Bituminous Coal Shipped to Tidewater In 1924 by Months

(In Net Tons)

Month	New England	Export	Bunkers	Inside Capes	Other Tonnage	Total
NEW YORK						
January	104,000	.....	206,000	.....	564,000	874,000
February	97,000	.....	190,000	.....	496,000	783,000
March	96,055	.....	178,307	.....	518,827	793,189
April	76,988	.....	188,376	.....	397,542	662,906
May	73,200	.....	154,597	.....	466,503	694,300
June	69,537	.....	196,997	.....	475,169	741,703
July	71,419	.....	162,520	.....	490,477	724,416
August	86,435	.....	158,576	.....	446,848	691,859
September	81,052	.....	163,412	.....	451,189	698,653
October	89,242	105	180,028	.....	543,598	812,973
November	70,345	.....	155,514	.....	514,158	740,017
December	102,258	.....	162,725	.....	523,141	788,124
Total	1,017,531	105	2,097,052	.....	5,887,452	9,004,960
PHILADELPHIA						
January	49,000	16,000	2,200	160,000	1,000	248,000
February	57,000	5,000	37,000	169,000	.....	268,000
March	55,634	604	19,929	158,531	.....	234,898
April	17,741	24,430	28,839	144,985	.....	215,995
May	31,628	.....	29,051	139,663	840	201,182
June	34,578	4,514	23,839	153,477	.....	216,408
July	43,438	13,723	30,975	142,665	.....	230,801
August	35,368	21,540	29,975	147,017	.....	233,900
September	33,649	15,017	35,339	143,957	.....	227,962
October	50,714	24,660	38,640	149,636	.....	263,650
November	54,673	24,834	33,780	141,759	.....	255,046
December	48,474	22,607	36,246	173,388	.....	280,715
Total	511,897	172,929	345,813	1,824,078	1,840	2,876,759
BALTIMORE						
January	66,000	71,000	28,000	112,000	1,000	278,000
February	70,000	54,000	28,000	132,000	3,000	287,000
March	80,820	70,914	24,476	182,977	5,302	364,489
April	42,673	105,698	29,065	152,951	2,529	332,936
May	34,513	21,872	22,644	98,953	361	178,343
June	23,727	73,304	17,302	61,239	2,586	178,158
July	34,938	79,621	22,809	75,538	4,778	217,729
August	36,866	32,280	21,554	98,488	.....	189,188
September	48,560	51,008	18,163	108,220	3,068	229,019
October	74,451	37,538	23,839	145,309	3,118	284,255
November	42,141	23,042	16,128	148,593	1,556	231,460
December	24,419	50,002	25,884	187,090	4,421	291,816
Total	579,108	670,279	277,864	1,503,358	31,719	3,062,834
HAMPTON ROADS						
January	779,000	257,000	184,000	43,000	178,000	1,441,000
February	783,000	378,000	185,000	49,000	201,000	1,596,000
March	833,353	268,882	181,298	57,517	241,967	1,583,117
April	591,311	384,900	194,440	29,456	162,206	1,366,313
May	553,279	373,051	196,498	12,621	203,492	1,338,941
June	622,974	347,659	174,514	23,700	175,407	1,344,254
July	703,268	404,373	166,923	31,387	205,378	1,511,329
August	855,334	365,809	158,072	38,919	197,543	1,615,678
September	845,598	275,797	160,823	27,955	188,552	1,498,725
October	928,414	215,104	184,537	33,501	198,040	1,559,610
November	889,771	192,262	175,198	49,140	158,467	1,468,838
December	987,067	322,955	221,356	30,081	209,417	1,770,876
Total	9,372,369	3,785,792	2,182,659	428,077	2,315,869	18,094,078
CHARLESTON						
January	3,000	13,000	3,000	.....	.....	19,000
February	.....	13,000	3,000	.....	.....	16,000
March	.....	8,898	7,743	.....	.....	16,629
April	.....	13,469	1,255	.....	.....	14,724
May	.....	7,867	2,247	.....	.....	10,114
June	.....	8,907	1,082	.....	.....	10,069
July	.....	13,231	1,421	.....	.....	14,652
August	.....	13,170	892	.....	605	14,666
September	.....	17,722	3,961	.....	654	22,337
October	.....	9,023	2,567	.....	849	12,439
November	.....	4,015	5,252	.....	141	9,408
December	.....	12,572	5,808	.....	.....	18,380
Total	3,000	134,874	38,228	.....	2,249	178,123
ALL PORTS						
January	1,000,000	357,000	443,000	315,000	745,000	2,860,000
February	1,007,000	450,000	443,000	350,000	700,000	2,950,000
March	1,066,062	349,286	411,753	399,125	766,096	2,992,322
April	732,713	528,497	441,995	327,392	562,277	2,592,874
May	692,620	402,790	405,037	251,237	671,196	2,422,880
June	750,816	434,464	413,734	238,416	653,162	2,490,592
July	853,108	510,948	384,648	249,590	700,033	2,698,927
August	1,014,003	432,799	369,069	284,424	644,996	2,745,291
September	1,008,859	359,544	381,698	280,132	646,463	2,676,696
October	1,142,821	286,430	429,611	328,446	745,619	2,932,927
November	1,056,930	248,153	385,872	339,492	674,322	2,704,769
December	1,162,218	408,136	452,019	390,559	736,979	3,149,911
Total	11,487,150	4,768,047	4,961,436	3,753,813	8,246,143	33,216,754

Relative Rate of Growth Shows Further Inroads of Oil on Coal Consumption

Menace of Fuel Oil Now an Actual Fact — Demand in 1923 Was 91 per Cent Above That for 1918 — Coal Gains Slowly — Water Power Not a Serious Competitor

BY F. G. TRYON, W. F. MCKENNEY AND E. E. FINN*

SINCE the war the demand for coal has not been growing as fast as before that time, if indeed it is now growing at all.

Anthracite production, as practically everyone knows, has shown no material increase in fresh mined coal since 1913. Production of bituminous coal, on the contrary, showed a steady growth up to 1918. For the twenty years from the founding of the Central Competitive Field to the end of the war the normal rate of increase of soft coal output averaged 16,800,000 tons a year. Actual production in a given year might rise above the normal line, or fall below it (Fig. 1), depending on the state of general business. In years of depression it dropped below, in boom years it rose above normal, but there is no mistaking the steadiness of the normal increase. It was one of the most characteristic measures of American business activity. The coal industry counted upon this steadily growing demand, and the opening of new mines and steady recruiting of new miners was the industry's means of preparing for a constantly enlarging market.

Since the war, however, the market has ceased to expand, or at best it is expanding at a much slower rate. The largest output attained in any year since the Armistice was 564,000,000 tons in 1923. That included 26,000,000 tons put into storage, so that the amount actually consumed or exported was only 538,000,000 tons. Had the pre-war rate of expansion continued, the market would have absorbed 614,000,000 tons. Bituminous coal consumption in 1923, therefore, was 76,000,000 tons less than might have been expected on the basis of pre-war experience.

Anyone of course, might say that this figure of 538,000,000 tons is larger than that of any year except 1917, 1918 and 1920, and that consequently the industry is no worse off than it was, say, in 1916. Such a statement might be true if the industry were one of a stationary capacity, as, for example, is anthracite mining. As a matter of fact, however, the capacity of the bituminous mines is far from stationary. It has been growing faster since the war than before. In the five years from 1913 to 1918 the full-time productive capacity of the industry increased by 82,000,000 tons. But in the five years after the war, from 1918 to 1923, capacity increased 254,000,000 tons, or just three times as much.

The cause of this great increase of productive facilities was largely the high prices of the war period and 1920, but whatever the cause, the combination of arrested demand and rapidly increasing capacity has brought about great distress. A stationary demand may be just as serious to an industry with increasing capacity as a falling demand would be to an industry with stationary capacity. It is therefore most important for the bituminous operator to understand why the expected increase in output has not materialized. There are a number of reasons.

One reason is that business in general in the United States probably has not increased at quite the same pace as before 1918. Business certainly has grown faster than the demand for coal would indicate, but probably not quite as fast as before. Even America could not escape entirely from the after-effects of the war.

Another reason is that the high prices of fuel from 1917 to 1920 stimulated an interest in fuel economy such as was never before. The results have been remarkable. Progress in the design of fuel-burning equipment has been matched by more care in firing. It is not possible to say just how many tons of coal have been saved in the aggregate, but there are straws which show the direction of the wind. Beehive coking, which wasting 33

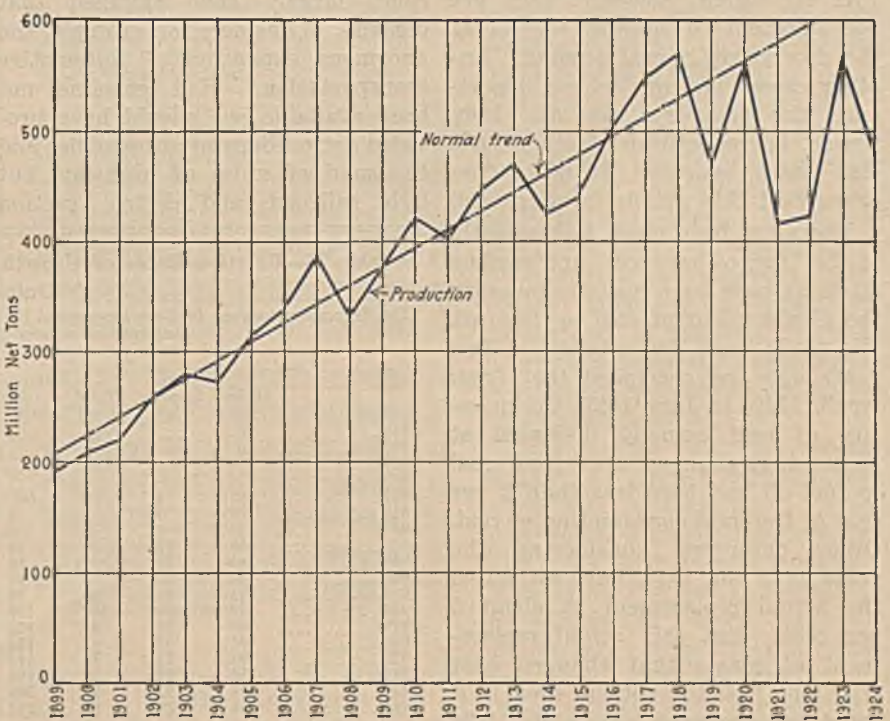


Fig. 1—Production of Bituminous Coal and Line of Normal Trend

The latter is drawn as indicated by rates of increase from 1899 to 1920. The production of bituminous coal increased almost continuously until 1918. Then something happened. The authors of this article say what the trouble has been.

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Table I.—Annual Supply of Energy From Mineral Fuels and Water Power in the United States

(Figures represent trillions of B.t.u. Water power is represented by B.t.u. of coal necessary to produce the same amount of power.)

Year	Anthracite	Bituminous Coal	Total Coal	Domestic Oil	Natural Gas	Imported Oil	Total Oil and Gas	Total Mineral Fuels	Water Power (a)	Grand Total Including Water Power
1819	(b)	.....	(b)	.....	.....	.....	.....	(b)	.....	.....
1829	4	3	6	.....	.....	.....	.....	6	No data	.....
1839	27	41	68	.....	.....	.....	.....	68	No data	.....
1849	109	64	173	.....	.....	.....	.....	173	No data	.....
1859	262	158	419	(b)	.....	.....	.....	419	No data	.....
1869	464	415	879	25	.....	.....	25	904	No data	.....
1879	822	993	1,815	119	(b)	.....	119	1,934	No data	.....
1889	1,239	2,507	3,746	211	(c) 268	.....	479	4,225	91	4,316
1899	1,643	5,065	6,708	342	(c) 240	.....	582	7,291	135	7,426
1909	2,205	9,949	12,155	1,099	517	0.4	1,616	13,771	411	14,182
1913	2,490	12,535	15,025	1,491	626	102	2,219	17,243	588	17,831
1918	2,688	15,180	17,868	2,136	775	226	3,137	21,005	837	21,842
1919	2,396	12,206	14,602	2,270	802	317	3,389	17,991	892	18,883
1920	2,437	14,899	17,336	2,658	858	637	4,153	21,489	971	22,460
1921	2,461	10,897	13,358	2,833	712	752	4,297	17,655	908	18,563
1922	1,487	11,063	12,551	3,345	820	764	4,929	17,480	1,024	18,504
1923	2,539	14,781	17,320	4,394	1,084	492	5,970	23,288	1,136	24,424
1924 (d)	2,450	12,580	15,030	4,290	1,161	492	5,943	20,973	1,148	22,121

(a) No figures for water power are available prior to 1889. The fuel equivalent for water power is calculated from the reported horsepower of installed water wheels, assuming a capacity factor of 20 per cent for manufactures and mines, and of 40 per cent for public utilities, and assuming that the theoretical thermal equivalent of 1 hp.-hour (2,547 B. t. u.) is 7 per cent of the B. t. u. that would have been consumed in generating 1 hp-hour from fuels in practice. For 1919 to 1924, however, actual reports of the hp.-hours produced by water in electric utility plants have been used.
(b) Less than 0.5.
(c) Based on the amount of coal displaced by gas as estimated by the gas companies at the time.
(d) Preliminary figures.

per cent of the heat in the coal, has been largely replaced by the by-product process, which recovers all but 10 per cent. Consumption of railroad fuel per thousand ton miles has fallen notably. In 1913 it took 2,433 lb. of coke to make a ton of pig iron, whereas in 1922 the work was done with 2,176 lb. The coal consumption per kilowatt hour produced by electric utilities dropped from 3.2 lb. in 1919 to 2.4 lb. in 1923, or 25 per cent in five years.

Great as have been economies in fuel utilization, however, they are not sufficient to account for all of the slowing up in coal demand. Another cause, and one whose importance the industry has not fully sensed, is competition of other fuels and power sources. It is to this cause that this article is addressed.

There has been much talk recently of the "fuel oil menace," and various attempts have been made to measure the displacement of coal by fuel oil. We made such an attempt a few years ago and concluded that from April, 1919, to June 1920, the quantity of coal actually displaced at plants that changed over from coal to fuel oil had been less than 2 per cent of the total consumption of coal. Other observers, considering the years 1922 and 1923, have estimated the actual replacement at about 5 per cent. But this actual replacement at plants that changed over from one fuel to another, even if it could be measured accurately, tells only a part of the story. It does not show the large amount of potential new business which would fall to coal were there not other means of accomplishing the same work which at the moment appeared cheaper.

Gasoline is meeting a demand that otherwise would have fallen to coal, if not directly then indirectly, through the medium of electricity. The world's potential appetite for power and heat would not be less if there were no gasoline. It would merely seek satisfaction in some other way. Coal, though somewhat more costly and less convenient, could largely have satisfied that demand. Consider, for example, the enormous expansion of automotive transportation. Had gasoline not been available, we should have provided not millions of automobiles and thousand of miles of highway, but light railroads and electric traction lines instead. The electric vehicle, whose growth has been arrested by cheap gasoline, would have met a large part of the present requirement for automotive transportation, and its batteries would have been charged with coal-produced energy.

New water-power developments reduce by just so much the potential demand for coal power. This invisible competition between the several sources of power is fully as significant as the visible substitution of fuel oil in a plant originally built to burn coal. The question is really, "Is the country's aggregate demand for power and heat—or 'energy,' to use a single word—falling or rising? How much of that aggregate demand is being met by means of coal? How much by means of fuel oil, gasoline, kerosene, and natural gas? How much by means of falling water?" The problem is largely one of measuring the *relative* rates of growth of these sources of energy.

Table I shows the total supply of energy available in the United States excluding the small amounts furnished by firewood and work animals. To combine water power, oil and coal it is necessary to have a common denominator. For this purpose the heating value in B.t.u. of the fuels will suffice, and in the table the total production of each fuel has been converted into trillions of B.t.u.[a]. The figures for oil and gas were courteously furnished by G. B. Richardson of the Geological Survey. Water power is represented in the table by the B.t.u. of fuel which it would have been necessary

[a] The unit heat values employed in this calculation are as follows: Anthracite, 13,600 B.t.u. per pound; bituminous coal (with due allowance for lignite), 13,100 B.t.u. per pound; oil, 6,000,000 B.t.u. per barrel; and natural gas, 1,000 B.t.u. per cubic foot.

Table II—Relative Rates of Growth of Coal, Oil and Water Power in the United States

(The figures for the year 1918 are represented by the number 100, and the figures for all other years are expressed as a percentage of the 1918 rate.)

Year	Anthracite	Bituminous Coal	Total Coal	Domestic Oil	Natural Gas	Imported Oil	Total Oil and Gas	Total Mineral Fuels	Water Power (a)	Grand Total Including Water Power
1819	(a)	...	(a)	...	...	...	...	(a)	(b)	(b)
1829	(a)	(a)	(a)	...	...	...	...	(a)	(b)	(b)
1839	1	(a)	(a)	...	...	...	...	(a)	(b)	(b)
1849	4	(a)	1	...	...	...	...	1	(b)	(b)
1859	10	1	2	(a)	...	...	(a)	2	(b)	(b)
1869	17	3	5	1	...	...	1	4	(b)	(b)
1879	31	6	10	6	(a)	...	4	9	(b)	(b)
1889	46	17	21	10	35	...	15	20	11	20
1899	61	33	37	16	31	...	19	35	16	34
1909	82	66	68	51	67	(c)	52	66	49	65
1913	93	83	84	70	81	45	71	82	70	82
1918	100	100	100	100	100	100	100	100	100	100
1919	89	80	81	106	103	140	108	86	107	86
1920	91	98	97	124	111	282	132	102	116	103
1921	92	72	74	132	92	333	137	84	109	85
1922	55	73	70	156	106	338	157	83	122	85
1923	94	97	97	205	140	218	191	111	136	112
1924	91	83	84	201	150	218	189	100	137	101

(a) Less than 0.5.
(b) No data for water power.
(c) Imports negligible before 1913.

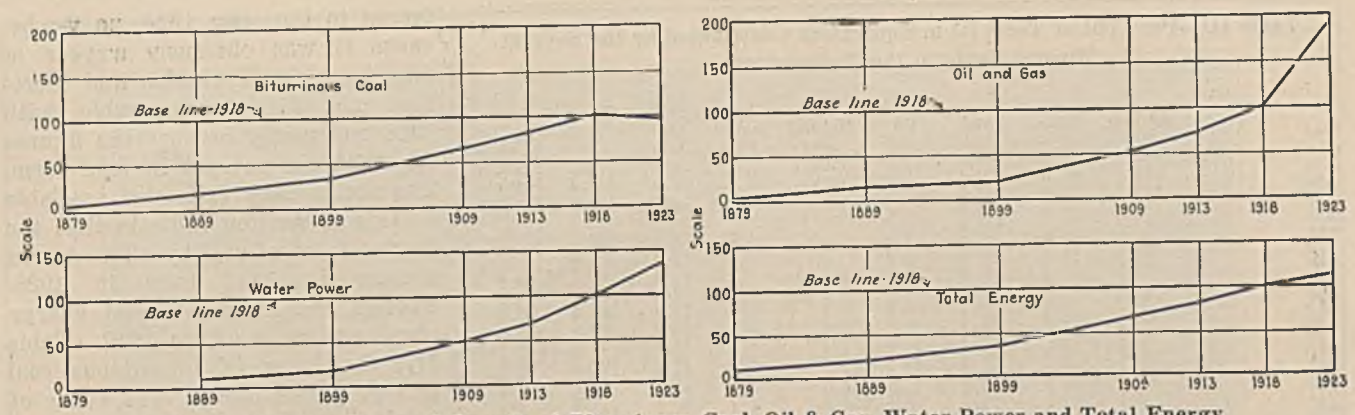


Fig. 2—Relative Rates of Growth of Bituminous Coal, Oil & Gas, Water Power and Total Energy

The figures are from 1879 to 1923. Oil & gas and water power are enjoying a rapid rise at the expense of coal, especially the former—oil & gas. The total energy has not kept up entirely with the trend of earlier years owing, perhaps, to the greater efficiency in the use of fuel but the figures are not far from what may be regarded as normal. Coal, however, has taken a downward trend. In 1910 the heating value of coal was to the heating value of oil & gas as 3 is to 1. Preliminary estimates indicate that the displacement of coal by oil was even greater in 1924 than in the year preceding.

to burn in order to give the same amount of power. Natural gas, in the early years before the accurate record begins, is represented by the estimated quantity of coal displaced by gas.

The table goes back to 1819, to the very beginning of coal mining, in order to show the trend. Up to 1913 every tenth year is shown. Beginning with 1918 the record for each year is given.

Trillions of B.t.u. are not intelligible to anyone, even to fuel chemists, but their meaning becomes clear in Table II, which shows the relative rates of growth. If the supply of any one of the competing sources of power in 1918 is expressed by the number 100, then the supply in any other year can be easily expressed as an index number or percentage of the base year, and in this way the rates of growth of the several competitors can be quickly compared.

It would be misleading to contrast years like 1919, 1921 or 1922, which were marked by strikes or general business depression, with the prosperous year 1918. Instead let us take 1923, when general business was booming and the coal market was stimulated by the demand for extra tonnage to build up the depleted stocks. In comparison with 1918, the output of anthracite in 1923 had fallen 6 points and is represented by the number 94; the output of bituminous coal had fallen 3 points and is represented by 97.

Contrast this with the change in oil and gas. Production of domestic oil had more than doubled, rising to the index number 205. Natural gas shows a large increase. Imported oil, which has now become a large factor in the energy supply of the country, rose to three times the 1918 rate in 1922, and even in 1923 stood at index number 218. Thus, while the total supply of coal had declined in importance, the total supply of oil and gas had greatly increased. Adding together all the oil and all the gas, their sum in 1923 was 91 per cent above that in 1918.

Even water power has shown a material increase. There is no complete information as to the number of horsepower hours produced from water, but the best estimates available indicate that they rose from 1918 to 1923 by 30 or 35 per cent.

Now by combining all the sources of power into one index number, we can tell whether the country's total demand for power has been declining. If the total heat units contributed in 1918 by coal, oil, gas and water power put together be represented by the number 100, then the heat units contributed in 1923 by all these sources are represented by the number 112.

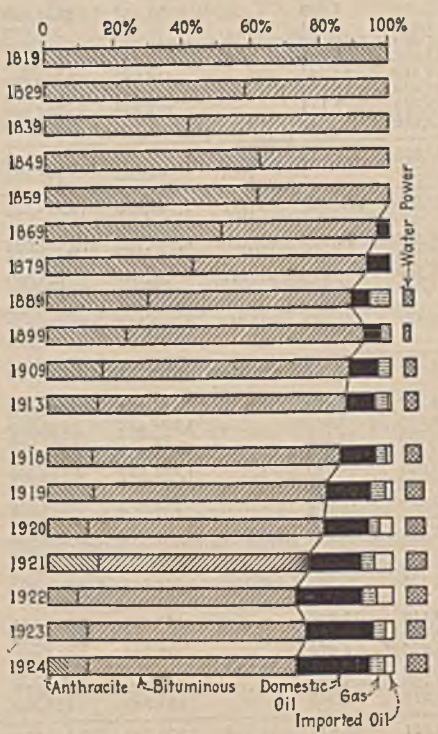


Fig. 3—Per Cent Total Heat Value of the Mineral Fuels

Anthracite in 1849 and 1859 was the leading mineral fuel in matter of heat value and for that matter in weight also. Since that it has receded to a relatively lowly place, and new fuels and water power have been treating bituminous coal as the latter, in earlier years, treated anthracite.

In other words, the *total energy consumption of the country instead of falling off in 1923 showed an increase of 12 points over even 1918.* As shown by the slope of the curve for total energy in Fig. II, the trend of growth from 1918 to 1923 is a not unnatural prolongation of that before 1918, Remembering that this index represents energy units produced, without regard to the fact that utilization in the meantime has become more efficient, it appears that the country's appetite for power and heat has continued to increase at a rate very close to normal.

An increasing rate of total energy consumption coupled with a decreasing rate of coal production shows very clearly that some other source of energy has been displacing coal. What that other source is will be clearer from Fig. 3, which shows the per cent of the total energy supply from mineral fuels that was contributed by each source in the years under consideration.

Thus far we have been speaking of rates of growth without regard to the size of each item. A great increase in a small item may mean little. We have been accustomed to think of oil and gas as a small item in comparison with coal. This opinion was perhaps justified in prewar years, when oil and gas furnished but 10 or 12 per cent of the total energy supply, but it will have to be scrapped now that in 1923 oil and gas had so far increased as to contribute 26 per cent of the total

Table III—Per Cent of Total B.t.u. Equivalent Contributed by the Several Mineral Fuels in the United States

Year	Anthracite	Bituminous	Total Coal	Domestic Oil	Natural Gas	Imported Oil	Total Oil and Gas	Grand Total Fuels	(a) Water Power Per Cent of Fuels
1819	100.0	....	100.0	....	.....	....	....	100.0	No data
1829	58.4	41.6	100.0	....	.....	....	....	100.0	No data
1839	40.2	59.8	100.0	....	.....	....	....	100.0	No data
1849	62.8	37.2	100.0	....	.....	....	....	100.0	No data
1859	62.3	37.7	100.0	(b)	.....	....	....	100.0	No data
1869	51.3	45.9	97.2	2.8	(b)	....	2.8	100.0	No data
1879	42.5	51.3	93.8	6.2	(b)	....	6.2	100.0	No data
1889	29.3	59.3	88.6	5.0	6.4 (c)	....	11.4	100.0	2.2
1899	22.5	69.5	92.0	4.7	3.3 (c)	....	8.0	100.0	1.9
1909	16.0	72.2	88.2	8.0	3.8	(b)	11.8	100.0	3.0
1913	14.4	72.7	87.1	8.7	3.6	0.6	12.9	100.0	3.4
1918	12.8	72.3	85.1	10.1	3.7	1.1	14.9	100.0	4.0
1919	13.3	67.9	81.2	12.6	4.5	1.7	18.8	100.0	5.0
1920	11.4	69.3	80.7	12.4	4.0	2.9	19.3	100.0	5.0
1921	14.0	61.7	75.7	16.0	4.0	4.3	24.3	100.0	5.1
1922	8.5	63.3	71.8	19.1	4.7	4.4	28.2	100.0	5.9
1923	10.9	63.5	74.4	18.9	4.6	2.1	25.6	100.0	4.9
1924 (d)	11.7	60.0	71.7	20.5	5.5	2.3	28.3	100.0	5.5

(a) No figures for water power are available prior to 1889. Hence to make the figures comparable, the data for water power thereafter are expressed as per cent of the fuel total, but are not included in the base on which the percentages are computed.
(b) Less than 0.1 per cent.
(c) Figures from 1869 to 1899 based on estimated quantity of coal displaced.
(d) Preliminary figures.

energy from mineral fuels (Table III). In 1918 oil and gas contributed but 15 per cent of the total energy from fuels. To put it another way: In 1918, the heating value of coal was to the heating value of all oil and gas nearly as 6 is to 1. In 1923 the ratio was as 3 is to 1.

Water power, though it has increased since the war faster than coal, is a small item in comparison with fuel. Its contribution to the energy supply of the country is only 4 or 6 per cent as great as that supplied by fuels. The real competitor of coal therefore is not water power but oil.

Up to this point we have not referred to the year 1924, partly because it was obviously a year of mild business depression and therefore not fairly comparable with 1918 and partly because the figures for 1924 are not yet in final form. The preliminary estimates available as this is written indicate that the displacement of coal by oil was even greater in 1924 than in 1923. Though the index of total energy stood one point above 1918 (Table II), the index of bituminous coal was 17 points below. *The index of total oil and gas, on the contrary, was 89 points above 1918.*

COAL CONTRIBUTED 72 PER CENT

In terms of per cent, coal including anthracite and bituminous, contributed 72 per cent and oil and gas 28 per cent. To put it another way, in the year 1924 there were produced about 480,000,000 net tons of bituminous coal and about 90,000,000 net tons of anthracite. The oil and gas produced or imported in the same year had a heating value equal to 230,000,000 tons of bituminous coal.

Output and Value of Coal from Oklahoma, Utah, Virginia and Washington Mines in 1923

(Compiled by U. S. Geological Survey)

State and County	Loaded at mines for shipment (net tons)	Sold to local trade and used by employees (net tons)	Used at mines for steam and heat (net tons)	Made into coke at mines (net tons)	Total quantity (net tons)	Total value	Average value per ton	Number of employees—Underground—Miners, a	Underground—All others	Surface	Total	Average number of days worked
Oklahoma												
Coal												
Haskell	30,400	1,884	1,180	....	33,464	$149,000	$4.46	84	42	18	144	108
Latimer	121,882	1,692	7,121	....	130,695	503,000	3.85	81	41	86	208	176
Le Flore	127,463	851	8,830	....	137,144	567,000	4.14	365	167	93	625	72
Okmulgee	187,061	12,014	8,201	7,631	214,907	855,000	3.98	491	230	152	873	103
Pittsburg	803,092	1,972	12,986	....	818,050	2,719,000	3.32	1,336	496	230	2,062	97
Tulsa	1,154,920	10,434	76,589	....	1,241,943	5,011,000	4.03	1,616	909	285	2,810	174
Other counties b	190,074	5,705	2,115	....	197,894	702,000	3.55	95	29	169	293	191
	62,807	3,446	.....	....	66,253	223,000	3.36	32	16	67	115	146
Total, excluding wagon mines	2,677,699	37,998	117,022	7,631	2,840,350	$10,729,000	$3.77	4,100	1,930	1,100	7,130	133
Wagon mines served by rail	44,688	.....	.....	....	44,688	145,000	3.25	....	....	....	....	....
Grand total	2,722,387	37,998	117,022	7,631	2,885,038	10,874,000	3.77	....	....	....	....	....
Utah												
Carbon	3,805,385	37,388	74,105	403,054	4,319,932	$12,511,000	$2.90	2,174	970	859	4,003	161
Emery	246,797	7,704	336	.....	254,837	785,000	3.08	132	48	41	221	115
Summit	42,962	7,510	691	.....	51,163	123,000	2.40	33	27	18	78	157
Other counties c	83,749	3,869	6,267	.....	93,885	237,000	2.52	40	18	21	79	191
Total, excluding wagon mines	4,178,893	56,471	81,399	403,054	4,719,817	$13,656,000	$2.89	2,379	1,063	939	4,381	160
Wagon mines served by rail	400	.....	.....	.....	400	1,000	2.50	....	....	....	....	....
Grand total	4,179,293	56,471	81,399	403,054	4,720,217	$13,657,000	$2.89	....	....	....	....	....
Virginia												
Dickenson	903,007	8,492	13,530	.....	925,029	2,485,000	2.69	436	300	216	952	225
Lee	1,007,318	9,735	7,615	.....	1,024,668	2,726,000	2.66	824	487	263	1,574	188
Montgomery	57,447	3,254	10,656	.....	71,357	353,000	4.95	81	42	42	165	138
Russell	2,024,361	33,243	8,453	.....	2,066,057	5,392,000	2.61	1,042	706	432	2,180	205
Tazewell	1,462,678	16,061	14,136	.....	1,492,875	4,728,000	3.16	937	756	405	2,098	168
Wise	4,701,364	125,872	25,116	1,160,780	6,013,132	16,029,000	2.67	3,384	2,498	1,034	6,916	231
Other counties d	126,983	15,474	16,535	.....	158,992	724,000	4.55	106	52	77	235	275
Total, excluding wagon mines	10,283,158	212,131	96,041	1,160,780	11,752,110	$32,437,000	$2.76	6,810	4,841	2,469	14,120	212
Wagon mines served by rail	9,533	.....	.....	.....	9,533	31,000	3.22	....	....	....	....	....
Grand total	10,292,691	212,131	96,041	1,160,780	11,761,643	$32,468,000	$2.76	....	....	....	....	....
Washington												
King	598,077	28,118	13,236	.....	639,431	2,225,000	3.48	516	385	239	1,140	218
Kittitas	1,294,588	19,485	43,934	.....	1,358,007	5,212,000	3.84	1,177	351	284	1,812	190
Lewis	92,836	15,978	4,974	.....	113,788	318,000	2.79	101	63	50	214	156
Pierce	282,309	3,676	14,681	59,554	360,220	1,653,000	4.59	295	281	182	758	261
Thurston	257,454	3,796	5,800	.....	267,050	801,000	3.00	109	35	43	187	241
Other counties e	172,570	9,828	5,348	.....	187,746	684,500	3.65	115	32	48	195	250
Total, excluding wagon mines	2,697,834	80,881	87,973	59,554	2,926,242	$10,893,500	$3.72	2,313	1,147	846	4,306	213
Wagon mines served by rail	150	.....	.....	.....	150	500	3.33	....	....	....	....	....
Grand total	2,697,984	80,881	87,973	59,554	2,926,392	$10,894,000	$3.72	....	....	....	....	....

a Includes also loaders and shotfirers. b Craig, Muskogee, Rogers and Wagoner counties. c Grand, Iron, San Juan and Uintah. d Chesterfield, Pulaski and Scott. e Cowlitz and Whatcom.

"Coal Barons at Noon Hour Club" ©Keystone View Co.

Outlaw Strikes Are Most Disturbing Factor in Anthracite Industry in 1924

Use of Substitutes for Anthracite Grows as Labor Costs Soar—Pinchot Settlement Boosts Wages to 196 per Cent Above 1914 Level—Possibilities in Educating Public to Use Steam Sizes

BY EDWARD W. PARKER
Director, Anthracite Bureau of Information

THE production of anthracite (including colliery consumption) in 1924, according to the best estimates available, was between 79,500,000 and 80,000,000 gross tons, very close to the normal average production during the last fifteen years.

Excluding the two war years of 1917 and 1918, and the strike year of 1922, the average annual production of anthracite from 1910 to 1923 inclusive has been 79,510,045 gross tons; including those years the average production has been a little over 78,615,000 tons. Compared with 1923, when, because of the extraordinary demand created by the deficit due to the strike of 1922, the production reached the highest point except for the two war years, the output in 1924 recorded a decrease of about 4,000,000 tons, half of which at least would have been made up except for the "outlaw" strikes which in 1924, more than in any year of the history of the industry, have been a disturbing factor.

Exact figures as to the loss of tonnage due to the outlaw strikes are not available but from reports made to the Anthracite Bureau of Information it is evident that except for these interruptions the production would have exceeded the record made by not less than 2,000,000 gross tons. The Northern, or Wyoming, region was the one chiefly affected by these strikes, which involved anywhere from a few hundred to as many as 12,000 men and all of them have been in direct violation of the agreement with the United Mine Workers and contrary to the orders of the officials, both local and national, of that organization.

In one case where disobedience to orders was of a flagrant character the charters of the recalcitrant locals, ten in number, were revoked by the national officers. The inability of the officers of the union to control the members and to hold them to the faithful performance of the agreement made for them with the operators presents one of the most serious situations that has developed since the machinery for adjudicating labor disputes in the anthracite regions was established by the Roosevelt Commission in 1903.

The men at a number of collieries in the Wyoming region have evinced an unfortunate tendency to follow the leadership of the general grievance committees, which have been a source of trouble ever since their inception, but whose existence has never been recognized in any agreement between the operators and the mine workers. Colliery grievance

NOTE—Says the photograph, of the scene in the headpiece, "Seated in their exclusive 'Morris Chairs' and warming their feet at the cozy open fire, the drivers and shovelers of coal at 132nd St. and North River, N. Y., get more enjoyment out of life than many a man at a Fifth Avenue club."

committees were established by the agreement of May 20, 1912, and the U. S. Anthracite Coal Commission of 1920 (the Wilson Commission), speaking of the work of its predecessor (the Roosevelt Commission) in establishing the Anthracite Board of Conciliation, said: "The experience of this board of conciliation is a high tribute to the spirit in which all parties have co-operated. The results have been most happy. If the present commission could do so it would gladly lend every influence for the increasing of confidence in this method of dealing with industrial grievances. The organization of *mine committees, commonly known as grievance committees* [italics are the writer's], has increased the efficiency of the machinery for dealing with the numerous but inevitable annoyances that arise in a great mining industry. The public interest in all labor controversies is well served when the principle of conciliation is active in the settlement of grievances and disputes."

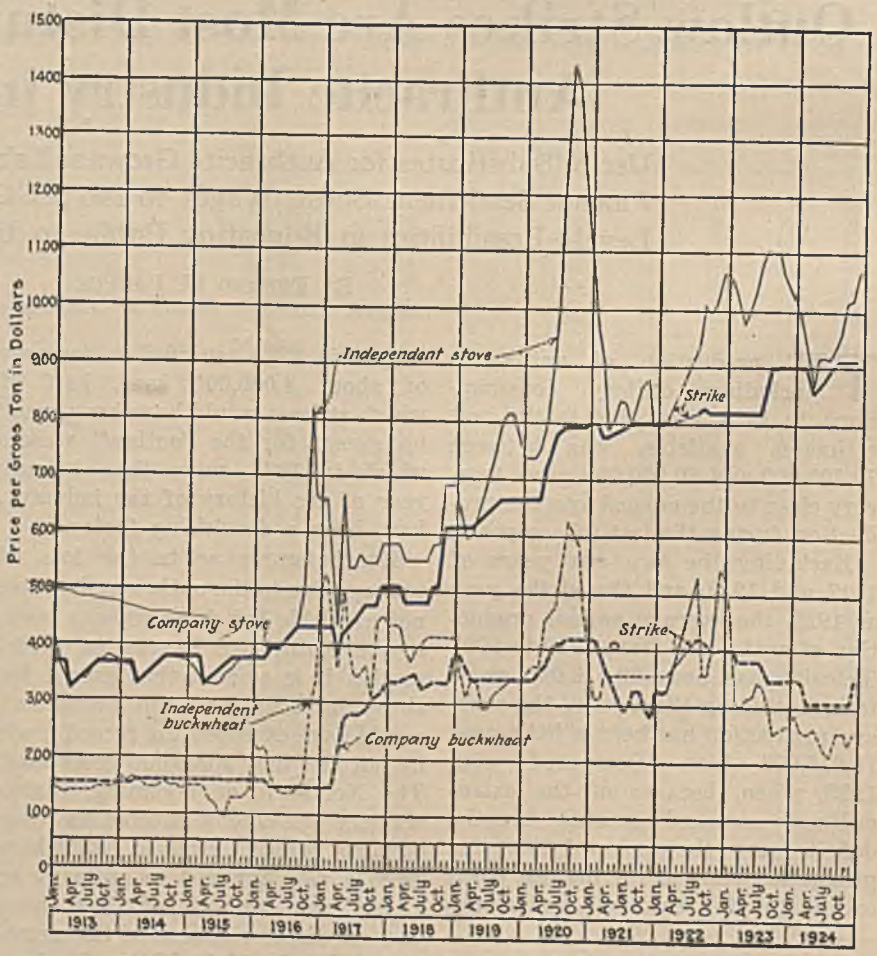
But the general grievance committees, where they have established themselves, are essentially different. They are themselves outlaws on the body politic of the authracite industry, seemingly banded together for the purpose of fomenting trouble rather than of preventing or allaying it, and the outlaw strikes which have been the dark spots on the otherwise peaceful record of the anthracite industry since the agreement of September, 1923, have been largely the product of their outlawry. It is sincerely to be hoped, in the interest of industrial peace, that the summary action taken by the general officers in revoking the charters of the rebellious locals will result in the elimination of the general grievance committees once and for all.

The wage scale of September, 1923, which was forced upon the industry by the self-imposed action of Governor Pinchot, was in force throughout 1924, and will remain in force until Aug. 31, 1925. There was, in consequence, no general controversy over wage matters or working conditions. The final war wage scale of 1918 was increased by 17.4 per cent by the anthracite Coal Commission of 1920, and the Pinchot settlement (?) of 1923 superposed a Pelion of 10 per cent upon this Ossa, with a few additional concessions that added to the burden of production costs, the result of all of which is that the labor cost of anthracite is today between 30 and 40 per cent more than it was at the close of the World War, a condition that probably does not exist for any other industry as a whole in the United States.

An investigation conducted by the National Industrial Conference Board showed that from 1914 to April, 1924, the earnings of anthracite mine workers had increased 196 per cent — that is, in April, 1924, they were practically three times what they were in 1914. Earnings of workers in manufacturing industries in comparison had increased in the same time 128 per cent, as had also the earnings of railroad employees, while earnings of employees in the building trades had increased 101 per cent and agricultural wage earners, 70 per cent.

Naturally, as a result of this high labor cost (and costs of supplies and overhead expenses have not been reduced at all), the prices of domestic sizes of anthracite in 1924 have necessarily ranged higher than at any time in recent history, and this has encouraged the use of subsitutes, particularly in the more distant anthracite markets. The shipments to Canada, for instance, in the first 10 months of 1924 were 2,921,550 gross tons as compared with 3,756,567 tons for the same period in 1923, a decrease of 835,017 tons, or over 22 per cent. Lake shipments to Nov. 30 of this year were 2,731,829 tons, against 3,095,163 tons last year. Shipments into New England for the first 9 months this year were nearly 1,000,000 tons less than in 1923, the figures as reported by the Massachusetts Commission on the Necessities of Life being respectively 7,094,643 tons and 8,064,284 tons.

The cause for the decreased shipments into New England cannot be entirely assigned to the higher prices. The industrial depression and factory idleness which obtained in that section during the first half of 1924 had much to do with it, as idle factory workers were not in a position to purchase their winter fuel in advance of their needs. With the improved conditions that came later in the year came more active



Anthracite Prices for Twelve Years

This diagram shows in dollars per gross ton the average company circular prices and average spot quotations on "Independent" stove and buckwheat sizes of Pennsylvania anthracite at the mines. Prices shown are averages of the range as quoted on the New York market.

fuel purchases, and the third quarter of 1924 showed an increase over the same period in 1923 of shipments into New England.

Somewhat at variance with the conclusion to be drawn from these figures is the fact that the sizes of which the prices are highest, stove and chestnut, particularly the former, have been the ones in most active demand throughout the year. The demand for stove coal was in excess of the supply all the time and in the later months of the year chestnut coal was a good second. Egg coal, after the usual early buying of that size in the spring, was draggy during the summer and fall, while pea coal and the buckwheats were not objects of any popular regard. The year 1924 presented a striking example of the habit of coal users of being "choicy" in their requirements when an ample supply is assured.

The total production of anthracite in 1924 was sufficient to meet all demands, and while some consumers may not be able during the winter of 1924-25 to get all of their favorite size that they would like to have, and while some who have delayed buying may be delayed somewhat in getting their supplies, there should not be any serious inconvenience to anyone unless unusually stormy weather interferes with the distribution.

From the time, in the latter part of the nineteenth century, that the late Eckley B. Coxe began the campaign for the elimination of waste in the production and utilization of coal and effected the passage of an act by the Pennsylvania Legislature providing for the appointment of the Anthracite Coal Waste Commission, of which Mr. Coxe became the chairman, the anthracite industry has been in the lead in the effort to reduce waste in mining and to obtain more intelligent and efficient use of its product. Conservation of natural resources was put into practice in the anthracite industry a score of years before President Roosevelt established it as a national issue. Mr. Coxe invented what is still known as the Coxe stoker, which made possible the use of the small sizes of anthracite, until then thrown onto the culm banks, as a steam fuel, as a result of which there have been recovered, since 1890, from these waste heaps over 80,000,000 tons of fuel.

The Coal Waste Commission, which made its report in 1893, estimated that the recovery of anthracite at that time did "not exceed 35 and possibly not more than 30 per cent of the coal originally mined over," but it thought this might be "increased to 40 per cent by the utilization of the coal contained in the culm banks and by a reworking of part of the territory mined over." That means that about two tons of coal were lost for every ton sent to market. But modern methods of mining, preparation and utilization have reversed the figures, and we are now making a recovery of from 60 to 70 per cent instead of losing it.

The changes that have effected these results have been evolutionary, not revolutionary. One of the steps in the progress was the elevation,

THE effect of the attempt to convert the domestic consumer to the use of fine coal has been unexpectedly and exceptionally gratifying.

not so many years ago, of pea coal from the steam to the domestic sizes, thus increasing the supply of domestic fuel by about 15 per cent —egg, stove and chesnut sizes, the more popular of the domestic sizes, constitute, together, about 58 per cent of the total production, and pea coal about 8.5 per cent. It was sold at a price that made it attractive to householders of limited means, and is obtainable today at a material saving in comparison with the "fancy" sizes. The mine price of pea coal is about two-thirds that of stove or chestnut, but it is a "domestic" coal. Comparatively little pea coal is now used for the making of steam for power purposes.

The next step in this progress of conservation has been and is the elevating of the larger of the small sizes, buckwheat No. 1, from "steam" to "domestic." It is being accomplished through the development of equipment adapted to the use of this fuel alone, and through an active campaign of education in which owners of older types of heating apparatus are instructed in the use of buckwheat No. 1 along with their customary fuel. As the Coxe stoker, a generation ago, created a market for the small sizes as a steam fuel, so now such magazine types of heaters as the Spencer, the Molby and the Newport have in the last decade or so made it possible to use buckwheat No. 1 for heating residences with as much efficiency, pound for pound of fuel used, as can be obtained from the larger sizes with the older types of hand-fired furnaces, and with a substantial saving on the fuel cost.

As yet, however, the magazine type of heater is adapted only to steam or hotwater systems of heating, whereas there are many thousands of houses equipped with hot-air systems, whose owners may not desire or may not be able to incur the expense of scrapping their old equipment and installing a new one. To meet the needs of this class of coal consumers has been developed what has been designated as the Inducto system, which, at comparatively slight expense for installation, provides by induced draft (as the name implies) the additional air necessary to effect the proper combustion when buckwheat coal is used alone. Any and all of these systems can be operated automatically under thermostatic control, so that just enough air is supplied to keep the fire at the desired state.

An interesting feature of the anthracite industry in the year 1924 was the establishment of what is known as the Anthracite Economy Service. During the winter of 1923-24 and the spring of 1924, "Anthracite economy exhibits" were established in somewhat of an experimental way in the cities of Philadelphia, Washington, New York and Boston, in which were displayed for periods of from two to three months the various types of buckwheat-burning apparatus. The results obtained from these seemed to warrant further efforts along the same lines, and permanent Anthracite Economy Service stations have, in co-operation with the retail dealers and the manufacturers of equipment, been established in the four cities named and in Brooklyn. A temporary station for the three winter months also was established in Baltimore. In addition to these a traveling exhibit has been provided which, beginning with Portland, Me., on Sept. 1, has been making "one-week stands" in the larger cities of New England, and during the first six months of 1925 will "show" throughout the States of New York, New Jersey, eastern Pennsylvania and Delaware.

In connection with these exhibits, both permanent and temporary, arrangements have been made for meetings to which local architects, builders and others possibly interested have been invited.

Coal Industry Hopes for Rate Decisions Assuring Reasonable Permanency

Establishment of Rates Prejudicial to Short-Haul Fields Feared—Unjust Conditions More Accidental Than Intentional—Important Problems Await Solution by Commerce Commission During Present Year

BY WAYNE P. ELLIS

THE tribulations of the Irish station agent, so graphically portrayed in Ellis Parker Butler's story, "Pigs is Pigs," sink almost to insignificance compared with those which are being heaped upon our regulatory bodies in the form of requests for adjustments, involving the rates on coal shipped into the Northwest and Mississippi and Missouri Valley destination territories.

In 1923 the Interstate Commerce Commission issued its decision in the Western Coal rates cases involving the relationship between the origin groups in Montana, Wyoming, Colorado and Utah to destinations in those states and in states north and west therof. It decided last year the case involving rates from the Arkansas, Oklahoma, Missouri and Kansas districts to points in Kansas, Missouri, Iowa and Nebraska, in which the differential relationship between the origin groups to destinations in those states was established, and rates were prescribed to destinations involved which resulted in most instances in reductions.

LAKE DOCK COAL CASES

The commission also decided what is termed the "Lake Dock Coal Cases," which involved rates from Illinois, Indiana and western Kentucky mines, particularly southern Illinois, and from the coal docks at the head of Lake Superior to destinations in Minnesota, Wisconsin, Iowa and South Dakota. The result of the decision in this case was to increase rates from southern Illinois and western Kentucky to a part of the destinations in Wisconsin and to a few points in Minnesota located in close proximity to the Twin Cities and to reduce rates from all of the Illinois, Indiana and western Kentucky groups and from the lake docks to destinations in western Iowa and South Dakota.

The primary results of the publication of rates to meet the orders of the commission in these cases was to disturb rate relationships or spreads which had been in effect for a number of years between the origin groups, and immediately brought on a condition which was unsatisfactory to most of the coal shippers involved. Then followed a mushroom growth of complaints which seem to have no end, and while a year ago it was thought that the commission had before it for decision matters which would permit it to finally pass upon practically every coal rate involved in the Middle West, it would appear that today we are as far away from the basis which will finally be established as was the case at that time.

It may be expected, or at least hoped, that during the coming year decisions will be rendered by the commission which will afford consumers and shippers of coal into the western territory a basis which they may expect will be continued over a period of time, and permit them to adjust themselves to conditions that will be reasonably permanent. Everyone intimately associated with the coal industry appreciates the enormous advances in rates which were made during the war and the post-war periods, which were made under the general principle that the carriers involved were entitled to a certain reasonable rate of return upon their investment.

> MORE permanent freight-rates would enable coal operators to adjust their business with a clearer eye to the future possibilities of the market. It would be well if the Interstate Commerce Commission could come to a speedy decision in the coal-rate cases.

The enormously increased development of coal lands, which it is admitted resulted in an overdevelopment and was not necessary to supply the needs of the country, brought about a condition where all coal operators in a sellers' market (as distinguished from a buyers' market), which has prevailed during the past two years, were forced to seek to retain new markets which they had for the first time served in volume during the war period and which they felt they should continue to serve even under the most depressed conditions.

Just recently it has been rather a pleasure to read a printed copy of an address (*Traffic World* of Dec. 20, 1924) delivered by J. Van Norman, one of the best posted members of the bar on interstate commerce matters, and particularly on coal-rate matters, in which he expresses fear that the trend of the decisions of the commission is toward the establishment of rates which will injure the so-called long-haul fields.

SHORT-HAUL MONOPOLY

He goes so far as to say that, through the freight rates which the commission may establish on long-haul shipments, competition may be eliminated and short-haul districts given a monopoly of the market. It is believed that so far as coal rates in the Middle West are concerned Mr. Norman's apprehensions are not well taken and the brief review of the rate changes made or proposed in the following paragraphs will show that to be the case.

Without threshing out the pro and con of the long and short haul competition, it is alleged, as all of those familiar with these matters are aware, that under the greatly advanced level of rates and the manner in which the coal rates in the Middle West in particular were increased, the short-haul coal shipper in that territory has been hurt a good deal more than the long-haul coal shipper. Assuming that it is true that the short-haul man still has an advantage in cents per ton, unfortunately, so far as the coal business is concerned, it is contended that the long-haul shipper does not today pay as great a proportion of transportation cost for the hauling of his product compared with the pre-war period as does the short-haul coal shipper. There may be more aggravated cases than this.

As an example, the situation which was in part placed before the Inter-

state Commerce Commission last year for decision, involving rates from the docks at the head of Lake Superior and from the Lake Michigan docks, and from southern Illinois to destinations in Wisconsin, Minnesota and the Dakotas is cited. Using the Twin Cities as a representative point of the territory involved, it is stated that since Jan. 1, 1917, the rates from the Duluth docks have been increased from 96c. to $1.82 per ton, an advance of 86c. or 90 per cent. The rate from southern Illinois to the Twin Cities during the same period was advanced from $2.30 to $3.47, or an increase of $1.17 per ton, equaling a 50 per cent advance. This takes into consideration only the transportation charges on lake coal applying on the tail end of the haul. If to these increases on lake coal is added the increased transportation charges which it was necessary to pay to get the coal onto the docks, the dock coal today must bear 75c. more per ton in transportation charges as compared with southern Illinois than it did on Jan. 1, 1917, and no consideration is given here to the handling expense over the docks, which also has increased.

More Accident than Intent

Here is a condition where not only the relative comparison has been far outweighed in the case of the short-haul coal but also the actual disadvantage which lake coal has had heaped upon it to some extent typifies the injustice of conditions which have been more a matter of accident than intention.

Reference is made to this situation not because I desire to argue out in these columns a fight between shippers to regain or retain what they believe is their market territory. It is given only as an indication of the growth of discrimination in our coal-rate structure, and which it will be admitted cannot be satisfied either by a return to the status quo existing immediately prior to the war or to a rigid application of a scale of rates based entirely upon distance.

It may be admitted, subject to argument, that a rigid mileage scale on coal, because of the fixed location of the plant producing it, would be improper both from the standpoint of the shipper and consumer—principally of the consumer. There is, however, a great deal of merit in the proposition that distance must be given proper consideration in the establishment of any reasonable rates as found by the Interstate Commerce Commission, and particularly must this be so under the level that is in effect today.

Must Call on Court

If it were possible to revert to the competitive conditions existing between carriers prior to 1906, or to a condition where the commission had not recently fixed certain rates, the railroads involved might be able to meet arbitrarily the competitive conditions found in territory which they serve and adjust the rates so that shippers located on their rails would not be placed at a disadvantage. These are conditions which are making it more and more necessary to take to the Interstate Commerce Commission for decision matters which might under reasonable competitive conditions be taken care of by the carriers themselves through the co-operation of the shippers and consumers involved.

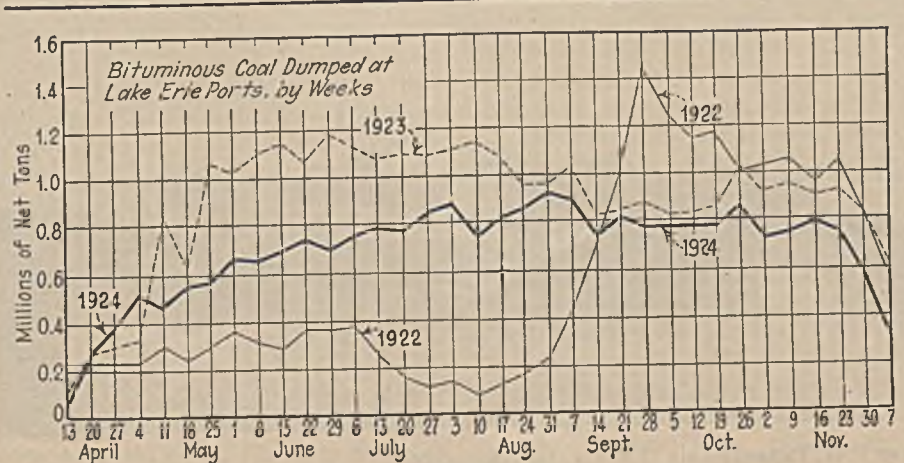
As to the best method in which any changes which may be necessary shall be made, it is advisable to revert to the testimony given before the Interstate Commerce Commission during the hearings involving the advance of rates in 1920. At that time it was the belief of some of the best informed minds in the country in commerce matters that the burden of increased rates should be placed upon class traffic, which it was felt was not paying its rightful share of the transportation cost, and that from an economic standpoint the necessities of life, such as agricultural products and fuel, should not be further burdened with a large increase in transportation rates. Therefore it seems best from any standpoint, if we are to get back to a condition of the survival of the fittest in the coal business and to the establishment of flat rates which may if properly established result in the best competitive situation at destinations, to reduce the rates on coal from the territories which have suffered, and give the benefit, if any, to the consumers. It should be admitted that we cannot presuppose a change of rates upon conditions which may have existed a number of years ago but do not obtain today.

It probably would be well to take up briefly some of the various rate matters affecting coal which it is hoped will be decided and put into effect during the coming year. Taking these up serially, we have:

Eastern Kentucky Rates

(1) The long discussed through rates from eastern Kentucky to destinations in Iowa, Minnesota and the Dakotas. For a number of years the Louisville & Nashville R.R. published through rates from its eastern Kentucky mines to a small number of destinations in these states which up until the war period were the same as the combination rates through Chicago to the same destinations. Because of the method of advances made during and since the war, we find at the Twin Cities, for instance, a published through rate in effect which is 84c per ton lower than the combination rate through Chicago. This condition is a mere accident of rate construction, but although it has been fought over for a number of years it was not possible, until the commission issued its decision in this matter last year, even to approach a solution of it, and then the principal carrier involved refused to take advantage of the increased revenue which it could have obtained and which was authorized by the commission.

Other Eastern carriers, fretting under the demands of shippers for the same level of rates as granted to L. & N. shippers, proposed the establishment of rates on the same basis



as the L. & N. had in effect. This was promptly met by a statement of the latter railroad that it would reduce its rates, bringing about a condition "fraught with danger" and having all the appearances of the instigation of a rate war. The rates were actually published by two of the Eastern carriers, being upon practically the same basis as the L. & N. rates, but to a much larger number of destinations than carried by the L. & N., which soon was followed by publication of rates by the latter railroad 15c. per ton less to some of the destinations. A large number of protests were filed by both shippers and consumers and the situation fast assumed such a serious aspect that the Interstate Commerce Commission through its Division of Traffic informally brought about an agreement between the carriers involved.

May Reduce Through Rates

It is understood that within a short time through rates will be published to practically all destinations in northern Missouri, Iowa, southern Minnesota and eastern South Dakota which, with the exception of the rates from the L. & N. eastern Kentucky mines to a few destinations, will be reductions from the present combination rates. The rate war between the originating carriers which threatened has for the time being been put aside pending adjustment of the origin group relationship involved, which will, it is understood, be given to the Interstate Commerce Commission for formal decision.

(2) Another rate situation growing out of war conditions which it was attempted to rectify during the past year was that pertaining to lignite originating in North Dakota. At the request of the Fuel Administration the transportation rates on this fuel were greatly reduced during the war and the destination territory enlarged, in order to stimulate its use in the Northwest at a time when it was necessary to conserve all of the Eastern coal possible for war purposes. The rates then published by the carriers serving these fields have continued in effect up to the present time, notwithstanding the fact that the conditions under which they were established have radically changed.

Forget War Is Over

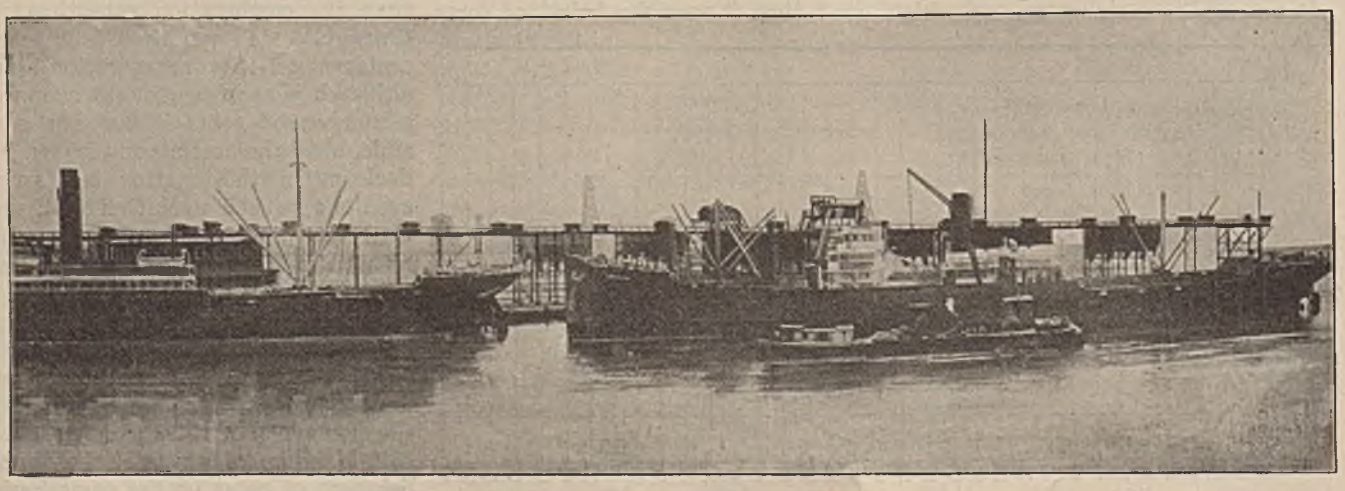
Last year the carriers involved attempted to increase these rates to the same level that applies on coal shipped from the docks at the head of Lake Superior. These rates were suspended by the commission under complaints of lignite operators and consumers' representatives, and a decision rendered after a hearing in which the commission found that the present lignite rates were too low, but that the carriers had not justified the rates which they proposed to make effective. No other basis was found reasonable to apply on this traffic by the commission at that time, but it did incorporate in its decision without approval, a scale that was recommended by the examiner who heard the case. The commission asked interested parties either to advise it of their opinion as to this scale or to have a conference and attempt to arrive at an agreement as to the proper basis to apply.

Up to this time no such conference has been held, but it is understood that the carriers have formulated what in their mind should be the proper rates, and it is hoped that within a short time some solution of this question will be had. It is quite probable that the rates suggested by the carriers will be somewhat higher than the present rates in effect, but will at the same time be lower than the rates on dock coal mile for mile, in order to be in accord with the commission's findings. It will be remembered also that, because of the intrastate rates which also were involved, the North Dakota Railroad Commission heard this case jointly with the examiner of the Interstate Commerce Commission and rendered a separate opinion in which similar findings couched in not as strong language were made.

(3) Hearings were held during the past year involving rates on lake cargo coal from the various origin districts to the lower Lake Erie ports as a result of complaints filed by the Pittsburgh, Ohio, No. 8 and Fairmont district operators attacking the level of rates from their origin groups and also the relationship between their groups and other fields shipping lake coal.

Complainants' Concessions

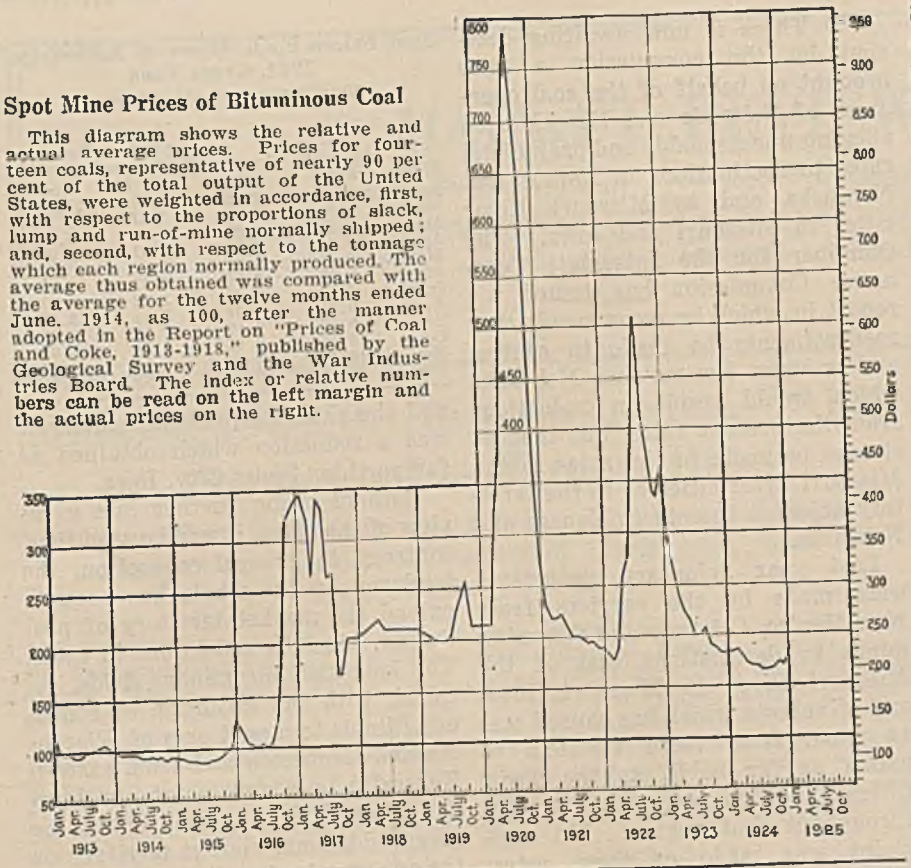
It was finally recommended on behalf of some of the complainants that the rates from Pennsylvania, northern West Virginia and Ohio origin districts be reduced considerably, that the rates from the districts in West Virginia remain about as at present, and that the rates from the eastern Kentucky groups in the main be increased over the present rates. Without going into a lengthy discussion of the evidence presented on both sides, the carriers and operators of West Virginia and Kentucky of course opposing any change in the present rates, it is to be hoped that an early decision can be looked forward to in this case, so that if there should be any changes from the present rates, or if there should be no change, the purchasers of lake coal may adjust



Canton Pier, Pennsylvania R.R. Co., Baltimore, Md.

Spot Mine Prices of Bituminous Coal

This diagram shows the relative and actual average prices. Prices for fourteen coals, representative of nearly 90 per cent of the total output of the United States, were weighted in accordance, first, with respect to the proportions of slack, lump and run-of-mine normally shipped; and, second, with respect to the tonnage which each region normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the Report on "Prices of Coal and Coke, 1913-1918," published by the Geological Survey and the War Industries Board. The index or relative numbers can be read on the left margin and the actual prices on the right.



themselves to conditions which will apply for the coming lake season, which begins in April.

(4) Another situation quite similar to the L. & N. rates on coal from eastern Kentucky to the Northwest was that involving through joint rates on anthracite from Buffalo, N. Y., and other Niagara frontier points to the Twin Cities, Minn. These rates, as originally established, were upon the combination basis through Manitowoc, Wis., but, due to the method of general rate advances made during the war and after and to a change in one of the factors of the combination, became $1.87 per gross ton less than the combination after the last general change in the rates on July 1, 1922.

The carriers sought to advance the through rate to the combination basis, which the I. C. C. found they had not justified but did find that a rate of $8.50 from the anthracite mines to the Twin Cities would not be unreasonable. The carriers published this new rate by increasing the factor from the Niagara frontier points to the Twin Cities, which advance amounted to $1.16 per gross ton.

(5) The adjustment in rates provided for in the decision of the Interstate Commerce Commission in the Lake Dock Coal Cases, spoken of above, resulted in advances in rates from southern Illinois to the Twin Cities and immediate surrounding territory of 28c. per ton; advances to points in southeastern Minnesota, such as Rochester and Owatonna, and to points in central Wisconsin, such as Eau Claire, of 8c., and to points in southeastern Wisconsin, such as Madison, of 23c., with smaller advances to points further north. Slight reductions were also made to some Wisconsin destinations from southern Illinois in the adjustment as published by the carriers.

Sioux City Rates Lower

Reductions were made in the rates to Sioux City, Iowa, from all Illinois, Indiana and western Kentucky mines and from the Lake Superior docks ranging from 20c. to 30c. per ton. The same rates were applied to Iowa points intermediate to Sioux City. Reductions also were made to points in southeastern South Dakota, such as Sioux Falls, to retain relationship with Sioux City.

Rates on fine coal or screenings were for the first time established to South Dakota points because the Interstate Commerce Commission found these points were entitled to the same relative consideration as Sioux City, which had enjoyed such rates for a number of years. The carriers, rather than cancel the Sioux City fine-coal rate, elected to extend similar rates to South Dakota points, observing the same percentage spread between the lump and fine coal rate as was established to Sioux City.

These reductions were met by the voluntary establishment from the Lake Superior docks of rates on fine coal on the same basis in cents per ton under the lump coal rates as was made effective from southern Illinois. The two adjustments became effective on the same date, Sept. 10, 1924.

Reductions also were ordered and published from Illinois and Indiana to points in western South Dakota, some of them amounting to as much as 90c. per ton on lump coal.

Southern Illinois Rates Stand

The decision of the Interstate Commerce Commission so far as it pertained to rates to Wisconsin and Minnesota destinations applied only to southern Illinois mines. The carriers, however, in publishing their tariffs sought to restore the differentials (previously found by the commission to be proper) from other Illinois groups under southern Illinois but not from the Indiana groups. Storms of protests were made to the Interstate Commerce Commission by shippers and consumers, following which the new rates from all groups except southern Illinois were suspended.

The carriers involved had spent a great amount of time during the past three and one-half years attempting to work out this differential situation and had, just prior to the decision in the Lake Dock Coal Cases, published for the criticism of all concerned the adjustment which they felt was proper under the decision of the Interstate Commerce Commission in the Illinois Coal Cases, 1920. In general this called for a reduction in southern Illinois rates of about 5c. per ton, a slight advance in the central Illinois rates and about a 10c. advance in rates from northern Illinois districts.

Since the suspension of the rates conferences have been held between the carriers, with the result that the suspended rates, with the approval of the Interstate Commerce Commission, have been withdrawn, leaving in effect the old rates from all Illinois and Indiana groups except southern Illinois. It is probable that an entirely new adjustment will be published in the near future, part of which will no doubt follow the lines of the decision of the commission in

cases which are now pending before it involving rates to points in Iowa, hereinafter mentioned.

In the meantime there have been filed with the Interstate Commerce Commission formal complaints and petitions on behalf of various Illinois coal shippers which will be heard during the coming year, if not cancelled in the meantime. All of them involve in some degree the situations outlined in the foregoing paragraphs.

It will be readily appreciated by anyone who is interested enough to read through even this brief detail that this situation today is a "mess," and it is to be hoped that the coming year will see it worked out to the satisfaction of some of the interested shippers and consumers.

IOWA RATES THOUGHT HIGH

(5) In complaints filed by the Iowa Board of Railroad Commissioners and by certain Mason City (Iowa) interests the rates from Illinois, Indiana and western Kentucky to all Iowa destinations were attacked as being unreasonably high and it also was charged that the Iowa points were being discriminated against in favor of points in surrounding states. A formal hearing was held last summer in these matters and the case is now awaiting a report of the examiner of the Interstate Commerce Commission.

Specifically the complainants are requesting reductions, particularly from southern Illinois, from which it is stated the major portion of the coal consumed in Iowa originates. These cases are linked very closely to those decided under the "Lake Dock Coal Cases" decision, and it is probable that the general adjustment from the Illinois, Indiana and western Kentucky mines referred to will be held up pending a final decision on these complaints.

(6) There is now awaiting decision by the commission a case brought on behalf of the coal operators of Colorado and New Mexico alleging unreasonable and prejudicial rates to destinations in Kansas and Nebraska and to Missouri River cities in Missouri and Iowa. The examiner for the Interstate Commerce Commission has issued his report in which he recommends that readjustments be made to central and western Kansas and Nebraska which would result in reductions from the present rates, but that no change be made in the rates to the Missouri River cities or to the territory adjacent thereto in Kansas and Nebraska.

Last year voluntary reductions were made by the carriers from New Mexico, Colorado and Wyoming mines to destinations east of the Missouri River in Missouri, Iowa and Minnesota which has caused coal to move from these districts to points as far north as the Twin Cities and to compete actively throughout that region. No complaint was made of these rates. They are a sample—hard to find in these days—of competitive rates voluntarily made by the carriers to permit their shippers to compete in that territory. It was one of the few cases left where the individual carrier is not tied into a general adjustment under orders of the Interstate Commerce Commission, which prevents it from meeting local competitive conditions existing in only a portion of the territory it serves.

Other cases were decided during the past year involving coal rates which are not covered in the foregoing. Among the more important was one involving rates from mines in Missouri, Kansas, Arkansas and Oklahoma to destinations in Missouri, Kansas, Iowa and Nebraska. The general result of the order made and the rates as published under it was a reduction which obtained as far north as Sioux City, Iowa.

Without going further into a review of the rates, it will be seen that, contrary to general conception, the tendency on the whole has been to extend the market territory of producing mines by reductions in rates. The long-haul bituminous fields, so-called, with the exception of southern Illinois to a part only of Wisconsin and Minnesota and from eastern Kentucky to a few points in Iowa and Minnesota have been or will be given additional market territory or the opportunity to sell on a relatively lower delivered price basis, freight rate considered.

Let us hope that this Middle West coal-rate situation will settle down within the coming year to a basis which consumers, shippers and carriers may consider to be somewhat permanent. Under existing uncertain conditions it is extremely difficult to make contracts for coal in competitive territory to apply for even a year. In most cases where they have been made the tonnage of the shipper has very seldom been taken when a change in rate made it more profitable for the purchaser to buy elsewhere. Until a more stable basis is reached than exists at the present time the business of individual shippers and of some consumers will continue to suffer.

Spot Prices F.o.b. Mines of Anthracite, 1924, Gross Tons

NEW YORK (N. Y.) MARKET

Month	Independent Stove	Company Stove	Independent Buckwheat No. 1	Company Buckwheat No. 1
Jan....	$10.15	$9.00	$2.69	$3.50
Feb....	9.91	9.00	2.87	3.50
Mar....	9.33	9.00	2.60	3.45
April...	8.69	8.55	2.53	3.07
May....	9.16	8.67	2.62	3.07
June...	9.17	8.75	2.47	3.07
July...	9.12	8.87	2.22	3.07
Aug....	9.31	9.01	2.12	3.07
Sept...	9.60	9.12	2.56	3.07
Oct....	10.16	9.12	2.56	3.07
Nov....	10.19	9.12	2.31	3.07
Dec....	10.65	9.00	2.55	3.50

Average Spot Prices of Bituminous Coal, F.o.b. Mines

(Unit, net ton of 2,000 lb.)

Month	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
January....	$1.46	$1.21	$1.13	$1.53	$4.15	$2.48	$2.57	$2.57	$3.26	$2.25	$4.38	$2.21
February...	1.22	1.16	1.12	1.40	4.18	2.53	2.49	2.58	2.77	2.20	3.59	2.25
March.....	1.17	1.17	1.09	1.27	3.89	2.58	2.47	2.58	2.63	2.12	3.20	2.15
April.....	1.17	1.16	1.08	1.24	3.21	2.64	2.43	3.85	2.62	2.24	2.84	2.07
May.....	1.15	1.16	1.07	1.21	4.14	2.67	2.38	4.59	2.68	3.11	2.68	2.04
June.....	1.14	1.12	1.07	1.26	4.00	2.57	2.40	7.18	2.52	2.56	2.56	2.03
July.....	1.18	1.12	1.05	1.22	3.17	2.58	2.47	8.24	2.40	4.67	2.40	1.98
August.....	1.22	1.13	1.07	1.30	3.24	2.58	2.76	9.51	2.42	6.13	2.39	1.99
September.	1.23	1.11	1.10	1.57	2.02	2.58	2.91	8.52	2.37	5.58	2.46	2.02
October....	1.29	1.13	1.12	2.26	2.02	2.58	3.09	7.78	2.33	4.48	2.28	2.10
November..	1.31	1.10	1.17	3.87	2.48	2.58	2.57	5.87	2.35	4.11	2.25	2.06
December..	1.26	1.11	1.33	4.01	2.48	2.58	2.58	4.38	2.26	4.05	2.18	2.06
1st Quarter.	$1.28	$1.18	$1.11	$1.40	$4.07	$2.53	$2.51	$2.58	$2.89	$2.19	$3.72	$2.20
2nd Quarter	1.15	1.15	1.07	1.24	3.78	2.63	2.40	5.20	2.61	2.64	2.69	2.04
3d Quarter..	1.21	1.12	1.07	1.36	2.81	2.58	2.71	8.76	2.40	5.46	2.42	2.00
4th Quarter.	1.29	1.11	1.21	3.38	2.33	2.58	2.74	6.01	2.31	4.21	2.23	2.07
Yearly aver.	$1.23	$1.14	$1.12	$1.85	$3.25	$2.58	$2.59	$5.64	$2.55	$3.67	$2.77	$2.08

Relative Prices of Bituminous Coal

SPOT PRICES JULY, 1923—JUNE, 1914, AS BASE

1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
120	100	93	126	343	205	213	212	270	186	362	183
101	96	92	116	346	209	206	213	229	182	297	186
97	96	90	105	321	214	204	213	217	175	264	178
97	96	89	103	265	218	200	318	217	185	235	171
95	96	89	100	342	221	197	379	222	257	221	169
95	93	88	104	331	212	198	593	208	212	212	167
97	93	87	101	262	213	204	681	198	386	198	163
100	93	88	107	268	213	228	786	200	507	198	164
102	92	91	130	167	213	241	704	196	461	203	167
106	93	93	187	167	213	256	643	193	370	188	174
108	91	97	320	205	213	212	485	194	340	186	170
104	92	110	332	205	213	213	362	187	335	180	170
106	97	92	116	337	209	208	213	239	181	307	182
96	95	89	102	313	217	198	430	216	218	222	169
100	93	89	113	232	213	224	723	198	451	200	165
106	92	97	280	192	213	227	497	191	348	184	171
102	94	91	152	269	213	214	466	211	303	226	172

MARKET REVIEWS

Markets and Production in 1924 and Forecasts by Our Correspondents in Leading Coal Fields—Diagrams and Tables of Spot Prices of Coal and Operating Records of Producing Districts

Midwest 1924 Prices Lowest Since 1919; Steam Coal Is Hardest Hit

Illinois Output Falls About 2,000,000 Tons, Thanks to Non-Union Competition—Works Less Than 200 of 393 Shipping Mines —Indiana Suffers Even More

The year 1924 certainly was a buyers' year throughout the coal markets of the Middle West. Prices were moderate, transportation was adequate and the market tendency was so uniformly downward that contracts—fewer in total than usual—were made later in the year than is customary, while the purchasers enjoyed the benefits of a summer spot market that dragged on rock bottom. Southern Illinois $3.11 average spot price on lump and $2.35 on mine run were the lowest run of prices since 1919. The same thing applies to Indiana Fourth and Fifth Vein lump at $2.74 and mine run at $2.24. But screenings in all three producing regions sank out of sight. Southern Illinois spot screenings in 1924 averaged $1.76, the lowest since 1916 (and the output of this region is half screenings). Indiana was in an identical position with screenings at $1.59. Thus the two states suffered heavily in the steam market.

Production of Illinois and Indiana fell below that of 1923 but not so markedly in the case of Illinois as might have been expected. The considerable running time which many Illinois mines got during the first three months of the year held up the total noticeably. It is probable, according to Dr. F. C. Honnold, head of the Honnold Coal Bureau and the state's best coal statistician, that the 1924 total of coal loaded at mines for shipment will reach 70,000,000 tons when the final count is possible. On Nov. 30 the figure was 65,527,000 tons and December did not give promise of adding another full 5,000,000 tons. Approximately 185 of the 393 shipping mines of Illinois were running at the end of the year. Indiana, probably harder hit, was not to come within 3,000,000 tons of her total of 24,952,000 tons shipped in 1923. Out of 206 shipping mines in Indiana only 118 tried to run and these got running time enough barely to reach 64 per cent of the capacity of the 206.

The year led off with the same calmness that characterized the Midwest markets throughout 1923. Some reasonably cold weather during January and February coupled with continued general shutdowns in many regions had the effect of holding prices from collapse. Southern Illinois lump ranged up to $3.75, the best prices of the year, and central Illinois and the best Indiana lump coals hovered around $3.25. Steam demand during the cold months held southern Illinois screenings up to $1.75@$1.90 for weeks and Fourth Vein Indiana did almost as well.

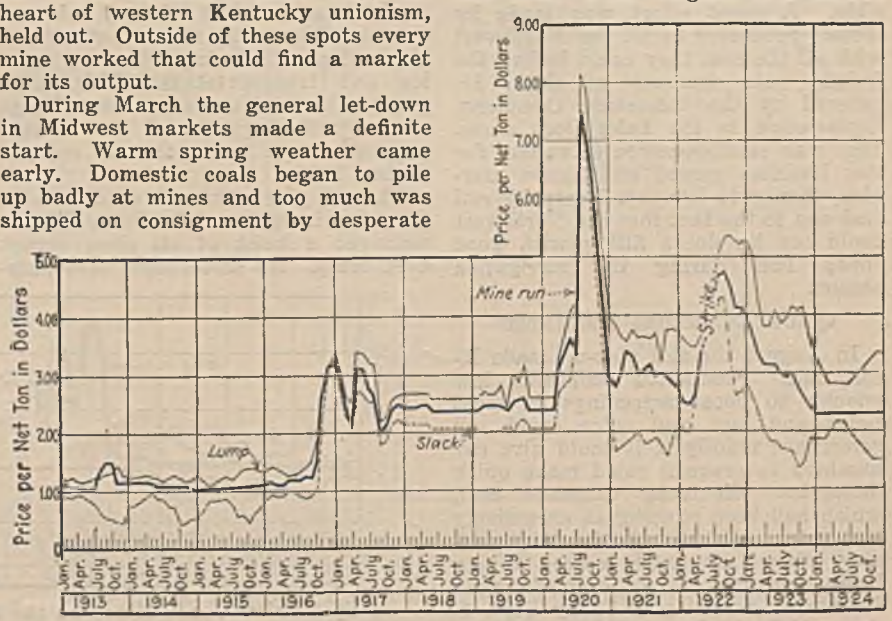
Strike in Western Kentucky

Western Kentucky, making a strong bid for markets, kept large volumes of coal available everywhere through the Middle West, its lump never passing $3 and its screenings went down below $1. This was a restraining influence on many trading centers all winter and spring until after April 1, when the long western Kentucky strike started. It ran all the remainder of the year, but most mines of the field reopened on a non-union basis during the summer and fall as one after another of the mining camps succumbed. This was marked in the case of the merger of St. Bernard and western Kentucky companies. Only a few of the towns around Central City, the heart of western Kentucky unionism, held out. Outside of these spots every mine worked that could find a market for its output.

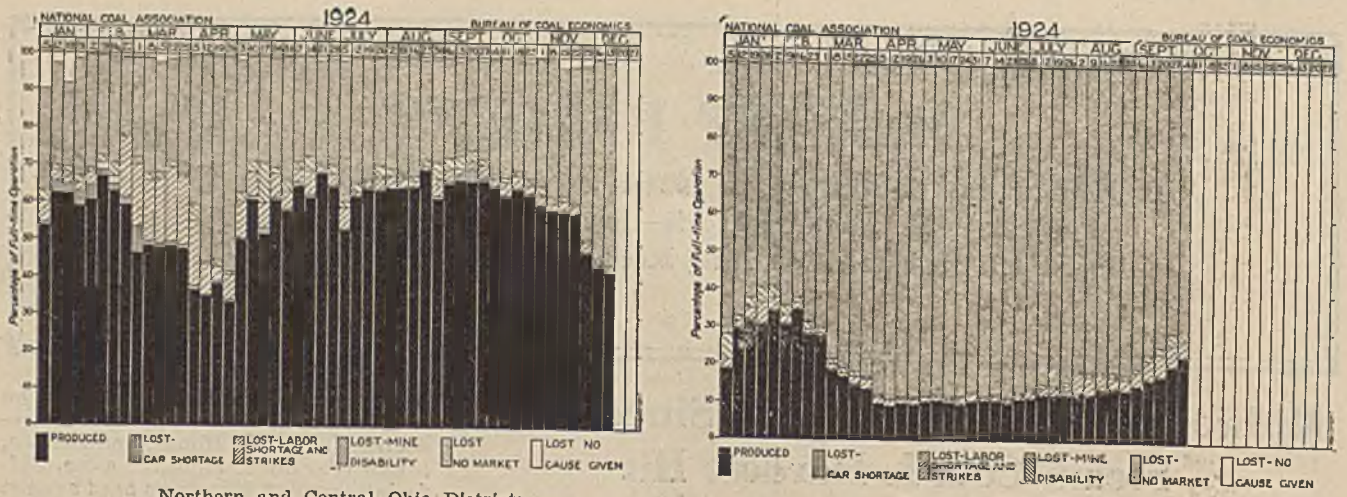
During March the general let-down in Midwest markets made a definite start. Warm spring weather came early. Domestic coals began to pile up badly at mines and too much was shipped on consignment by desperate producers trying to make a living on two days a week running time. Production fell off in Illinois and Indiana. Steam coal prices improved some, stiffening southern Illinois up hard against the $1.90 price and lifting central Illinois to $1.50 and better. A real effort to hold up lump and egg prices failed, thanks to the constant flood of both western and eastern Kentucky coal into the Midwest. So, on March 13 Franklin County (Ill.) operators, setting the pace, as usual, trimmed their circulars 25c. all around. Other fields sagged too. By late March southern Illinois screenings, going up as domestic descended, reached $2.25, the high water price of the year. But volume, naturally, was small.

The general slump produced its inevitable effect. Contract holders began to refuse shipments and cancel. Then came April 1 with the Jacksonville agreement laying its clammy hand on the whole unionized division of the coal industry. Shutdowns all through Illinois and Indiana were many. Southern Illinois lump sank to $2.75@$3 along with Indiana Fourth Vein and Mt. Olive. Standard district, always the lowest priced coal of Illinois, did a remarkable thing by hoisting its lump during this period from $2 to $2.25@$2.50 for a few weeks of spring fag-end business in St. Louis when householders and apartment house owners were patching out the winter with the lowest cost coal available.

All through the winter smokeless coal from West Virginia had flooded



Spot Prices F.o.b. Mines on the Chicago Market of Coal from Southern Illinois



Northern and Central Ohio Districts

Southern Ohio District

Percentage of Full-Time Operation of Coal Mines and Time Lost by Causes

the Midwest markets, winning trade from anthracite and from some of the highest grade Midwest domestic fuels. Lump and egg, which started the year at $3.50, got up to $4.50 and mine run to $2.50. These prices gradually sank with the general decline but heavy tonnages reached the Chicago region by rail all winter and well into the spring. Lump and egg often were in too great volume so that the price sagged during the summer to $2.75@$3 and mine run was a flood, sinking in price to $1.50 in spite of large acceptance by retailers. By November Pocahontas mine run was up to $2 and lump and egg to $4.50. The bigger sizes dropped back to $3.50 later. Smokeless coal has won great popularity during the past two or three years but especially during 1924.

Illinois Producers Hurry

During the summer the Middle West slogged through the slough of despond. Screenings from various fields held a fair price level for weeks but the production of Illinois and Indiana was so low that the total tonnage of screenings sold was small indeed. Domestic business was almost impossible. A great effort was made by Illinois producers to fill the Northwest with all the coal they could before the freight rate increase of Sept. 10, ordered by the Interstate Commerce Commission in the Lake Dock cases. This was small-measure salvation, for this business moved on narrow margins, thanks to low-cost Kentucky rail coal and to the fact that the Northwest could see its docks filling with good cheap fuel during the navigation season.

Quick Deliveries Demanded

In August the fall pick-up made itself felt. Production still was low enough to boost screenings in most fields and any coal office could sell screenings readily if it could give car numbers to prove it could make quick deliveries. Kentucky domestic coal, which had been running at excessively low prices all through the late summer, when Lake trade ceased taking large tonnages, in late August, began its ascent, reaching $2.75 by Sept. 1. At mid-September southern Illinois lump—the old reliable pace setter—advanced 25c. to $3.50, a price that the biggest producers tried conscientiously to maintain without fluctuation until the end of the year.

During early October, when everybody was expecting a stronger market, output was sufficiently increased to absorb more than all the demand. Although lump prices all around were fairly well maintained, egg and nut coals produced in Illinois and Indiana went begging and sold for what they would bring. By late October screenings were in bad shape. Southern Illinois was down to $1.25, Indiana Fifth Vein to 90c., western Kentucky to 60c. and Standard district to 50c.

Screenings Become Strong

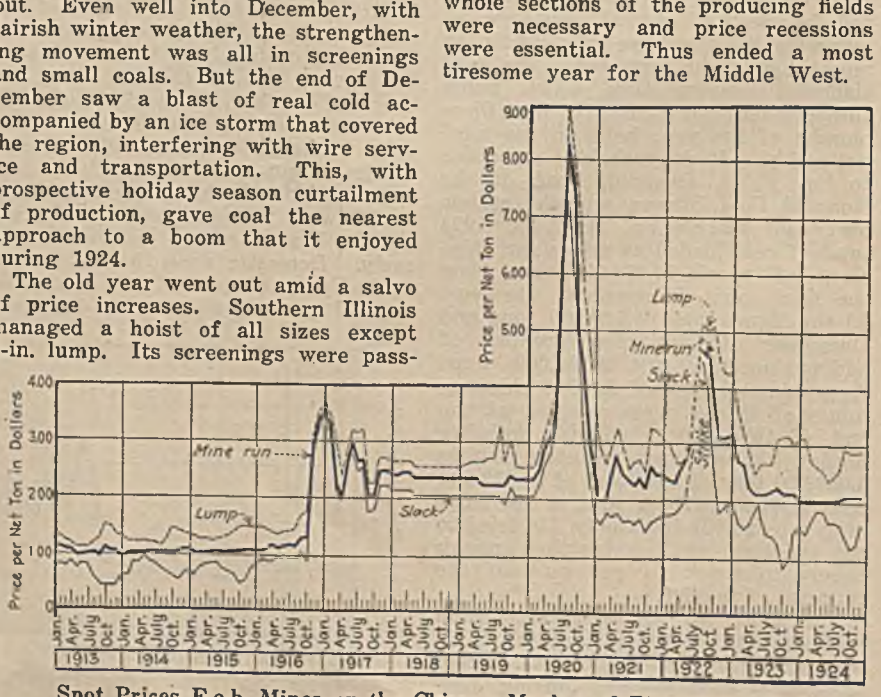
November saw some improvement down the line but not much. The screenings from various fields got most of the price benefit, pulling quotations up steadily by nickels and dimes because it was not possible to increase domestic prices enough to boom output. Even well into December, with fairish winter weather, the strengthening movement was all in screenings and small coals. But the end of December saw a blast of real cold accompanied by an ice storm that covered the region, interfering with wire service and transportation. This, with prospective holiday season curtailment of production, gave coal the nearest approach to a boom that it enjoyed during 1924.

The old year went out amid a salvo of price increases. Southern Illinois managed a hoist of all sizes except 6-in. lump. Its screenings were passing $2 on their way up. Central Illinois put up its lump from $3 to $3.25 and screenings to $2. Its steam coal volume was not great, however, because of previous contracts sewing up most of its fine coal output for the winter. The only coals selling heavily in the Middle West that suffered were domestics from Kentucky. These had been saturating the country to such an extent that general shutdowns of whole sections of the producing fields were necessary and price recessions were essential. Thus ended a most tiresome year for the Middle West.

Spot Prices, F.o.b. Mines, of Central Illinois Coal, 1924

CHICAGO (ILL.) MARKET

Month	Lump	Run of Mine	Slack
January	$3.13	$2.13	$1.61
February	3.13	2.13	1.43
March	2.73	2.13	1.66
April	2.63	2.13	1.84
May	2.55	2.13	1.83
June	2.38	2.13	1.63
July	2.44	2.13	1.65
August	2.57	2.15	1.61
September	2.73	2.20	1.39
October	2.88	2.20	1.18
November	2.88	2.20	1.25
December	2.90	2.20	1.60



Spot Prices F.o.b. Mines on the Chicago Market of Bituminous Coal from Central Illinois

Northwest Got Cheap Coal but Less of It

Opened Year Cautiously but Finished Strong—Dock Tonnage Dropped One-Fourth and Illinois and Indiana One-Third as Kentucky Increased—Anthracite Slumped Nearly 20 per Cent

Cheap good coal is what the Northwest got during 1924—cheap coal and all it needed; but the total volume was somewhat less than that absorbed in 1923. It got its coal cheaply because non-union producers in both ends of Kentucky had the best chance at all-rail Northwest business they ever enjoyed, thanks to wage scales and operating conditions that permitted them to cut into both Midwest and dock coal all through Wisconsin and Minnesota. And the total consumption of the Northwest was reduced largely because that territory ran half way through the year without much industrial optimism, but it finished strong.

The heavy losers in the Northwest market during the year, on the other hand were the dock operators, who saw one-fourth of their bituminous business and a fifth of their anthracite trade slip away from them, and on the other Illinois and Indiana rail shippers, who lost at least one-third of their tonnage as compared with 1923. North Dakota lignite shippers produced and sold in the territory 1,500,000 tons, or about 100,000 tons more than in 1923, and longer haul Western coal also came into the region in considerable amounts, but Kentucky was the chief beneficiary.

The decrease in dock business is evident from the season's statistics. Only 23,124,034 tons of soft coal was shipped up the lakes from Erie ports as compared with 31,148,775 tons in 1923. Of this year's total of bituminous coal, 18,223,382 tons went to American ports on the lakes and 4,900,652 tons to Canada, Duluth-Superior got a total of 7,730,848 tons instead of the 11,268,337 tons of a year ago, but 1923 was the biggest year the Head-of-the-Lakes ever had. Milwaukee in 1924 got a total of 3,548,455 tons of soft coal, which was 1,089,097 tons short of 1923.

Anthracite dumpings at Lake Erie ports for vessel shipment westward and to the Northwest were only 2,762,597 tons as compared with 3,135,785 tons in 1923. Milwaukee got 1,089,576 tons of anthracite, which was 161,811 tons less than in 1923, although all-rail anthracite increased from 7,671 tons to 21,648 tons because of a freight-rate change. The whole movement of anthracite through the "Soo" canals to Lake Superior points totaled only 1,439,701 tons, a decline of 15 per cent from 1923. Of this, 1,289,994 tons represents receipts at Duluth-Superior. It is evident hard coal suffered heavily at the hands of smokeless and other "substitutes."

Rail shippers in Midwest fields were hard hit by the loss of much Northwest trade. The Lake Dock decision, by which the Interstate Commerce Commission added 28c. to the rate from southern Illinois mines to the Twin Cities zone, 8c. to the next narrow zone south of the Twin Cities and 5c. to territory immediately south of that did not finally take effect until Sept. 10, but the prospective effect of it was severe. Non-union competition did the rest.

Distribution figures show that Illinois sold 2,398,000 tons in Minnesota in 1923 and only 1,300,000 tons in 1924; in Wisconsin, 2,099,000 tons in 1923 as compared with but 1,465,000 tons last year; in South Dakota, 254,000 tons in 1923 and a scant 190,000 tons in 1924. The mine-run basic price on this Illinois coal was estimated by a keen observer to be 40c. a ton under 1923.

Big Holdover at Docks

The docks at Duluth-Superior went into the 1924 summer season with a holdover of about 4,200,000 tons of bituminous coal, most of which belonged to railroads. Of this, the free carryover was about 1,700,000 tons. Other upper lake docks also had considerable carryovers. A great deal of this coal was low-priced but good quality fuel from the non-union producing fields which was not disposed of because of bitter rail competition. Anthracite had a rather poor winter during the cold months of 1923-24, thanks to "substitute" fuels such as smokeless. The late spring saw a slump in all coal business throughout the Northwest and prices went down badly with the dock men still facing a big holdover.

The shipping season started off slowly, only 324,410 tons reaching Duluth-Superior and 50,576 arriving at Milwaukee during April, when vessel transportation made an early beginning. This condition persisted through almost every month of the season. Coal moved inland with difficulty during the summer partly because of the uncertainty about freight rates to be established on rail coal to the Northwest. Big autumn business was to come, however.

As a matter of fact the Head-of-the-Lakes began to feel a better tone in the trade during June although it was mostly psychological, for the only real bolstering of the market came from a good many inquiries from the Iron Range. It had earlier been felt that iron mining and ore movement were due for a bad fall during 1924. Anthracite prices began a 10c. increase each month in spite of light receipts. Soft-coal circulars were reasonably well maintained after one spasm of price cutting in the rail territory. By the end of June dock shipments increased.

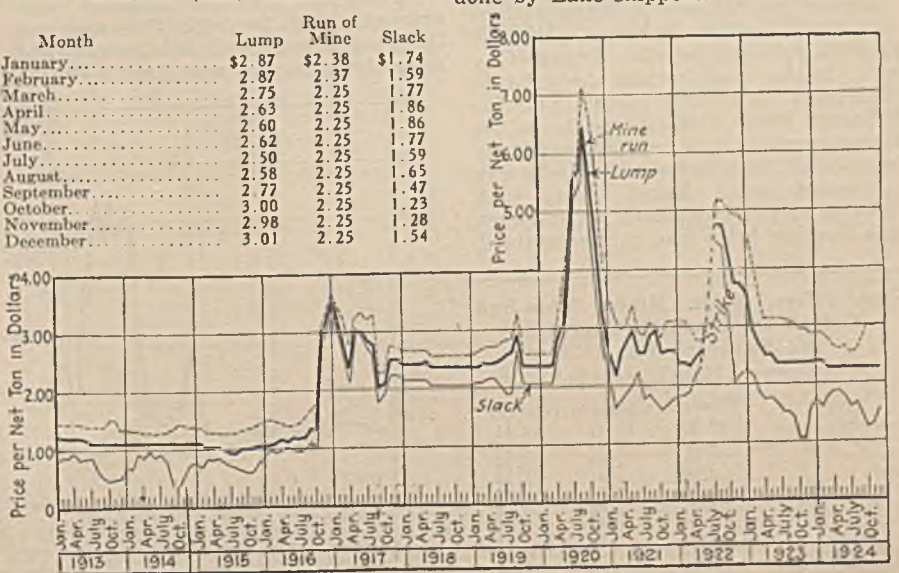
All the way through the late summer Duluth's trade showed a little activity aided by Canadian demand for anthracite at a time when local hard-coal trade was pretty dead and a few price recessions were necessary. Milwaukee trailed along slowly, selling nearly a fourth less bituminous coal than it had handled in 1923 and at softer prices. Contracts made with the City of Milwaukee, for instance, ran $1 below those of 1923. The shipment of several cargoes of Ford coal on Ford ships to the Ford-leased dock formerly owned by the defunct Superior Coal & Dock Co. gave the trade a shiver until Mr. Ford let it be known that he didn't intend going into the retail trade to any extent but was only aiming to supply his Twin Cities plant.

During the fall the Head-of-the-Lakes shipped inland heavily—November was one of the busiest shipping months in history—because of a slight check in rail competition from the middle states inflicted on those producing regions by the Lake Dock dicision effective Sept. 10, and because of the general improvement which followed the election and the crop movement. This finally resulted in the annual total of 242,604 cars, compared with 199,503 cars in 1923 when the docks were caught with so huge a carryover. Milwaukee did not at any time regain the ground it lost from previous years, however, so that the whole year for the Northwest shows a distinct decrease in business done by Lake shippers.

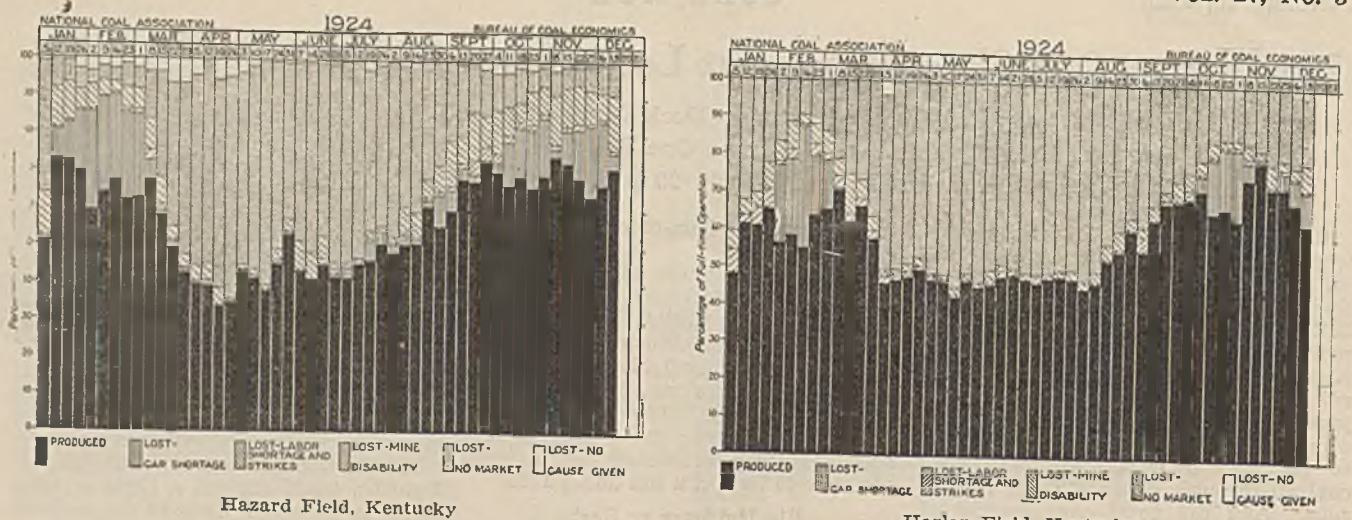
Spot Prices, F.o.b. Mines, of Indiana 4th and 5th Vein Coals, 1924

CHICAGO (ILL.) MARKET

Month	Lump	Run of Mine	Slack
January	$2.87	$2.38	$1.74
February	2.87	2.37	1.59
March	2.75	2.25	1.77
April	2.63	2.25	1.86
May	2.60	2.25	1.86
June	2.62	2.25	1.77
July	2.50	2.25	1.59
August	2.58	2.25	1.65
September	2.77	2.25	1.47
October	3.00	2.25	1.23
November	2.98	2.25	1.28
December	3.01	2.25	1.54



Spot Prices, F.o.b. Mines, on Chicago Market of Bituminous Coal from Fourth and Fifth Veins, Indiana



Hazard Field, Kentucky

Harlan Field, Kentucky

Percentage of Full-Time Operation of Coal Mines and Time Lost by Causes

Western Coal Industry Has Mediocre Year

Colorado and Utah Approach 1923 Output But Kansas and Oklahoma Slump, Due Mainly to Spring Shutdown and Labor Trouble—Drought Cuts Beet Sugar Business

Mediocre though 1924 was throughout the market regions served by the Western and Southwestern mines, the output of most of the producing states did not fall far below that of 1923. Kansas reached 5,000,000 tons according to State Inspector Leon Besson's preliminary estimate (which is 400,000 tons above 1923) and prices ran only a little lower than in the previous year. It was a 1924 marked by listlessness almost from first to last but a year in which most producing companies managed to remain in business.

The first month was fairly brisk all the way from McAlester, Okla., to Salt Lake City, Utah. Most mines in Kansas and Oklahoma, in Colorado and in Utah got in reasonably good running time. A sag made itself felt early in the spring, however, cutting down output in all the fields, but less in Colorado, with its broader distribution across the prairie and Missouri Valley country, than in some other sections.

Kansas and Oklahoma began getting into trouble early. A drive by Illinois to gain such markets as Kansas City and Omaha, and certain freight-rate reductions on central Illinois coal for Missouri River destinations drove the Kansas producers to reduce prices early in spite of there being no reduction in producing costs. Kansas lump sank from $5 to $4.50 on March 10, and even this circular price was not maintained. Then came April 1 and the refusal of Southwestern operators to sign the Jacksonville agreement. For more than a month the shutdown continued, thus leaving the market normally fed by Kansas and Oklahoma open to all comers. Operators insisted they must have at least some important changes in working conditions even though the desired reduction of $1.50 in the wage scale were not made. A few operators —as always—broke away and signed the Jacksonville pact, thus embarrassing the rest. Finally on May 3 a contract was signed by the association for three years and the painful struggle to operate started. In Oklahoma most mines remained down until late in the summer, when they reopened here and there on an open-shop 1917 wage basis. Naturally there were sporadic labor troubles, but most of Oklahoma refused to try the Jacksonville scale. Only the Henryetta field stuck to it.

During the summer business was extremely low for both Colorado and Utah producers. Railroad business and some steam demand was about all there was. Colorado domestic mines had made heavy price cuts during March—one general drop of $1.75 was recorded —and by this means a good deal of coal had been placed in consumers' and dealers' hands in the first part of spring.

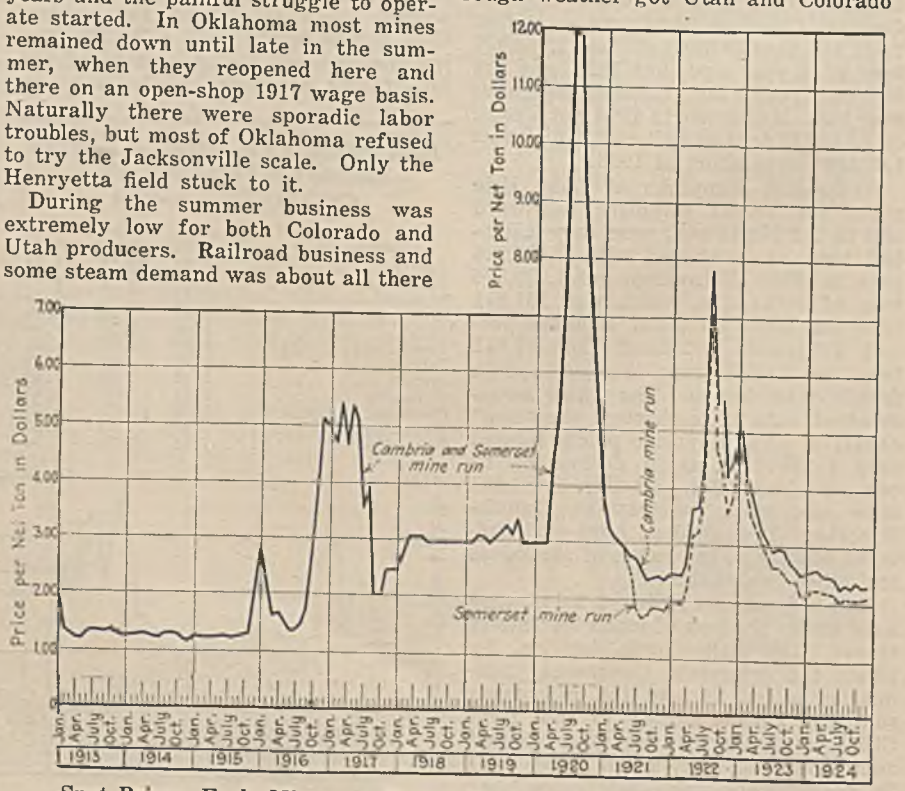
With the approach of autumn Kansas and Oklahoma output improved slightly, as did Colorado's. All these states passed the 50 per cent mark in time worked. Utah dragged along slowly in the rear. In October mild weather finally put a damper on the rising ardor of the market. All through the remainder of the fall weather ruled. Each of the few cool spells raised production and enabled sellers in the market to maintain circulars, but at no time did any of the fields rise much above 60 per cent of full working time.

In December a good deal of cold and rough weather got Utah and Colorado

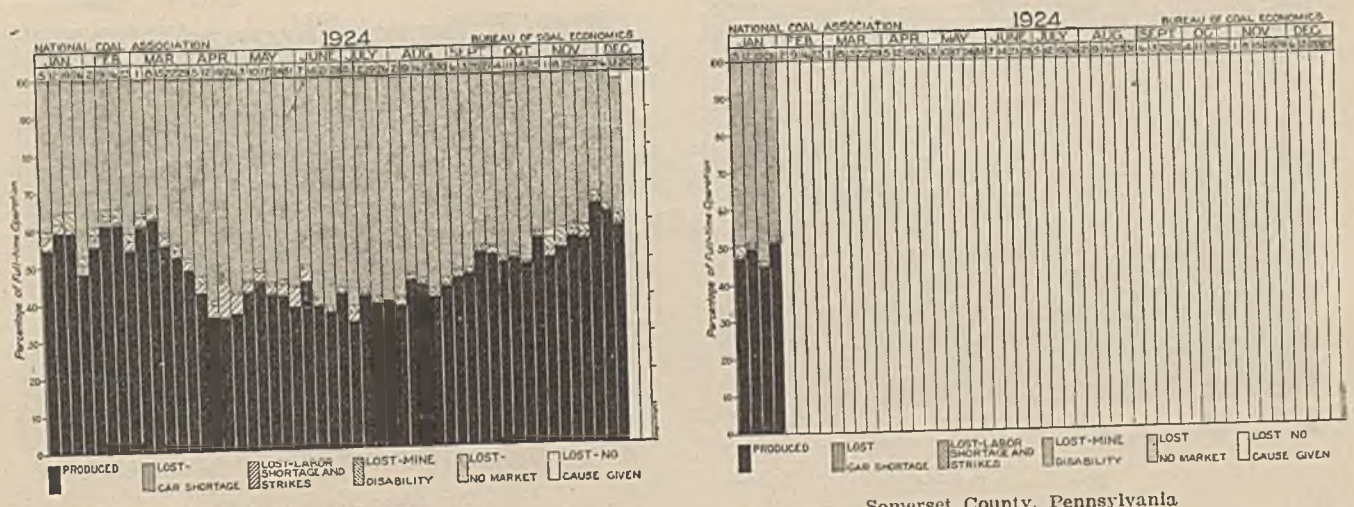
Spot Prices, F.o.b. Mines, Mine-Run Coal, from Cambrie, Clearfield and Somerset, Pa., 1924

BOSTON (MASS.) MARKET

Month	Cambria	Clearfield	Somerset
January	$2.55	$1.91	$2.11
February	2.57	1.99	2.25
March	2.61	2.04	2.26
April	2.50	2.06	2.23
May	2.49	2.01	2.22
June	2.46	2.00	2.18
July	2.27	1.86	2.03
August	2.36	1.88	2.11
September	2.31	1.90	2.08
October	2.39	1.97	2.09
November	2.32	1.92	2.09
December	2.33	2.00	2.13



Spot Prices, F.o.b. Mines, on Boston Market of Bituminous Coal from Cambria and Somerset Counties, Pennsylvania



Central Pennsylvania — Somerset County, Pennsylvania

Percentage of Full-Time Operation of Coal Mines and Time Lost by Causes

output up approximately to normal and stiffened prices a bit. Utah enjoyed a better trade with the far Northwest and with metal mining, which is one of its important customers. Nothing, however, compensated for a heavy loss of business during the fall to the sugar beet industry, which had suffered because of summer drought.

In the Southwest during the late fall domestic had moved so slowly that Kansas was full of "no-bill" sized coal, and reduced production of slack pushed up the price to $2.25 and even to $2.50. Cold weather finally cleaned up the slow domestic sizes. The year ended with the Rocky Mountain region mines producing about as busily as usual at that season and with the Southwestern fields also loading out a good deal of coal at fair prices. Kansas lump got back up to $5 during the cold weather, which in itself is a good index of temporary prosperity.

Despite Price Flurries, Cincinnati Market Kept Even Keel in 1924

Southeast Kentucky Coals Bring Better Prices Than West Virginia Product—Record for Gateway Movement Shattered—Fewer Firms Represented—River Business Expands

By Harold W. Coates

All in all the Cincinnati market maintained a rather even pitch in price for 1924, the three high points punctuating it being the flurries occasioned by the miners' conference in Jasksonville, by a deep cut in production in May that led to a quick upward tilt, and by a cool wave that fluttered in last October and caught a lot of domestic and retail dealers short handed.

Aside from these three short periods —they were little more than of three weeks' duration each—prices have stuck in a rut for long stretches, except for an occasional flurry in some particular sizing or kind of coal that had a seasonal demand for the time being.

Perhaps the outstanding oddity of the market has been the fact that southeastern Kentucky coals have been able for months to command just a little more than West Virginia offerings on this market. Some say that quicker deliveries, heavier demand, direct routing to the Northwest, closer co-operation among producers and various other causes have been at the root of it, but no definite cause is vouched by anyone.

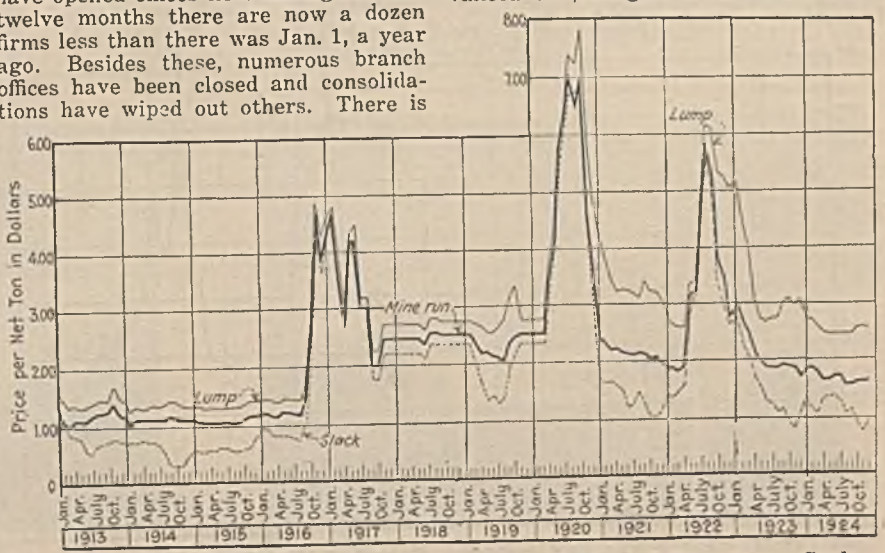
Another record for the year was shattered when in October about 13,500 cars in one week routed north and west passed over the bridges and through the gateways from south of the Ohio River. The previous high mark had been in June of the year preceding.

Measured in terms of expansion and contraction of the number of coal firms doing business here, the record for 1924 is not so good. Counting those which have opened offices here during the last twelve months there are now a dozen firms less than there was Jan. 1, a year ago. Besides these, numerous branch offices have been closed and consolidations have wiped out others. There is no way of estimating the volume of business transacted, however, but as judged by the amount of tonnage that has passed through it probably aggregates more than in former years.

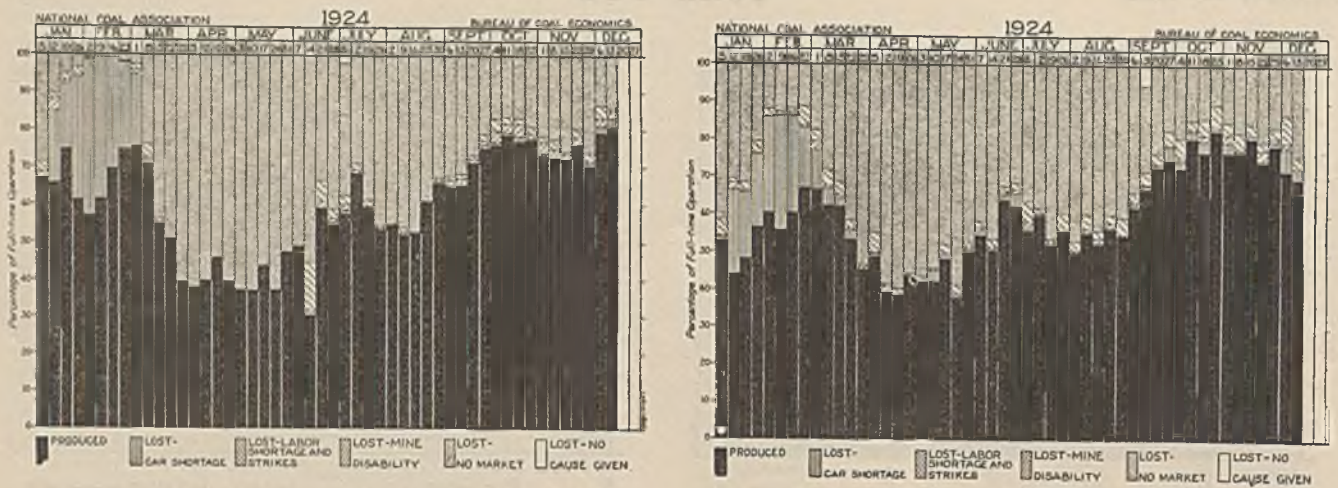
River business has increased largely in the past year with plans for even a greater extension to come. River and rail handling of coal, jointly, has been augmented by the operation of a new elevator in this city and loading equipment at Huntington. New steel barges, which have replaced the old and increased motive power, spell a new era in that direction. The one drawback suffered by the river trade was the long period of low water in the late summer and early autumn.

The retail trade of the city and surrounding area has been without many disquieting periods. Generally speaking, the May and June movement into the cellars of the householders was almost normal, a fact that was proved when there was little or no flurry following the first cold snap of October.

In the wholesale market the first nipping frosts of last January brought good buying orders with smokeless priced at $3 for lump and egg, $2 for run of mine and $1.50@$2 for screenings. By early February lump advanced to $3.50@$4 from brokers and



Spot Prices, F.o.b. Mines, on the Columbus Market of Bituminous Coal from the Hocking District



Pocahontas District — Tug River District, W. Va.

Percentage of Full-Time Operation of Coal Mines and Time Lost by Causes

for spot, which was in demand; $2.50@$2.75 for mine run and $1.75@$2 for screenings. This covered the period of the labor deliberations at Jacksonville.

March saw the circular at $3.25 for the lump; run of mine $2@$2.50 and screenings $1.50@$2. There was a 25c. advance on the circular for April, with mine run and screenings prices unchanged. Decreased output and better demand for low volatile in May drove spot prices for lump up to $3.75 with some brokers getting $4, with run of mine at $2 and screenings at $1.50. This condition held until midsummer, when lump eased off a little, run of mine slipped to $1.75@$2 and slack to $1.25@$1.50.

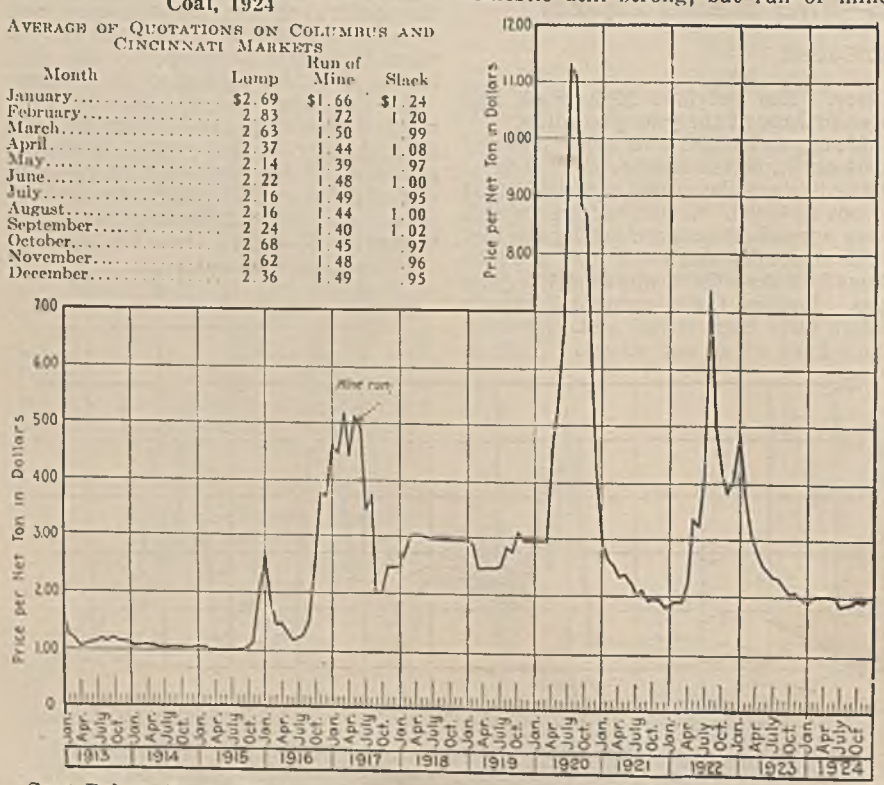
Early fall came with lump and egg quoted at $3.25@$3.50, but a shortage of cars in September tilted the market upward. In the second week of October another high spot was reached of $4.75 for lump and $2.50 for mine run, but screenings bore the brunt of the upturn with the price around $1.10@$1.25. Then came a long period of mild weather when, retailers were able to build up supplies, and prices gradually receded to $3.50@$4 for lump, $1.75@$2 for mine run and screenings to $1.15@$1.25.

Like the smokeless, high volatile has had its ups and downs, though mine run has held an even keel throughout the year. Last January 4-in. lump and block started at $2.25@$3; egg, $1.75@$2; mine run, $1.35@$1.90, and slack $1.25@$1.75. The "feeling out" process on labor failed to change the market much, though slack settled down to $1.25@$1.35 in February. March saw domestic still strong, but run of mine reduced to $1.35@$1.65, with slack at 75c.@$1. In May domestic from both West Virginia and Kentucky took a dip, the former to $2@$3 for lump and the latter to $2.50@$3, run of mine still holding at $1.25@$1.60, the groove in which it remained practically throughout the succeeding months. Slack, too, held between 90c. and $1.10 with occasional drops down to 75c. on the low. In October lump passed the $3 mark for a couple of weeks and then receded to approximately $2.50, where it has held since, excepting on the low when drives were made on it by price cutters.

Spot Prices F.o.b. Mines on Kanawha Coal, 1924

AVERAGE OF QUOTATIONS ON COLUMBUS AND CINCINNATI MARKETS

Month	Lump	Run of Mine	Slack
January	$2.69	$1.66	$1.24
February	2.83	1.72	1.20
March	2.63	1.50	.99
April	2.37	1.44	1.08
May	2.14	1.39	.97
June	2.22	1.48	1.00
July	2.16	1.49	.95
August	2.16	1.44	1.00
September	2.24	1.40	1.02
October	2.68	1.45	.97
November	2.62	1.48	.96
December	2.36	1.49	.95



Spot Prices, F.o.b. Mines, on the Boston Market of Mine-Run Coal from the Clearfield District of Pennsylvania

Bituminous Coal Production, Spot Price and Index, By Weeks, 1924

Week Ended	Production (Net Tons)	Week Ended	Average Spot Price	Coal Age Index
Jan. 5	9,068,000	Jan. 7	$2.20	182
Jan. 12	11,949,000	Jan. 14	2.20	182
Jan. 19	11,622,000	Jan. 21	2.20	182
Jan. 26	11,569,000	Jan. 28	2.26	187
Feb. 2	11,337,000	Feb. 4	2.26	187
Feb. 9	11,501,000	Feb. 11	2.27	188
Feb. 16	11,139,000	Feb. 18	2.25	186
Feb. 23	10,367,000	Feb. 25	2.23	184
Mar. 1	10,700,000	Mar. 3	2.21	183
Mar. 8	9,617,000	Mar. 10	2.18	181
Mar. 15	9,626,000	Mar. 17	2.16	179
Mar. 22	9,261,000	Mar. 24	2.13	176
Mar. 29	8,818,000	Mar. 31	2.09	173
Apr. 5	6,826,000	Apr. 7	2.07	171
Apr. 12	6,834,000	Apr. 14	2.08	172
Apr. 19	6,918,000	Apr. 21	2.04	169
Apr. 26	6,724,000	Apr. 28	2.07	171
May 3	6,832,000	May 5	2.05	169
May 10	7,125,000	May 12	2.05	169
May 17	7,031,000	May 19	2.05	169
May 24	7,163,000	May 26	2.02	167
May 31	6,708,000	June 2	2.04	169
June 7	7,373,000	June 9	2.06	170
June 14	7,152,000	June 16	2.01	166
June 21	7,202,000	June 23	2.01	166
June 28	7,371,000	June 30	2.01	166
July 5	5,738,000	July 7	1.99	164
July 12	7,502,000	July 14	1.96	162
July 19	7,401,000	July 21	1.98	163
July 26	7,543,000	July 28	1.98	163
Aug. 2	7,484,000	Aug. 4	1.98	163
Aug. 9	7,789,000	Aug. 11	1.98	163
Aug. 16	7,909,000	Aug. 18	2.00	165
Aug. 23	8,313,000	Aug. 25	2.00	165
Aug. 30	8,719,000	Sept. 1	1.99	164
Sept. 6	7,958,000	Sept. 8	2.01	166
Sept. 13	9,529,000	Sept. 15	2.02	167
Sept. 20	9,830,000	Sept. 22	2.04	169
Sept. 27	10,140,000	Sept. 29	2.06	170
Oct. 4	10,275,000	Oct. 6	2.07	171
Oct. 11	10,553,000	Oct. 13	2.10	174
Oct. 18	10,261,000	Oct. 20	2.12	176
Oct. 25	10,300,000	Oct. 27	2.12	176
Nov. 1	10,064,000	Nov. 3	2.07	171
Nov. 8	9,331,000	Nov. 10	2.06	170
Nov. 15	10,129,000	Nov. 17	2.06	170
Nov. 22	10,559,000	Nov. 24	2.06	170
Nov. 29	9,640,000	Dec. 1	2.07	171
Dec. 6	10,612,000	Dec. 8	2.07	171
Dec. 13	10,723,000	Dec. 15	2.04	169
Dec. 20	10,760,000	Dec. 22	2.06	170
Dec. 27	7,638,000	Dec. 29	2.07	171

Pittsburgh Market Had Consistently Dull Trade Throughout Year

Region Hard Hit by Jacksonville Agreement—Expected Upturn with Approach of Winter Failed to Materialize—Connellsville Coke Prices Climb with Wage Increase by Independents

By B. E. V. Luty

In the first three months of 1924 the Pittsburgh coal district had a very poor trade, as poor as in the preceding nine months of the coal year. On April 1 the prospect was that there would be a poor period, while there was liquidation of stocks, and then a moderate recovery, but the recovery was quite disappointing and, to make matters worse, it played out when the season should have brought further improvement, conditions being worse in November and December than in the immediately preceding months.

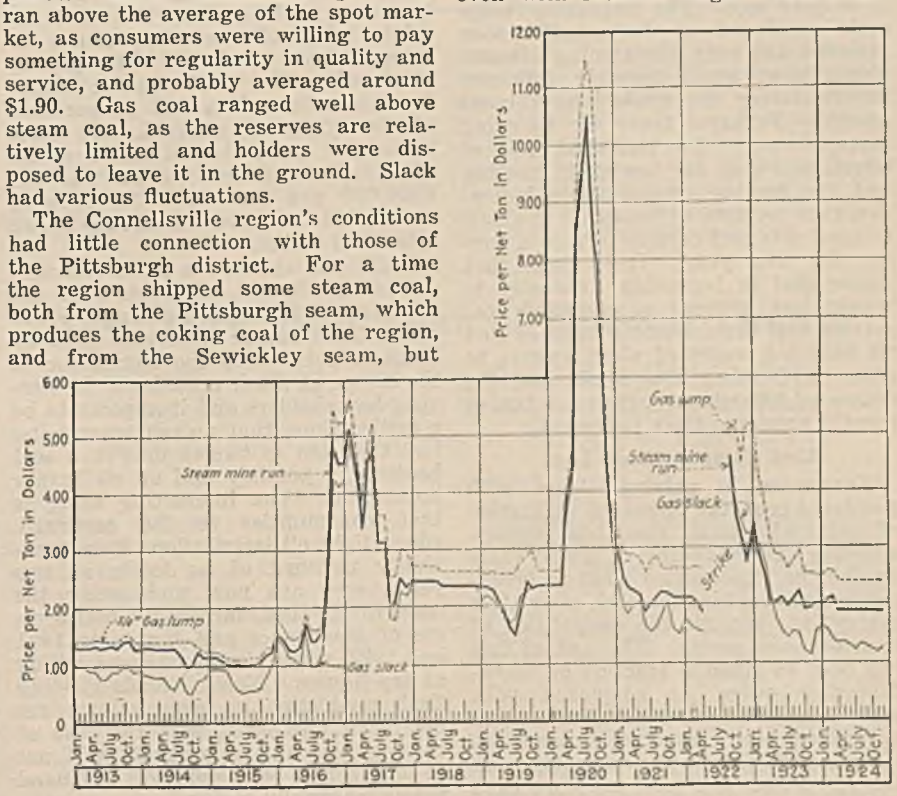
Of all the union coal fields the Pittsburgh district was the least disposed to attend the Jacksonville conference with the United Mine Workers in February, 1924. The district was not anxious to sign the high scale for another period, but it seemed clear that no other course was open. When the three-year contract was agreed upon, it was believed that something would break of its own accord before two years had elapsed.

In April, May and June the district operated at 20 per cent, a phenomenally low rate, but one with which the operators contented themselves, recognizing that stocks had to be liquidated. Sales were made only in nearby territory, where the mines had a great freight advantage over non-union fields. About July 1 demand began to pick up and by the middle of September a 50 per cent operating rate was attained. Hopes were entertained that there would be further improvement as winter approached and as industrial conditions improved after the election, but the movement was actually the other way, operations dropping about Nov. 1 to approximately 40 per cent, where they remained practically to the end of the year.

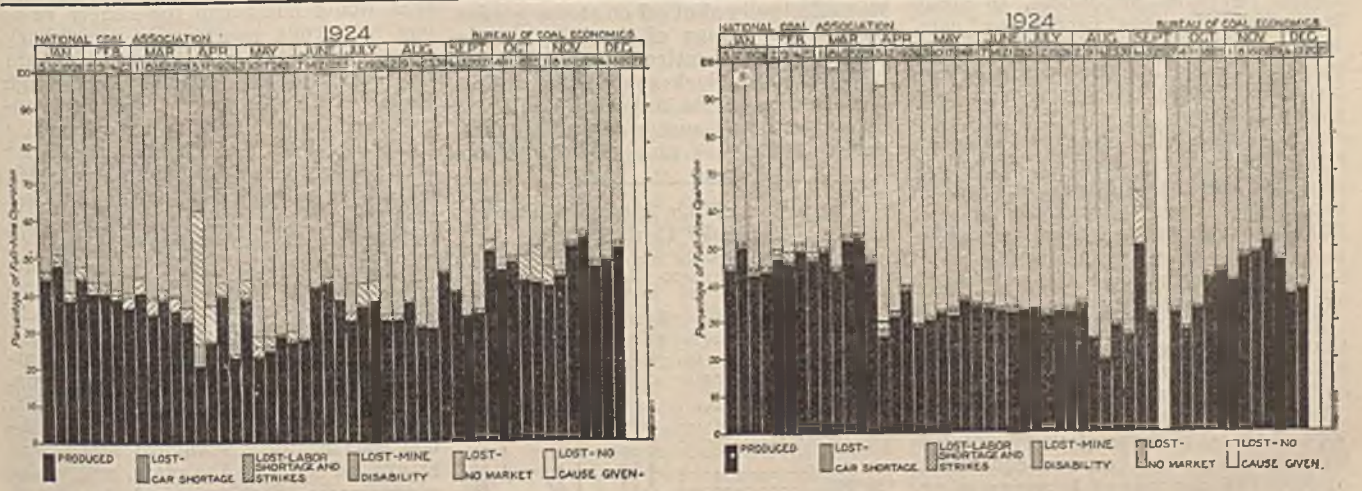
Pittsburgh district steam mine-run coal was quotable at $1.75@$2 in the spot market from April 1 to the end of the year. The variations from time to time were not enough to affect the generally quotable market. There was scarcely any contract business, but there was not much spot market business either, the favorite form of doing business being for a producer to ship to regular customers as required, with a periodic adjustment of settlement prices. These settlements generally ran above the average of the spot market, as consumers were willing to pay something for regularity in quality and service, and probably averaged around $1.90. Gas coal ranged well above steam coal, as the reserves are relatively limited and holders were disposed to leave it in the ground. Slack had various fluctuations.

The Connellsville region's conditions had little connection with those of the Pittsburgh district. For a time the region shipped some steam coal, both from the Pittsburgh seam, which produces the coking coal of the region, and from the Sewickley seam, but prices obtainable were unsatisfactory, even when wages were reduced in May and June to the 1917 scale. On account of sharply increasing operations the independents had to restore the Frick scale, effective Dec. 16. This meant an advance of more than 40 per cent. Producers then found it out of the question to ship steam or gas coal in competition. The Frick company maintained the wage scale throughout the year.

The Connellsville region now exists chiefly to carry the peak of the iron and steel industry's coke requirements, the byproduct ovens being kept in relatively continuous operation. Thus the demand for Connellsville coke fluctuates widely. In the summer it was extremely light and furnace coke sold at $3 both on spot and on short term contracts, which was below production cost even with reduced wages. When the



Spot Prices, F.o.b. Mines, on the Pittsburgh Market of Coal from the Pittsburgh District



Cumberland-Piedmont District

Fairmont Region

Percentage of Full-Time Operation of Coal Mines and Time Lost by Causes

iron and steel industry revived the market stiffened sharply. Initial furnace coke contracts for the first quarter of 1925 were made at $3.25, subsequent contracting being successively at $3.50, $3.75 and finally $4 on a couple of contracts. All these contracts carried the wage clause, whereby the actual settlement prices will be 85c. to $1.15 over the prices written into the contracts. This will make coke cost furnaces in the first quarter of 1925 from $4.10 to about $5 with a probable average of $4.50.

Unfavorable Forecast for 1924 Fulfilled In New England Soft Coal Trade

Decrease in Fuel-Oil Appliances Foreshadowed—Waste in Use of Coal Being Eliminated—Dullness Unrelieved Throughout Year —Price Trend Steadily Downward—Dubious Outlook for 1925

BY G. G. WOLKINS

The dull market that prevailed throughout New England in 1924 more than justified the unfavorable forecasts of a year ago. The impossible wage scale concluded at Jacksonville soon removed the only threatening circumstance that could possibly influence buyers during the whole long ruinous season. Perhaps the only relieving features were the increased use of bituminous coal for household heating and the further unmistakable indication that receipts of heavy oil are now at flood tide and certain to recede during the new year. It is clear that steam coal is beginning gradually to regain lost ground; a saturated coal market and the ascending costs of fuel oil have led scores of plant owners to scrap oil-burning equipment, and the course of bituminous prices for twelve months approves their judgment.

Cost Comparatively Low

Economies in raising steam with powdered coal, the increased utilization of anthracite small sizes and perhaps a better understanding of grade value during the same period point to broadening opportunities for coal, even after taking into account the competition of hydro-electric power. The cost of fuel has been so small a fraction of manufacturing outgo as compared with labor and raw material that many users have been content with results so long as they bought at reasonably near the right time and paid no more than their competitors. There are signs of change from this attitude, exemplified in a tendency to check waste, to install improved appliances, to study intensively the actual processes of combustion. Reduced operations in most industries as well as the surplus of coal have contributed to this change, and there is reason to expect impressive results. When high-pressure plants can change from heavy oil at an equivalent of $10.50 per ton of bituminous coal to a mixture of one part bituminous at $6.50 and two parts anthracite screenings at $4, using no more fuel than if on straight bituminous, the gain is of great importance.

In December, 1923, it was estimated that in New England the displacement of coal by oil was 4,750,000 net tons, or 500,000 net tons more than for 1922. The same statisticians figure that for 1924 the total receipts of crude oil were 840,000,000 gallons, or the equivalent of 5,000,000 net tons of bituminous, an apparent gain of but half the tonnage that was lost to coal in 1923; but the gain is only apparent, not actual. It should be remembered that refining here has made such strides that the volume of gasoline and byproducts extracted from crude oil has greatly increased. The authoritative figure for this volume is a full 20 per cent of the crude oil received. To state it another way, the estimated actual displacement of coal by oil was but 4,000,000 net tons in 1924, showing that for oil the curve has already shown a marked decline.

Light oils are now a more seriously competing element, although their use is restricted to larger dwellings, where convenience rather than cost governs. Even in such cases the mechanism is the source of much uneasiness for nervous householders and it appears to be a settled thing that no consumer using less than ten to twelve tons in a coal heater can possibly find an oil burner economical. The interesting thing is that communities to the eastward, where light oil installations were practically unheard of as lately as two years ago, are now undergoing the same thrills that alarmed the coal dealers of Providence and Boston in 1921 and 1922, when bituminous was selling at top figures. New oil fields yielding flush production in large volume are not being discovered with the ease of those years, and it probably will not be long before petroleum will command prices materially higher.

Foreign Coals Not a Factor

Competition from British shippers was effectually shut off on steam grades by the low range of smokeless coals throughout the entire year. The sale of high grade slack at as little as 85c. per net ton at the mines and the low bids on railroad supply for 1925, sloping down to $4.94 alongside at Boston for Kanawha and $4.80 for Fairmont—per gross ton in each case—are in themselves sufficient symptoms of a diseased market. A few cargoes of anthracite or semi-anthracite have found their way from South Wales to Boston and Providence because of attractive prices in comparison with the the Pennsylvania product, but the degradation item alone renders these coals of less commercial value than at first blush.

All-rail from central Pennsylvania and from upper West Virginia as well movement was fitful, averaging less than in 1923. In all districts operators faced prices that allowed no net profit whatever, if indeed they did not entail heavy losses, and only those whose coal is most highly regarded could get more than a $2.25@$2.50 per net ton level throughout the twelve months. The low basis of Pocahontas and New River via Hampton Roads enforced by 65c.@75c. steamer freights put a drastic limit to the area that could be considered uncontested all-rail territory.

Southern Coals Sold Freely

The Southern coals, though subjected to heavy rehandling charges at tidewater, sold freely along the Connecticut River and points between the valley and the forwarding ports—a glance at the map will show the extremely narrow ribbon of territory now left to commercial bituminous through the Hudson River gateways. December average receipts by this route were slightly over 3,100 cars weekly, a volume that coincided almost exactly with the corresponding month in 1923, although it should be added that a large proportion of this is for locomotive supply, and much of the latter moves in this channel for reasons other than those that would bear on relative cost were the coal of commercial classification. Some screened bituminous, however, was shipped to replace anthracite, and this commodity should be regarded in any close view of tonnage figures. Actual tonnages are not accessible, but manifestly they should not be ignored in computing fuel consumption between September and April.

Prices Slump Steadily

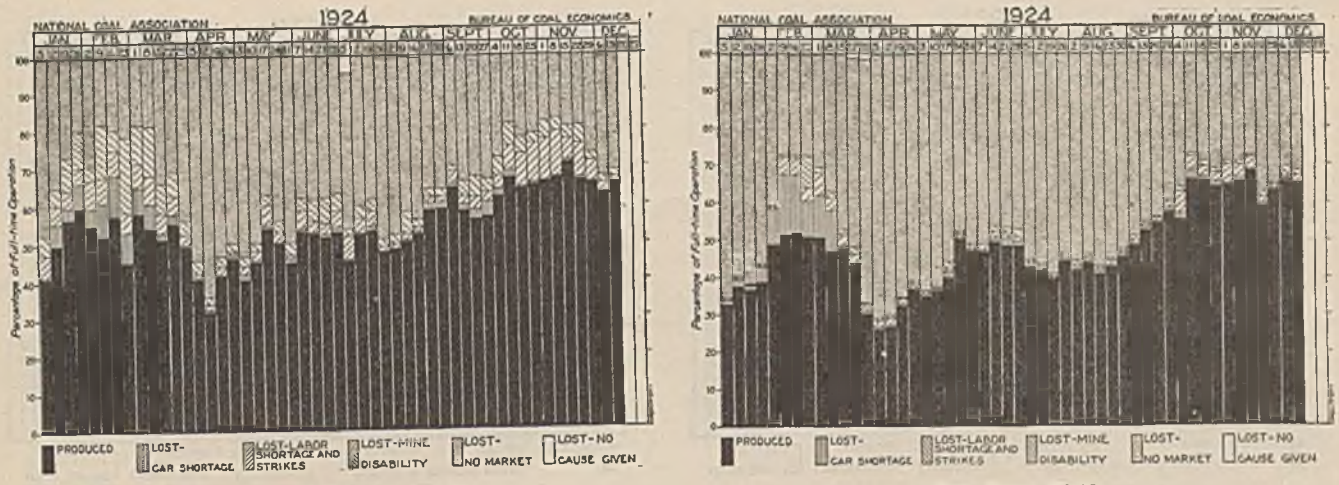
From the beginning of the year the trend of the Hampton Roads market was steadily toward a minimum price that would not prove too nearly ruinous to permit recovery in some hazy future when the industry would again flourish. Adoption of the 1917 wage scale in New River in February encouraged hope of $4.75 per gross ton f.o.b. vessel at the Virginia terminals as a season basis, but from a $4.90@$5.15 spot price in January the market dropped by easy stages to a $4 level in August, and for certain varieties to $3.75 in December. Of Hampton Roads dumpings fluctuating from 350,000 to 450,000 tons weekly about 250,000 to 300,000 tons came to New England, and the market here had therefore an important bearing on operating returns.

The tone was consistently sluggish. In March there was a time when 400,000 tons of navy standard alone was at and en route to the piers, and while a spasmodic effort was made to curtail to a 40 per cent output, the slightest

Spot Prices, F.o.b. Mines, Western Kentucky Coal, 1924

AVERAGE QUOTATIONS ON THE LOUISVILLE AND CHICAGO MARKETS

Month	Lump	Run of Mine	Slack
January	$2.88	$1.59	$1.35
February	2.88	1.66	1.16
March	2.73	1.51	1.26
April	2.35	1.62	1.54
May	2.27	1.63	1.63
June	1.98	1.57	1.50
July	2.07	1.63	1.23
August	2.19	1.61	1.22
September	2.58	1.64	1.09
October	3.13	1.67	.76
November	2.89	1.62	.77
December	2.51	1.56	1.08



Winding Gulf District, W. Va. New River Field

Percentage of Full-Time Operation of Coal Mines and Time Lost by Causes

hopeful rumor would increase production to an aggregate where further slump was inevitable. The entire market turned largely on the daily average from the smokeless districts. And in New England the industrial outlook was so unpropitious that the local market was saturated well before summer. With few exceptions the textile mills, in particular, and the paper, shoe and machinery makers in company, suffered a depression that made buying only casual and forbade more than 60 to 90 day reserves. Moreover, there were prolonged shutdowns in several centers, and because there was no volume to any trade, there could be no inducement to lay in stocks of fuel. Only for short interludes, bimonthly as a rule, could the trade feast on the few crumbs that offered, but it is characteristic of operators to overreach, and the smallest advance in price invariably had a lower figure in its train.

Quotations Oscillated

Quotations on cars for delivery inland from Providence and Boston moved sympathetically with the spot market at Hampton Roads, due allowance being made for distress cargoes that were forced on unreceptive buyers. A few factors with their own forwarding facilities were able to adhere to $5.75 for relatively small lots for the first three months and to $5.50 for the remainder, but for those dependent upon public wharves there were frequent oscillations that ran the gamut from $5 to $5.60 and back again.

Owing to pressure on large interests to dispose of current arrivals the retail trade in Boston was under price myopia continuously through the year. The nominal figure eased off late in the fall to $6.50 per net ton delivered, but at no time was $6 impossible for any small user bent upon improving his opportunities.

Beyond doubt the tonnage of bituminous that has replaced anthracite is more considerable than is commonly believed. To such an extent is this true that retail dealers find it difficult to gage probable hard coal requirements, and in many of the cities and outlying towns, with the wide difference in price, there is insistent demand for coarse bituminous for household heating.

Prospects for This Year

The manager of a textile mill that had not previously passed a dividend for eighty years expressed an opinion that while theoretically there should some time be a turn for the better he was not now justified in holding out any encouragement for the coming year. This is about the close-up view of the seasoned coal man. Economic pressure is heavy, and he would be a bold prophet who would today point out in just what particular 1925 signifies any improvement over 1924.

New York Had Year of Blasted Hopes

Prolonged Inactivity and Low Prices Were Coal Trade's Portion—Early Interest Soon Evaporated When Pact Was Signed at Jacksonville—Anthracite Stronger at Year's End

By R. W. Morris

Unusual inactivity and low prices prevailed throughout 1924 in the bituminous coal market at New York. Conditions during the last nine months of the year followed the generally anticipated trend consequent upon the signing of the three-year union scale, and the influence of declining consumption and large coal reserves. The use of oil and distribution of power by centralized plants also cut into the demand for coal.

The year's business opened with a better feeling than existed at the end of 1923. Inquiries were numerous, due chiefly to the belief that the miners were going to stop work on April 1 upon the expiration of the old agreement. Large consumers were asking about contracts for the current year and were quoted from 25c. to 75c. per ton above the then current market quotations, which averaged from $2.10 per ton for Pool 10 to $3.25 for Pool 1 coals. Toward the end of the month sales began to pick up, but buyers refused to acknowledge that it was due to strike talk.

Confidence grew for the next few weeks, but it was not lasting. Buying was heavier, but there was no reflection of the betterment in prices. When peace between the miners and operators was assured as a result of the Jacksonville conference buying fell to a peace basis. Enthusiasm in the trade was lacking and operators set about to devise ways to move their tonnage during the spring and summer.

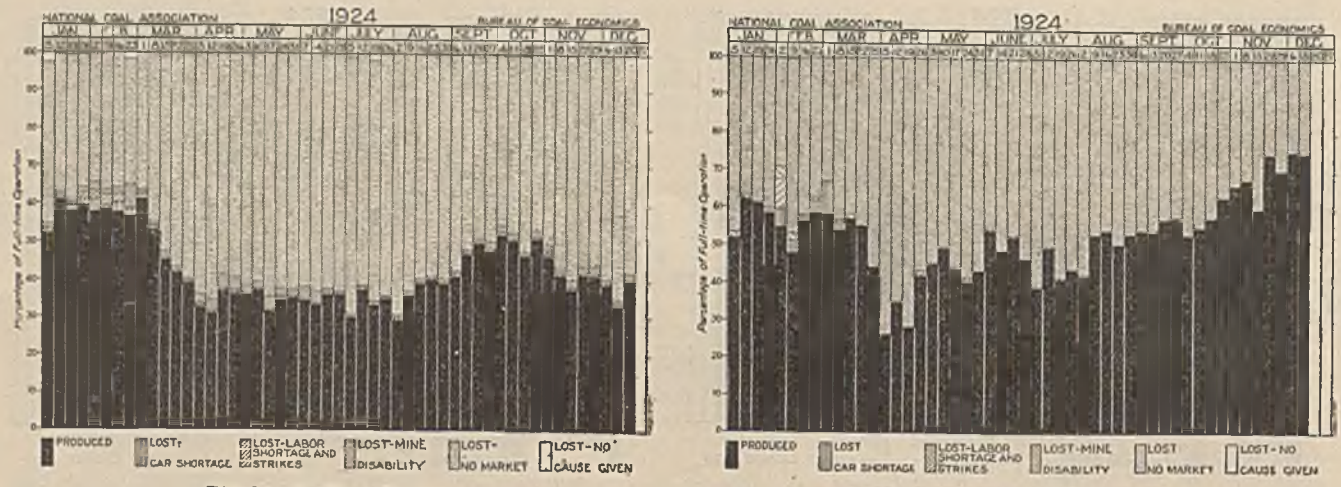
Midsummer witnessed a further falling off in inquiries, actual buying being already as low as it was thought possible for it to go. Hope of better business was postponed from early August to mid-September. Tidewater business depended entirely on how badly the buyer needed coal and the ability of the seller to make the price attractive.

Late in August hopes were again raised by increased inquiries. There was a gradual improvement and prices showed a slight advance the last half of the month when compared with the first two weeks.

Early in September consumers showed a desire to refill their reserve bins and railroads for the first time since early spring were taking their full requirements and in some instances reaching out for additional tonnage. The better grades were sold up by many operators but the cheaper grades were hard to dispose of owing to the low prices at which the better coals could be gotten.

The last quarter of the year showed no improvement over the previous three months. Prices remained substantially as in the preceding months, although there were occasional fluctuations due to changing weather conditions.

The situation at New York was relieved several times during the year by the United States Shipping Board asking for bids for various tonnages of soft coal for use in the Board's vessels in this harbor. Bids opened in February resulted in prices ranging from



Pittsburgh (Pa.) District — Westmoreland (Pa.) District

Percentage of Full-Time Operation of Coal Mines and Time Lost by Causes

$4.98 to $5.99 per gross ton alongside vessel, while others opened in April ranged from $3.23 to $4.97 per gross ton, or on a basis of about $1.03 to $1.70 per net ton f.o.b. mine. Other bids opened at various times ranged as high as $6.12 per gross ton alongside.

Anthracite Shows Contrasts

Conditions in the hard coal market showed a marked contrast at the beginning and at the end. When 1924 opened demand was off and quotations for independent coals were as low as at any time in the previous year. The end of 1924 saw demand active but not above the tonnage available, while quotations for domestic independent coals were above so-called company prices. Chestnut, which had been dragging behind stove size for many weeks, suddenly took the lead late in November and maintained it both in demand and in price the balance of the year.

Retail dealers were heavily stocked nearly the entire twelve months, but not in all sizes. Weather conditions had no effect, consumers laying back, apparently confident that they would be able to get all the coal they wanted and when they wanted it.

Some Welsh anthracite entered the market early in the year and while extraordinary efforts were made to encourage its use they cannot be said to have been successful. Better results were accomplished by coke producers, but the difference in cost was not a big inducement.

The reduction in so-called company prices on April 1 of from 40c. to 60c. on domestic coals and cuts in the prices for similar sizes of independent coals failed to arouse consumers to early buying. This continued throughout the summer and early autumn, notwithstanding appeals sent out by government and railroad officials as well as by trade bodies. Although prices were advanced slightly every month for five months it was not until the last week in August that there was a spurt in buying.

That the market was not oversupplied several times during the summer was due to the numerous strikes at the mines, involving at times as many as 12,000 men.

Early in September the trade gained momentum. Demand became active and prices showed improvement. Independent stove and chestnut coals exacted premiums and in order to meet the demand for the former size some producers "broke" their egg coal, as demand for the latter was slow.

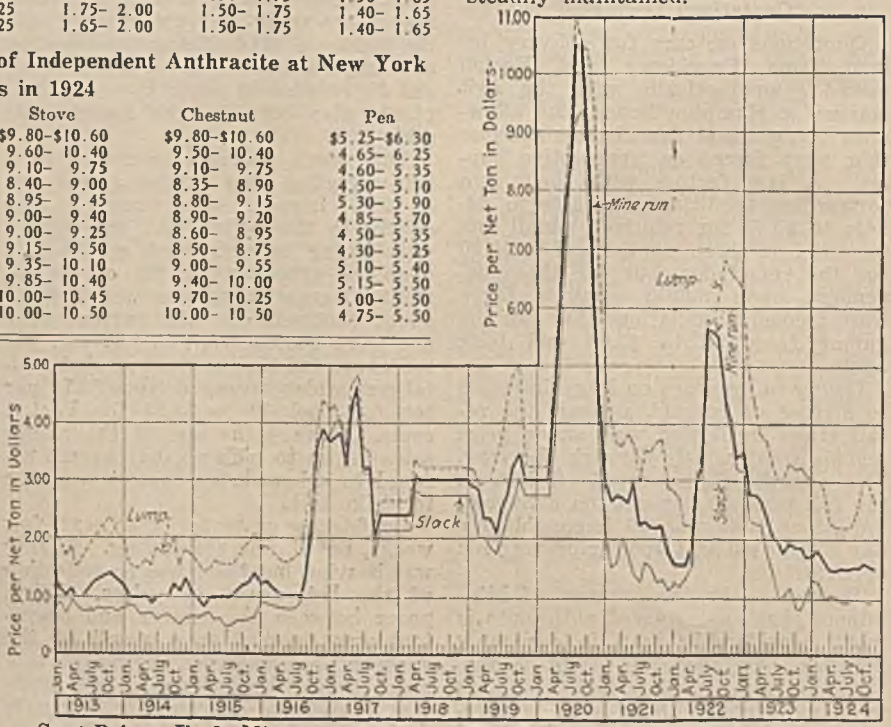
Business in the last two months of the year was light due to mild weather conditions, but with production kept down by labor trouble at the mines quotations for independent coals were steadily maintained.

Average Quotations for Bituminous Coals at New York by Months in 1924

	Pools 1	9	10	11	64
January	$2.75-$3.25	$2.00-$2.45	$1.75-$2.10	$1.50-$1.75	$1.55-$1.75
February	2.75- 3.25	2.00- 2.50	1.75- 2.15	1.50- 1.75	1.50- 1.75
March	2.75- 3.25	2.00- 2.45	1.75- 2.15	1.30- 1.70	1.45- 1.70
April	2.70- 3.10	2.00- 2.40	1.75- 2.00	1.40- 1.70	1.40- 1.60
May	2.60- 2.95	2.00- 2.40	1.70- 2.10	1.45- 1.75	1.40- 1.65
June	2.50- 2.90	2.00- 2.40	1.75- 2.00	1.50- 1.75	1.40- 1.65
July	2.50- 2.90	1.90- 2.35	1.65- 2.00	1.40- 1.80	1.35- 1.65
August	2.40- 2.75	1.95- 2.25	1.80- 2.00	1.50- 1.75	1.35- 1.65
September	2.50- 3.00	1.85- 2.35	1.70- 2.00	1.45- 1.80	1.40- 1.65
October	2.50- 3.00	2.00- 2.25	1.80- 2.00	1.50- 1.75	1.50- 1.65
November	2.60- 3.00	2.00- 2.25	1.75- 2.00	1.50- 1.75	1.40- 1.65
December	2.65- 3.00	1.95- 2.25	1.65- 2.00	1.50- 1.75	1.40- 1.65

Average Quotations for Domestic Sizes of Independent Anthracite at New York by Months in 1924

	Egg	Stove	Chestnut	Pea
January	$8.75-$9.60	$9.80-$10.60	$9.80-$10.60	$5.25-$6.30
February	8.35- 9.10	9.60- 10.40	9.50- 10.40	4.65- 6.25
March	7.85- 8.40	9.10- 9.75	9.10- 9.75	4.60- 5.35
April	8.10- 8.50	8.40- 9.00	8.35- 8.90	4.50- 5.10
May	8.90- 9.20	8.95- 9.45	8.80- 9.15	5.30- 5.90
June	8.80- 9.25	9.00- 9.40	8.90- 9.20	4.85- 5.70
July	8.65- 8.95	9.00- 9.25	8.60- 8.95	4.50- 5.35
August	8.40- 8.80	9.15- 9.50	8.50- 8.75	4.30- 5.25
September	8.90- 9.55	9.35- 10.10	9.00- 9.55	5.10- 5.40
October	9.25- 9.75	9.85- 10.40	9.40- 10.00	5.15- 5.50
November	8.75- 9.25	10.00- 10.45	9.70- 10.25	5.00- 5.50
December	8.25- 8.90	10.00- 10.50	10.00- 10.50	4.75- 5.50



Spot Prices, F.o.b. Mines, on the Louisville, Cincinnati and Chicago Markets of Coal from Eastern Kentucky

Open Shop Movement to the Fore in 1924 In Northern West Virginia

Production Shrinks 30 per Cent from Total for Previous Year—Lake Shipments 69 per Cent Lower—Development Rapid in Monongalia County

By H. A. Williamson
Fairmont, W. Va.

The condition of the coal business in northern West Virginia during 1924 is most quickly and accurately told by figures:

The total shipments for the year will be approximately 19,880,000 tons, as against 27,000,000 tons in 1923, a loss of about 30 per cent as compared with last year. Shipments to the Lakes in 1924 totaled 802,500 tons, compared with 2,531,950 tons in 1923, or a loss of approximately 69 per cent. A very noticeable feature is that approximately 33 per cent of the total 19,880,000 tons shipped from the region came from Monongalia County, which had practically no development prior to 1917, shipping in 1916 about 576,000 tons. In 1923, however, over 7,000,000 tons was shipped from that county and in 1924 probably in excess of 6,000,000 tons. Practically this entire tonnage is handled by the Monongahela Ry.

Information as to cost and selling prices is never available with any degree of accuracy but it seems that in 1923 the average total cost approximated $2.20 while the average selling price is reported as about $2.25. But in 1924 a new situation developed in the matter of costs. The region was practically entirely unionized in 1917 by concerted movement of operators and miners and this condition was continued without interruption or difficulty of importance until 1923, when some trouble developed and a few mines started operating open shop. Early in 1924 there was an insistent demand by some operators for a return to the 1917 scale. In May the breach had reached a point where 25 per cent of the regional output was coming from "open shop" mines. By November the output of the "open shop" mines had reached approximately 45 per cent of the region's total output.

Union Mines Have Higher Costs

It is now estimated that the mines operating "open shop" have a mine cost around $1.25 while those still operating under the union agreement have a mine cost of $1.65 or higher. These figures would indicate a total cost of from $1.45 to $1.95, or an average total cost of $1.70. The average selling price for 1924 is reported as $1.60, although some authorities assert that it will not be more than $1.50.

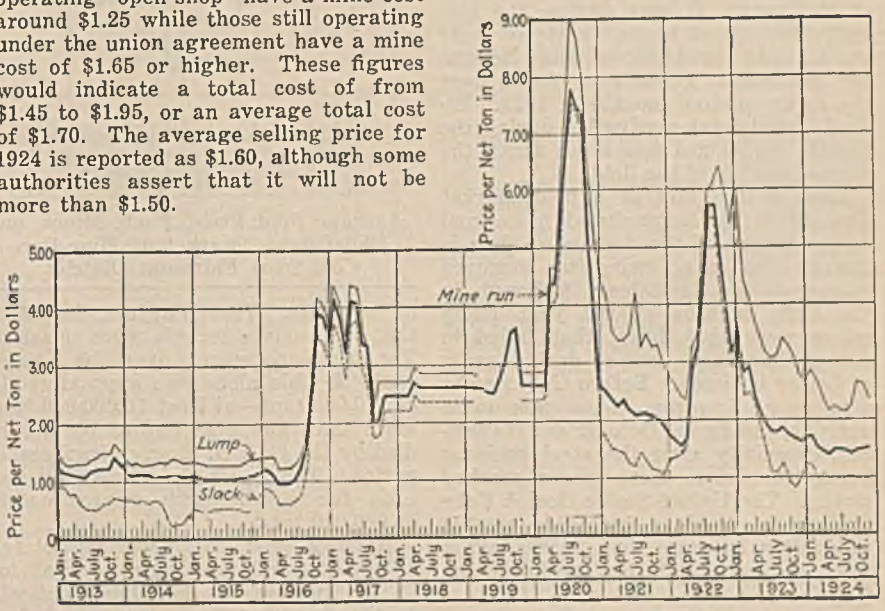
As a result of the open shop movement large sections of the region have become almost entirely non-union and there have been some clashes between union and non-union labor. Various court actions are being resorted to with their accompanying difficulties and as a whole it is quite apparent that a strenuous effort is being made by both sides to avoid violence and unlawful methods. The situation has all the earmarks of a struggle that eventually will mean either the permanent supremacy of the United Mine Workers in northern West Virginia or their complete downfall, with, apparently, the odds against them at this time.

Spot Prices, F.o.b. Mines of Pittsburgh District Coal, 1924

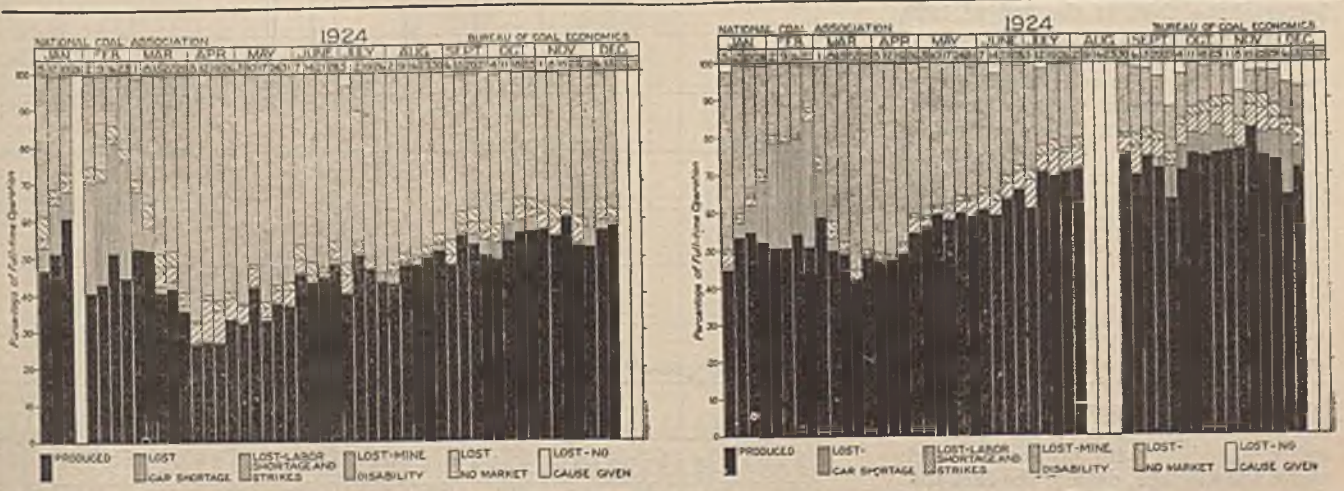
Pittsburgh (Pa.) Market			
Month	Lump	Run of Mine	Slack
January	$2.48	$2.00	$1.62
February	2.58	2.06	1.58
March	2.58	2.13	1.39
April	2.41	1.88	1.32
May	2.40	1.88	1.35
June	2.40	1.88	1.30
July	2.40	1.88	1.22
August	2.40	1.88	1.32
September	2.40	1.88	1.28
October	2.40	1.88	1.23
November	2.40	1.88	1.19
December	2.40	1.88	1.24

Spot Prices, F.o.b. Mines, of Fairmont Mine-Run Coal, 1924

Philadelphia (Pa.) District	
Month	Run of Mine
January	$1.70
February	1.69
March	1.62
April	1.58
May	1.58
June	1.58
July	1.50
August	1.50
September	1.50
October	1.50
November	1.50
December	1.50



Spot Prices, F.o.b. Mines, on Columbus and Cincinnati Markets of Coal from the Kanawha Field



Kanawha District, W. Va. Logan District, W. Va.

Percentage of Full-Time Operation of Coal Mines and Time Lost by Causes

All Records for Southern West Virginia Surpassed Despite Depression

Dullness of Early Months of 1924 Overshadowed by Activity in Latter Half of Year—Smokeless Output Falls Short of 1916 Total but High Volatile Production Beats All

BY J. F. WEIR

Despite the depression in coal marketing throughout 1924, all records were broken for production in the high and low volatile areas of West Virginia. Although data is not available for the last week or so of the year, a conservative estimate places the total production of smokeless and high volatile coal in the southern part of the state at not less than 80,000,000 net tons.

Smokeless output was on an unusually large scale, but due to a slight curtailment during the holidays, it hardly reached the high figure of 1916, when approximately 36,000,000 tons was mined and shipped. Even Pocahontas production failed to equal the 1916 record owing to "no market" losses sustained during the first half of the year. It was during the last half that mines began to strike their stride, and in October and November substantial gains were shown over the corersponding months of 1923. Indeed, Pocahontas production during the months mentioned was much above the normal output of the field.

Even in the face of a poor market Tug River mines produced more coal at the height of the depression than is usually the case, owing to improved transportation facilities. Although in the early months of the year many mines were shut down, that failed to cut production as low as during years of better business. Before the summer was over, however, there was more activity, and during October and November, especially after the steel business began to revive, there was a marked pickup. The United States Coal & Coke Co. at Gary, alone increased weekly production by more than 25,000 tons a week during the closing weeks of the year.

New River Increases Output

New River wound up the year in better shape than at the end of 1923, at least in so far as output was concerned. The first few months of 1924 were lean ones, though there was a heavy movement to Western markets throughout the year. Development of a somewhat better Eastern demand under more favorable freight rates to certain points enabled the field to maintain production until the end of 1924. It is estimated that the New River field produced 2,000,000 more tons in 1924 than in 1923.

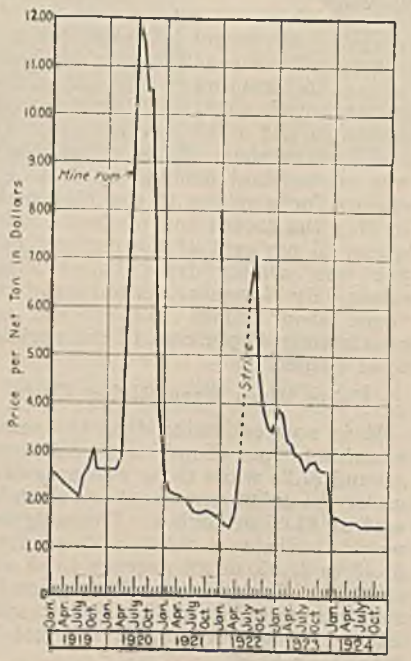
Winding Gulf mines were a great deal more active during the last four or five months than during the first six months of 1924 and during most of the latter part of the year there were not more than eight or nine mines in the entire field idle, with production much above the average, despite the fact that the export market did not afford a large outlet.

It was in the high volatile territory of southern West Virginia, however, that all previous records were smashed. The total movement over the Chesapeake & Ohio alone was approximately 43,000,000 tons—at least 10,000,000 tons more than has ever before been handled by the C. & O. in any given yearly period. The Logan field broke all records for output with approximately 17,000,000 tons.

Kanawha and Coal River output fell about 1,000,000 tons short of that for 1923. The loss was due almost entirely to the fact that the mines which had been operating under an agreement with the union north of the Kanawha River either were unable to operate because of the higher wage scale or were busy preparing to begin operations independent of the union. Approximately 10,000,000 tons was mined and shipped.

In the Kenova field there was a marked improvement over the 1923 record, particularly during the latter part of the year, when production was approximately 50,000 tons a week larger than in the latter part of 1923.

Throughout the greater part of the year prices were extremely low in both high and low volatile territory. At certain periods during the closing months of the year prices stiffened, but as a whole it is questionable whether as much money was realized as in other years when prices were higher and production lower. During the greater part of 1924 mine run hovered around $1.75@$2 a ton. At one time it climbed to $2.25@$2.50, but soon dropped back. Lump was in better shape at the close of 1924 than during the first half. The principal demand existed in Western

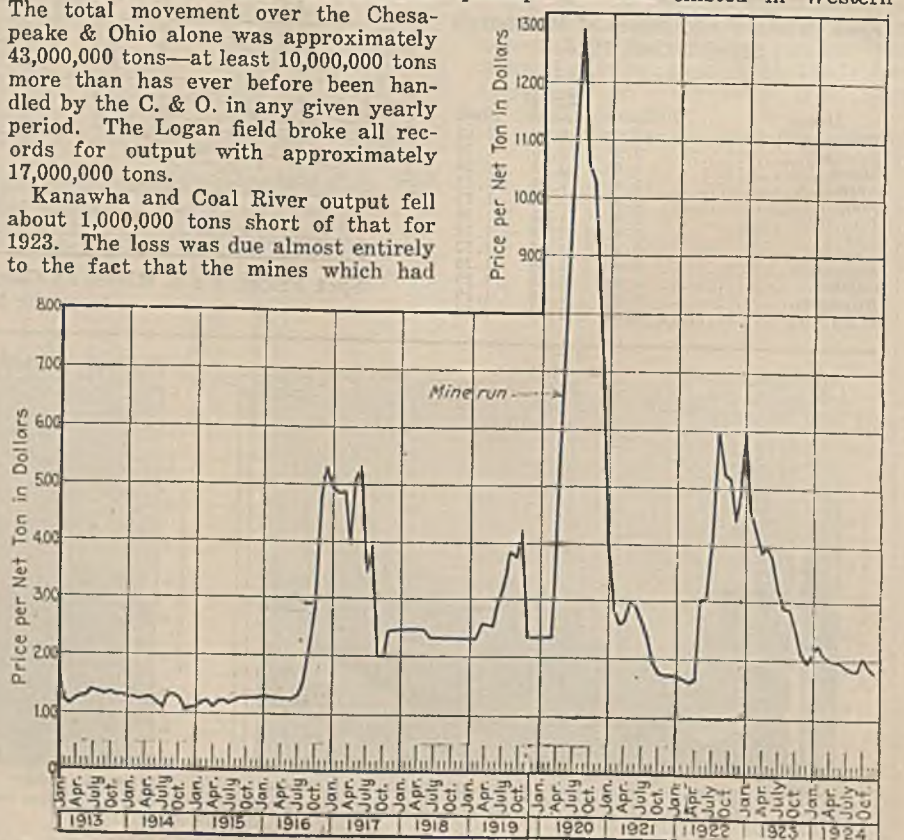


Average Spot Price, F.o.b. Mines, on Philadelphia Market of Mine-Run Coal from Fairmont District

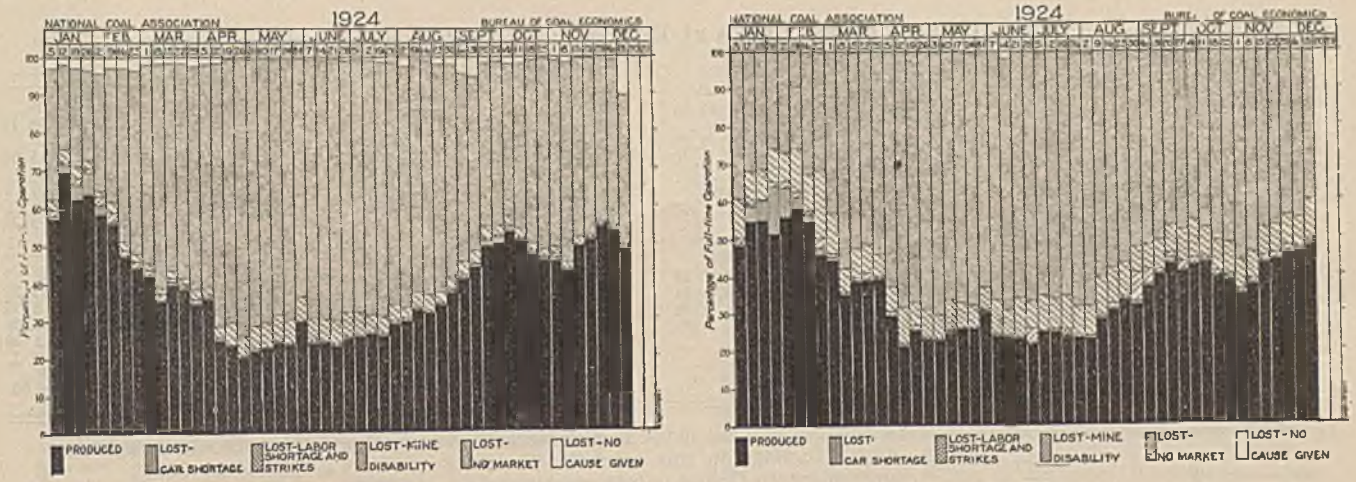
Spot Prices, F.o.b. Mines, Southern West Virginia Smokeless Coal, 1924

AVERAGE OF QUOTATIONS ON BOSTON, CHICAGO, CINCINNATI AND COLUMBUS MARKETS

Month	Run of Mine
January	$2.14
February	2.27
March	2.07
April	2.02
May	1.97
June	1.98
July	1.89
August	1.84
September	1.83
October	2.05
November	1.89
December	1.79



Spot Prices, F.o.b. Mines, on Boston Market of Mine-Run Coal from Smokeless Fields of West Virginia



Illinois Indiana

Percentage of Full-Time Operation of Coal Mines and Time Lost by Causes

markets, where during the fall and early winter the range on both egg and lump was $4@$4.50. After the close of the lake season and particularly after there had been several periods of market activity, the West became glutted with smokeless lump, which then dropped to $3.50. Some of the lost strength was regained, however, with colder weather during the Christmas holidays. Slack was decidedly weak throughout the year.

High volatile mines were able in 1924 to obtain a large volume of business owing to the fact that they were operating on a lower wage scale than the union districts. A heavy run on prepared about the beginning of the last quarter caused it to skyrocket for a time, but it fell back to $2.25@$2.50 during the closing days of 1924. Mine run was more stable than any other grade, the general range being $1.25@$1.50 a ton. Closing of the lake season depressed prices to some extent.

Better transportation conditions were the most important factor in making it possible to move so large a tonnage during the year. Equipment, motive power and trackage were in better shape and the roads were generally well organized to furnish equipment promptly and move coal with dispatch. New rates which went into effect during the latter part of the year stimulated the Eastern movement.

There was less development work undertaken in southern West Virginia than during preceding years, but some new territory was opened and many companies made important improvements. The year was featured by a number of important consolidations among smokeless companies.

Spot Prices, F.o.b. Mines, Pittsburgh No. 8 Coal, 1924

CLEVELAND (OHIO) MARKET

Month	Lump	Run of Mine	Slack
January	$2.48	$1.91	$1.58
February	2.35	1.88	1.48
March	2.38	1.83	1.28
April	2.38	1.81	1.39
May	2.43	1.89	1.44
June	2.42	1.87	1.15
July	2.40	1.86	1.08
August	2.43	1.84	1.21
September	2.37	1.84	1.17
October	2.38	1.88	1.09
November	2.38	1.84	1.08
December	2.43	1.88	1.35

Coal Trade at Birmingham Last Year Yielded Meager Profits

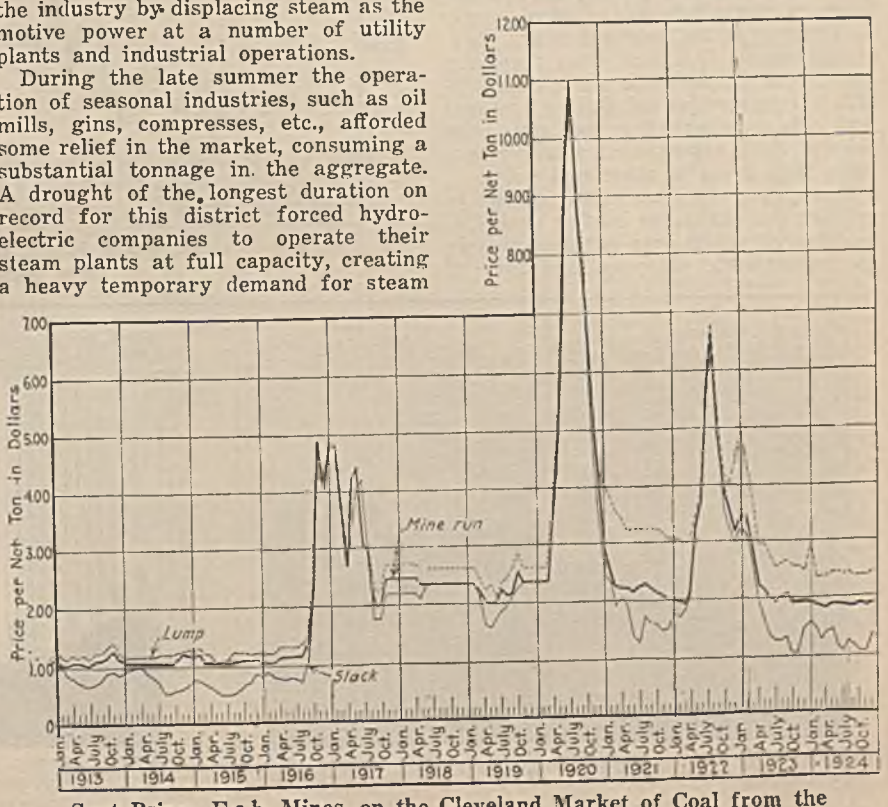
Spot Market Buying Light and Consumption Restricted by General Industrial Depression—Hydro-Electric Power Makes Further Inroads—Fuel Oil Curtails Sale of Bunker Coal

BY H. B. MCLAURINE

A review of the Birmingham coal trade during 1924 reveals few elements of a satisfactory and encouraging nature. Buying of commercial coal in the open market was light practically throughout the year, consumers as a rule adopting a hand to mouth policy, and the volume of consumption was restricted by general industrial depression throughout the territory. Hydro-electric power made further inroads on the industry by displacing steam as the motive power at a number of utility plants and industrial operations.

During the late summer the operation of seasonal industries, such as oil mills, gins, compresses, etc., afforded some relief in the market, consuming a substantial tonnage in the aggregate. A drought of the longest duration on record for this district forced hydro-electric companies to operate their steam plants at full capacity, creating a heavy temporary demand for steam fuel for several months. Several large cement plants were completed during the year and were operating under pressure during the last quarter, and were heavy consumers of slack coal. General industrial demand improved to some extent and the movement during this period was fairly satisfactory, comparatively speaking.

About the usual number of contracts were negotiated during the second



Spot Prices, F.o.b. Mines, on the Cleveland Market of Coal from the Pittsburgh No. 8 District of Ohio

Average Range of Coal Prices at Birmingham in 1924 by Quarters

	January			April		
	Mine-Run	Washed	Lump	Mine-run	Washed	Lump
Big Seam	$1.75@$2.15	$2.25@$2.50	$3.75@$4.00	$1.75@$2.25	$2.00@$2.40	$2.50@$2.75
Carbon Hill	1.75@ 2.50	2.50	4.00@ 4.25	1.75@ 2.25	2.00@ 2.50	2.75
Cahaba	2.25@ 2.50	2.25@ 2.75	5.00@ 6.50	2.40@ 2.65	2.25@ 2.50	3.75@ 5.00
Black Creek	2.75@ 2.85	3.00@ 3.30	5.00@ 5.50	2.50@ 3.00	2.50@ 3.25	4.00
Pratt	2.50	.....	.....	2.00@ 2.40	.....	.....
Corona	2.50	2.85	4.25@ 4.50	2.50	2.85	3.00
Montevallo	.....	.....	6.50@ 7.00	.....	.....	5.00@ 5.25

	September			December		
	Mine-Run	Washed	Lump	Mine-Run	Washed	Lump
Big Seam	$1.50@$2.00	$1.75@$2.25	$3.00@$3.25	$1.50@$1.90	$1.75@$2.00	$2.50@$3.25
Carbon Hill	1.75@ 2.25	2.00@ 2.35	3.35	1.75@ 2.25	2.00@ 2.25	3.25@ 3.55
Cahaba	1.75@ 2.25	2.00@ 2.50	4.75@ 6.00	2.00@ 2.25	2.00@ 2.25	5.00@ 6.00
Black Creek	2.25@ 2.50	2.25@ 2.75	5.00@ 5.25	2.00@ 2.50	2.00@ 2.50	5.00@ 5.50
Pratt	1.85@ 2.25	.....	.....	1.85@ 2.00	.....	.....
Corona	2.00	2.30	4.00	2.00@ 2.25	2.25@ 2.50	4.00
Montevallo	.....	.....	6.00@ 6.50	.....	.....	5.50@ 6.00

Spot Prices, F.o.b. Mines, on the Birmingham Market of Coal from Alabama Fields

quarter with railroads and other utilities and industrial plants, though the tonnage thus disposed of was hardly as large as in the previous year. Railroads bought less coal than formerly, being able to decrease their consumption through improved fueling methods and other conservation measures, and several lines apportioned a larger tonnage than usual to other coal fields.

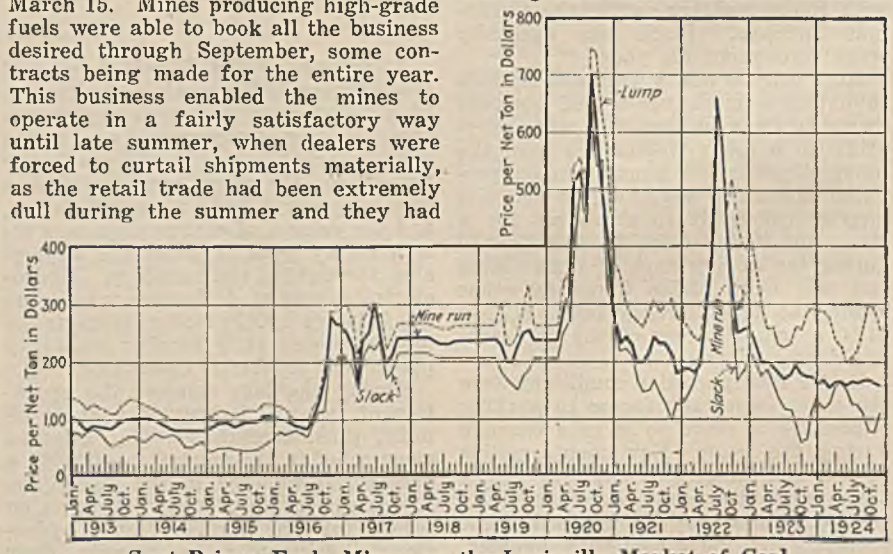
Low-priced fuel oil again served to restrict the outlet for bunker coal, disposition of which was confined largely to transatlantic shipping, and little if any progress was made in placing additional tonnage in this market. Export movement to Cuban points was slightly heavier than last year, sugar-mill interests being the principal consumers, while about the usual amount moved to South America.

Domestic trade during the first and last quarters was dominated solely by weather conditions, there being intermittent spurts of buying during the early part of the year after dealers exhausted their stocks. The beginning of the coal year found the yards practically empty and contracting was lively when circular prices became effective March 15. Mines producing high-grade fuels were able to book all the business desired through September, some contracts being made for the entire year. This business enabled the mines to operate in a fairly satisfactory way until late summer, when dealers were forced to curtail shipments materially, as the retail trade had been extremely dull during the summer and they had been able to make little progress in moving their stocks. Dealers were con-

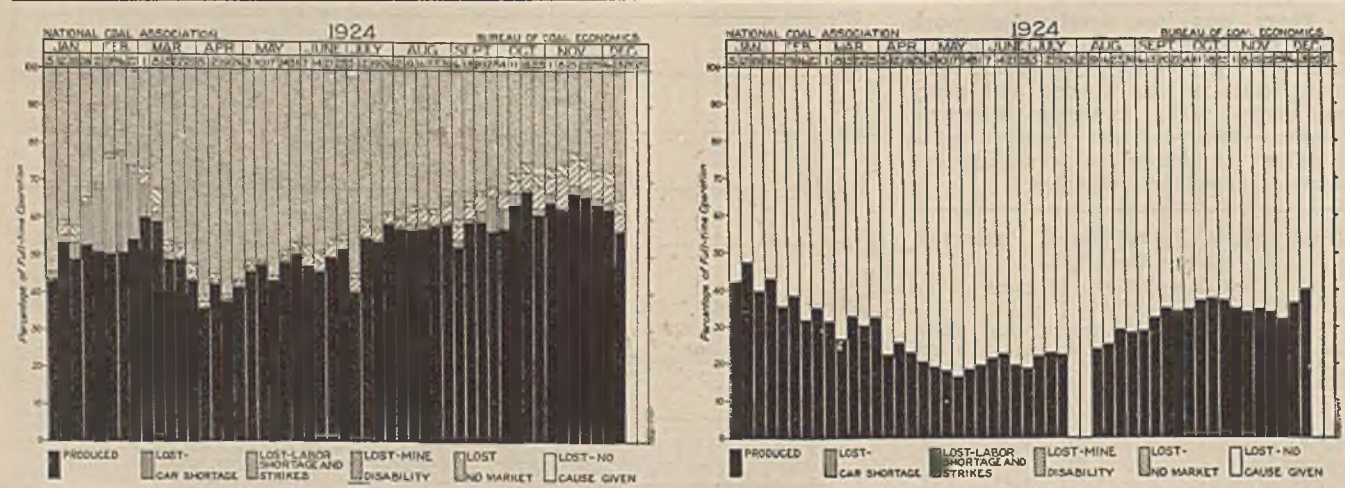
Spot Prices, F.o.b. Mines on Alabama Coal

BIRMINGHAM (ALA.) MARKET

Month	Lump	Mine Run	Washed Slack
January	$3.88	$1.88	$2.27
February	3.88	1.80	2.13
March	3.13	1.88	2.16
April	2.63	2.00	2.20
May	2.80	2.00	2.20
June	3.01	1.94	2.04
July	3.20	1.77	2.00
August	3.40	1.75	2.00
September	3.08	1.70	1.98
October	3.03	1.63	1.88
November	3.13	1.68	1.88
December	2.98	1.70	1.88

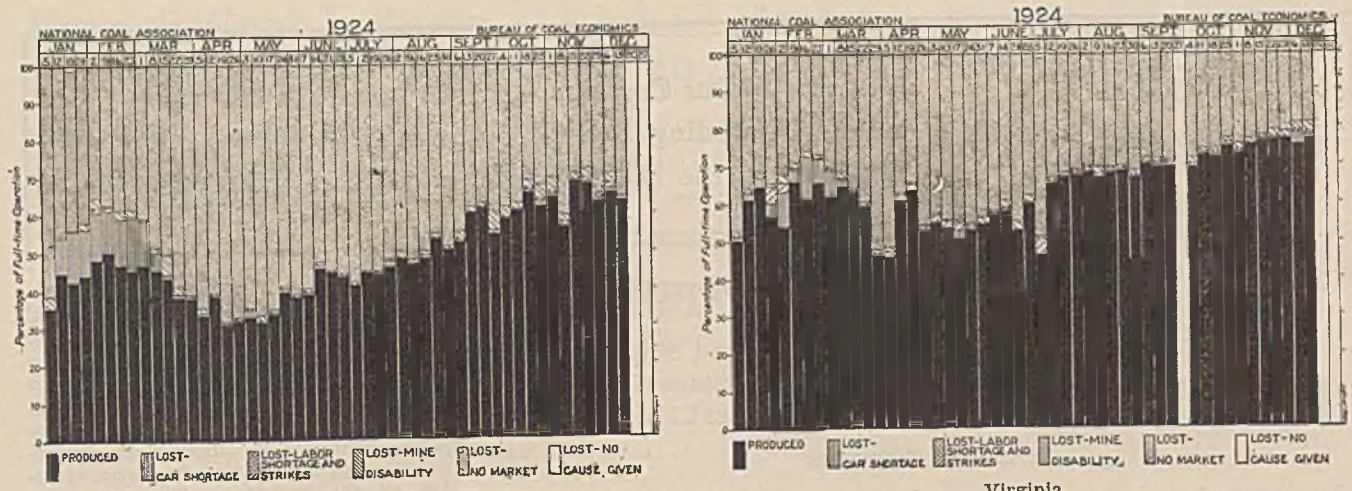


Spot Prices, F.o.b. Mines, on the Louisville Market of Coal from Western Kentucky



Northeastern Kentucky — Western Kentucky

Percentage of Full-Time Operation of Coal Mines and Time Lost by Causes



Kenova-Thacker District, West Virginia

Virginia

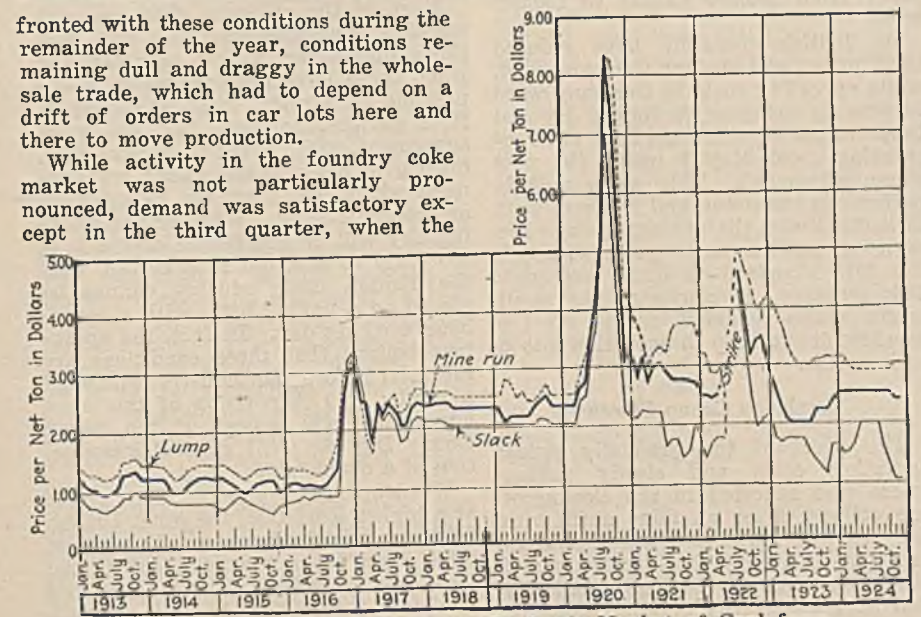
Percentage of Full-Time Operation of Coal Mines and Time Lost by Causes

fronted with these conditions during the remainder of the year, conditions remaining dull and draggy in the wholesale trade, which had to depend on a drift of orders in car lots here and there to move production.

While activity in the foundry coke market was not particularly pronounced, demand was satisfactory except in the third quarter, when the movement eased up, the market regaining a fair measure of strength during the last three months. Quotations ranged $5.50@$6.50 in January, gradually declining to $4.50@$5 per ton at the oven in December. Egg sizes for domestic use sold fairly well at quotations beginning at $5@$5.50 and closing at $3.50@$4 per ton.

Prices during the year were for the most part unsatisfactory and yielded little profit to the mines. This was particularly true of steam sizes. Attached are schedules showing prevailing quotations on steam and domestic coal f.o.b. mines at quarterly periods.

It is estimated from figures in hand that coal production in Alabama will approximate 18,000,000 net tons, with coke output probably around 4,000,000 tons, there being no available data on which to estimate the latter figure, as no weekly reports on production are made during the year, as in the case of coal mines.



Spot Prices, F.o.b. Mines, on the St. Louis Market of Coal from Mt. Olive District of Illinois

Spot Prices, F.o.b. Mines, Coals of Mt. Olive District, Illinois, 1924

ST. LOUIS (MO.) MARKET

Month	Lump	Run of Mine	Slack
January	$3.13	$2.50	$1.62
February	3.13	2.50	1.44
March	2.93	2.50	1.50
April	2.88	2.50	1.63
May	2.88	2.50	2.00
June	2.88	2.50	2.00
July	2.88	2.50	2.00
August	2.88	2.50	2.00
September	2.88	2.50	1.55
October	2.88	2.50	1.30
November	3.00	2.38	1.13
December	3.00	2.38	1.13

Spot Prices, F.o.b. Mines, Hocking District Coal, 1924

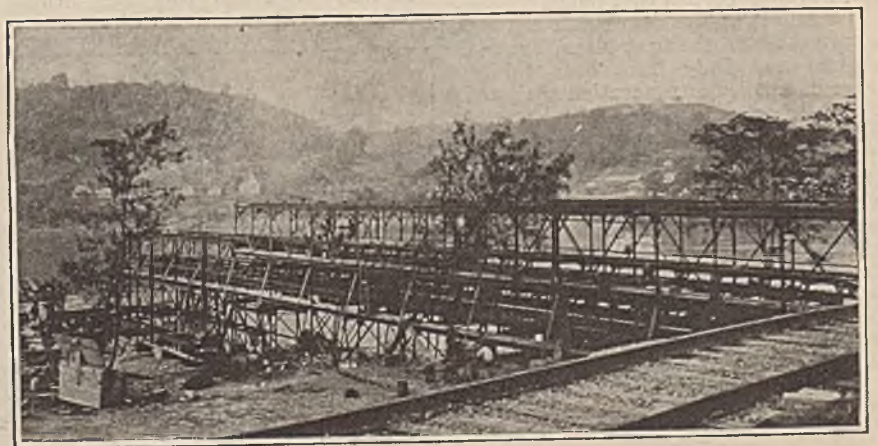
COLUMBUS (OHIO) MARKET

Month	Lump	Run of Mine	Slack
January	$2.72	$1.85	$1.38
February	2.72	1.88	1.14
March	2.58	1.81	1.08
April	2.48	1.64	1.33
May	2.44	1.63	1.37
June	2.44	1.72	1.39
July	2.45	1.72	1.28
August	2.44	1.55	1.08
September	2.45	1.57	1.13
October	2.54	1.61	.90
November	2.57	1.61	.77
December	2.53	1.63	.94

Spot Prices, F.o.b. Mines, of Southern Illinois Coal, 1924

CHICAGO (ILL.) MARKET

Month	Lump	Run of Mine	Slack
January	$3.55	$2.38	$1.97
February	3.50	2.38	1.89
March	3.05	2.38	1.94
April	2.81	2.38	2.18
May	2.75	2.38	2.11
June	2.80	2.38	1.92
July	2.82	2.38	1.70
August	2.88	2.38	1.78
September	3.28	2.38	1.56
October	3.38	2.38	1.38
November	3.38	2.38	1.41
December	3.33	2.38	1.66



Barge Tipple at Huntington, W. Va., Constructed in 1924

View taken in October of last year of a new tipple in the Ohio River, constructed for the Philadelphia & Cleveland Coal Co. It will handle the coal from railroad cars, bringing the coal mostly from the Logan field, where it will be loaded into barges. The first coal loaded was on Oct. 10, 1924. The capacity of the tipple is 50 to 75 railroad cars, or 5,000 tons in 10 hours.

FOREIGN MARKETS Reviews by Our Correspondents in London, Paris and Berlin, Recording Economic Progress in Europe as Reflected in the Basic Industries of Coal and Coke

British Trade in Depths of Depression

Mounting Costs, Due to High Wages and Short Work Day Puts Industry at Disadvantage in Meeting German Competition—Many Mines Closed

BY C. H. S. TUPHOLME

Since early last spring the British coal trade has experienced one of the worst slumps in its entire history. The decline is shown in the figures for Welsh coal exports in the nine months ending September, 1924—19,516,935 tons, against 22,837,817 tons for the corresponding period of last year. From the close of the war down to about March, 1924, the world demand for Welsh steam coal had been such that all the collieries were fully manned in spite of increasing competition from Europe, especially Germany.

As a result of the depression fully twenty of the large collieries in South Wales as well as a number of the smaller operations closed down. Many pits have been definitely abandoned, while others are being kept in repair in the hope that some day demand or a reduction in working costs will make their reopening profitable.

That the miners have been affected no less than the owners is shown by the fact that whereas in April, 1924, there were 244,600 men employed in the Welsh coal fields, six months later the total had dropped to 227,000, at which time 40,000 miners in Wales alone were unemployed or had been given notice to quit. In addition to the collieries closed down and men out of work, a large number of pits are working half time, and some of them are idle for a week or more at a time owing to lack of orders or failure to clear loaded cars. The same conditions obtain, in other British coal fields.

The causes of the depression are not far to seek. In the first place, France, Belgium and Italy have been taking larger quantities of reparation coal, and in the second place German coal operators, having regained control of their mines, have re-entered the world market in competition with Britain, and, owing to the low wages paid the German miner, have been able to underbid British operators. Then, too, the dislocation of German industries cut down the domestic market for coal to such a point that by far the greater part of German coal was available for export. German operators also have been able to obtain a longer working day at reduced wages, so that they are able to offer coal to Europe at a price at least 10 per cent below the lowest Welsh figure, and then make a profit.

The effects of German competition in Europe have been to reduce Welsh shipments to France during the first nine months of 1924 from 8,000,000 (1923) to 6,500,000 tons; to Italy from 3,500,000 (1923) to 2,500,000; to Belgium from 700,000 (1923) to 250,000; to Germany from 750,000 (1923) to 150,000 tons.

As British operators have reduced their prices so have the Germans, and, while operating costs in Germany were decreasing owing to the longer day and lower wages British costs have been increasing from May 1 under the new wage agreement. This agreement is national in character, and it means that in South Wales the minimum wage has been increased from 28 per cent above the 1915 standard to 42.22 per cent. This increase has converted the small profit which enabled many of the smaller pits to keep in operation into a serious loss.

Cambrian Group Closes

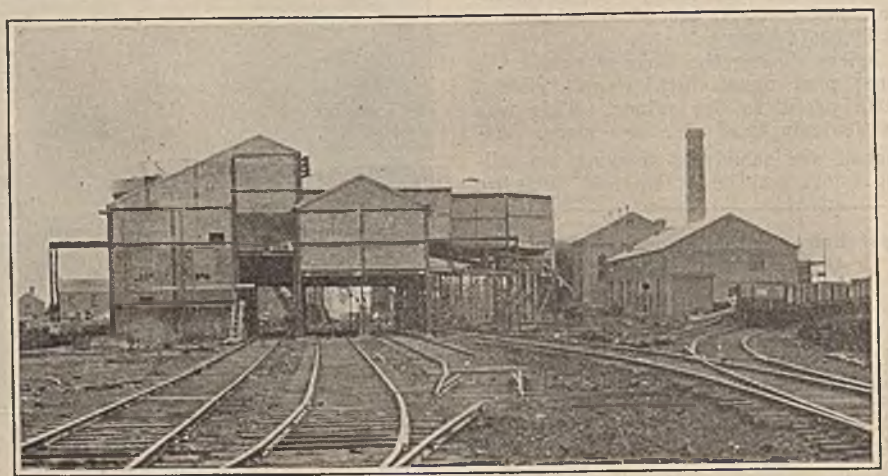
The effect of the gradually rising operating costs and slowly falling prices was reflected in the closing of one colliery after another, until with the shutting down of the Cambrian group of pits, employing 4,000 men and producing some of the best Admiralty coal in Wales, many believed that the prosperity of the Welsh coal industry had gone forever. The average increase in working costs throughout the British collieries since May—is somewhere between 1s. 3d. and 1s. 9d.—those above that figure have shut down, and those below have kept going.

It may be asked why the British owners ever agreed to so disastrous a measure as the national wage agreement which came into force at the end of April. They did not capitulate easily, as negotiations lasted nearly three months. Even the danger of a national stoppage did not cause them to surrender; it was the threat that the government would impose an agreement as an alternative to nationalization of the industry. The operators were virtually faced with the necessity for choosing between a bad bargain and nationalization—and chose the former.

Most of the collieries that are still working have reserves which will keep them going for a few months; and when these have disappeared it is impossible to foretell what will happen. It is obvious, however, that the wage agreement, which is for 12 months only, must give place to some sane arrangement which will place the industry on an economic basis. Whether the working day will be lengthened or not it is too early to say, but it is certain that the British coal industry cannot be placed on a paying basis with a seven-hour working day. In fact, the operators believe that three conditions are essential before the industry will yield a profit: (1) A revision of the wage agreement; (2) repeal of the Seven Hours' Day Act; (3) general introduction of a double shift.

Welsh operators have kept their prices at a higher level than the other British fields to avert bankruptcy. Every cost other than labor has been cut to the limit, and no efforts have been spared to obtain a reduction in dock charges, but these too, are incapable of further reduction without lowering the net revenues of the port and dock owners.

The majority of the operators, despite these conditions, have a firm belief in the future of their industry, and most of the bigger concerns are going ahead with new sinkings and new developments.



Now Ireland Has First Rate Mine at Newtownkelly

Sir Samuel Kelly, a Cumberland coal producer and a coasting-fleet owner opened up a mine in County Tyrone last year with shafts 1,070 ft. deep and 12 ft. in diameter.

French Coal Industry Climbed Back to Favorable Position in 1924

Output Nears Pre-War Figures—Lower Price Level Than for Foreign Fuels Makes Marketing Easy—Reduced Industrial Activity Cuts Consumption of British Coal—Domestic Prices High

By Victor Truant

Upon the whole the position of the French coal market was rather favorable in 1924 when compared with other branches of industrial activity. This is due in part to the following facts: (1) Production, still below the pre-war level found an easy outlet at home, due to lower prices compared with imported coals; (2) consumption of British coal has been cut down by reduced activity in various industries; (3) reparation coals have been used mostly by public utilities; (4) with the end of passive resistance in the Ruhr, Sarre coals recovered their traditional outlets in southern Germany and surrounding countries; (5) imports from Belgium are consistently decreasing; they were only 1,500,000 tons last year, while French exports to that county reached 850,000 tons.

In the domestic coal market, the outstanding feature was the high level of prices—the highest ever recorded. This was due mainly to the increase of transport costs and additional charges the coal trader has to face. Heretofore the Paris market had been a large consumer of Welsh anthracite, but owing to the prohibitive rates of this fuel, the attention of consumers has been diverted toward Belgian, Dutch, French and German coals and smokeless substitutes.

Demand for industrial coals was generally quiet in the French market throughout 1924. The output of French mines found marketing easy. Prices being more attractive than those of imported fuels; receipts of the latter, therefore, have been lower. Indemnity deliveries, however, have been more regular, although lowered, according to the terms of the Versailles Treaty, in proportion to the recovery of extraction in the French war-damaged mines. In household fuels, sized products remained rather scarce and dear, the effect of such a situation being attenuated by relatively mild weather.

French coal output in the first ten months of 1924 was 36,641,396 tons and of lignite 788,111 tons, a total of 37,429,507 tons. The production for the whole year is expected to reach about 45,000,000 tons compared with 40,922,000 tons in 1913. Deducting the share of re-annexed Lorraine, the output for the year was about 39,650,000 tons, or 1,272,000 tons less than in 1913. This is due to the efficiency of extraction in the war-damaged mines of the Pas-de-Calais.

Production of coke by French mines in 1924 was about 2,600,000 tons compared with 1,985,573 tons in 1923. No official statistics are published concerning coke production by independent coke ovens and metallurgical ovens but private information indicates that their yield varied between 150,000 and 180,000 tons per month.

Patent-fuel output totaled approximately 3,220,000 tons in 1924 compared with 3,056,371 tons in the previous year.

Imports of coal into France in the first ten months of 1924 aggregated 21,129,388 tons, including 11,121,659 tons from Great Britain, 4,228,441 tons from the Saar, 3,522,610 tons from Germany and 316,875 tons from the United States. This compares with the 1923 total of 26,268,187 tons, including 17,954,597 tons from Great Britain, 1,498,527 tons from Germany and 670,823 tons from the United States. Imports in 1913 totaled 18,593,000 tons.

Coke imports in the first ten months of 1924, totaled 4,650,299 tons, including 3,905,497 tons from Germany, 52,986 tons from Great Britain and 34,114 tons from the United States. In 1923 3,628,393 tons was imported, including 2,073,460 tons from Germany, 384,101 tons from Great Britain and 159,358 tons from the United States. In 1913 French imports totaled 3,071,000 tons, the bulk of which, 2,393,000 tons, came from Germany.

Imports of patent fuel in the first ten months of 1924, reached 803,396 tons, compared with 776,627 tons for the year in 1923 and 1,086,046 tons in 1913.

Exports were for a time regulated by special licenses from the government, restrictions being applied in order to lower the price of coal for inland consumers. But as no effective change took place, the restrictions were removed.

Exports of coal in the first ten months of 1924 totaled 1,812,744 tons, including 845,369 tons to Belgium and Luxemburg, 405,152 tons to Switzerland, 113,818 tons to Germany, 20,884 tons to Italy and 1,671 tons to Spain. Bunkers to French vessels absorbed 250,627 tons and supplies to foreign vessels amounted to 31,373 tons. Exports in 1923 were 2,474,447 tons and in 1913 1,304,909 tons.

Shipments of coke to foreign countries in the first ten months of 1924 were 419,633 tons, including 197,569 tons to Italy, 81,854 tons to Switzerland and 78,479 tons to Belgium and Luxemburg. Exports in 1923 totaled 476,378 tons and in 1913 230,767 tons.

Patent fuel exports in the first ten months of 1924 were 138,639 tons, including 106,038 tons to Switzerland, compared with a total of 238,206 tons in 1923.

Receipts of indemnity fuels in the first eleven months of 1924, consisted of 4,073,700 tons of coal; 3,936,200 tons of coke and 482,200 tons of lignite briquets, a monthly average of 772,000 tons of fuel of all kinds as against 321,000 tons last year, when the Ruhr occupation began.

Current prices are 30f. a ton lower than the actual price reimbursed through the payment agent to the German collieries. It is understood, however, that French consumers will soon have to pay a price equivalent to that paid by the state. In that event indemnity fuels, because of their inferior quality, will be almost unsalable.

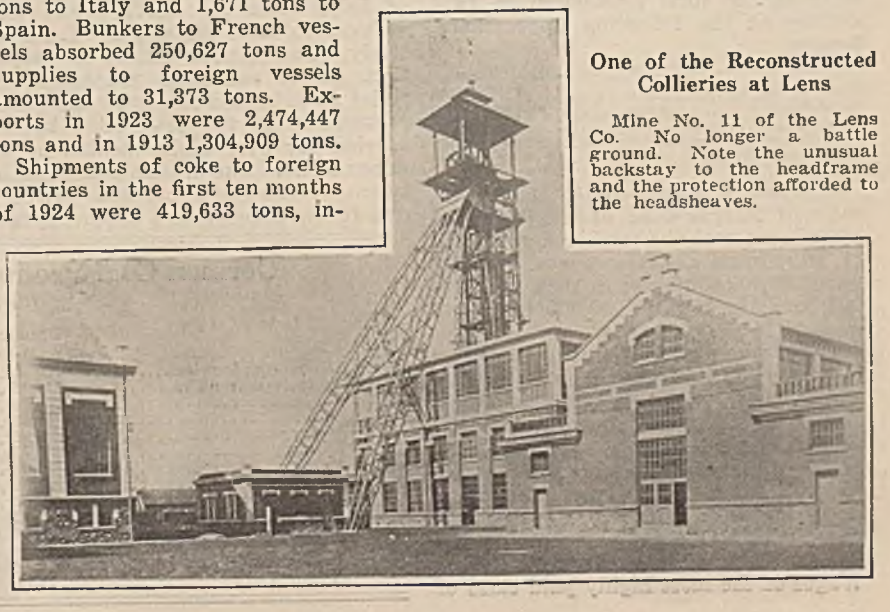
Indemnity coke is apportioned among French plants through the intermediary of an association which has succeeded to the Société des Cokes de Hauts-Fourneaux (S.C.O.F.) dissolved in January last. This new distributing body takes charge of reparation coke only, the present rate for which is 143.75f. delivered Franco - German frontier. The price of coking small distributed to members of the O.R.C.A. who manufacture their own coke averages 77.54f. a ton.

The average wages paid during the year to coal miners, both underground

Spot Prices, F.o.b. Mines, Eastern Kentucky Coal, 1924

Average of Quotations on Louisville, Cincinnati and Chicago Markets

Month	Lump	Run of Mine	Slack
January	$3.01	$1.77	$1.33
February	3.16	1.86	1.29
March	2.91	1.67	.99
April	2.33	1.51	1.08
May	2.26	1.50	1.04
June	2.23	1.53	.96
July	2.23	1.51	.95
August	2.29	1.54	.98
September	2.61	1.55	.97
October	3.17	1.60	.97
November	2.93	1.57	.95
December	2.62	1.51	.97



One of the Reconstructed Collieries at Lens

Mine No. 11 of the Lens Co. No longer a battle ground. Note the unusual backstay to the headframe and the protection afforded to the headsheaves.

and surface, were the highest ever paid in the French mining industry. At the request of the government, the collieries on Feb. 1 lowered their selling prices 3f. a ton, in order to co-operate in reducing the cost of living. Prices have not been changed since.

If 1925 is to see an era of prosperous activity after the crisis which world trade has experienced in the last four years it will be necessary that the political horizon be cleared, that Germany respect her obligations and that the financial and economic situation in France be improved. Otherwise there are no prospects of larger consumption of fuel during the coming year and the output of French mines, which is expected to grow larger with the definite restoration of the war-damaged mines, together with indemnity deliveries (progressively lessened) and a presumably reduced importation from such outside sources of supply as the Sarre, Belgium and Holland with the co-operation of the British mines, will fully cover the requirements of France for fuels of all kinds.

Spot Prices, F.o.b. Mines, Coal of Standard Field, Illinois, 1924

ST. LOUIS (MO.) MARKET

Month	Lump	Run of Mine	Slack
January	$2.89	$1.95	$1.28
February	2.78	1.95	.97
March	2.58	1.95	1.22
April	2.33	1.95	1.53
May	2.18	1.93	1.79
June	2.18	1.80	1.52
July	2.18	1.80	1.45
August	2.18	1.80	1.20
September	2.51	1.80	1.03
October	2.88	2.00	.83
November	2.75	1.95	.64
December	2.75	1.95	1.08

German Coal Industry Takes Long Stride Toward Economic Recovery

Removal from Politics Clears Atmosphere—Steady Increase in Output Halted Only by Miners' Strike—Ruhr Reaches High-Water Level of 1913—Upper Silesia Exceeds Expectations

BY H. O. HERZOG

In the course of 1924 the German coal industry was removed from the playground of high politics into a clearer atmosphere where it naturally belongs. Nevertheless the conscientious recorder frequently finds his progress barred by obvious discrepancies that make him wary of official figures.

A survey at the close of the year discloses remarkable recovery from last year's economic war and its after effects. Output pursued a continuous line of ascent, broken only by the miners' strike in May, as shown in the accompanying table of monthly production of all German fields, 1913, 1922 and 1923 being added for comparison.

In the second half of November the output in the Ruhr, Germany's most important field, reached the high water mark of 1913. Upper Silesia, the next largest of German coal basins, at the same time set record figures by surpassing estimates of capacity made after the detachment of the larger part of this field. From unofficial reports output in November and December may safely be assumed to be at least equal to that of October. An estimate of the total production in 1924 arrives at the following approximate figures:

	Tons
Bituminous coal	121,000,000
Brown coal	124,000,000
Coke	24,000,000
Bituminous coal briquets	3,600,000
Brown coal briquets	32,000,000

Computing brown coal at the usual ratio of 22 per cent of the value of bituminous coal the combined resources of bituminous and brown coal in 1913 were 160,000,000 tons; in 1922 148,000,000 tons; in 1923 88,000,000 tons, and in 1924 147,000,000 tons.

Labor was unsettled during the entire year as a result of the policy of keeping wages close to the pre-war standard though living costs show no disposition to settle to a corresponding level. Moreover so-called social levies for welfare, old age and illness insurance have increased since pre-war times, thus reducing actual payments to the miners below the pre-war average. Wages of the most highly paid class of miners averaged at the beginning of 1924 5.58m. per shift and 6.55m. at the end of November. The latter figure is 104.5 per cent of the average of 1913-1914 but is below 100 per cent if social levies are taken into account.

The end of the year saw the labor situation upset by a bitter wage dispute threatening to result in a strike or lockout, according to which side shall ultimately prevail. The increase of working time decreed at the end of the Ruhr war was maintained during the whole year. Underground workers are working now 8 hours in most fields and surface workers 10 hours. The extension is one hour in the case of underground and two hours in that of surface workers. The improved rate of output with reduced forces is a result of this extension.

Prices were fairly stable, but with a downward tendency. In January the price of Ruhr fat run of mine, which is the key grade of coal, was 20.60 M. per metric ton compared with 12 M. in 1913-1914; blast furnace coke was 34.63 M. as against 18.50 M. in 1914. The scale of prices indicated by these two grades was in force until the end of July, when the above prices were reduced to 16.50 M. and 27 M. respectively, other grades falling in proportion. This reduction represents the relief afforded the mines by the state's resumption of the reparation burden, carried for over eight months by the mines alone. The sizable difference between present and pre-war prices is due to lower efficiency of the miners, especially surface workers, higher prices of material and heavier social levies.

Deliveries of reparation coal during the larger part of the year averaged 1,800,000 tons monthly. Toward the close of the year, under the Dawes plan, they fell to 1,000,000 tons.

The market situation throughout the year was very weak on account of the general business depression, but a slight revival took place in the last months of the year. It is uncertain, however, whether it denotes a genuine improvement or was caused only by a stalled seasonal demand.

German consumption is estimated by the head of the national coal commissary at 11,000,000 tons per month, which seems exaggerated as the whole visible supply in 1923, when business was decidedly better, amounted to only 10,000,000 tons. It is not denied by those in authority, however, that Germany has now again a surplus production, even after deducting the coal tribute of 1,000,000 tons per month.

Official statistics of foreign trade give no indication as to whether this surplus is actually disposed of by export. They are incomplete owing to the lack of a German customs administration in the occupied zones. Export of coal from the Ruhr across Germany's western frontiers therefore has escaped official observation almost during the whole year. Figures submitted by the Ruhr mines to the French organs of control make it appear that exports are much larger than the actual volume.

Import figures, which may be assumed to be fairly correct, show that in the first ten months of 1924 10,911,735 tons of bituminous coal came in and 309,499 tons of coke. Import came chiefly from Polish Upper Silesia and Great Britain. Official statements indicate that the government is taking no steps to impede coal imports, which it is said are needed less to supplement domestic production than to stabilize prices and keep up quality.

German Coal Production in 1924 by Months

(In Metric Tons)

	Bituminous Coal	Brown Coal	Coke	Patent Fuel — Bituminous Coal	Patent Fuel — Broken Coal
1913 within pre-war frontiers	190,109,000	87,233,000	34,630,000	8,992,000	21,937,000
1913 within present frontiers	140,753,000	87,228,000	31,668,000	6,490,000	21,977,000
1922	119,145,000	137,072,000	29,113,000	5,458,000	29,466,000
1923	62,225,000	118,249,000	12,703,000	1,725,000	26,856,000
1924—January	8,787,000	9,553,000	1,474,000	171,000	2,005,000
February	9,726,000	8,328,000	1,742,000	263,000	1,818,000
March	10,825,000	10,390,000	2,102,000	291,000	2,465,000
April	10,439,000	10,247,000	2,220,000	203,000	2,472,000
May	2,621,000	10,789,000	916,000	122,000	2,598,000
June	9,100,000	9,034,000	1,775,000	295,000	2,230,000
July	11,273,000	9,670,000	2,203,000	354,000	2,284,000
August	10,804,000	9,794,000	2,133,000	332,000	2,362,000
September	11,388,000	10,840,000	2,191,000	352,000	2,695,000
October	11,943,000	11,975,000	2,281,000	399,000	2,895,000

Export Trade at Baltimore Came to Life In December After Long Lull

Market Tone Throughout the Year Is Highly Unsatisfactory—Bunker Business Compares Favorably with That of Previous Years—Three Cargoes of Welsh Anthracite Arrive

BY WALTER R. HOUGH

While export coal trade at Baltimore in 1924 had anything but a satisfactory tone, the closing month, December, registered an increase of 104 per cent over November; in fact it was the largest in the trade since July of last year. Despite the depression in foreign shipments, however, the amounts of bunker coal taken at Baltimore compared favorably with previous years. There was no dearth in the available supply for export purposes but the local market lacked the demand from foreign buyers.

A small amount of Welsh anthracite was imported into Baltimore during the early months of the year and one small consignment was delivered during December.

Italy, France and Canada, in the order named, led in the purchase of coal at Baltimore during 1924. The two nations leading in the purchase of coke during the year were Chile and Peru. Three vessels cleared with combination cargoes of both coal and coke and a number of ships loaded consignments of coal in conjunction with general cargo.

Nearly 10,000,000 tons of fuel cargoes and bunkers for fuel-carrying vessels has been loaded for export at the various coal piers at Baltimore during the five-year period from Jan. 1, 1920, to Dec. 31, 1924. Detailed data on this trade is as follows:

Five-year period—Coal: 1,495 ships, consisting of 1,436 steamers, 43 schooners, 15 barks and 1 sailing ship, under the flags of 21 nations and destined to 47 countries, loaded cargoes totaling 8,061,185 tons; 977 ships took 767,165 tons of bunkers, making the total dumpings at tide 8,828,350 tons. Coke—99 ships, consisting of 97 steamers and 2 schooners, under the flags of 10 nations and destined to 18 countries, loaded 84 full and 15 partial cargoes in combination with coal amounting to 285,787 tons; 28 ships took 21,685 tons of coal bunkers, making the total combined fuel dumpings at tide 307,472 tons. Total activities—1,579 ships, consisting of 1,518 steamers, 45 schooners, 15 barks and 1 sailing ship, under the flags of 21 nations and destined to 47 countries, loaded fuel cargoes totaling 8,346,972 tons; 1,005 ships took 788,850 tons of coal bunkers, making the total combined fuel dumpings at tide 9,135,822 tons. Imports—26 steamers under the flags of 8 nations, from 7 ports of departure, delivered 135,222 tons of coal to this port.

For comparative purposes the figures for each year from 1922 to 1924, inclusive, are hereinafter given (wherever the term "partial cargo" is used in reference to coke it means that coal and coke consignments were loaded on the same vessel):

1922—Coal: 36 ships, consisting of 27 steamers, 8 schooners and 1 bark, under the flags of 5 nations and destined to 7 countries, loaded cargoes totaling 101,323 tons; 14 ships took 6,410 tons of bunkers, making the total dumpings at tide 107,733 tons. Coke: 5 ships, consisting of 4 steamers and 1 schooner, under the flags of 4 nations and destined to 3 countries, loaded 4 full cargoes and 1 partial cargo totaling 9,649 tons; 1 ship took 290 tons of coal bunkers, making the total combined fuel dumpings at tide 9,939 tons.

Imports: 19 steamers under the flags of 5 nations, from 6 ports of departure, delivered 113,184 tons of coal to this port.

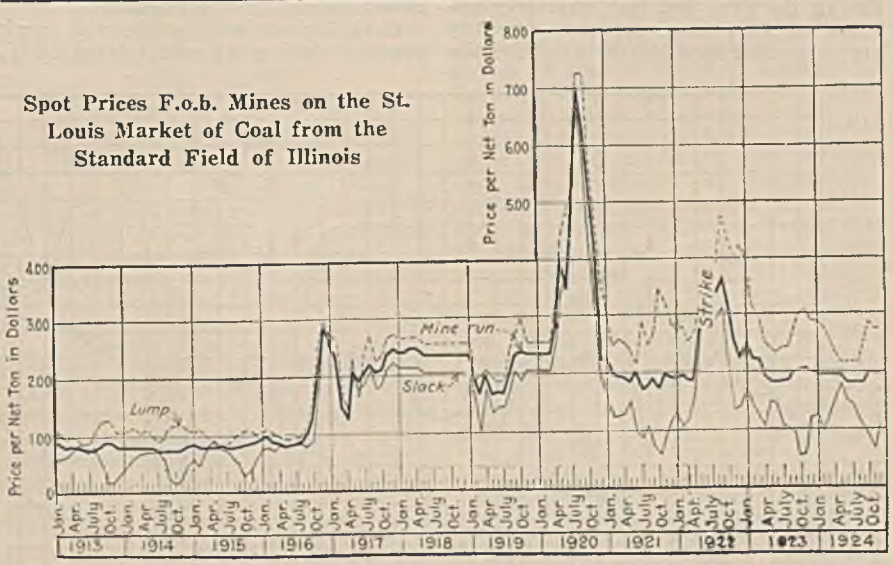
1923—Coal: 241 ships, consisting of 234 steamers and 7 schooners, under the flags of 15 nations and destined to 24 countries, loaded cargoes totaling 1,459,482 tons; 159 ships took 106,751 tons of bunkers, making the total dumpings at tide 1,566,233 tons. Coke: 44 ships, consisting of 43 steamers and 1 schooner, under the flags of 10 nations and destined to 9 countries, loaded 39 full and 4 partial cargoes totaling 178,361 tons; 17 ships took 13,137 tons of coal bunkers, making the total combined fuel dumpings at tide, 191,498 tons.

Imports—3 steamers under the flags of 3 nations, from 3 ports of departure, delivered 14,620 tons of coal at this port.

1924—Coal: 125 ships, consisting of 116 steamers and 9 schooners, under the flags of 13 nations and destined to 15 countries, loaded cargoes totaling 609,518 tons; 74 ships took 52,347 tons of bunkers, making the total dumpings at tide 661,865 tons. Coke: 15 steamers under the flags of 5 nations and destined to 4 countries, loaded 12 full and 3 partial cargoes totaling 33,213 tons; 1 ship took 902 tons of bunkers, making the total combined fuel dumpings at tide, 34,115 tons.

Imports—4 steamers under the flags of 3 nations, from 2 ports of departure,

Spot Prices F.o.b. Mines on the St. Louis Market of Coal from the Standard Field of Illinois



Receipts of Coal at Milwaukee by Months in 1924

(In Net Tons)

	By Vessel			By Car Ferry			By Rail			Grand Totals
	Hard	Soft	Total	Hard	Soft	Total	Hard	Soft	Total	
January	.....	.....	.....	10,017	37,616	47,633	200	53,550	53,750	101,383
Febraury	.....	.....	.....	25,759	40,475	66,234	.....	59,204	59,204	125,438
March	.....	.....	.....	18,865	45,497	64,362	.....	54,701	54,701	119,063
April	50,576	61,499	112,075	17,592	17,496	35,088	.....	38,275	38,275	185,436
May	81,332	239,550	320,882	15,696	27,512	43,208	.....	34,233	34,233	398,323
June	149,230	285,563	434,793	26,018	28,889	54,907	.....	27,215	27,215	516,915
July	108,400	374,096	482,496	29,254	32,920	62,174	.....	27,543	27,543	572,213
August	107,685	353,502	461,187	18,354	32,372	50,726	12,500	55,888	68,388	580,301
September	75,431	326,100	401,531	17,548	38,210	55,758	5,300	36,521	41,821	499,110
October	120,640	423,064	543,704	29,507	43,400	72,907	3,000	33,709	36,709	653,320
November	83,668	437,981	521,649	20,391	58,268	78,659	.....	37,644	37,644	637,952
December	45,000	95,068	140,068	16,965	62,564	79,529	648	28,330	36,965	248,575
Totals	821,962	2,596,423	3,418,385	245,966	465,219	711,185	21,648	486,813	516,448	4,638,031
Totals 1923	966,224	3,238,722	4,204,946	249,738	575,655	825,393	7,671	823,175	830,846	5,861,185
1924 Decrease	.....	.....	786,561	.....	.....	114,208	.....	.....	314,398	1,223,154

Monthly Coal Receipts at Duluth-Superior in 1924

(In Net Tons)

	Hard	Soft	Total
April	84,392	240,018	324,410
May	80,240	591,511	671,751
June	157,777	834,360	992,137
July	266,741	1,158,084	1,424,825
August	351,320	1,185,870	1,537,190
Sept	191,053	1,101,735	1,292,788
Oct	45,748	1,151,085	1,196,833
Nov	37,434	1,188,790	1,276,224
Dec	25,289	279,425	304,714
Totals for Season	1,289,994	7,730,878	9,020,872
Totals, 1923	1,419,984	11,268,337	12,688,321

delivered 7,418 tons of Welsh anthracite coal at this port.

The number of ships to each of the 15 countries trading at Baltimore during 1924, together with the amount of coal cargoes, the number of vessels taking bunkers, amounts of the same, and total dumpings at tide were:

Algeria—3 ships, 23,449 tons cargo; 2 ships, 1,445 tons bunkers; total dumpings, 24,894 tons.

Argentina—6 ships, 32,061 tons cargo; 2 ships, 850 tons bunkers; total dumpings, 32,911 tons.

Canada—11 ships, consisting of 10 steamers and 1 schooner, 47,770 tons cargo; 9 ships 4,057 tons bunkers, total dumpings, 51,827 tons.

Chile—3 ships 11,769 tons cargo; 2 ships, 2,623 tons bunkers; total dumpings, 14,392 tons.

Costa Rica—1 ship, 3,017 tons cargo; no bunkers.

Cuba—10 ships, consisting of 6 steamers and 4 schooners, 37,273 tons cargo; 3 ships, 906 tons bunkers; total dumpings, 38,179 tons.

Dutch Guiana—1 schooner, 1,230 tons cargo; no bunkers.

Ecuador—2 ships, 2,054 tons cargo; 2 ships, 1,874 tons bunkers; total dumpings, 3,928 tons.

Egypt—1 ship, 8,091 tons cargo; no bunkers.

France—18 ships, 132,123 tons cargo; 15 ships, 6,126 tons bunkers; total dumpings, 138,249 tons.

Germany—1 ship, 709 tons cargo; 1 ship, 555 tons bunkers; total dumpings, 1,264 tons.

Italy—42 ships, consisting of 41 steamers and 1 schooner, 277,713 tons cargo; 36 ships, 33,862 tons bunkers, total dumpings, 311,575 tons.

Martinique—2 schooners, 2,032 tons cargo, 2 ships, 49 tons bunkers; total dumpings, 2,081 tons.

Porto Rico—23 ships, 24,227 tons cargo; no bunkers.

Uruguay—1 ship, 6,000 tons cargo; no bunkers.

The number of ships to each of the 4 countries trading at Baltimore during 1924, together with the amount of coke cargoes, the number of vessels taking coal bunkers, with the amounts of the same and the total fuel dumpings at tide, were:

Chile—8 ships, 27,305 tons cargo; 1 ship, 902 tons bunkers, total dumpings, 28,207 tons.

Cuba—1 ship with a partial cargo of 31 tons; no bunkers.

Peru—1 ship, 5,025 tons; no bunkers.

Porto Rico—3 ships with full and 2 ships with partial cargoes of 852 tons; no bunkers.

The number of ships from each of the two ports of departure arriving at Baltimore in the import coal trade during 1924, together with the amounts of cargo, were:

Liverpool—1 ship, 12 tons cargo.

Swansea—3 ships, 7,406 tons cargo.

Car Loadings, Save of Coal, Broke Record Last Year

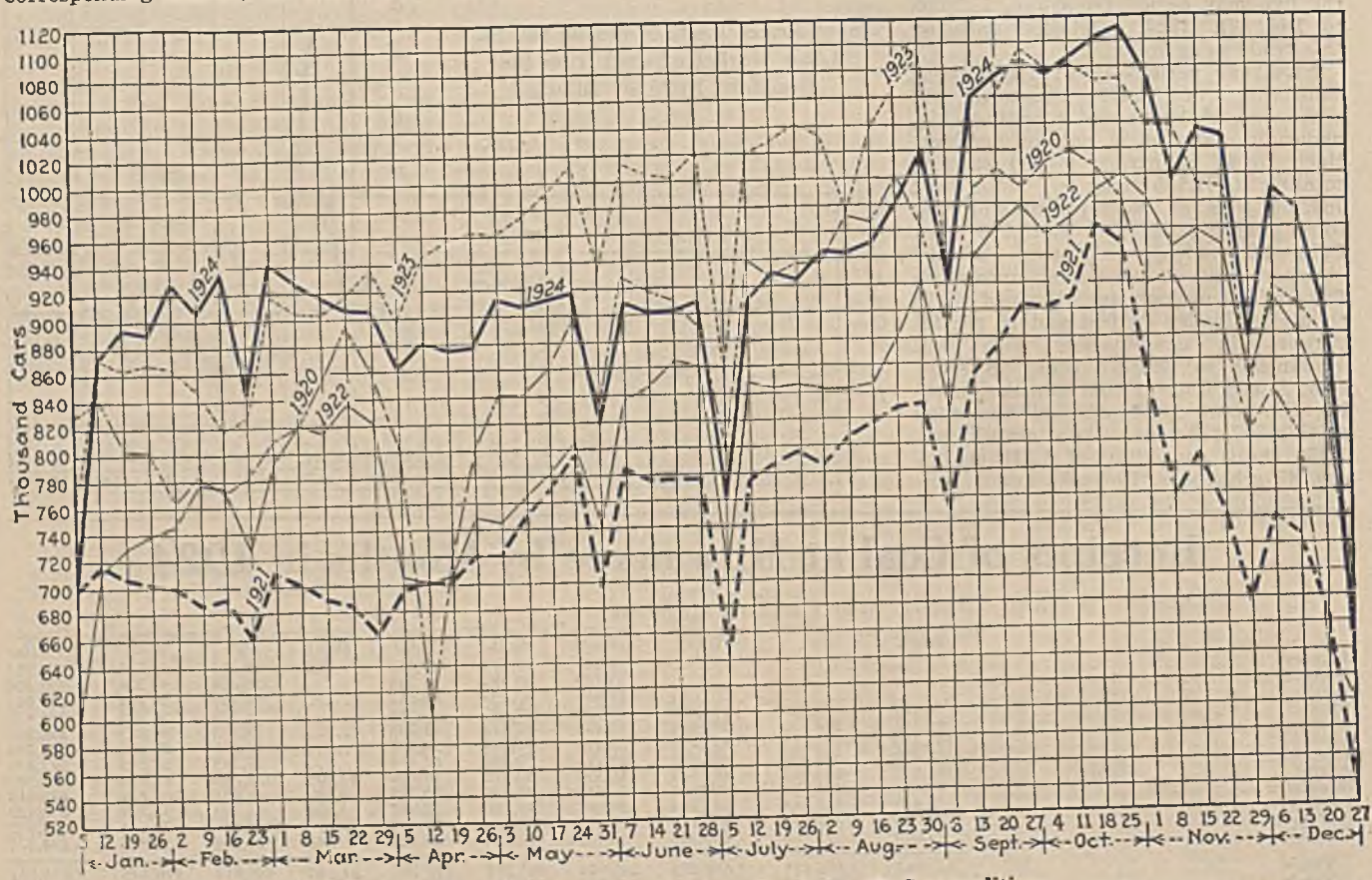
A total of 48,527,227 cars was loaded with revenue freight by railroads of the United States during 1924, according to complete reports for the year filed with the Car Service Division of the American Railway Association.

Although loadings were the greatest during the first and last quarterly periods in 1924 ever reported for any corresponding months, the total for the year was 2.6 per cent below 1923. Had it not been for a falling off, compared with the preceding year, in the loading of coal, coke and ore, the total for 1924 would have established a new high peak, as loadings of all other commodities except those named were the greatest ever transported by the carriers.

This heavy freight traffic, however, was handled with the greatest efficiency ever attained by the railroads.

Cars loaded with grain and grain products during the year totaled 2,575,514, an increase of 122,750 cars, or 5 per cent, over the previous high record established in 1922. This also was an increase of more than 13 per cent over the total for 1923.

New high records for all time also were established in 1924 in the total loading of merchandise and less than carload lot freight and also in miscellaneous freight, the former being an increase of 2.9 per cent over last year and the latter an increase of nearly 1 per cent.



Weekly Cars of Revenue Freight Loaded—All Commodities

News Of the Industry

Oddie Presents Amended Bill Intended "To Promote Welfare" of Coal Industry

Provides for Publication of Aggregate Data on Ownership, Output, Transportation, Distribution, Sale and Use of Coal—Would Create Department of Mines

By Paul Wooton
Washington Correspondent of *Coal Age*

Legislation intended "to promote the general welfare and to provide all facts needed by Congress in legislating concerning interstate commerce in coal, or needed by the executive departments in discharging their responsibilities touching the coal industry as determined by law, by gathering information respecting the ownership, production, transportation, distribution, sale and use of coal and by publishing the same" has been introduced by Senator Oddie, of Nevada, chairman of the upper chamber's Committee on Mines and Mining.

The legislation takes the form of an amendment to Senator Oddie's bill, introduced early in the Sixty-eighth Congress, providing for the establishment of a Department of Mines, the head of which is to be a member of the President's Cabinet.

This measure was prepared in practically its first form, it is understood, during the last session, but the time then seemed inappropriate to introduce it. It is being introduced at this time largely for the purpose of stimulating study and discussion. It is Senator Oddie's thought that some conservative plan should be on record in the event that Congress should decide that legislation of this character is necessary. He also is influenced by the agitation for an extra session of Congress to consider coal legislation.

If consideration is to be given the matter of coal he wants to have in legislative form this plan which embodies some of the suggestions of Dr. Garfield, F. R. Wadleigh, the Harding Coal Commission and others. Senator Oddie is not wedded to any provision contained in his amendment and fully expects that the need for many changes will be found necessary when it has been studied by all concerned and their criticisms and suggestions have been put forward.

The bill differs from all others affecting the coal industry that have been introduced in Congress. Its purpose, Senator Oddie states, is to promote the welfare of the industry—a purpose which is to be expected from the chairman of the Committee on Mines and Mining, whose first loyalty is to the men who work in the mines and those who manage mining operations.

Senator Oddie long has been an advocate of a federal department which would serve the mining industry as the Department of Agriculture serves the farmers. He proposes that all technical services affecting mining be grouped in this department, where they will be greatly expanded and improved. The Nevada Senator is appreciative of the work which has been done by the Bureau of Mines and the Geological Survey and the technical assistance that the mining industry has received from the federal government. He believes, however, that the industry, which on account of its nature requires more technical assistance than does agriculture, is entitled to a greater amount of public support.

Proposes Economic Bureau

This amendment is simply an elaboration of the idea of the original department of mines bill. It proposes a bureau of coal econ mics, analogous to the Bureau of Agricultural Economics in the Department of Agriculture. Compared with the Calder bill or the measures introduced by members of the Massachusetts delegation in the House the Oddie bill represents an entirely different approach to the problem. Where others have sought to regulate and repress he feels that legislation along the general lines he has indicated can be relied upon to promote and develop. The Calder bill and a number of others which have been introduced in recent years were anti-profit measures. The purpose of the present legislation is to help the coal industry and the public.

The Oddie proposal differs also from the Frelinghuysen bill, which provided for fact-finding and nothing more. The present measure provides for the collection of facts, but not for their own sake alone. It suggests also ways in which the facts may be used to accomplish the avowed purpose of promoting the welfare of the industry.

The Oddie amendment calls for the creation of advisory committees, one for the bituminous and one for the anthracite industry, to confer with the Secretary of Mines, first as to the information needed and how it is to be obtained; second, as to the interpretation to be placed on facts as reported, and third, to discuss plans "for the proper and adequate storage of coal by the consumer; the supply and distribution of coal in times of emergency; the equitable adjustment of royalty rates; taxation policies, particularly taxation of reserve coal lands; the prevention of waste of coal in mining; improvements in underground management; the removal of restrictions on output; the free introduction of machinery into coal mines under safeguards that will protect the rights of employees; relief from irregular operation and overdevelopment; integration of the industry into larger productive units; improvements in the preparation of coal for market; the training of mining engineers and foremen; the prevention of accidents and compensation for the same; the improvement of housing, sanitation and living conditions in mining communities; improvements in the transportation of coal, including methods of mine rating and car di tribution; elimination of needless cross hauls, long hauls and bulk handling at yards, terminals and ports; improvement in marketing, including standardization of contracts, inspection and grading, wholesale methods, retail costs and methods, and co-operative marketing and buying; promotion of the export coal trade; standardization and simplification of accounts and reports; development of trade statistics; constructive activities of coal-trade associations; economy in the use of fuel and power through better combustion, electrification and improvements in gas and coke manufacture; increase in available supplies of household fuel; improvement in labor

Some Hard Luck

When the western Kentucky field shutdown occurred last spring, following the refusal of most operators to try to operate under the Jacksonville agreement, at least one company went ahead and signed with the union. It was the Phoenix Coal Mining Co., of Drakesboro, Ky. This action reduced somewhat the effect of the operators' contentions that western Kentucky could not survive on the union scale. Eventually practically the whole region went non-union. Now the Phoenix Coal Mining Co. is in trouble. J. B. Torbert, former owner, has filed foreclosure proceedings against the present operators, asserting that they defaulted in the payment of principal and interest totaling $100,000.

relations, including reduction of absenteeism and labor turnover, personal management, improved machinery for the adjustment of grievances and the negotiation of wage agreements; and such other possible improvements in the methods and practices of the mining, transportation, distribution and use of coal as will foster the growth and prosperity of the industry and the welfare of the mine workers, and as will insure the public a steady supply of fuel at minimum prices."

When recommendations on these subjects have been formulated by the advisory committees and the Secretary of Mines it becomes the duty of the latter to bring them to the attention of the industry and the consuming public. The fact-finding provisions of the bill thus are subordinated to the main purposes of assisting the industry to develop a uniform policy and to carry it through. The Secretary of Mines becomes a point of contact not only between the government and the industry but between different branches of the industry.

The plan offers means for the free expression of views of the industry much in line with the fundamental idea underlying the Coal Institute proposed by F. R. Wadleigh. It makes use of trade organizations and provides methods of utilizing the statistical reports collected by them.

Along with the Bureau of Coal Economics the bill provides for the inspection and grading of coal on a purely voluntary basis. It provides for the adoption of an export certificate if and when the producer desires such a certificate. The bill also recognizes that the consuming public has interests which should be safeguarded and it directs the Secretary of Mines to consider with the advisory committee and report to Congress on the emergency distribution of coal during periods of shortage. This plan is to be reported within one year from the passage of the measure.

Extreme Measures Avoided

In order to provide for any contingency which might arise before the plan has been drawn up and acted upon, the bill authorizes the President to declare in effect the provisions of the fuel distribution act under which, it will be recalled, Mr. Wadleigh handled distribution during the strike of 1922. This section of the bill appears as an afterthought and frankly is designed to meet any emergency which might arise before the advisory committees and the Secretary of Mines may develop an adequate plan.

The amendment says nothing about the seizure and operation of mines in the event of a strike and refrains from the other extreme measures proposed in the Calder bill. It does provide for the collection of information bearing on industrial disputes and for the appointment of a special investigator by the President in the event of any strike which he deems "likely to endanger the public peace, to create a shortage of coal or to become a source of irritation and friction between coal operators and coal-mine workers."

The sole authority of the investigator is declared to be to report findings to the President, who may make them public or not in his discretion. The bill provides that such investigations during emergencies shall be conducted by officers specially appointed and not connected with the Department of Mines or the Bureau of Coal Economics. In other words, fact-finding and advisory work are completely separated from any emergency measures which may be taken. It is provided, however, that the Secretary of Mines shall furnish information, not of a confidential character, to the Fuel Distributor or to the investigator which has a bearing on the situation.

The bill is certain to be far from satisfactory to those who want regulation of the coal industry. They will reject it because it does not provide for fixing the prices or for zoning, or for prohibition of reconsignment, or the pyramiding of margins. They will not be satisfied even with its fact-finding provisions.

Men with the views of Senators Calder, Kenyon and LaFollette want the records of a coal company made public like the tax returns. The Oddie bill treats every such communication as confidential and goes to what many will consider extreme lengths as to the exact methods to be taken to safeguard and handle the reports of the individual companies. No individual return is to be made public. All identification marks or schedules are to be made on a perforated stub which is to be detached as soon as the report is received. Under this pledge of confidential treatment Senator Oddie feels it is not unfair to require every company engaged in interstate commerce to furnish the reports specified.

Warren T. Acker

Recently elected president and general manager of the South Penn Collieries Co. in charge of the Scranton district operations. This company was formed with the consolidation of several large anthracite producers of northeastern Pennsylvania.

Mr. Acker's entry into the coal business took place about six years ago when he became connected with the Von Storch Coal Co., and since that time his rise has been rapid. His system of operating by graphic charts and budgets, inaugurated at the Von Storch operations, attracted widespread interest in the anthracite field.

Mr. Acker's success has been due largely to his close contact with operating conditions in general, principally costs. He is a graduate of Colgate University.

Peace Seems Further Off Than Ever in Strike of Anthracite Mine Workers

Scranton, Pa., Jan. 13.—Developments in the outlaw strike situation in District 1, United Mine Workers, in which ten Pennsylvania and Hillside Coal & Iron Co. collieries employing 12,000 men have been idle since Nov. 24, 1924, tend to indicate that the situation is further removed from settlement that at any time since the origin of the strike.

Radical influences are felt among the strikers' ranks in the Wyoming field and efforts are being made to draw more mine workers into the fray in sympathy with the outlaw strikers. The district union officials have tried numerous methods in an effort to bring peace in the district, but without avail. The strikers' demands are each day growing more unreasonable. The special investigating commission sent into the district by International President John L. Lewis has done little if anything to restore harmony.

The strike was originally called, according to the strike leaders, because of the failure of the district union officials and the company to give consideration to grievances submitted by the miners. In the early stages of the walk-out the leaders demanded assurance that the grivences would be given immediate attention before they would cancel the strike. This assurance was not given because the miners had been expelled from the ranks of the union and were entitled to no consideration at the hands of the district officers. However, District President Rinaldo Cappellini this week gave the leaders assurance that he would take up their grievances at once and ask for a restoration of their charters if they would order the men to return to work, and the insurgents rejected the offer.

Upset Grows More Serious

The strike, which for a time assumed the characteristics of many others in the Pittston field during the year 1924, has developed into the most serious labor trouble experienced in years in the hard coal field during a contract period.

It is evident to the close observer that the strikers' leaders are playing for time in refusing the proposals of the district president. The insurgents are endeavoring to work up a sympathetic feeling among union leaders in the field and bring about a general suspension in District 1. To this end several meetings of all general grievance committeemen of the district have been held and another is scheduled before the end of the week. All of the workers of the big anthracite producers are represented by delegates at these meetings.

Already the strike has been marked by outbreaks, a dynamiting and fights. Two murders are said by authorities to be traceable to the labor troubles. One of the Pittston strikers while on his way home from a conference with the district president last week was riddled with bullets and killed instantly by unknown persons. Seventeen bullet holes were found in his body. In Old Forge on the following night a mine worker was murdered by another following an alleged argument over the outcome of the strike.

Commerce Commission Reaffirms Decision Abolishing Assigned Cars; Order Becomes Effective March 1

After exhaustive study on rehearing, the Interstate Commerce Commission on Monday, Jan. 12, reaffirmed its previous decision abolishing the use of assigned cars at bituminous coal mines. The decision is to become effective March 1. Chairman Hall and Commissioners Potter and Cox dissented.

As in the former case the commission finds "that in the distribution of cars for the transportation of coal among the bituminous coal mines served by the respective respondents, and each of them, whether located upon the line of a respondent or customarily dependent upon it for car supply, or whether owned or leased by or furnishing their entire output to a respondent, any rule, regulation or practice of the respondents, or any of them, whereby private cars or cars for the loading of bituminous coal for railway fuel purposes are placed at any such mine in excess of the pro rata allotment and distribution of cars for coal loading currently made to any other of such mines which do not receive private cars or cars for railway fuel and which are on the same division or district established by such respondent for the distribution of cars, is and for the future will be, unjust and unreasonable, and unduly and unreasonably preferential to such mines receiving private cars or cars for railway fuel in excess of such allotment, and unjustly discriminatory against and unduly prejudicial to such other mines not receiving private cars and cars for railway fuel."

Must Pro Rate Cars to Mines

Continuing, the opinion says: "We further find and conclude that all cars should be distributed by such respondent to all mines on such district or division on a pro rata basis; and that if cars are assigned or consigned to any of such mines, and if they are placed at the mines to which they are assigned or consigned, they should be so placed that every mine on the same division or district should receive the same pro-rata share of the total number of available cars, whether assigned, consigned, or unassigned, which are distributed to all mines on such division or district, and that all such assigned or consigned cars should be counted and charged against the mines at which they are placed in the same manner and to the same extent that unassigned cars are counted and charged. It is not intended that this finding shall prevent the assigning of privately owned cars or cars for railway fuel to designated mines, provided such mines are not thereby given more than their pro rata share of available cars. It is also not intended that this finding shall preclude the commission hereafter, in proper cases, in the exercise of the emergency powers conferred upon it by paragraph 15 of section 1 of the act, from requiring the placement of cars for bituminous coal loading at any mine or mines in excess of the current percentage allotment made to mines generally upon the lines of the same carrier, or upon the same division, when the order or direction for placement shall so provide.

"The effective date of our order entered in this proceeding June 13, 1923, has been postponed until Jan. 15, 1925. The statutory period of notice is not less than 30 days. We will enter an order making that order effective on March 1, 1925."

Southern Ry. to Construct Important New Link

J. B. Munson, vice-president of the Southern Railway Co., announced at Cincinnati on Jan. 8 that a survey was being made from Danville, Ky., to Jellico, Tenn., a distance of 125 miles, for the construction of a line that will connect the Louisville-St. Louis and Cincinnati-Southern divisions at Danville, via Jellico, Tenn., to the Southern system. It will cost between $10,000,000 and $15,000,000 to build the line, which will be the first long piece of road constructed in the state in years. Rumors had been heard for some time regarding the extension.

Nova Scotia Wage Dispute Becoming Serious

The situation in connection with the wage dispute between the British Empire Steel Corporation and the miners of District 26, United Mine Workers (Nova Scotia), is becoming very serious. The Labor Department of the federal government has established a Board of Conciliation, but the appointments have not yet been made, and owing to the firm attitude of both parties it is not expected to have any practical result. The spirit actuating the miners is shown by articles in the *Maritime Labor Herald*, owned by the representatives of District 26, urging a "100 per cent strike" including the calling out of the maintenance men and allowing the pits to be flooded. The company is stated to be making preparations for a prolonged shutdown. Officials make no secret of the company's determination either to reach a basis where it can carry on its operations without loss or to close down indefinitely.

Parley on Mine Accidents Set Tentatively for Feb. 3

Governors of the coal-producing states were asked Jan. 6 by Secretary Work of the Interior Department to designate the earliest practicable date for holding a conference to formulate a harmonious program toward decreasing loss of life from coal-mining accidents.

In a recent announcement President Coolidge indicated his intention of calling this conference early this year and Tuesday, Feb. 3 has just been suggested as a tentative date providing it is convenient to the various governors. At the request of the President, Secretary Work sent out inquiries to the state executives of the coal-producing states for the purpose of completing all necessary plans for the conference, which will be held in Washington.

Bituminous Coal Loaded Into Vessels at Lake Erie Ports During Season of 1924

(In Net Tons)

Ports	Railroads	1924 Cargo	1924 Fuel	1924 Total	1923 Cargo	1923 Fuel	1923 Total	1922 Cargo	1922 Fuel	1922 Total
Toledo..	Hocking Valley	6,714,573	199,104	6,913,677	5,026,533	151,965	5,178,498	3,241,786	92,597	3,334,383
	Big Four†	57,298	138	57,436	.....	.....	.....	.....	.....	.....
	N. Y. C.—Ohio Central Lines	145,012	5,425	150,437	1,182,193	36,966	1,219,159	860,814	27,965	888,779
	Baltimore & Ohio	‡2,256,187	69,919	2,326,106	2,891,967	84,402	2,976,369	2,912,587	77,864	2,990,451
Sandusky..	Pennsylvania	4,205,493	126,145	4,331,638	3,008,096	95,726	3,103,822	2,794,264	99,730	2,893,994
Huron.....	Wheeling & Lake Erie	§800,037	36,933	836,970	1,481,428	58,439	1,539,867	430,222	17,587	447,809
Lorain.....	Baltimore & Ohio	2,227,761	158,610	2,386,371	3,667,957	196,569	3,864,526	1,836,014	91,529	1,927,543
Cleveland..	Pennsylvania	1,414,865	176,709	1,591,574	1,870,527	201,470	2,071,997	1,056,464	93,239	1,149,703
	Erie	327,720	11,336	339,056	739,025	31,920	770,945	381,903	14,464	396,367
Fairport...	Baltimore & Ohio	556,243	84,556	640,799	912,131	82,236	994,347	.....	.....	.....
Ashtabula.	New York Central	871,569	113,659	985,228	3,380,040	255,746	3,635,786	1,515,608	88,464	1,604,072
	Pennsylvania	1,195,466	79,607	1,275,073	2,147,144	94,482	2,241,626	1,674,618	90,038	1,764,656
Conneaut..	Bessemer & Lake Erie	1,514,457	198,039	1,712,496	2,783,640	242,057	3,025,697	1,618,192	63,317	1,681,509
Erie.....	Pennsylvania	688,310	87,381	775,691	738,103	96,532	834,635	199,670	72,387	272,057
Total		22,974,991	1,347,561	24,322,552	29,828,784	1,628,510	31,457,294	18,522,142	829,181	19,351,323
*1923 Storage Loading		182,060	4,940	187,000	.....	.....	.....	.....	.....	.....

Note:—Tonnages cover Coal Line hauled into Ports by railroads as shown.

*Coal loaded into vessels in December, 1923, after close of navigation and forwarded from Lake Erie Ports during 1924 season of navigation.

‡Includes 33,017 tons loaded into vessels for storage at Toledo.

†Lake coal into Toledo over Big Four Route and dumped by Ohio Central machine.

§Includes 2,578 tons amalgam coal.

Compiled by Ore & Coal Exchange, Cleveland, Ohio; H. M. Griggs, manager

Three Factions Prepare To Act in Peace Move In Central Pennsylvania

With one side preparing for peace in time of war and the other side believing that peace is here as a result of the Jacksonville agreement and preparing for war in time of peace, and with a third party entering the lists in the form of an association to probe the coal situation in central Pennsylvania, the breach between miners and operators is widening daily.

Operators in the big bituminous field, spurred on by the loss of ten million tons of business in 1924, seek a wage adjustment that will permit them to compete for trade.

The United Mine Workers, through John Brophy, president of District No. 2, urge just as strongly that a wage reduction is not the remedy. In the meantime mines are closing down, others are seeking the appointment of receivers, miners are suffering, hundreds of families are hungry and the non-union fields are reaping the profits, while business men throughout central Pennsylvania are being forced out of business or are going bankrupt.

The third party to enter the fight is an organization termed the "Citizens' Association." This organization had its origin in Punxsutawney, Jefferson County, when the business men there sent a letter to the operators and the miners' union asking them to get together and do something to put life in the industry.

The operators of the district, through the executive council and the board of directors of their two associations, agreed to meet the union officials and so notified the Punxsutawney business men, but the United Mine Workers, through their president, replied that such a meeting would be useless as there would be no change in the present scale.

Operators, through their associations, immediately laid plans and collected data to present at such a conference. The mine workers' union, however, instead of preparing for peace, which it claims to have under the present scale, started a campaign to line up the local unions against any change in the scale.

Two unions in Nant-y-Glo, Cambria County, with 1,600 members, held a meeting on Jan. 4 and, after hearing addresses by President Brophy, vice-President James Mark and others, voted to stand by the scale. South Fork, Portage and Lilly miners took similar action and meetings are being held weekly among the miners of the district to urge them to stand pat.

DuBois, Clearfield, Punxsutawney, Philipsburg, Indiana Falls Creek, Marion Centre, Reynoldsville and other mining towns in the Centre-Jefferson-Clearfield section have arranged to be represented in the "Citizens' Association," which will be composed of three citizens from each of the mining towns. Clearfield has named George M. Rosser, president of Council; John C. Arnold, ex-District Attorney, and P. B. Reed, manufacturer of brickmaking machinery. President Brophy attended the organization meeting in Clearfield and delivered an address, reiterating "that the remedy is not in wage reduction. The trouble is overcapitalization and overproduction."

The "Citizens' Association" has not yet decided upon a plan of action but promises to spare neither operators nor mine workers in an investigation which it is hoped will bring about a solution of the difficulty and put the mines back into operation.

William Green at Home

The new president of the American Federation of Labor snapped in front of his modest residence in Coshocton, Ohio. His wife and three of their six children live here, the other three being married.

Will Make Coal-Cleaning and Briquetting Equipment

The Hydrotator Co., a newly formed corporation, has acquired the patents and engineering business of L. C. Trent, who has been operating as the L. C. Trent Engineering Co. in Philadelphia. Mr. Trent has retired from the business except for a limited territorial arrangement on the Pacific Coast.

Neither the Hydrotator Co. nor its predecessors, the L. C. Trent Engineering Co., despite the general similarity of the latter name and the purposes of the corporation, is in any way affiliated with the Trent Process Corporation, the Trent Superfuel Co., or the Pittsburgh Trent Co., which produce so-called "amalgam" from a mixture of oil and pulverized coal. The Trent patents purchased by the Hydrotator Co. cover entirely different processes, one of which deals with the cleaning of coal by classification and flotation. Walter L. Remick, formerly engineering editor of the Keystone Mining Catalogs, will assume active management of the Hydrotator Co. after Feb. 1.

The corporation will devote itself to the practical solution of problems involving washing, classification and flotation of fine coal, stream pollution, preparation of clean coal for briquetting, dissolving, precipitating, filtering, thickening, and separation—that is, in general the treatment of any class of solids mixed with or in suspension in liquids. The general offices of the company are located at 1328 Chestnut Street, Philadelphia.

Utility Fuel Consumption and Power Output Higher

Electric public utility plants consumed 3,293,243 net tons of coal in November, according to a report by the Geological Survey, compared with 3,219,658 tons in October, as shown by revised figures. Fuel oil consumed by utility plants in November totaled 1,144,138 barrels, as against 1,405,296 barrels in October.

The average daily production of electricity by public utility power plants in November was 168,400,000 kw.-hr., which is less than 1 per cent greater than the daily output for October and about 5 per cent than that for November, 1923.

Output and Value of Coal from Wyoming Mines in 1923

(Compiled by U. S. Geological Survey)

County	Loaded at mines for shipment (net tons)	Sold to local trade and used by employees (net tons)	Used at mines for steam and heat (net tons)	Made into coke at mines (net tons)	Total quantity (net tons)	Total value	Average value per ton	Number of employees: Underground: Miners, etc., a	Underground: All others	Surface	Total	Average number of days worked
Albany and Uinta	25,355	9,752	4,356	.....	39,463	$114,000	$2.89	35	6	9	50	218
Carbon	574,163	6,725	17,931	.....	598,819	1,793,000	2.99	229	167	87	483	211
Converse, Johnson, and Weston	153,312	8,938	9,691	.....	171,941	546,000	3.18	83	47	30	160	245
Fremont, Hot Springs, and Park	591,896	6,343	38,447	.....	636,686	2,381,000	3.74	388	266	151	805	180
Lincoln	1,374,699	11,884	68,846	.....	1,455,429	4,250,000	2.92	748	333	269	1,350	262
Sheridan	880,203	28,464	7,931	.....	916,598	1,334,000	1.45	623	161	140	924	115
Sweetwater	3,649,501	25,461	65,446	.....	3,740,408	10,454,000	2.79	2,097	1,040	620	3,757	183
Total, excluding wagon mines	7,249,129	97,567	212,648	.....	7,559,344	20,872,000	2.76	4,203	2,020	1,306	7,529	192
Wagon mines served by rail	15,687	.....	.....	.....	15,687	44,000	2.80	.....	.....	.....	.....	.....
Grand total	7,264,816	97,567	212,648	.....	7,575,031	$20,916,000	$2.76	.....	.....	.....	.....	.....

a Includes also loaders and shotfirers.

Governor Pinchot Reports Big Accident Reduction in Pennsylvania Coal Mines

Among the achievements of the present state administration, set forth by Governor Pinchot in his message to the Pennsylvania Legislature of 1925, was the settlement of the anthracite coal strike in September, 1923. The Governor appeared Jan. 6 to present his message at a joint session of the Senate and the House immediately after they had organized. Relative to the coal-strike settlement he said:

"Throughout the anthracite using regions of the United States the differences between miners and operators which resulted in the anthracite coal strike of 1923 threatened the strong and well with hardship and discomfort, the weak and sick with disease and death during the winter of 1923-24. After other efforts to settle the strike had failed, in September, 1923, the present administration, on its own initiative, undertook negotiations with the miners and operators.

"After extended meetings in Harrisburg with the contending parties the strike was settled. The customary supply of anthracite was thus assured to users who otherwise would either have paid for it at far higher prices or would have gone without altogether, and the widespread suffering of an anthracite famine was avoided."

Commends Progress Made

Further on in his address the Governor said relative to the work of the State Department of Mines:

"The Department of Mines has made noteworthy progress. Because the most important advance in safety in mines is to be made through the education of the mine workers, the department has, during the two years [since the present administration began] established twenty-six evening vocational schools in the mining regions. There were only eight before. A complete course of study in mining was prepared by co-operation between the Department of Mines, the Department of Public Instruction and State College, with the result that no other state is believed to have advanced so far in the personal education of mine workers.

"The efforts of the department have brought about a steady and gratifying decrease in the number of fatal mine accidents. In proportion to hours worked the year 1923 showed a marked improvement over 1922, but 1924 has thus far outstripped every other year in the last decade in the decreased number of fatal accidents in mines. In the first eight months of 1924, 333 men lost their lives in anthracite mine accidents. This was 55 less than in the same period of 1923. In the bituminous mines 228 died in the same period in 1924. This was 65 less than in 1923. Better inspection was the chief cause in saving the lives of 120 men in two-thirds of a single year.

"I take the warmest pleasure in acknowledging the patriotic and self-sacrificing attitude of the mine inspectors, both anthracite and bituminous, who, when a shortage of funds threatened to reduce the amount and effectiveness of inspection in the mines, voluntarily offered to continue their duties without pay until the necessary adjustments could be made. This is practical patriotism of a high order and deserves grateful acknowledgment."

Thomas Kennedy

The former president of District 7, United Mine Workers (Hazleton, Pa.), has been appointed secretary-treasurer of the International union in succession to William Green, who resigned to accept the presidency of the American Federation of Labor.

Kennedy Succeeds Green

Thomas Kennedy, of Hazleton, Pa., president of District 7, United Mine Workers, was appointed on Jan. 5 by President John L. Lewis as successor to William Green, who resigned as secretary-treasurer of the miners' International Union to accept the presidency of the American Federation of Labor. The appointment of Mr. Kennedy was ratified unanimously by the International Executive Board.

Canada's Coal Output Fell 23 per Cent in 1924

A preliminary estimate of the mineral production of Canada in 1924 by S. J. Cook, of the Dominion Bureau of Statistics, shows a considerable falling off in the output of coal as compared with that of the previous year. The total production is estimated at 13,000,000 net tons valued at $54,280,000 as compared with 16,990,571 tons valued at $72,058,986 in 1923. The greatest decrease was in Alberta, where, owing to the protracted strike, the output decreased from 6,854,397 tons in 1923 to 4,525,000 last year. Nova Scotia's output was 5,855,000 tons as compared with 6,597,838 tons, and British Columbia produced 2,111,000 tons as against 2,823,306 tons in 1923. The output of coal by classes included 9.512,000 tons of bituminous coal, 559,000 tons of sub-bituminous, and 3,032,000 tons of lignite.

Bondholders Buy Maynard Co.'s Ohio Properties

A committee representing the bondholders of the Maynard Coal Co., which has been in the hands of William S. Harmon and Frank L. Stein as receivers for more than a year, purchased the Ohio properties of the company, consisting of three operating mines near Pomeroy. The assets were offered at public auction Jan. 7 by William S. Harmon under court order. The bondholders paid $50,000 for the mines and equipment. The capacity of the three operations is in excess of 1,000 tons daily and a considerable acreage is held by the company. Plans were made for the bondholders to take over the Kentucky properties, which were sold at auction Jan. 10 at Hazard, Ky.

Coal Mining Institute Of Pittsburgh

An organization meeting of an association void of commercialism has been called by C. L. Wilson, secretary, Castle Shannon, Pa., for the evening of Jan. 17 to be held in the Chamber of Commerce Building, Pittsburgh, Pa. The association, at least temporarily, is termed the Coal Mining Institute of Pittsburgh.

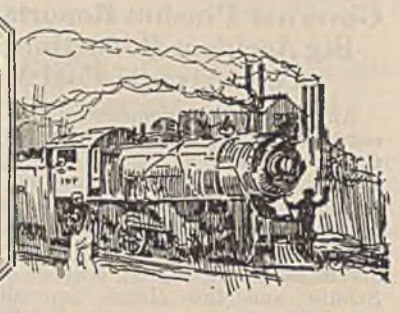
Kansas Produced 400,000 Tons More Than in 1923

The coal output of Kansas for 1924 was 400,000 tons greater than in 1923, according to a preliminary report of Leon Besson, state mine inspector, based on fairly complete reports from most of the companies and supplemented by estimates on the others. The 1924 production for the state is placed at 5,000,000 tons. The number of men employed increased from 10,457 to about 11,000.

Seventy-two per cent of the production was in Crawford County, while the preceding year only 66.48 per cent came from that county. Cherokee County, which saw the earliest development of Kansas coal mining, and the several other counties of the state which have regular but small production show a marked decrease. The steam-shovel production was only 6.98 per cent of the state output. The large producing shovel mines of the Pittsburg district are just across the line in Missouri.

The number of tons produced for each fatal accident was far above the average for the country, according to Inspector Besson. There were only seven fatal accidents, all of which were caused by rock falls. More than 800,000 tons was produced for each death. In 1923 there were nineteen fatal accidents and the average was only a little more than 200,000 tons for each death. There were 796 non-fatal accidents but a smaller per cent of them entailed serious injuries than in 1923, when the number was practically the same, Inspector Besson says.

Production And the Market



Soft-Coal Trade Develops Renewed Strength; Prices Firm and Higher

The bituminous coal market has developed a marked degree of strength in the Middle West and producers are moving tonnage in increased volume at good prices. Trade in Kentucky also is stronger, though the demand has not shown any notable improvement. Business in the Northwest is holding its own and demand in the Southwest is still good, though it has eased off somewhat from a week ago, when operators were about ten days behind on orders. The situation in Ohio is decidedly mixed, prices showing a wide spread, though smokeless is quite firm. Operation has increased slightly at Pittsburgh and inquiry is better. New England seems to be whistling to give an appearance of courage it doesn't feel, though higher prices seem to give a tangible basis for the performance. A better tone is evident in the Atlantic seaboard markets, demand showing a gradual but steady increase.

Some contracting has been reported for the year, but a number of large consumers are quietly surveying the situation with the intention of placing contracts when conditions are most favorable. Incidentally consumers with contracts still in force are taking full tonnage in most instances and some are even asking for increased shipments. With customary caution, however, the trade refuses to enthuse. With a certain optimistic skepticism it hopes for the best but probably will be surprised if a sudden soft spot fails to put in an appearance.

Hard-Coal Market Holds to Even Keel

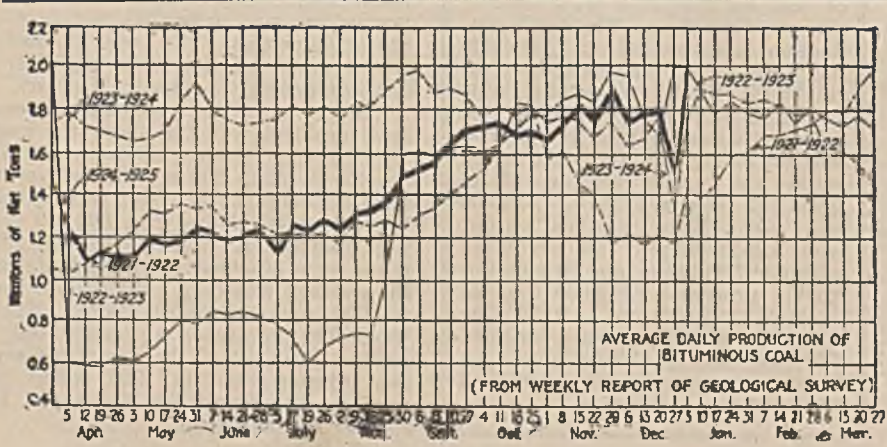
The anthracite market shows no marked change either upward or the reverse, holding to a fairly even keel. Demand for prepared coals is steady and despite the curtailment of output by the holidays and the continuance of outlaw strikes the supply has been sufficient to meet requirements. Chestnut continues to lead in demand and stove is not far behind. Egg and pea are sluggish, company producers continuing to send a small tonnage of the smaller size to storage. The steam sizes are fairly firm, barley showing considerable activity, but producers are well able to take care of all requirements. Snow and the holiday curtailment of operations have helped to maintain independent prices, which were showing a tendency to soften.

Coal Age Index of spot prices of bituminous coal shot up three points last week, standing on Jan. 12 at 175, the corresponding price for which is $2.12. This compares with 172 and $2.08 respectively on Jan. 5.

Activity at Hampton Roads registered a rebound following the holidays, dumpings of coal for all accounts during the week ended Jan. 8 totaling 360,241 net tons, compared with 327,951 tons dumped during the preceding week.

Output Averages 2,000,000 Tons per Day

Production of bituminous coal during the week ended Jan. 3, according to the Geological Survey, totaled 10,591,000 net tons, an increase over the previous week of 2,953,000 net tons, or nearly 39 per cent. As New Year's Day was almost universally observed as a holiday the average output per working day was about 2,000,000 tons. Production in the corresponding week of 1924 was 9,368,000 tons and in 1923 11,371,000 tons. Anthracite output during the week ended Jan. 3 aggregated 1,255,000 net tons, an increase of 226,000 tons over that of the previous week but 181,000 tons less than was produced in the corresponding week a year ago. Failure to settle the outlaw strike in the northern field is holding down production to a considerable extent.



Estimates of Production

(Net Tons)

BITUMINOUS

	1923-24	1924-25
Dec. 20	10,543,000	10,760,000
Dec. 27 (a)	6,944,000	7,638,000
Jan. 3 (b)	9,368,000	10,591,000
Daily average	1,812,000	1,998,000

ANTHRACITE

Dec. 20	1,925,000	1,867,000
Dec. 27	1,196,000	1,029,000
Jan. 3	1,436,000	1,255,000

COKE

Dec. 27 (a)	223,000	189,000
Jan. 3 (b)	236,000	251,000

(a) Revised since last report. (b) Subject to revision.

Midwest Market Still Strong

Everybody who produces or sells coal throughout the Middle West continues busy, moving coal in considerable volume at good prices, though a soft spot is expected. The "era of good feeling" that this situation created has sent several chief sales managers off on vacations while the staffs write orders and mollify buyers whose orders are a week in arrears. Most Illinois and Indiana mines producing the higher grade coals are oversold, even on the nut sizes, which normally drag. Southern Illinois lump, advanced to $3.75, moves readily, as does Indiana Fourth Vein lump at $3.50.

The central Illinois field is busy and will remain so unless more mines open up, for fairly cold weather is persistent, and industrial demand, upon which this field thrives, is strong. Steam coals are reasonably strong all through this territory, southern Illinois sticking to its circular of $1.90 @$2 with no difficulty at all.

Eastern Kentucky coal coming into the Chicago and Northwest sections is earning money for the shippers. Block is $2.75@$3.25 and lump has stiffened up to $2.65@ $2.75. West Virginia smokeless is in the usual good demand with lump at $4 and mine run strong at $2 and threatening to bring $2.25.

In the Carterville field things are pretty well cleaned up in the way of steam coal; even the stuff on the ground is pretty near all gone and that is why operators are holding up prices on screenings. There is no scarcity of any kind of coal, however. Strip mines are in operation again and are shipping more railroad coal and some steam. Railroad tonnage generally is good. Mines are getting from three to five days a week. The Wabash R.R. is overburdened with hopper cars, which has created a shortage of Mt. Olive domestic coal. In the Standard district conditions are weakening. Screenings are down to $1.25@$1.35—a drop of 50 cents in a week. Two-inch lump also has dropped to $2.25, and 6 inch is $2.50@$2.60, showing that there is a surplus.

At St. Louis domestic retail is pretty good on everything excepting smokeless and anthracite. Even coke is moving. Carterville and Mt. Olive are in demand, but Standard is slow. Domestic business from the country is fairly good on high grade but this is coming down to middle grade on account of high grade being too high. West Kentucky lump and egg at $2.65@$2.75 is coming into the Missouri and Illinois territory. The dollar difference between west Kentucky and Illinois is too great, dealers think.

Kentucky Is Stronger

The Kentucky coal market over the week has been somewhat stronger in price, although demand is not showing any appreciable improvement, other than a little better inquiry from the North and Northwest, where severe weather has reduced stocks materially and started a buying movement on prepared sizes, as well as some steam coal. Offerings of

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern	Market Quoted	Jan. 14 1924	Dec. 29 1924	Jan. 5 1925	Jan. 12 1925†
Smokeless lump	Columbus	$3.35	$3.85	$3.85	$3.75@$4.00
Smokeless mine run	Columbus	1.85	1.90	1.90	1.75@ 2.10
Smokeless screenings	Columbus	1.30	1.10	1.10	**1.10@ 1.30**
Smokeless lump	Chicago	3.10	3.75	3.75	**4.00**
Smokeless mine run	Chicago	2.10	1.85	1.85	**2.00**
Smokeless lump	Cincinnati	3.10	3.75	4.10	4.00@ 4.25
Smokeless mine run	Cincinnati	2.25	1.85	2.10	2.00@ 2.25
Smokeless screenings	Cincinnati	1.75	1.25	1.15	*1.00@ 1.25*
*Smokeless mine run	Boston	4.80	4.05	4.10	**4.10@ 4.30**
Clearfield mine run	Boston	1.85	2.00	1.95	**1.75@ 2.30**
Cambria mine run	Boston	2.50	2.35	2.20	**2.10@ 2.50**
Somerset mine run	Boston	2.10	2.15	2.05	**1.85@ 2.40**
Pool 1 (Navy Standard)	New York	3.00	2.80	2.80	*2.50@ 3.00*
Pool 1 (Navy Standard)	Philadelphia	3.00	2.70	2.75	**2.65@ 3.00**
Pool 1 (Navy Standard)	Baltimore		2.30	2.25	2.10@ 2.40
Pool 9 (Super. Low Vol.)	New York	2.25	2.10	2.05	**2.00@ 2.25**
Pool 9 (Super. Low Vol.)	Philadelphia	2.30	2.15	2.15	**2.05@ 2.40**
Pool 9 (Super. Low Vol.)	Baltimore	1.85	1.70	1.75	**1.75@ 2.00**
Pool 10 (H.Gr.Low Vol.)	New York	1.95	1.95	1.85	1.75@ 2.00
Pool 10 (H.Gr.Low Vol.)	Philadelphia	1.85	1.75	1.80	**1.70@ 2.00**
Pool 10 (H.Gr.Low Vol.)	Baltimore	1.80	1.55	1.60	**1.65@ 1.75**
Pool 11 (Low Vol.)	New York	1.65	1.60	1.60	1.50@ 1.75
Pool 11 (Low Vol.)	Philadelphia	1.65	1.45	1.55	**1.60@ 1.70**
Pool 11 (Low Vol.)	Baltimore	1.65	1.45	1.45	**1.45@ 1.60**
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.65	1.50	1.50	1.40@ 1.65
Pool 54-64 (Gas and St.)	Philadelphia	1.70	1.50	1.50	**1.45@ 1.60**
Pool 54-64 (Gas and St.)	Baltimore	1.50	1.45	1.55	**1.60@ 1.75**
Pittsburgh sc'd gas	Pittsburgh	2.40	2.40	2.40	2.30@ 2.50
Pittsburgh gas mine run	Pittsburgh	2.30	2.10	2.10	2.00@ 2.25
Pittsburgh mine run (St.)	Pittsburgh	2.00	1.85	1.85	1.75@ 2.00
Pittsburgh slack (Gas)	Pittsburgh	1.60	1.30	1.30	**1.60**
Kanawha lump	Columbus	2.60	2.30	2.30	**2.25@ 2.75**
Kanawha mine run	Columbus	1.60	1.55	1.55	**1.50@ 1.70**
Kanawha screenings	Columbus	1.10	.95	.95	**.90@ 1.10**
W. Va. lump	Cincinnati	2.60	2.15	2.25	**1.90@ 2.75**
W. Va. gas mine run	Cincinnati	1.65	1.50	1.45	*1.25@ 1.40*
W. Va. steam mine run	Cincinnati	1.65	1.40	1.35	*1.25@ 1.40*
W. Va. screenings	Cincinnati	1.30	1.00	.85	*.60@ 1.00*
Hocking lump	Columbus	2.75	2.50	2.50	2.35@ 2.65
Hocking mine run	Columbus	1.80	1.60	1.60	1.50@ 1.75
Hocking screenings	Columbus	1.30	1.10	1.05	**1.10@ 1.25**
Pitts. No. 8 lump	Cleveland	2.45	2.40	2.40	2.00@ 2.85
Pitts. No. 8 mine run	Cleveland	1.85	1.85	1.85	1.85@ 1.90
Pitts. No. 8 screenings	Cleveland	1.65	1.40	1.50	*1.35@ 1.55*

Midwest	Market Quoted	Jan. 14 1924	Dec. 29 1924	Jan. 5 1925	Jan. 12 1925†
Franklin, Ill. lump	Chicago	$3.50	$3.35	$3.35	**$3.50@$3.75**
Franklin, Ill. mine run	Chicago	2.35	2.35	2.35	2.25@ 2.50
Franklin, Ill. screenings	Chicago	1.95	1.90	1.95	1.90@ 2.00
Central, Ill. lump	Chicago	3.10	3.00	3.10	3.00@ 3.25
Central, Ill. mine run	Chicago	2.10	2.20	2.20	2.15@ 2.25
Central, Ill. screenings	Chicago	1.65	1.90	1.95	1.90@ 2.00
Ind. 4th Vein lump	Chicago	3.10	3.35	3.35	**3.50**
Ind. 4th Vein mine run	Chicago	2.60	2.35	2.35	2.25@ 2.50
Ind. 4th Vein screenings	Chicago	1.85	1.85	1.85	1.80@ 1.90
Ind. 5th Vein lump	Chicago	2.60	3.00	3.00	3.00
Ind. 5th Vein mine run	Chicago	2.10	2.10	2.10	2.00@ 2.25
Ind. 5th Vein screenings	Chicago	1.70	1.70	1.70	1.65@ 1.80
Mt. Olive lump	St. Louis	3.10	3.00	3.00	3.00
Mt. Olive mine run	St. Louis	2.50	2.35	2.35	2.25@ 2.50
Mt. Olive screenings	St. Louis	1.55	1.10	1.80	1.75@ 1.90
Standard lump	St. Louis	2.90	2.75	2.85	*2.50@ 2.60*
Standard mine run	St. Louis	1.95	1.95	1.95	1.90@ 2.00
Standard screenings	St. Louis	1.30	1.05	1.55	*1.25@ 1.35*
West Ky. lump	Louisville	2.85	2.35	2.60	2.50@ 2.75
West Ky. mine run	Louisville	1.65	1.55	1.55	1.35@ 1.75
West Ky. screenings	Louisville	1.40	1.10	1.10	**1.15@ 1.35**
West Ky. lump	Chicago	2.85	2.35	2.60	2.50@ 2.75
West Ky. mine run	Chicago	1.75	1.50	1.50	1.40@ 1.65
South and Southwest					
Big Seam lump	Birmingham	3.85	2.85	2.85	2.50@ 3.25
Big Seam mine run	Birmingham	1.95	1.70	1.70	1.50@ 1.90
Big Seam (washed)	Birmingham	2.35	1.85	1.85	1.75@ 2.00
S. E. Ky. lump	Chicago	3.00	2.50	2.50	2.35@ 2.65
S. E. Ky. mine run	Chicago	1.85	1.45	1.50	1.25@ 1.75
S. E. Ky. lump	Louisville	3.00	2.50	2.50	**2.75@ 3.25**
S. E. Ky. mine run	Louisville	1.65	1.35	1.35	**1.25@ 1.75**
S. E. Ky. screenings	Louisville	1.60	.95	.95	**.90@ 1.15**
S. E. Ky. lump	Cincinnati	2.75	2.25	2.60	*2.25@ 2.75*
S. E. Ky. mine run	Cincinnati	1.60	1.45	1.45	*1.25@ 1.50*
S. E. Ky. screenings	Cincinnati	1.25	1.00	.90	*.65@ 1.10*
Kansas lump	Kansas City	5.00	5.00	5.00	*4.75@ 5.00*
Kansas mine run	Kansas City	3.25	3.10	3.50	*3.25@ 3.50*
Kansas screenings	Kansas City	2.25	2.50	2.50	2.50

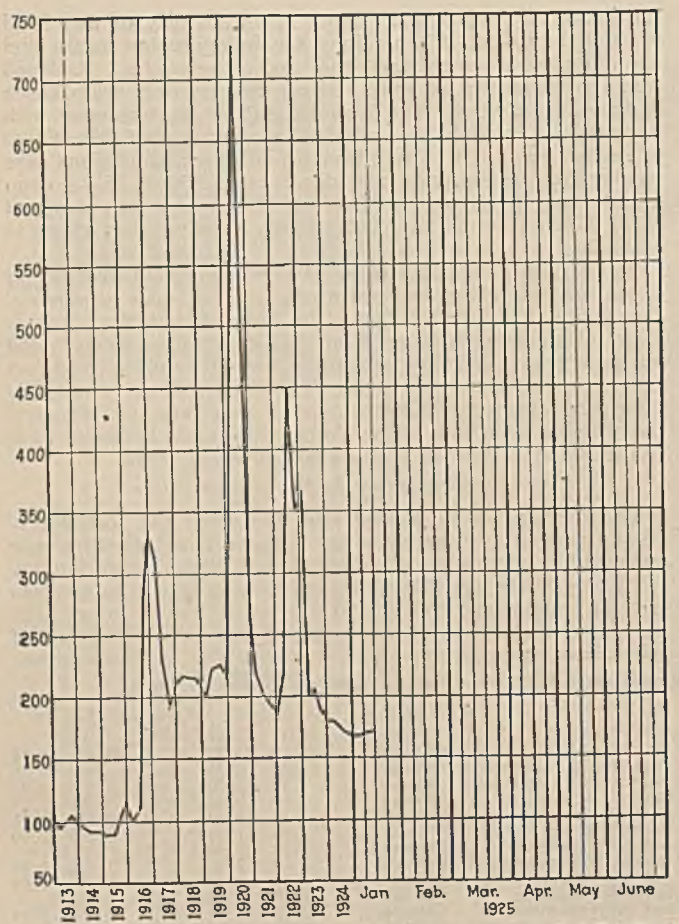
* Gross tons, f.o.b. vessel, Hampton Roads.

† Advances over previous week shown in heavy type, declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	Jan. 14, 1924 Independent	Jan. 14, 1924 Company	Jan. 5, 1925 Independent	Jan. 5, 1925 Company	Jan. 12, 1925† Independent	Jan. 12, 1925† Company
Broken	New York	$2.34	$8.00@$9.25	$8.00@$9.25	.....	$8.00@$9.25	.....	$8.00@$9.25
Broken	Philadelphia	2.39	.....	.....	.....	9.15	.....	9.15
Egg	New York	2.34	8.75@ 9.50	8.75@ 9.25	$8.50@$8.75	8.75@ 9.25	$8.50@$8.75	8.75@ 9.25
Egg	Philadelphia	2.39	9.50@10.00	8.75@ 9.25	9.45@ 9.75	8.80@ 9.25	9.45@ 9.75	8.80@ 9.25
Egg	Chicago*	5.06	9.60@12.50	8.00@ 8.35	8.17@ 8.40	8.08	8.17@ 8.40	8.08
Stove	New York	2.34	9.85@10.50	8.75@ 9.25	9.75@10.25	9.00@ 9.50	9.75@10.25	9.00@ 9.50
Stove	Philadelphia	2.39	9.85@11.00	8.90@ 9.25	10.10@10.75	9.15@ 9.50	10.10@10.75	9.15@ 9.50
Stove	Chicago*	5.06	9.60@12.50	8.00@ 8.35	8.80@ 9.00	8.53@ 8.65	8.80@ 9.00	8.53@ 8.65
Chestnut	New York	2.34	9.85@10.50	8.75@ 9.25	10.00@10.25	8.75@ 9.40	*9.75@10.25*	8.75@ 9.40
Chestnut	Philadelphia	2.39	9.85@11.50	8.90@ 9.25	10.00@10.75	8.25@ 9.40	10.00@10.75	9.25@ 9.40
Chestnut	Chicago*	5.06	9.60@12.50	8.00@ 8.35	8.61@ 9.00	8.40@ 8.41	8.61@ 9.00	8.40@ 8.41
Pea	New York	2.22	5.50@ 6.25	6.15@ 6.65	4.50@ 5.50	5.50@ 6.00	**4.75@ 5.50**	5.50@ 6.00
Pea	Philadelphia	2.14	6.00@ 7.25	6.35@ 6.60	5.75@ 6.00	6.00	5.75@ 6.00	6.00
Pea	Chicago*	4.79	6.00@ 6.75	5.40@ 6.05	5.36@ 5.75	5.36@ 5.95	5.36@ 5.75	5.36@ 5.95
Buckwheat No. 1	New York	2.22	2.50@ 3.25	3.50	2.10@ 2.50	3.00@ 3.15	**2.25@ 2.75**	3.00@ 3.15
Buckwheat No. 1	Philadelphia	2.14	2.00@ 3.50	3.50	2.50@ 3.00	3.00	2.50@ 3.00	3.00
Rice	New York	2.22	1.75@ 2.50	2.50	1.85@ 2.25	2.00@ 2.25	**1.90@ 2.25**	2.00@ 2.25
Rice	Philadelphia	2.14	1.50@ 2.50	2.50	2.00@ 2.25	2.25	2.00@ 2.25	2.25
Barley	New York	2.22	1.25@ 1.50	1.50	1.40@ 1.60	1.50	**1.40@ 1.65**	1.50
Barley	Philadelphia	2.14	1.00@ 1.50	1.50	1.50	1.50	1.50	1.50
Birdseye	New York	2.22	1.50	1.60	1.40@ 1.60	1.60	**1.40@ 1.65**	1.60

* Net tons, f.o.b. mines. † Advances over previous week shown in heavy type, declines in *italics*.



Coal Age Index of Spot Prices of Bituminous Coal F.O.B. Mines

	1925		1924	
	Jan. 12	Jan. 5	Dec. 29	Jan. 14
Index	175	172	171	182
Weighted average price	$2.12	$2.08	$2.07	$2.20

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke: 1913-1918," published by the Geological Survey and the War Industries Board.

coal have been lighter as a result of a number of mines that closed down over the holidays having been slow in getting started again. In western Kentucky, however, a number of mines which had been strike bound have started operations on a non-union scale again.

Screenings are stiffer in western Kentucky than they have been, but are at about the same levels in eastern Kentucky. Mine run shows no change in price in either field. All prepared sizes are firmer, although the small sizes are not advancing as much as block and egg. It is reported that some of the western Kentucky companies are quoting as high as $3 a ton on 6-in. block, but $2.75 appears to be about the top of the local buying market, with $2.50 the top for egg and lump sizes. Some nut coal can be had at under $2 a ton.

Docks Not to Cut Bids on Municipal Trade

The feature of the market at Duluth last week was the putting out by many municipalities throughout the Northwest, Minnesota and North Dakota, of specifications covering their needs for the coming year. These municipalities consume large quantities of coal in their municipal heating plants as well as in other ordinary civic activities. It is understood that the docks will not cut prices in bidding for this business but will split it among them.

Shipments from the docks continue to keep up remarkably well. During December 29,615 cars were shipped, which is the largest monthly shipment since December, 1920. The market is strong throughout with the exception of Pocahontas screenings, which are being offered by dealers at 75c. off to commercial heating plants such as buildings, though the dock price of $4 remains the same. Pocahontas is off the market as far as any practical supply is concerned and the demand for anthracite has increased. There is some call for Kentucky coals as a substitute for anthracite. There is a better demand from industries.

After a stinging December that moved a large tonnage from the Milwaukee docks the coal demand has slackened with the moderation of temperature experienced thus far in January. There now is a normal winter demand, and dealers are looking forward to the usual rushes of orders during cold snaps. They are well supplied and, barring snow blockades or sleet storms, are prepared to make prompt deliveries.

Western Market Eases

Demand for coal in the Southwest continues strong, though it has eased off a little from last week, promising operators an opportunity to catch up with orders. Many still are from a week to ten days behind with deliveries of Kansas coal, with mines working full time. Arkansas at last is getting at the feed trough, as household bins, filled early in the fall, are emptied. The demand for Oklahoma coal is strong, but erratic quotations are preventing any very heavy buying. Operators in the Henryetta field again are scrapping, with the result that the price oscillates between $4.50 and $5 a ton for lump, and occasionally drops under the lower figure.

The demand for Colorado domestic coal has slightly increased compared with a week ago; this is irrespective of a slight moderation in the weather conditions throughout Colorado's natural territory. Some operators are receiving orders for slack coal from new territory. The holiday season did not materially affect the operation of mines, a good many working on the holidays and Sundays and as a result have reached a maximum production. The carriers have been able to furnish adequate car supply and prompt service. Mines are operating approximately 90 per cent of the time.

In Utah the coal market is softening following a period of unusual activity on account of weather conditions. Operators and dealers have about caught up on orders. The working time at the mines is around 65 per cent again, but those mines that are producing a high-grade of domestic coal are still working near capacity.

Conditions Mixed at Cincinnati

Lack of stability marks the high volatile market in Cincinnati and this has been accentuated by the recent balmy weather. The range of prices never had such a spread as is noted here now. Four-inch lump from West Virginia is priced all the way from $1.90 a ton to $2.75. The Kentuckians are struggling valiantly with the problem and most of the quotations range $2.50 to $2.75 with sales all the way down to $2.25 for block. Egg prices show just as great a variance, some sales running as low as $1.40 and some quotations as high as $2.25. After playing the part of the market stabilizer for months run of mine finally went into the ruck. Both West Virginia and Kentucky are quoted at $1.25@$1.40. Slack also slid down the toboggan, some of it going as low as 60c.

Smokeless is quite a different story. Seaboard prices were from 15c. to 25c. stronger than the inland and three of the larger companies reported that they were booked for January and would have practically no free coal from now on. Then too, interior buying, especially from Chicago, has been so much better that brokers were able to make a premium price of 25c. over the circular and get business. So business was also placed direct at $4.25 for lump and egg. Nut holds firm at $2.75 while run of mine business has been sufficiently good to cause a spread of $2@$2.25. Even slack is a little keener under some buying orders from the steel mills and byproduct users and $1.15@$1.25 is again the spread for standard Pocahontas and New River that will not show too much sulphur.

River business has again slumped because of the drift ice from the upper reaches and the dangerous navigation.

Trade at Columbus continues quiet and rather spotty, despite colder weather. Retailers are buying only for immediate use and orders are generally small. Retail stocks are normal for the time of the year and consequently it will require a considerable cold spell to have any marked effect in demand. Prepared sizes from the Pocahontas and other smokeless fields of West Virginia as well as splints are in the best demand. Ohio coals are still weak and there is little appreciable increase in the output. Country

dealers are the best customers at this time. There is still a considerable amount of distress coal on the market and this tends to weaken the price to the dealer.

Steam business is still quiet although there is a fair tonnage moving to utilities and large manufacturers. Railroads are taking a good tonnage. Purchasing agents for the larger user are looking for bargains and are able to pick them up frequently. Screenings, because of reduction in lump output, are still rather strong in every producing field.

Production in the southern Ohio field is estimated at from 15 to 18 per cent of capacity. The larger part of the output comes from co-operative mines. Many of the larger operations have been closed down for months and there are no signs of renewed activity.

The advent of the new year has not yet brought any discernible improvement in the demand for bituminous coal in eastern Ohio markets or from the eastern Ohio coal field. Apparently industry is content with the meager reserve it has on hand, and rising temperature has caused a let-up in retail yard distribution to domestic consumers. Consequently, with steam buyers in the majority of cases continuing to buy coal only for current needs and retailers now pretty well stocked to take care of the domestic trade, orders and inquiries have been unusually quiet.

Furthermore, slack and nut-and-slack, which have for the past six weeks been market leaders, with spot prices thereon advancing 50c. to 60c. per ton, have ceased to hold their position, resulting in a drop in prices to $1.35 on No. 8 slack and $1.50 on nut-and-slack.

During the calendar year 1924 output of the eastern Ohio No. 8 field is placed at a little over 15,000,000 tons or about 40 per cent of potential capacity, the latter being estimated at 36,000,000 tons based upon aggregate railroad car ratings of the mines, as compared with about 19,000,000 tons during the year 1923, or 53 per cent.

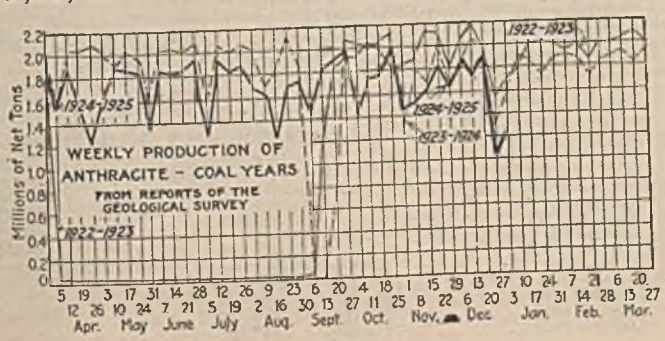
Inquiry Heavier at Pittsburgh

Operations in the Pittsburgh district have increased slightly and a considerably heavier inquiry for coal is reported here as well as in the Bessemer district and central Pennsylvania. This is attributed not to a present or recent increase in consumption but to consumers having completely exhausted supplies and to their taking a more favorable view of the future. Some operators have had heavier sales, but in general there is not much increase thus far in the actual turnover.

It is said that railroads have begun sounding out the market on contracts for the coal year and there is a report that one railroad has closed a contract, but this is not confirmed.

Demand for domestic coal has improved somewhat and is expected to be fairly heavy for several weeks, stocks being pretty well exhausted while the weather has been rather uniformly cold. Demand for lump, including domestic, has been quite poor right along. This has resulted in light production of slack, and with a continued fair demand, prices after stiffening gradually have jumped sharply in the past week, being firm at $1.50 for steam and $1.60 for gas.

Coal loadings in central Pennsylvania in December, 1924, exceeded those of January of the same year by 73 car loads, showing the highest production for the year, with 67,952 car loads. April was the low month. Following are the figures by months: January, 67,879; February, 66,080; March, 62,106; April, 42,129; May, 49,533; June, 49,275; July, 47,929; August, 50,546; September, 56,829; October, 66,782; November, 59,434, and December, 67,952.



This shows a total for the year of 39,739,322 tons. The total production in the United States during the year was 467,700,000 tons. Central Pennsylvania's production was therefore 8.50 per cent of the nation's production. The average percentage for the eight preceding years, including the strike year of 1922, was 9.9 per cent of the country's production. The highest in that period was in 1916, when central Pennsylvania produced 11.16 per cent of the nation's fuel.

There is some improvement in the bituminous trade at Buffalo. Coal from beyond the districts that used to furnish the coal to this market are cutting into the trade, too. It is hard to see how it can be done, but the Fairmont (W. Va.) district is now shipping coal here in such quantity that it is recommended that it be regularly quoted hereafter. The following figures are given out for all $2.39-rate coal: $1.60@$1.75 for lump, $1.40@$1.50 for mine run and $1.25@$1.40 for slack. The price of Pittsburgh and No. 8 coal ($2.24 rate) and of Allegheny Valley ($2.09 rate) is $2.25@$2.50 for gas lump, $2@$2.25 for steam lump, $1.75@$2 for mine run and $1.40@$1.60 for slack, bearing in mind that Allegheny Valley coal practically absorbs the extra rate and is mostly solid mine run, while the other is lump and slack.

New England Whistles for Courage

There are those in the bituminous trade in New England who keep whistling, but it takes more than hope to stabilize a weak market. A week ago there were a few who were almost optimistic, but their cheer was based less on any possible improvement in demand than on a reduced output that would encourage better prices. One would suppose that after all the attempts of the past nine months to advance prices artificially there would be less confidence in mere conferences, but there is still a feeling among shippers that somehow through financial channels or otherwise enough pressure will be brought to bear upon production to stop the wasteful methods of 1924. Meanwhile, there is talk of better conditions among textiles; the offer of 10 per cent less wages to mill operatives and the changing over of several cotton cloth manufactories to specialties that are not in competition with the labor situation of the South have led to the opinion that in the spring steam coal will be in better request.

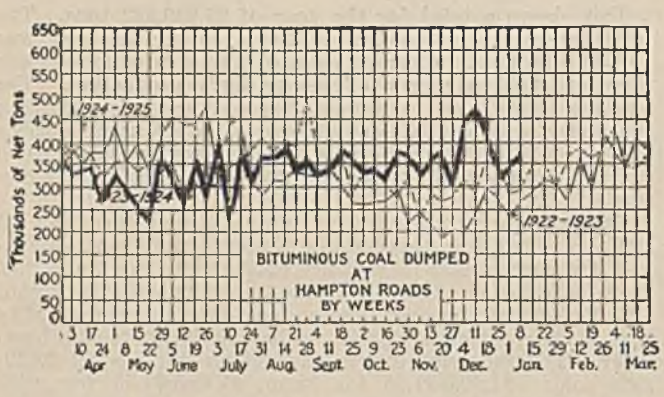
Current quotations at Hampton Roads are practically on the same level as a week ago. There have been vague pronouncements about $4.40 per gross ton as a new basis, but promptly on their heels have come authentic sales for February delivery at $4.25 for navy standard coal. The accumulations at the Virginia terminals continue large, and so long as the agencies must rely upon this territory to move the bulk of coastwise coal there is likely to be no positive price movement for weeks to come.

For all-rail Pennsylvania coal there continues the same lax market that has been typical for nearly a year. The union sections are frankly hard up for business of any character, and those operations that are not unionized seem to be in more or less actitve dispute over the local wage scale. We hear of no better prices than have prevailed since summer; most operators are dragging on the bottom both as to tonnage and price, and it takes ingenuity to find orders for even 50 per cent of normal output in most instances. There is a fair demand for screened coal for household heating, but the largest part of this special trade is away from tidewater and toward the region that is regarded as undisputed rail territory.

There is genuine interest here in the large number of oil installations that are being given up because of recent advances in the cost of fuel oil. Some of the largest distributors in New England have acknowledged they have no hope of supplying oil enough to warrant renewals of many of their present contracts.

Business Gaining Quietly at New York

Big business is quietly surveying the soft coal situation at New York with the intention of closing contracts should prices be favorable. There is considerable talk of contracts extending from now until April, 1926, and it is reported that some have been closed for that period. Spot demand is comparatively slow and prices show slight changes. The trade, however, is believed to be on the rebound. Inquiries are increasing and line buying already shows improvement. Consumers with contracts are taking their full tonnage and in some cases are asking for in-



creased shipments. Cement manufacturers are buying heavily of slack. The tidewater market has improved slightly. Current receipts are moving easily and distress coal has been cleaned up.

There is a better tone in the Philadelphia market. Business conditions continue to improve, and demand from industrial plants is slowly increasing. There also is an increase of orders for domestic business. Producers have taken advantage of the better situation to move up prices from 5c. to 15c. a ton, and buyers have taken this as a matter of course.

In the contracting business some prices that have been out have been recalled and slight increases made. This has not spurred the consumer to any particular action, as spot prices are still quite favorable to him.

Slack grades continue in light volume, with the demand good, which often brings prices quite close to mine-run coal, especially of the ordinary grades of gas coal.

The tide market is quiet, with prices inclined to grow firmer. Clearances have again become a rarity at this port, and the bunker trade is the only activity for the past two weeks.

The heavy snowfall and cold weather had only a temporary effect at Baltimore, where supply at tide or available from fuel en route was more than ample to cover demand. The result has been that while stocks at this point have been depleted to some extent there has been no considerable boosting of prices. While there are spasmodic periods of fair ordering and inquiry, as a whole the market is still sluggish. Coke continues an active feature of the fuel market here. The export movement so far for January has been disappointing. There has been only one loading recorded at the Custom House, and that a small total of 470 tons cargo for Porto Rico.

A return of unseasonable weather at Birmingham has brought about an inactive domestic market, and this grade of coal is moving rather slowly. Orders are being booked for from one to five cars here and there in the spot market and some deliveries are being made on contracts, but there is a disposition to restrict further stocking as much as practicable.

The market for steam coal is comparatively good. Industrial conditions appear to be improving and apparently justify expectations of a reasonably good demand for some time ahead. Cement plants continue to be large users of washed coal, with full-time operations promised for many months ahead. Railroads are taking coal on about the same basis as prior to the holidays. There is a good market for foundry, furnace and domestic coke, which will absorb a heavy tonnage of coal. Several new furnace stacks have been placed in blast since the first of the year, requiring much additional coke, and there is a healthy demand for domestic sizes for shipment out of the territory.

Quotations have shown no change during the past week, and in the absence of justifiable strength in the market will doubtless maintain the present levels for some weeks yet. Prices on steam grades are very low and admit of little or no profit to the producers, which is the most unsatisfactory feature of the steam market. Operations at the mines are now about on the normal basis observed prior to the holidays.

Anthracite Consumers Indifferent

Believing there will be no shortage of anthracite this winter unless transportation is seriously interferred with, New York consumers are thinking of everything except coal. Activity is confined almost entirely to barley and the demand for that size is not causing any anxiety to producers. The call for the prepared coals is steady and although output was cut considerably by the holidays and by outlaw strikes it was sufficient to meet requirements. For this season of the year market conditions are dull. Retail dealers are busy delivering mostly small orders.

There is practically no talk of contracts for the steam sizes although some large consumers are anxious to sign on the dotted line. On the other hand it is said that many of the independent operators are not inclined to tie up their output of these coals, not knowing how the demand for the larger sizes will hold up after April 1, although the miners' agreement expires Aug. 31. Offerings of loaded boats in this harbor are being made on a basis of $2.20 at the mine.

At Philadelphia the demand for anthracite has been somewhat stronger following the snowstorm. This had the effect of enabling independent shippers to maintain prices, which had been giving indications of crumbling.

The size in strongest demand continues to be chestnut, with stove next. Egg and pea are heavy but steam coals are a bit improved, due to the weather.

There has been a decided "brisking up" in the retail anthracite trade at Baltimore, where for the first time this season it may be said that the demand is approximately normal. This is due to some extent, undoubtedly, to the snowstorm which induced users to endeavor to get in stocks against further impediments. The snow was accompanied by sleet and rain and followed by a hard freeze, which made the delivery problem the most difficult in a long time.

Hard-coal trade at Buffalo has been much better of late, so that some of the retailers report that they are not able to keep up with their orders. The chief reason for this, though, is that the snow is getting deep and deliveries are slow. Even with winter apparently here to stay the consumer is buying by the single load or ton much more than formerly. This is largely because there are so many substitutes on the market. Some of them, like smokeless bituminous or fine anthracite, are recommended for their cheapness, but that cannot be said of gas, which is more expensive than any coal, with coke somewhere between. Independent anthracite is selling pretty slowly, with much difficulty in getting rid of the small sizes. The excessive demand for stove and chestnut continues. The demand for coke is increasing, but it does not promise to be large this winter.

Prices Weaken in Connellsville Coke Market

The continued disinclination of blast furnaces to take hold at operators' asking prices has led to a weakening in the market on both spot and contract furnace coke at Connellsville. Operators took the market as it had advanced, prior to the wage advance, and added to such prices the full cost of the wage advance, and furnacemen did not feel like paying what they thus considered two advances.

On light buying, partly by miscellaneous consumers, the spot furnace coke market in the past week has been $4@$4.25, or 25c. decline in the week, and comparing with the $4.75 price leading operators have held ought to be the market.

Asking prices on contracts had been $5 for the remainder of this quarter and $6 for second quarter, but inquirers would not consider these prices and they are scarcely nominal now. Some January business was done at well below $5, believed in some quarters to have been about $4.50. A little second quarter business was done at $5.50, but not of such a nature as to establish this as even close to the actual market. Consumers will probably hold off as to second quarter, awaiting further developments in pig iron.

Spot foundry coke is $5@$5.50, as formerly, and in very poor demand, with chances that prices may weaken.

Car Loadings, Surplusages and Shortages

	Cars Loaded	
	All Cars	Coal Cars
Week ended Dec. 27, 1924	646,880	128,666
Previous week	899,776	190,133
Week ended Dec. 29, 1923	615,419	112,414

	Surplus Cars		Car Shortage	
	All Cars	Coal Cars		
Dec. 31, 1924	266,252	108,189	.....	.....
Dec. 22, 1924	230,798	100,330	.....	.....
Dec. 31, 1923	312,338	149,409	.....	.....

Foreign Market And Export News

Prospects Improve in British Market; Large Contracts Go to Germans

Trade in the British coal market is still retarded somewhat by holiday influence and storms are keeping berths idle. South Wales reports better inquiry for the second half of January. Other districts are doing mainly prompt business on a price bargaining basis. Forward prices are fairly firm.

A few pits reopened in South Wales to cope with the usual end-of-the-year rush, and output has climbed. Prospects for the new year are improving and there is every reason to believe that January will show an improvement over the fall of 1924. During the last few days prices for large coals have become somewhat firmer, though there is little change in small grades. Italian inquiries are still fairly good, b t from Europe, South America and coaling depots the business is disappointing.

The north of England collieries have mostly good prospects for the early year. Prices are steady with little change, though bunker coals are firmer and show a tendency to improve. Few orders of any magnitude have been placed at Newcastle, and it is reported on good authority that Germany has obtained orders for 200,000 tons of steam coals per month over a period of seven years for the Italian State Railways, over and above reparation deliveries; 500,000 tons of nut coals for the Paris Electric Works, in preference to Welsh supplies, and 200,000 tons of washed beans for the Thyssen plant at Rouen at 23s. c.i.f., over and above reparation deliveries.

The official South Wales audit for November shows a trading loss of £38,000 or 2.46d. per ton. Six successive months since the May agreement show an aggregate loss of £776,000, but the rate is diminishing and there is some confidence that improving trade will react favorably on the industry in the near future.

Production by British collieries in the week ended Dec. 27, a cable to *Coal Age* states, was 3,433,000 tons, according to official reports. This compares with an output of 5,561,000 tons in the preceding week.

Post-Holiday Pickup Stirs Trade At Hampton Roads

The market at Hampton Roads is stronger, the post-holiday upturn having set in with good prospects for heavier business. All piers have experienced a pickup, and coastwise movement of coal is better. Some foreign business is reported and bunker trade is holding up well.

Diminution of supplies at the piers indicates that the surplus laid up when the mines quit work for the holidays was being rapidly consumed, in the face of heavier demand. The tone of the market has improved, and a generally better feeling is evident throughout the trade.

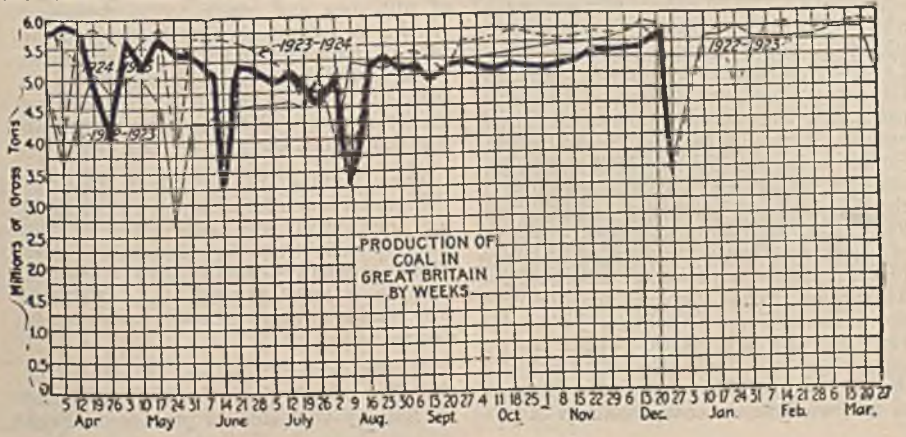
Industrial and House Coals Calm In French Coal Markets

The situation in the French coal market has undergone no change. Collieries are able to deliver industrial coals on receipt of orders, which speaks, of course, for the present calmness of this division of the market. Purchasers seem to be under the impression that by waiting they may get lower prices, but there seems to be little ground for such a belief. Compared with the prices of imported coals, these quotations are undoubtedly advantageous when the pound is quoted at between 87 and 88 f. It must be remembered, however, that Belgian coal owners are ready to make concessions.

Consumption of house coals is not very heavy despite the present spell of cold and foggy weather. A disposition on the part of householders to economize on their coal consumption, owing to the general high cost of living, is evident.

During the first sixteen days of December France and Luxemburg were supplied with 110,500 tons of coal, 219,300 tons of coke and 23,100 tons of lignite briquets. The waters of the Rhine being low, there has been a slackening of traffic of late.

During the first twenty-two days of December the O. R. C. A. received 241,093 tons of coke. The present rate is not yet sufficient to make up for November's deficiency which it was arranged to make up in December and January. Although the French Government is losing 20f. per ton of coke supplied at the price of 143.75f. to members of the O. R. C. A., it has been resolved that this price will remain in force until further notice.



Export Clearances, Week Ended Jan. 10, 1925

FROM HAMPTON ROADS

	Tons
For Brazil:	
Br. Str. Southlea, for Rio de Janeiro	5,321
For Newfoundland:	
Dan. Str. Brattinsborg, for St. Johns	4,463
For Cuba:	
Nor. Str. Sokndal, for Havana	3,009
For Chile:	
Nor. Str. Nitedal, for Antofagasta	593
Br. Str. Tritonia, for Antofagasta	3,185
For Argentina:	
Br. Str. King Idwal, for Rosario	6,391
For Dominican Republic:	
Br. Str. Queen Maud, for Puerto La Plata	6,014
For Mexico:	
Br. Str. Domina, for Vera Cruz	1,515
For West Indies:	
Amer. Str. Levisa, for Kingston	2,193
Dan. Str. Nordhavet, for Curacao	4,540
Br. Str. Baron Wemyss for Barbados	4,501
For ———	
Ital. Str. Lydia for Nevice	2,931

FROM BALTIMORE

For Porto Rico:	
Am. Str. Major Wheeler, for Ponce	470

Hampton Roads Pier Situation

N. & W. Piers, Lamberts Pt.:	Dec. 31	Jan. 8
Cars on hand	1,054	1,149
Tons on hand	70,883	74,803
Tons dumped for week	137,291	120,628
Tonnage waiting	1,000	10,000
Virginian Piers, Sewalls Pt.:		
Cars on hand	1,685	760
Tons on hand	108,200	45,050
Tons dumped for week	58,737	119,802
Tonnage waiting	1,276	10,592
C. & O. Piers, Newport News:		
Cars on hand	1,424	1,227
Tons on hand	69,355	60,485
Tons dumped for week	96,786	81,214
Tonnage waiting	4,355	15,800

Pier and Bunker Prices, Gross Tons

PIERS

	Jan. 3	Jan. 10†
Pool 9, New York	$4.75@$5.00	$4.75@$5.00
Pool 10, New York	4.50@ 4.65	4.55@ 4.70
Pool 11, New York	4.40@ 4.55	4.40@ 4.55
Pool 9, Philadelphia	4.90@ 5.25	4.90@ 5.25
Pool 10, Philadelphia	4.45@ 4.70	4.45@ 4.70
Pool 11, Philadelphia	4.30@ 4.50	4.30@ 4.50
Pool 1, Hamp. Roads	4.10	4.20
Pool 2, Hamp. Roads	3.90	4.10
Pools 5-6-7 Hamp. Rds.	4.00	4.25

BUNKERS

Pool 9, New York	$5.00@$5.25	$5.00@$5.25
Pool 10, New York	4.75@ 4.90	4.80@ 4.95
Pool 11, New York	4.65@ 4.80	4.65@ 4.80
Pool 9, Philadelphia	4.90@ 5.25	4.90@ 5.25
Pool 10, Philadelphia	4.75@ 4.95	4.75@ 4.95
Pool 11, Philadelphia	4.50@ 4.70	4.50@ 4.70
Pool 1, Hamp. Roads	4.15	4.30
Pool 2, Hamp. Roads	4.00	4.20
Pools 5-6-7 Hamp. Rds.	4.10	4.25

Current Quotations British Coal f.o.b. Port, Gross Tons

Quotations by Cable to *Coal Age*

Cardiff	Jan. 3	Jan. 10†
Admiralty, large	27s.6d.@27s.9d.	*27s.@27s.3d.*
Steam smalls	16s.9d.@17s.	*16s.6d.*
Newcastle:		
Best steams	18s.3d.@22s.6d.	18s.6d.@22s.6d.
Best gas	21s.	21s.6d.
Best Bunkers	19s.@20s.	19s@.20s.

† Advances over previous week shown in heavy type; declines in *italics*.

News Items From Field and Trade

ALABAMA

The Sloss-Sheffield Steel & Iron Co. has awarded a contract to the Semet-Solvay Co.'s Ensley plant to coke 500 tons of washed coal per day for use in its furnace operations. The company placed two additional stacks in operation Jan. 1 and is understood to be arranging for the blowing in of another of its North Alabama iron makers. The company's large byproduct plant at North Birmingham is unable to furnish the quantity of coke required for the additional furnaces.

Coke production for Alabama for 1924 is estimated at 5,000,000 net tons, or about a quarter million tons over the previous year. The coal output is expected to run between 19,000,000 and 19,500,000 tons, based on information in hand at this time, or a decrease of about a quarter million tons as compared with 1923.

COLORADO

Routt County worked 11 mines during November, 1924, and produced 117,144 tons of coal, which was the biggest November in the history of the county, although six other months have exceeded this total in other years. The best monthly output for Routt County was 141,000 tons.

A committee of the coal operators met with James Dalrymple, chief coal mine inspector, on Jan. 5, to give further consideration to the amendments as proposed to the coal mining laws in this state which are to be prepared in the shape of a bill for the Legislature, which convened on Jan. 13. They were unable to reach a compromise on the ten amendments which affect the sections of the present coal mine laws as follows: 21, 44, 118, 119, 120, 133, 145, 149, 156 and 157. As to a compromise on the balance of his proposed amendments, it is barely possible that the operators and the inspector will reach an agreement in order that they can go before the Legislature as a unit. Mr. Dalrymple is attempting to follow the safety program that has been written into the statute law of Utah.

IDAHO

H. F. Samuels, who created quite a furor last summer by compelling the Oregon Short Line to rebuild and operate its line to the Teton Basin mine near Driggs, which he controlled, is now in trouble. A disgruntled partner, Robert H. Harlin, has asked the court to appoint a receiver for the enterprise, claiming that the Teton Coal Co. is bankrupt and that Samuels and Karl A. Reichert, the other partner, are trying to defraud him. Harlin charges Samuels with various promotion schemes in connection with the Teton basin coal-mining venture.

ILLINOIS

The program is now complete for the Jan. 15-16 safety meeting to be held in Springfield with sessions at the Leland Hotel. Certain changes have been made in the original schedule. Governor Small will not appear, but Martin Bolt, state director of the Department of Mines and Minerals, will speak in his stead. Prof. A. C. Callen, of the University of Illinois, will speak on "Maintaining Interest in Safety," instead of Joseph Noonan; H. T. Bannister, of the Madison Coal Corp., will talk on "Locomotives"; George C. McFadden, of the Peabody Coal Co., on "Derailments," and J. A. Hebenstreit, of the New Staunton Coal Co., on "Mine Cars." On the second day Herman C. Perry will preside. The only change in that day's program is to add Homer D. Herron, of the International Harvester Co., as the speaker on safety educational methods.

The Franklin County Mining Co. has opened its mine at Sandoval, giving employment to 350 men.

The Chicago & Illinois Midland R.R. handled 305 cars of coal in one day recently, which is a record for this little road of the Springfield District. Mine No. 7 turned out 97 cars; Mine No. 8, 105 cars; and Mine No. 9, 103 cars. Their respective tonnages were 4,691, 4,914 and 4,764. Mine No. 7 was temporarily closed for repairs but is again operating.

KANSAS

The Industrial Court law, the enactment of which by the Kansas Legislature four years ago created quite a stir among the Kansas miners, probably will be the subject of many proposed changes at the session of the Legislature which convened Jan. 12. Governor-elect Ben S. Paulen has indicated that the administration will advocate the consolidation of the Industrial Court with the Public Utilities Commission and State Tax Commission in the interest of economy. The state Federation of Labor will seek abolition of the court through repeal of the law. Phil H. Callery, personal attorney for Alexander Howat, deposed president of the Kansas Mine Workers, jailed for violating the law, is in Topeka as attorney for the federation to work for the repeal of this law and for changes in the workman's compensation law.

A meeting of two delegates from each local of District 14, United Mine Workers, held in Arma, Jan. 4, adopted resolutions appealing to the International executive board to order the district board to call a district election and convention. The resolutions assert that the district board illegally excluded the names of Alexander Howat and 50 other regularly nominated candidates from the ballot for the election of Dec. 9. The resolutions assert that the board has ignored resolutions of 50 or 60 locals, comprising 80 per cent of the membership of the district, demanding such a convention. Contests have been filed by three unsuccessful candidates in the recent biennial district election.

KENTUCKY

Fire from a defective flue on Dec. 26, at Mayking, destroyed the club house of the Mayking Coal Co., causing a $5,000 loss, with no insurance.

The Means Haskin Cola Corporation interests of Virginia, owning operations at Apex, Vicco and other points in the Hazard field, is reported to have leased several hundred acres of coal land from the Montgomery Creek Coal Co., a holding corporation, and early developments are planned.

NEW YORK

Robert R. Schote, who had been with the Coaldale Mining Co., of New York, for over 23 years of continuous service, announces that he has resigned from that concern as secretary, treasurer and director.

OHIO

Coal men are watching the bidding on the requirements of the Ohio State University late in January to get a line on contract prices on screenings during the spring months. The university officials will receive bids on 3,000 tons of nut, pea and slack to be delivered on the switch at the institution at the rate of two cars daily. The specifications provide that it must be Ohio coal, as none of the state institutions in the Buckeye State are permitted to use coal from outside of the state.

The Middle States Coal Co., of Columbus, has offered a reward of $500 for the arrest and conviction of the culprits who recently dynamited two of the company's mines near Glouster, causing a loss of more than $75,000. One mine was almost completely destroyed.

At the annual election of officers of the Cincinnati Coal Exchange, Burke H. Keeney was elected president; Fred

Legg, vice president; John Glaser, secretary and William Heitzman, treasurer. The annual meeting and banquet will be held about the middle of January.

The modern tipple, including shaker screens and loading boom, of the Duncan Coal Co., of Nelsonville, were totally destroyed by fire recently. The mine has been operating on the co-operative basis. No cause for the fire has been ascertained.

PENNSYLVANIA

The new breaker of the Lehigh Valley Coal Co. at Centralia, will begin operations in the near future. There have been 160 men employed in the installation of the breaker machinery. The plant will have an output far greater than the old breaker and is expected to provide many more men with work. The Hazleton and Mahanoy division of the Lehigh Valley R.R. is already preparing to handle the increased tonnage.

A fire at Saxton, Bedford County, destroyed a large barn and seven mules on Jan. 4. Three months previously another barn was destroyed and 19 mules perished. They were the property of the Kenrock mines at Coalmont and the mines were forced to close down due to the lack of motive power in the workings.

By a recent ruling of the Hazleton Council, the Lehigh Valley Coal Co. was ordered to pay taxes on its land holdings in the city on a lot basis instead of an acre basis, as heretofore. The ruling followed the alleged sale of some of the company's property in the form of lots. The demand will be appealed in court.

Reports from Snyder County are to the effect that a new vein of coal has been unearthed and is being probed for thickness. The vein is located near Penn's Creek, at Centerville. Charles Overly is developing the site for a colliery operation.

The Lehigh Valley Coal Co. operations on the Hazleton and Mahanoy division of the Lehigh Valley R.R. at Centralia, which have been idle since last August, are expected to resume mining within a few days. The colliery at Centralia was forced to suspend production because of dilapidated breaker machinery. The breaker has been rebuilt.

UTAH

An effort is being made by the present members of the Utah Industrial Commission to take that body out of politics. A bill is expected to be introduced in the Legislature for this purpose when the lawmakers meet this month.

The new balanced screen tipple built for the United States Fuel Co. at Hiawatha at a cost of nearly a quarter of a million dollars is now in operation. It is of concrete and steel.

The United States Fuel Co. has decided to give a weekly radio message dealing with the coal industry. H. H. Calvin, former general sales manager and now special representative of the company, reads the message which is prepared by Otto Herres, assistant to the vice-president and the general manager.

In his inaugural address Utah's new Governor, George H. Dern, a mining engineer, said in reference to the mining industry of the state, "as a coal producing state Utah's growth has been remarkable. The production of coal is now ten times what it was thirty years ago, having jumped from 472,000 tons in 1895 to 4,750,000 tons in 1923."

Moroni Heiner, vice-president of the United States Fuel Co., has gone to southern California for a vacation. Mr. Heiner recently resigned as general manager of the company, a position which he held along with his vice-presidency.

VIRGINIA

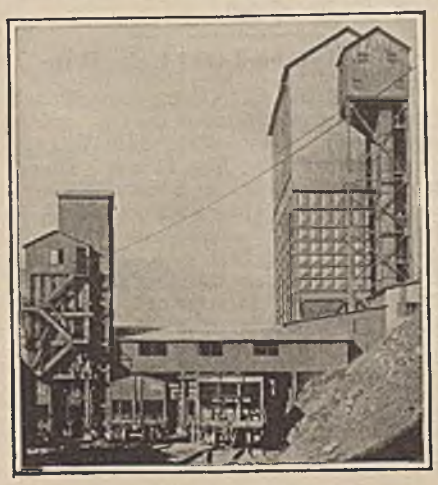
Harry I. Teagle, manager for the Dexter-Carpenter Co. at Norfolk for several years and one of the best known men in the coal trade, has formed a partnership with J. Kent Martin in an advertising agency.

WEST VIRGINIA

Tipple No. 1 of the Winding Gulf Collieries Co. at Winding Gulf, one of the largest tipples in the Winding Gulf district, was seriously damaged by fire of unknown origin recently. It is estimated that two weeks will be required to complete the repairs and have the tipple in operation.

During the holiday suspension at the mines of the Yukon Pocahontas Coal Co. at Yukon, extensive repairs were made so that plans could be made for an uninterrupted run during the current year. Mines of the company had been running steadily for several months previous to the holidays and under the supervision of T. J. Dawson production had been practically doubled.

Fire totally destroyed the wash house of the Whitaker-Glessner mine at Manchester a few days ago. The fire in the building, an old wooden structure which has stood for 75 years or more, was beyond control when the firemen arrived. The loss will not amount to more than $500. About 80 safety lamps were stored in the wash house but nearly all of them were salvaged.



Pulaski Iron Co.'s Coal Mine at Eckman, W. Va.

This mine is 14 miles from Welch. The plant has two drift mines in the Pocahontas No. 3 seam. It prepares run-of-mine, slack, nut, egg and lump. Coal is 6 ft. thick.

An extensive production program for 1925 has been launched by the Raleigh Coal & Coke Co. through the Black Knights Club, an organization of employees of the company. At the annual meeting of the board of governors it was announced that the company would make an effort to produce and sell 1,000,000 tons of coal in 1925. At the same time it was announced that the No. 8 mine would be opened at once and would produce 1,600 tons of coal a day. It is proposed by the company to turn over the control of its affairs to the Black Knights Club. With a change in the number of the board of governors from eight to nine, S. B. Willett of Boston, Mass., director of the Chesapeake & Ohio coal agency, was added to the board. The next meeting of the Black Knights governors will be held in Raleigh county during the summer months.

Production by the Gary mines of the United States Coal & Coke Co., a subsidiary of the United States Steel Corporation increased late in December when operations were resumed at the company's No. 5 mine, at Thorpe. All the plants of the company in the Gary section, with the single exception of the No. 12 mine, are now in operation. With the resumption of work at the No. 5 mine, two hundred men are added to the payroll and weekly production is increased to 90,000 tons a week, the highest point reached since the depression in the coal business began.

Announcement has been made by the Patton Coal Co., of which Floyd J. Patton, of Fairmont, is president, that its Horner mine, located on the Baltimore & Ohio near Weston, would shortly resume operations. The company works in the Redstone seam. At the outset it is proposed to mine about 200 tons a day. This mine has been shut down for some time.

WISCONSIN

The Reeves dock at Superior was offered at public auction Jan. 5 under foreclosure procedings to satisfy bondholders, but there were no bidders for the property and the sale has been postponed until April 6. There is some talk of Mr. Reeves, former head of the concern, endeavoring to get together capital sufficient to start up again. This was tried once before but did not materialize.

WYOMING

The C. & N. W. R.R. on Jan. 1 ceased to use oil as fuel for the locomotives and returned to the use of coal, which has caused an increase in the mining activities in the vicinity of Hudson, where the mines are reported to have resumed six day per week operations. It is reported that cost of running an engine from Chadron, Neb., to Casper,

Wyo., is $45 less per run with coal than with oil.

Over $400,000 more was spent for automobiles than for buildings by miners in the Rock Springs district in 1924, according to figures published in local newspapers, which place the total amount of building in the district at slightly over $500,000 and the amount spent for new and old motor cars at $1,000,000.

The Union Pacific Coal Co. has created a new department for the standardization of all mining practices and equipment and for the standardization of all electrical equipment on top and underground. Frank V. Hicks, a graduate of the Michigan School of Mines, has been appointed head of the department and will be known as the "engineer of standards." He was mining engineer of the Washington Union Coal Co. at Tono, Wash., for five years and has practiced his profession also in Arizona and Michigan, coming to this position from the Michigan peninsula.

WASHINGTON, D. C.

The U. S. Civil Service Commission announces an open competitive examination for fuel engineer, associate fuel engineer and assistant fuel engineer, applications for which will close Feb. 3. The examinations are to fill vacancies in the Bureau of Mines, Department of the Interior at entrance salaries of $3,800, $3,000 and $2,400 a year, respectively. Advancement in pay may be made without change in assignment up to $5,000 a year for fuel engineer, up to $3,600 a year for associate fuel engineer, and up to $3,000 a year for assistant fuel engineer. Full information and application blanks may be obtained from the U. S. Civil Service Commission, Washington, D. C., or the secretary of the Board of U. S. Civil Service Examiners at the post office or custom house in any city.

CANADA

The recent cold spell which struck western Canada just before Christmas resulted in a deluge of orders for all the domestic mines. The steam coal mines are again working on railway contracts, so that the labor situation among the Alberta miners is considerably better than last month. Production is now steady in all parts of the province, according to reports.

In order that Peace River and the surrounding country might benefit from the production of the Gething's coal mine at Hudson's Hope, the Hudson's Bay Co. is prepared to blast a navigable passage in the Peace River 10 miles long from the mine to Peace River landing, it was announced in Edmonton recently by William Booth, a Fort St. John prospector. This mine bears a 6 ft. seam of proven high grade coal, but owing to its location and difficulties of transport, has not been developed to any extent.

The steam coal mines at Mountain Park, Cadomin and Luscar resumed work last week after nearly nine months of idleness. Two hundred men were taken on at Mountain Park and two hundred at Luscar, while work is promised for a great many more within a month or so. A new prospect at Mountain Park is being worked and is showing a high grade of coal. The new plant at Luscar, which included a new tipple, loader, extension of railway and siding, is practically completed and should be in use before the end of January, it is announced.

Traffic

Railroads Fail to Agree on New Tariff on Lignite

The lignite output of North Dakota during 1924 approximated 1,500,000 tons, or 100,000 tons above 1923, which stimulates the carrying railroads to further endeavors to raise the rates on this fuel. The lines would like to adopt Holmes & Hallowell rates such as are in effect from certain docks to the same territory now reached by the lignite. An examiner for the Interstate Commerce Commission in a report last summer proposed a rate 95 per cent of the Holmes & Hallowell scale and the commission recommended that carriers and coal producers confer and try to agree on a new tariff. This has not been done, but new representations are being made to the North Dakota Railroad Commission by the railroads—Northern Pacific, Great Northern and the Soo Line.

New Joint Rate on Coke Approved in New York

The New York Public Service Commission has approved a new joint rate of the New York Central (East) railroad on coke, coke breeze and coke dust, carloads, minimum weight in open cars 50,000 lb. (except that when car is loaded to full visible or cubical capacity actual weight will apply, but not less than 35,000 lb.) and when in box or stock cars 40,000 lb., from Buffalo, East Buffalo and Harriet to Port Henry (on Delaware & Hudson) of $3.91 per net ton. No joint rates heretofore have been in effect. Effective Dec. 31, 1924.—Sup. No. 3 to P. S. C. N. Y. C. No. C-149.

Would Cancel Old Coke Rate

The Coal and Coke Committee, Trunk Line Territory, announces a public hearing in Room 401, 143 Liberty Street, New York City, 11 a.m., Thursday, Jan. 29, 1925, on a carrier's proposal to cancel joint rates on coke (the direct product of coal) from ovens on the Buffalo, Rochester & Pittsburgh Ry. to stations on the Lehigh & New England R.R., Swartswood Junction, N. J., to Pine Island, N. Y., inclusive, on account of their being obsolete.

The Erie R.R. announces the appointment of C. F. Keller as coal freight agent at New York.

New Companies

The Coal State Coal Co. has been organized at Charleston, W. Va., with a capital stock of $25,000. Charleston is to be the general office of the company, which was organized by F. S. McComas, S. E. Palmer, J. G. Petit, Beverly Broun and others.

The Dick Elkhorn Coal Co. has been launched by Captain R. R. Smith and associates, of Huntington, W. Va. Mr. Smith is extensively interested in mining properties in the Logan field. The new company will probably operate in eastern Kentucky, though headquarters are at Huntington, W. Va. This company is capitalized at $250,000. Associated with Mr. Smith are W. P. Neekamp, D. C. Schonthal, H. A. Zeller and F. Adams, all of Huntington.

The American Coal & Coke Corporation, New York City, has been chartered at Albany with $10,000 capital to mine coal, etc. A. L. Cobb, 2719 Sedgwick Ave., New York. J. C. DeFigerola, 646 68th St., Brooklyn, and R. H. Liddell, Atlantic, Mass., are the directors and subscribers.

The Brush Run Coal Co., capitalized at $50,000, has just been granted a charter to operate in northern West Virginia. Grafton is given as the headquarters of the company. Largely interested in the new company are F. P. Rease, of Belington; Earl B. Jennings, John L. Hechmer, William Morgan, Jr., and O. E. Wyckoff, of Grafton.

The Shaefer-Jellico Coal Co. has been incorporated in Tinsley, Ky., by G. S. McGaffee, Charles H. Hoskins and M. Goodin.

The Storm King Fuel Co. has been incorporated in Hazard, Ky., with a capital stock of $25,000, by Wm. F. Mandt, Louis E. Harlve and W. W. Reeves.

The Richardson Coal Co., Cincinnati, Ohio, has been chartered with a capital of $10,000 to mine and wholesale coal and kindred products. Incorporators are W. J. Richardson, J. W. Matthews, Anthony P. Conlon, Urban J. Bruns and F. C. Busching.

Obituary

John E. Anderson, former superintendent of the Cranberry mine, at Hazleton, Pa., and later employed as an engineer for the Lehigh Valley Coal Co., died recently of injuries received when caught under a fall in a working at Miners Mills, Pa. He was a graduate of the engineering department at Lafayette College. Burial was at Bloomsbury, N. J.

Henry Walker, prominent coal operator and banker of Dillonvale, Ohio, died at the home of his daughter, Mrs. Allison J. Dick, at Wheeling, W. Va., during a holiday visit. Mr. Walker was born in England, Sept. 9, 1867, and was brought to this country at the age of 2. He is survived by his widow and one daughter, in addition to his father and two sisters.

Coming Meetings

American Engineering Council. Annual meeting Jan. 16-17, 1925, Washington, D. C. American Engineering Council, 29 West 39th St., New York City.

Northeast Kentucky Coal Association. Annual meeting Jan. 22, 1925, Ventura Hotel, Ashland, Ky. Secretary, C. J. Neekamp, 816 Ashland National Bank Bldg., Ashland, Ky.

American Management Association. Annual convention, Jan. 28-30, Hotel Astor, New York City. Managing director, W. J. Donald, 20 Vesey St., New York City.

American Wood Preservers' Association. Twenty-first annual convention, Feb. 3-5, Congress Hotel, Chicago, Ill. P. R. Hicks, secretary, Service Bureau, 1146 Otis Building, Chicago, Ill.

American Institute of Electrical Engineers. Midwinter convention, Feb. 9-13, 1925, 29 West 39th St., New York City. Secretary, F. L. Hutchinson, 29 West 39th St., New York City.

Northern West Virginia Coal Operators' Association. Annual meeting, Feb. 10, Fairmont, W. Va. Executive vice-president, George S. Brackett, Fairmont, W. Va.

Rocky Mountain Coal Mining Institute, Albany Hotel, Denver, Colo., Feb. 16, 17 and 18. Principal program subjects are rock dusting, underground loading and safety measures. Benedict Shubart, secretary-treasurer, 520 Boston Bldg., Denver, Colo.

American Institute of Mining and Metallurgical Engineers. Annual meeting, Feb. 16-19, 1925, 29 West 39th St., New York City. Secretary, F. F. Sharpless, 29 West 39th St., New York City.

New England Coal Dealers' Association. Annual meeting, March 25-26, Springfield Auditorium, Springfield, Mass. Secretary C. R. Elder, 141 Milk St., Boston, Mass.