COAL AGE

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R. DAWSON HALL
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The B. & O. Plan

WILL TRADE UNIONS CO-OPERATE? Can employers ever hope to have trade union representatives appreciate the difficulties of management? Is the good will of rank and file worth striving for through their recognition as co-operators?

These questions, arising out of Mr. Lewis' proposals at the Miami conference, direct attention again to the B. & O. plan, much discussed recently by coal men. What is the essence of the B. & O. plan? Mr. Willard, president of the Baltimore & Ohio R.R., says it is "a difference in point of view above the ears." The arrangement, which has led over a period of five years to greatly increased efficiency, grew out of a proposal made by the unionized shopmen affiliated with the American Federation of Labor that they be permitted to assist in improving shop conditions and operating efficiency. These shopmen employed a competent consulting engineer. They themselves took an active interest in management problems. A new spirit pervaded the shop atmosphere.

The plan itself was started in the Glenwood shops, where the men and the railroad management were habitually at loggerheads. Mr. Willard says, "I knew if the plan succeeded at Glenwood it would succeed anywhere on the B. & O." Otto Beyer, Jr., consulting management engineer, employed by the shopmen, says, "We knew the situation at Glenwood well enough to appreciate the railroads were putting the plan to its severest test immediately."

What has been the result? In five years the plan has spread to all shops of the B. & O. with full consent of railroad officials. It has been put into operation on the Canadian Northern Ry., where Sir Henry Thornton, president of the road, and John Roberts, superintendent of motive power, are enthusiastic for it. It is being tried on six standard railroads in the United States.

Both management and men on the B. & O. point with pride to economies that have been effected. Out of several thousand suggestions offered by shopmen through their representatives for improvement in equipment or methods 85 per cent have been accepted by railroad officials and put into practice. Grievances, formerly the bane of officials' lives, have been greatly lessened. The improvement in morale and in quality and cost of work has prompted these officials to make a special effort to furnish full employment to the men. Better employment in turn makes for larger earnings and for stronger morale. Union meetings, formerly devoted to grievances, became forums for discussion of management problems.

Statements made by railroad officials and by representatives of the organized shopmen indicate enthusiasm for a plan that started without contractual demands for specific results but grew into genuine whole-hearted co-operation. The responsibilities thrown on the men to understand management problems have inspired them to assist management in a practical way.

Is there not in this plan sufficient merit to justify further inquiry as to its possibilities for the union operators and the United Mine Workers before they agree to disagree April 1? Does not Mr. Lewis' Miami proposal in the rough offer a starting point for the development of a system of partnership between management and labor equally efficacious?

Without Tools

"YOU MIGHT just as well tell an engineer to go in a mine and make a survey without instruments as to tell a chief electrician to report on necessary changes or additions to a feeder system without using meters." This is quoted from a recent letter by a chief electrician who is not a technical graduate but who gained his electrical knowledge by long experience.

The statement would not have the same significance if it had been made by a man who began his electrical training by attending college. The practical man quoted has come to realize the necessity for portable test meters in mine work in spite of the fact that at one time he held in disdain the man who "ran around with a meter."

Coal companies should provide their electricians with these instruments. A company may employ a highly competent chief electrician but cannot realize the full benefit of his ability unless he has the proper tools for his work. Perhaps an indicating ammeter and voltmeter are the only instruments justified at a small mine, but at large operations or in cases where one man has charge of the electrical equipment at several mines, curve-drawing meters should be available.

Such instruments have been improved to the point where they are truly portable and no longer sensitive to the slight jars and irregularities which, even with careful handling, are encountered in portable work. By inspection of the charts made on curve-drawing meters the superintendent or manager can satisfy himself of the economic necessity of certain changes that the chief electrician may recommend.

A Long-Range Economy

DURING THE PAST two or three years, managers and other officials of coal-producing companies have attained that long-range attitude of mind that makes them willing to try out in practice various schemes that give good promise of future profit. They see that if they are to stay in the business they must have a plant that will give them a safe and real margin in all seasons and in the most depressing phases of the business cycle. Low costs cannot be assured if material originally installed in fortunate seasons has to be replaced in times of low price and small output. Moreover, to depend on getting back in good times what has been lost by over-rapid decay and waste in long-continued periods of unprofitable operation is not a course that will com-

mend itself to the modern business man or the banker.

Mine timber which represents an item of appreciable cost for each ton of coal produced offers one of these opportunities for long-range economy. Mining men have come to realize that treating with preservative such timber as is to be used for permanent work is one means of keeping the ledger in black.

Such treatment brings indirect savings that are at least commensurate with those of a more direct nature. First and foremost of these indirect benefits is the saving in the labor cost of timber replacement. Perhaps the second most important is the handling charge—the freight alone in some cases is figured as one-fourth the total cost on delivery. But even neglecting these easily traceable savings there are other advantages that are more remote and consequently less readily discernible.

Thus timber preservation as a general practice will decrease timber consumption. This will render wood of better quality available to the mines, while at the same time the nation's rapidly diminishing resources will be conserved. Again, durable roof supports and sound ties appreciably lessen the danger of that class of accidents on haulageways that arise from spread rails or falls.

Indirect savings are not always easy to comprehend or evaluate. Fortunately, wood preservation yields direct savings that are amply large to warrant its adoption, leaving all indirect benefits as "clear cream."

Publicity Makes for Human Welfare

STRANGE indeed it is that in the nineteenth century more progress in human material welfare was made than in any other similar period in the world's history. Great men were perhaps no more numerous in that century than in those that preceded it. The causes were many, but five probably contributed more than any others: Education, travel, the technical press, conventions and advertising. All these were in existence in the preceding centures but in a far less extensive form than today.

The education of those earlier centuries was, however, not technical; no degrees in engineering were granted; medicine, the humanities and divinity were exclusively studied. Travel was restricted by governmentally erected barriers, and at best it diffused little technical knowledge, for the methods of industry were kept secret. It was unsafe even to attempt to ascertain them. The master feared to disclose them, even to apprentices. Many were never made available to anyone but the originator, and at best were confided only to the favorite apprentice under promise of secrecy.

The technical press in those days meant only the book publisher, and few indeed were his publications. The fame of the few books that were published far exceeded their merits. They are treasured for their scarcity and their quaintness rather than for their value.

Conventions were few and ill-attended. The Royal Society, with its narrowly restricted membership, fairly represents the character of all of them. The idea of thousands meeting to discuss scientific and technical subjects, such as one notes at sessions of the American Institute of Mining and Metallurgical Engineers and the American Mining Congress, entered the mind of no one. Advertising was almost unknown. The cry of the hawker and a swinging sign over a doorway were the most usual forms of advertising.

Thus knowledge and experience were not communicated. Discoveries were made and forgotten, and made again, only to share a similar fate. Knowledge was gained only to be lost. Experience enlightened only the man who acquired it.

How different was the nineteenth century, a period of diffusion of knowledge! All the elements that made it great, that promoted the welfare of the public, are present to assure even greater progress in the twentieth century.

The spirit of the earlier past, however, is not wholly dead. Some still wonder whether education beyond the primary stages is of assistance to anyone or the public. Some question, also, whether travel is worth the time "wasted" on it. Some industrialists who believe in learning about others' progress still guard their own trade secrets from the public eye. Others cannot find time to read technical publications and books. As for conventions and expositions, some would rate them as evils, keeping the industrialist away from his desk and his working place. And advertising is quite frequently regarded as a misuse of good paper and ink.

Yet these agencies made the nineteenth century and promise as much for the twentieth. If we have progressed in the past quarter-century it has been because of these means, and what progress we shall make in the future will depend on the intensity and excellence of the service they render mankind and in the readiness with which the public uses and recognizes their value and importance.

Example Thunders

NOT LONG AGO a *Coal Age* editor witnessed a mine-equipment accident in which a workman escaped what would probably have been severe injury by a veritable hair's breadth. A mine boss also witnessed the same occurrence. But instead of taking immediate steps to prevent a recurrence of the mishap he merely helped to replace the loosened part of the equipment in its former insecure position. He made no arrangements that day, and perhaps not for several days, or possibly even weeks, to permanently correct an extremely unsafe condition.

It would have been an easy matter for this boss, after the accident, to have observed to his men quietly: "Boys, that was a close call. We're going to fix that thing right now. Tell Bill to bring his tools and come up here right away. It won't take more'n about fifteen minutes." But instead this boss set an extremely bad example. In the presence of several of his men and in face of the fact that his company was spending large sums of money on safety education he violated the very first principle of safety.

This instance demonstrates a weakness or frailty that is all too common. The real problem is to apply safety every day—to live it, as it were. Before mine safety can become an accomplished fact all officials in active charge of men must be convinced of the importance of their role in exemplifying safe practices. After foremen and bosses have been properly instructed in their respective duties and responsibilities the management will do well to scrutinize their work closely to see that instructions are being carried out with that conscientious care which alone will convince the worker that his employer is in dead earnest in the effort to reduce accidents.

Does the Season of the Year Have Any Effect On the Accident Rate in Coal Mines?

No Relation Established Between Accidents and Morale—Number of Explosions Better Guide to Inherent Danger from This Cause than Number of Fatalities—Need to Examine Results Over Long Periods

By Thomas T. Read

Assistant Secretary, American Institute of Mining and Metallurgical Engineers, New York City

IS THE FATALITY FREQUENCY RATE in coal mining a function of the season of the year? If so is it possible to determine why? This is a matter of much interest from the standpoint of accident prevention, because if accidents are really more frequent at one time of year than another it should be possible to determine the cause of such a condition and take steps to remedy it.

That explosions of gas and dust, with their resulting fatalities, are more frequent in winter than in summer has long been the belief of mining men. H. N. Eavenson in a paper before the American Institute of Mining Engineers, Vol. L, p. 594 (1914) discussed the subject in detail and came to that conclusion.

This belief is substantiated by statistics covering the twenty-five years, 1900 to 1924, compiled by W. W. Adams and published in Bulletin No. 251 of the Bureau of Mines. These tabulations (p. 81, Bull. 251) show that during the 25-year period the average number of explosions in the six months from May to October, inclusive, averaged 1.27 per hundred million tons of coal mined, whereas in the six months, November to April, inclusive, the average was 2.4 explosions per hundred million tons mined. The frequency is expressed in terms of hundred million tons mined, in order to prevent possible differences in the rate of production between periods from throwing a false light on the subject.

These seasonal relationships are more clearly indicated in Fig. 1, where it is apparent that the explosions and deaths from explosions not only show a greater frequency in the months October-March than in the months April-September, but that this increase of frequency is much greater than the increase in the daily rate of production, which is here used to indicate the fluctuations in the rate of man-hours of exposure to the hazard.

Fig. 1 also illustrates the danger involved in drawing inferences from a single curve, as the highest point on

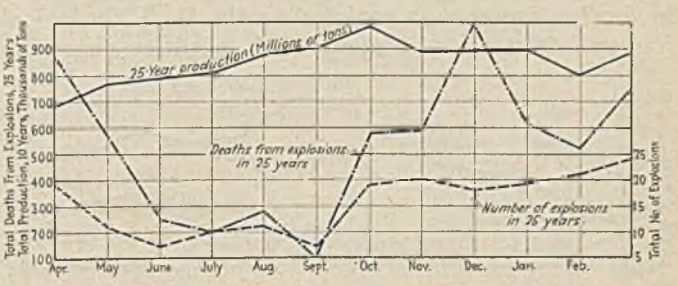


Fig. 1—Twenty-five Years' Experience Shows Winter as the Explosion Season

Judging by the number of men killed by explosion, December has the worst record of all the months, but, if the criterion is the *number* of explosions, the month of March has the greatest hazard. So operators with Caesar will do well to "Beware the Ides" and other days "of March" and have the mine well sprinkled with rock dust and free of gas, remembering, however, that even in September, the low-record month of the year, coal-dust and gas explosions are likely to occur.

The center view in the headpieces shows the British miner undercutting a coal seam. It will be noted how carefully he has propped the undercut, a safety precaution too generally omitted in this country. The other illustrations show a test to prove the explosibility of coal dust. It was made at a First-Aid Contest for Tennessee and Southeastern Kentucky held at the East Tennessee Fair, Knoxville, Sept. 25. About 5 lb. of coal dust, 85 per cent of which would pass through a 200-mesh screen was blown by compressed air on an open arc. The left circle shows the flame and the right the smoke. Only 5 lb. of coal dust—and yet there are tons and tons of this explosive substance below ground always ready to spread death and destruction, if not prevented by rock dust!

Most of the work involved in the preparation of this paper was done while the author was Safety Service Director, U. S. Bureau of Mines.

Table I—Daily Fatalities from Falls of Roof and Coal, 1914-1923, Based on Days Worked in Bituminous and Days in Month in Anthracite Mines

Month	Average Days Worked	Bituminous Coal Mining —Based on Actual Days Worked— Production, Tons per Day	Fatalities, Falls of Roof and Coal	Anthracite Mining —Based on Days in Month— Production, Tons per Day	Fatalities, Falls of Roof and Coal
January	25.73	1,703,000	2.94	238,900	0.65
February	24.10	1,602,000	2.84	239,800	0.56
March	26.8	1,607,000	2.65	254,800	0.67
April	25.26	1,326,000	2.63	223,900	0.64
May	26.31	1,430,000	2.47	235,200	0.62
June	25.7	1,516,000	3.05	243,600	0.63
July	25.5	1,545,000	3.11	228,400	0.62
August	26.53	1,611,000	2.87	234,300	0.57
September	24.97	1,774,000	3.23	222,500	0.48
October	26.4	1,819,000	3.16	273,500	0.65
November	24.7	1,678,000	2.91	261,300	0.61
December	25.5	1,653,000	2.74	247,700	0.59

the curve indicating deaths from explosion occurs in December, whereas the highest point on the curve showing number of explosions is in March. The number of deaths caused by an explosion is not only a function of its violence, but also of the number of the men in the mine at the time of its occurrence, which in turn depends not only on the size of the mine but the time of day.

The high peak in December resulted from two explosions in December, 1907, in which 361 and 239 men lost their lives; or, in other words, in December, 1907, more men lost their lives by explosions than in the other 24 months of December combined in the 25-year period. For this reason the explosion curve is a better indication of the explosion hazard than is the death curve.

Ignoring, as outside the scope of this study, the question why explosions of gas and dust are more frequent in winter, the next question which arises is whether fatalities from other causes show any relation in frequency to the time of year. In making this study, fatalities from falls of roof and coal were chosen as the subject of analysis, not only because they amount to about half of the total fatalities in coal mining, but also because the analysis formed a part of a special study being made of deaths in coal-mining from falls of roof and coal.

After due consideration it was decided that the best method of presenting the statistics for comparison was to use the average daily rates for each month, averaged over a period of years. The ten-year period 1914-23 was chosen for this purpose, and the average daily coal production rate for each month was computed by adding the coal production in each month for each of the ten years and dividing by the total number of days worked in the ten months, as reported to the U. S. Geological Survey. The average number of fatalities occurring

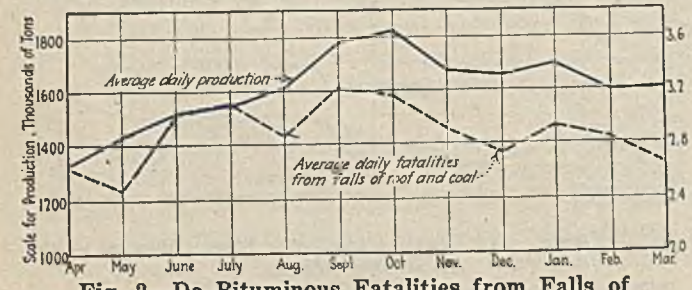


Fig. 2—Do Bituminous Fatalities from Falls of Roof and Coal Vary with Output?

Apparently they do, in general, but not in every instance. Thus the greater tonnage in May than in April has been accompanied by a decrease in this type of fatility and August showed a larger tonnage than July but with an ameliorated condition as regards accidents.

daily for each month was computed in the same way and the results for bituminous coal mines are shown in Table I and Fig. 2.

It will be seen by examining Fig. 2 that the curve of daily fatalities follows rather closely the curve of daily output, or, in other words, the seasonal fluctuations in fatalities from this cause is approximately the same as the seasonal fluctuation in the output, which presumably is nearly proportional to the average daily man-hours worked. But this is only a general correspondence, for in two places the curves do not thus correspond.

The daily output is lowest in April, which is to be expected because wage contracts are readjusted in that month. But the lowest daily fatality rate does not occur in April, it occurs in May, when the daily output has considerably increased over April. There is no obvious explanation for this condition, but one possibility that immediately occurs to any one who examines the chart is that the emotional disturbance incident to industrial dispute may be reflected in the average daily accident rate during April, whereas the increased production and lowered fatality rate in the following month may similarly be a reflection of the improved morale following adjustment of the disturbing factor.

The validity of this possible explanation is called in question, however, by the fact that the fatality rate

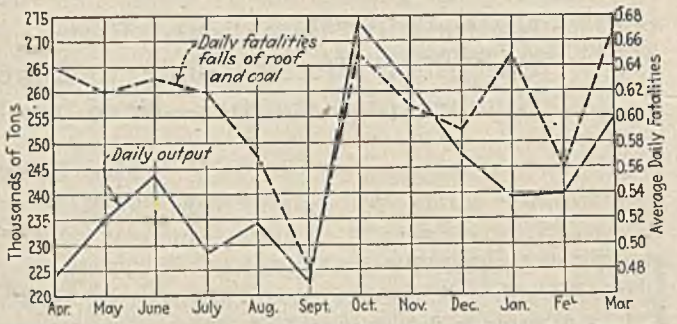


Fig. 3—This Anthracite Chart Contrasts Strongly with the Bituminous Chart, Fig. 2

Here September has the low rate for falls of roof and coal and in the bituminous chart the same month has the high rate. For a ten-year average it would seem that these two graphs for fatalities and outputs in the anthracite region should resemble one another more closely and indicate a trend, but they leave the matter in doubt.

increases much more rapidly than the output rate in June reaching a level in June and July that is exceeded only by the months of highest production, September and October. The suggestion occurs that this may be a true seasonal fluctuation, in that the temperature of the ventilating air is higher in June. During the winter months the ventilation current is cooler than the surfaces in the mine and cools the mine down, although the temperature in the underground workings never becomes as low as outside, except near the downcast.

With the advent of spring the average air temperature gradually rises until it begins to exceed the temperature of the underground workings and the air current begins to warm the mine. It is not impossible that the slight expansion that necessarily accompanies the warming-up process may have a perceptible effect on falls of roof and coal, or in other words, increased accidents from this cause in June and July may indicate that the number of falls increased.

Whatever may be the explanation, the statistics indicate that fatalities from falls of roof and coal in bituminous mines show a higher frequency in June and July, in proportion to the exposure, than in other months

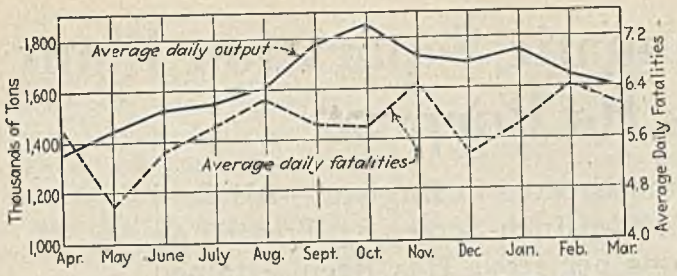


Fig. 4—Bituminous Fatalities from All Causes

Here again the fatality curve shows no parallelism to the production curve. The sag in fatalities in September and October is accompanied by a peak in production. February is more fateful than January yet produces less coal.

of the year. This, indicates that special care should be taken during these months to guard against accidents from this cause.

The corresponding figures for anthracite mining are shown in Table I and Fig. 3, but as I have no record of the actual number of days worked, I have divided the monthly production by the number of days in the month as the approximation to a daily average. Here, however, September is the month of lowest fatality rate, therefore it does not seem to bear out the suggested possibility, that emotional disturbance may be a factor in the fatality rate. And here also April is a month of lower production and higher fatality rate than May.

It seems eveident that more study is required before a satisfactory answer can be made to the question as to why the accident rate from falls seem disproportionately high in April as compared with May or June. The high fatality rate in anthracite mines from falls of roof and coal in July, as compared with September, is equally puzzling and perhaps might be taken to indicate a seasonal variation, but this inference is not borne out by the bituminous curve, where September shows a higher fatality rate than July.

In order to check these inferences the average daily production and average daily fatalities from all causes over the ten-year period 1915-24 are tabulated in Table II and shown graphically in Figs. 4 and 5 for bituminous and anthracite coal mining respectively. Here the same general relations are apparent.

It should be noted that the scale used for daily fatalities in Figs. 4 and 5 is different from that used in Figs. 1 and 2, being so chosen as to make the production and fatality curves come close together, also that the two periods (1914-23) and (1915-24) are different, so the average daily production rates are different. The fatality rate in a general way increases with the production rate but April shows a high fatality rate in proportion to production, though May shows an increase in the production rate accompanied by a decrease in the fatality rate.

In bituminous mining, Fig. 4, June does not show as much increase in fatalities from all causes as it does from falls of roof and coal, but in anthracite mining there is more increase in the rate from all causes than from falls. In bituminous mining the highest frequency rate from accidents, all causes, is in November, with nearly as high a rate in February and August, whereas the highest frequency rate of accidents from falls of roof and coal is in September and October, which are the months of highest production rate.

The inference suggests itself that the physical lassitude resulting from August weather, and the inclement

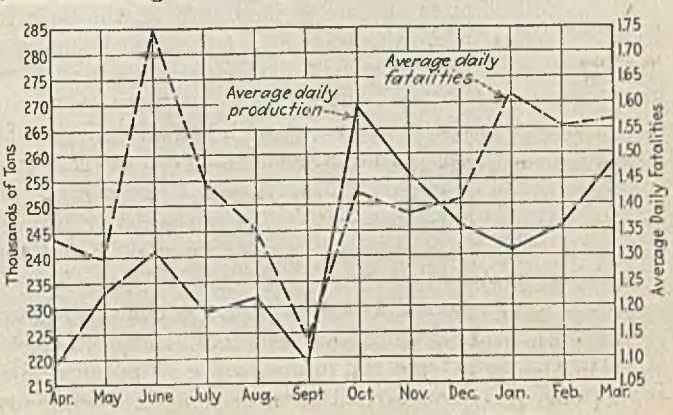


Fig. 5—Anthracite Fatalities from All Causes As Confusing as Those from Falls

The anthracite graphs represent an experience but one-eighth in tonnage and one-fourth in fatalities as great as the bituminous graphs. Perhaps that explains why the anthracite graps show a greater number of peaks and hollows and less comparable results between fatalities and production.

weather conditions in February may affect the accident frequency from all causes in these months. But on the anthracite curves, Fig. 5, the accident frequency from all causes is low in January as compared to the production rate in that month, and January is probably nearly as inclement a month as February. On the bituminous curve December shows a fatality rate that is surprisingly low compared with the production rate, which is higher than in February. The student of the statistics is led to suspect that the number of years averaged is too small to give true averages, and it is best to use caution in coming to conclusions as to what the curves really indicate.

It must not be forgotten also, that Fig. 1 indicates a seasonal variation in fatalities from explosions and these variations are included in the curves in Figs. 4 and 5 showing fatalities from all causes. Deaths from explosions only amount to 11 per cent of the total fatalities in the period covered by Figs. 4 and 5, but they nevertheless have some effect in changing the curve.

The general conclusions that it seems safe to draw from the foregoing figures are: (1) That the frequency of fatalities in coal mining corresponds in a *general* way to the hours of exposure to the hazard, but monthly differences occur for which the explanation is by no means obvious, and (2) that explosions in coal mines have been more frequent in the winter months than in summer.

I am indebted to S. H. Katz and W. W. Adams of the Bureau of Mines for compiling the figures for daily average production and actual days worked in bituminous coal mining, to Miss Mildred Jones for much of the work of computation and the preparation of the charts.

Table II—Fatalities All Causes, 1915-1924, Based on Days Worked in Bituminous and Days in Month in Anthracite Mines

	Bituminous Coal Mining —Based on Actual— Days Worked			Anthracite Mining —Based on Days— in Month	
Month	Average Days Worked	Production, Tons per Day	Fatalities, All Causes	Production, Tons per Day	Fatalities, All Causes
January	25.75	1,749,000	5.86	241,000	1.616
February	24.2	1,645,000	6.45	246,000	1.554
March	26.7	1,597,000	6.15	258,000	1.568
April	25.21	1,355,000	5.84	219,000	1.337
May	26.45	1,437,000	4.59	233,000	1.294
June	25.6	1,522,000	5.44	241,000	1.747
July	25.5	1,541,000	5.84	229,000	1.448
August	26.53	1,604,000	6.25	232,000	1.355
September	25.00	1,785,000	5.86	219,000	1.137
October	26.5	1,852,000	5.81	269,000	1.426
November	24.52	1,725,000	6.50	256,000	1.383
December	25.5	1,694,000	5.38	246,000	1.410

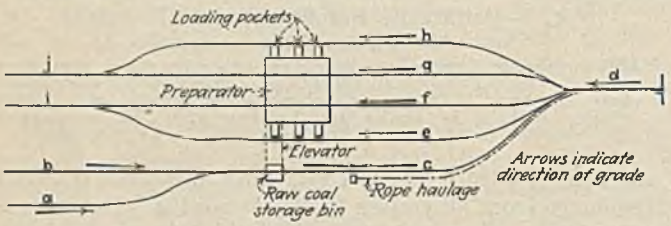
Specially Designed Pneumatic Separation Plant Accomplishes Its Purpose

Plant Is Second Large Unit of Kind Erected in England—All Coal From Two Collieries That Passes Two-Inch Screen Is Treated on Six Separators—Capacity of 145 Tons per Hour Has Been Attained

By C. W. H. Holmes
Engineer, Birtley Iron Co., Birtley, County Durham, England

THERE HAS recently been completed at Wardley, County Durham, the second large pneumatic separation plant to operate in England. It was built by the Birtley Iron Co., which is the sole British licensee of the American Coal Cleaning Corp. patents. The plant is located on a privately-owned railroad which links several mines of the same company with the shipping docks on the River Tyne. It handles all of the coal from two collieries that passes a 2-in. screen. The material treated in this plant is a gas coal, high in volatile matter, all of which is shipped to gas companies in London and on the continent.

As far as its general layout is concerned, the plant was designed with reference to the existing methods of transportation from the mines to the shipping docks. Because all of the railroad cars used by the company



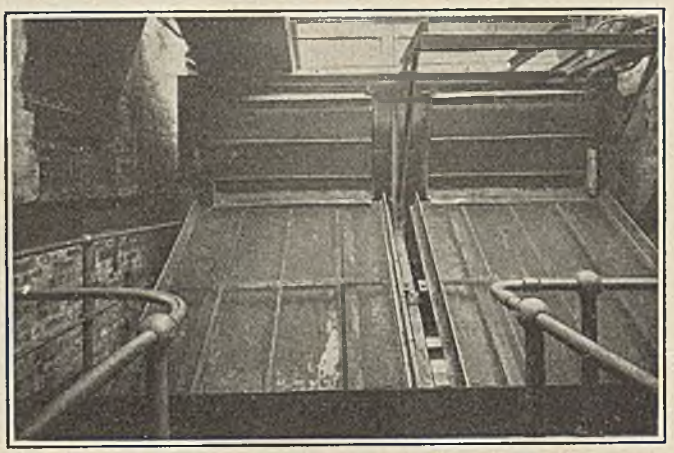
Track Layout at Pneumatic Preparator

Coal from two collieries is treated in this plant and it is necessary to mix it before preparation. Therefore, cars of raw coal from each of the collieries are alternately fed to the storage bin from the tracks (*a*) and (*b*). Mixed sizes of prepared coal are loaded out on tracks (*f*) and (*g*) and the separate sizes on tracks (*e*) and (*h*).

operating this plant are of the hopper-bottom type, the raw-coal siding was constructed with a slight grade in favor of the loaded cars, and arranged to run over an underground storage bin, which is located outside the building housing the preparation equipment.

Because the coal from each of the collieries is different in character, it is desirable to mix it as thoroughly as possible before preparation. To this end, two raw coal tracks (*a*) and (*b*), in the track layout forming one of the accompanying illustrations, are provided. The cars from each colliery are segregated on these tracks and are alternately fed to the storage bin. When emptied, they continue down grade for a short distance to that part of the track marked (*c*) which is sloped in the opposite direction. The cars are pulled up this grade to the track (*d*) by a rope haul as indicated. From (*d*) they run by gravity to tracks (*e*), (*f*), (*g*) and (*h*) as required. Mixed sizes of prepared coal are loaded on tracks (*f*) and (*g*), and the separate sizes are loaded out on tracks (*e*) and (*h*). After the cars are loaded, they continue by gravity to the storage tracks (*i*) and (*j*) where they are made up into trains and hauled by locomotives to the main railroad line.

The preparation building comprises three floors above which is a superstructure that houses the elevator head and the screens. Except for the dust extractor house, which is built of wooden louvres to permit the free passage of the filtered air, this building is constructed of steel and brick. The entire structure is roofed with glass the various panes being leaded into a lead-covered

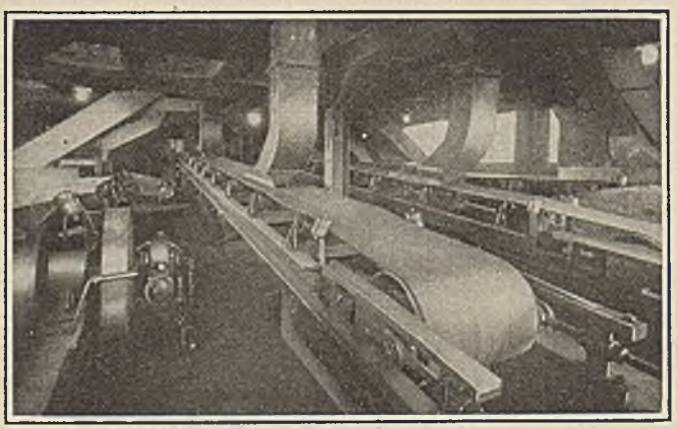


Primary Screens at Raw Coal Conveyor Head

The head of the conveyor can be seen in the upper left of the illustration. From the elevator, the coal falls into a chute, part of which is also shown. This chute delivers the raw coal to a horizontal screw conveyor, shown above the screens, which distributes the material equally over them. The ½-in. mesh screens are electrically vibrated and, when operating, are totally inclosed to prevent escape of dust.

mild steel framework. By means of lead fillets the glass is tightly fixed in place so that a permanently impervious joint is formed.

The raw-coal storage bin, with a capacity of 25 gross tons, has a bottom outlet from which the coal runs by gravity through a regulating gate to the boot of the main elevator. This elevator, of the double-chain con-

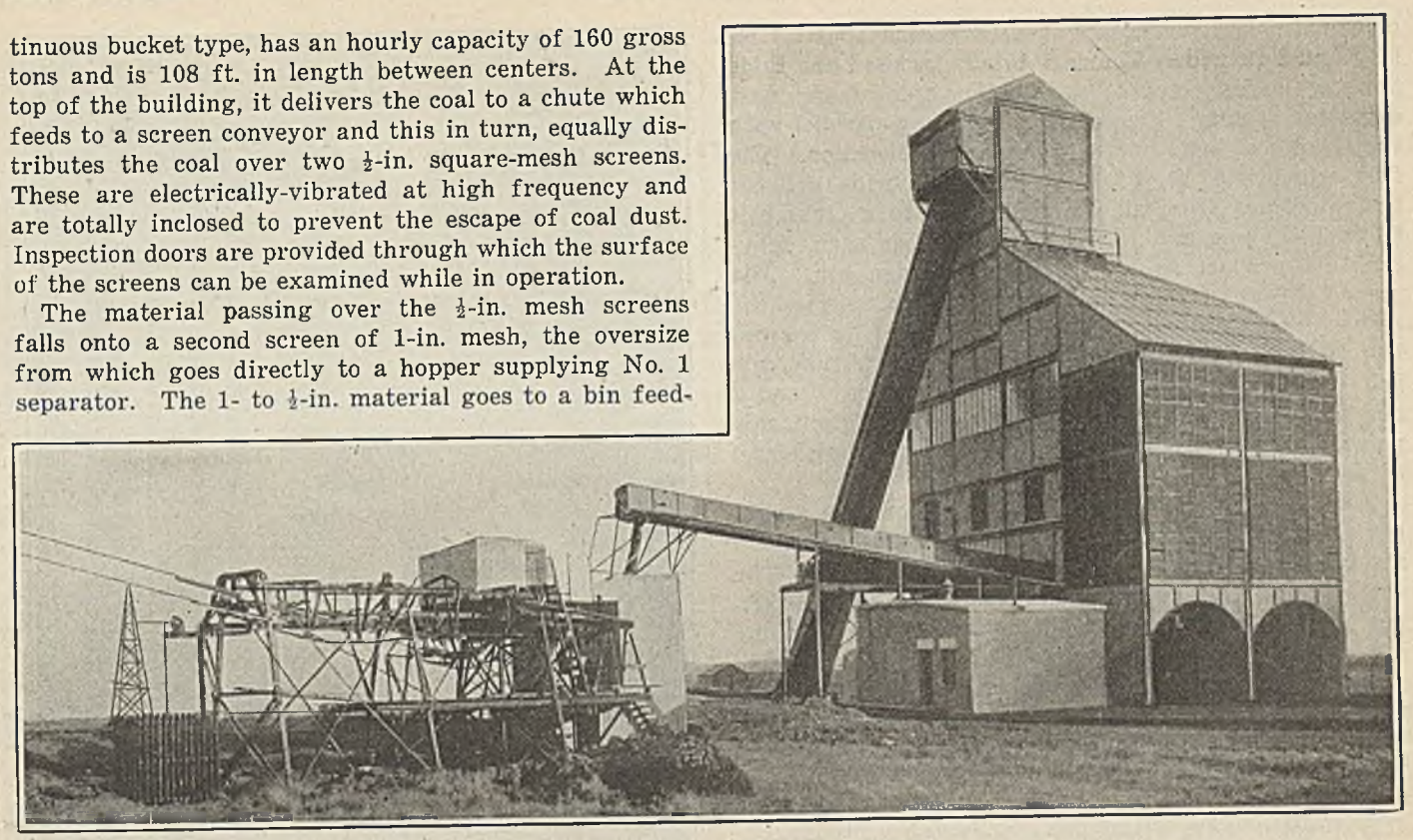


Mixing and Conveying Belts on First Floor

These belts serve various purposes. Some are used to mix the clean coal from the different separators. Others serve to return the middlings to the raw coal storage bin for retreatment. There is also a refuse belt that delivers the tailings to the aerial tramway. Note that each belt is a self-contained unit which is motor-driven through worm-and-chain reduction gearing.

tinuous bucket type, has an hourly capacity of 160 gross tons and is 108 ft. in length between centers. At the top of the building, it delivers the coal to a chute which feeds to a screen conveyor and this in turn, equally distributes the coal over two ½-in. square-mesh screens. These are electrically-vibrated at high frequency and are totally inclosed to prevent the escape of coal dust. Inspection doors are provided through which the surface of the screens can be examined while in operation.

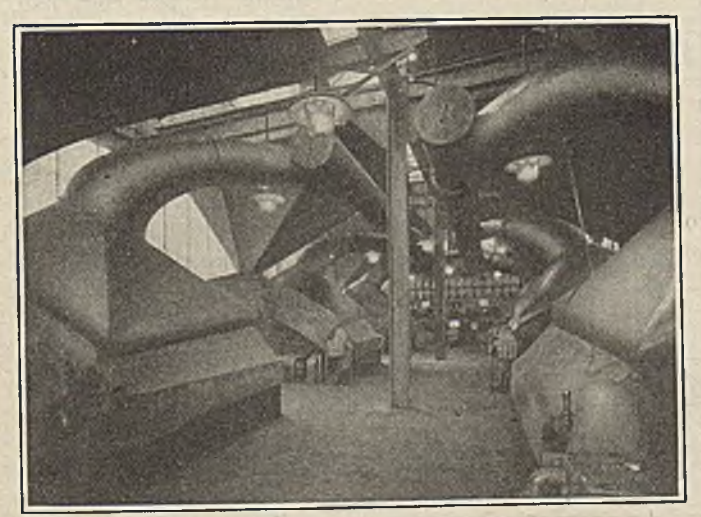
The material passing over the ½-in. mesh screens falls onto a second screen of 1-in. mesh, the oversize from which goes directly to a hopper supplying No. 1 separator. The 1- to ½-in. material goes to a bin feeding the No. 2 separator. The material passing the ½-in. screens is delivered to two ⅜-in. screens the oversize from which is rescreened on a ¼-in. mesh. Thus ½-in. to ¼-in. and ¼-in. to ⅜-in. products are made. These, through storage bins, supply separators Nos. 5 and 6. The undersize from the ⅜-in. screens passes to two ⅛-in. screens and the oversize material, ⅜-in. to ⅛-in., from these screens, goes to the bins feeding separators Nos. 3 and 4. The fines, through the ⅛-in. screens, pass down a chute and at present are not treated.



Air Flotation Plant at Wardley, England

This steel and brick structure houses all the screening and preparation equipment. The bucket conveyor has a capacity of 160 gross tons per hour and is built on 108 ft. centers. Note the transformer house in the foreground, the refuse conveyor immediately above it, and the terminus of the aerial tramway at the left. Pneumatic separation is making rapid progress in England. Several plants are being erected, among them one having a capacity of 325 tons per hour.

Along each side of the building, and below the level of the screen floor, are three storage bins each having a capacity of approximately 12 gross tons. As all the screens are placed along one side of the building, the sized coal falls into those hoppers on the north side and is transported by short belt conveyors to those on the south side of the building. Each conveyor is independently driven by an electric motor through reduction gearing. The bins are so constructed as to prevent "bridging" and this insures automatic discharge of the coal. Cascades are built in the bins to minimize breakage. The reciprocating feeders, which control the flow of coal to the separators, are bolted directly to the bottom of the storage hoppers.



Separator Floor of Dry Cleaning Plant

The raw coal is screened on the floor above and each size is delivered to storage bins immediately over the separator designed to handle that size. The feeding mechanism of each separator is driven from the same motor that operates the air cleaner. This insures a constant feed of coal at all times. Note the starter located in front of each table and how completely the separators are inclosed.

Six pneumatic separators are installed in the plant. They are arranged in two rows facing a central aisle and each machine is located immediately under its respective raw coal storage bin. The separators are the American Coal Cleaning Corporation's S. J. 60-84 type, their head motion being equipped with patented dust- and grease-proof ball bearings. The underframes of the machines are built up of steel castings.

In addition to the separator, the room where they are installed houses all of the switches for controlling the operation of the plant. With the exception of the starters for the air concentrators, one of which is placed in front of each machine, all of the switching gear is located on the west wall of the building. The starters, as well as those controlling the main elevator and the dust extractor fan, are of the railway, oil-immersed star-delta type.

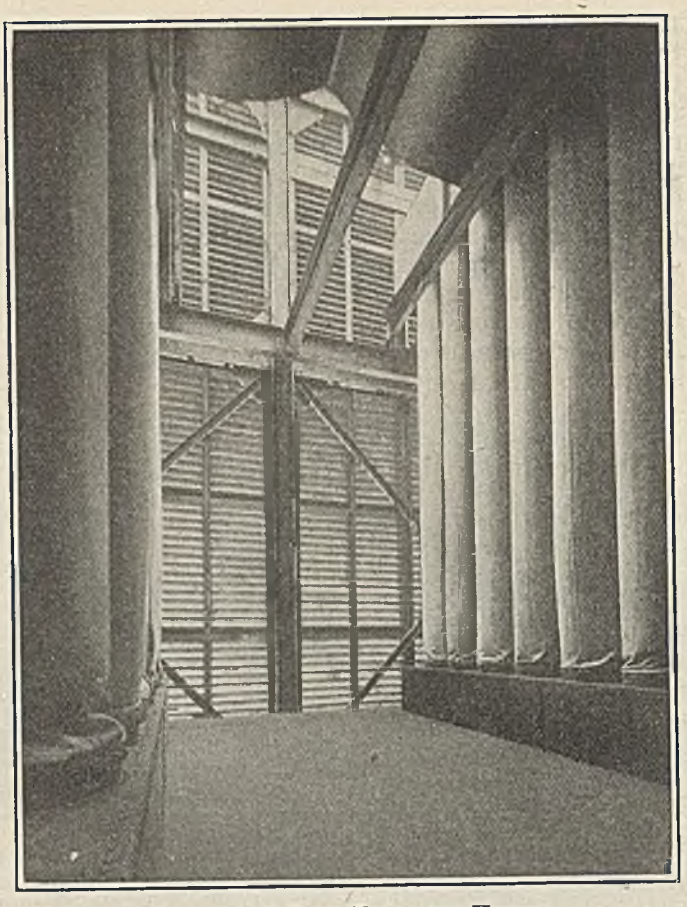
The separators make three products: Clean coal, middlings and refuse. Each of these is separately conveyed to the first floor, through chutes, to parallel rubber belts running lengthwise of the building. The two

principal clean coal mixing belts are each 26 ft. 3 in. long and 3 ft. wide. They are totally inclosed and their housing is connected to the suction side of the dust extractor system. Two similar belts run parallel with the clean coal belts but in the opposite direction. The first, which is 32 ft. 4 in. long and 18 in. wide, delivers the middlings from all the separators to a cross belt 53 ft. 6 in. long and 18 in. wide. This, in turn, delivers this product to the raw coal storage bin. The second, 38 ft. 4 in. long and 2 ft. wide, carries the refuse from separators Nos. 3, 4, 5 and 6 to a cross belt 75 ft. 6 in. long and 2 ft. wide. In addition, this belt receives the refuse from separators Nos. 1 and 2 and conveys it out of the building to a bin. From this point, it is removed to the dump by means of an aërial tramway.

Each of the conveyor belts just mentioned is a self-contained unit with its own motor which drives through a totally-inclosed worm-and-chain reduction gear. The entire conveying system runs at a speed of 150 ft. per min. on ball bearing idlers, inclosed in patented dust-proof, grease-tight housings.

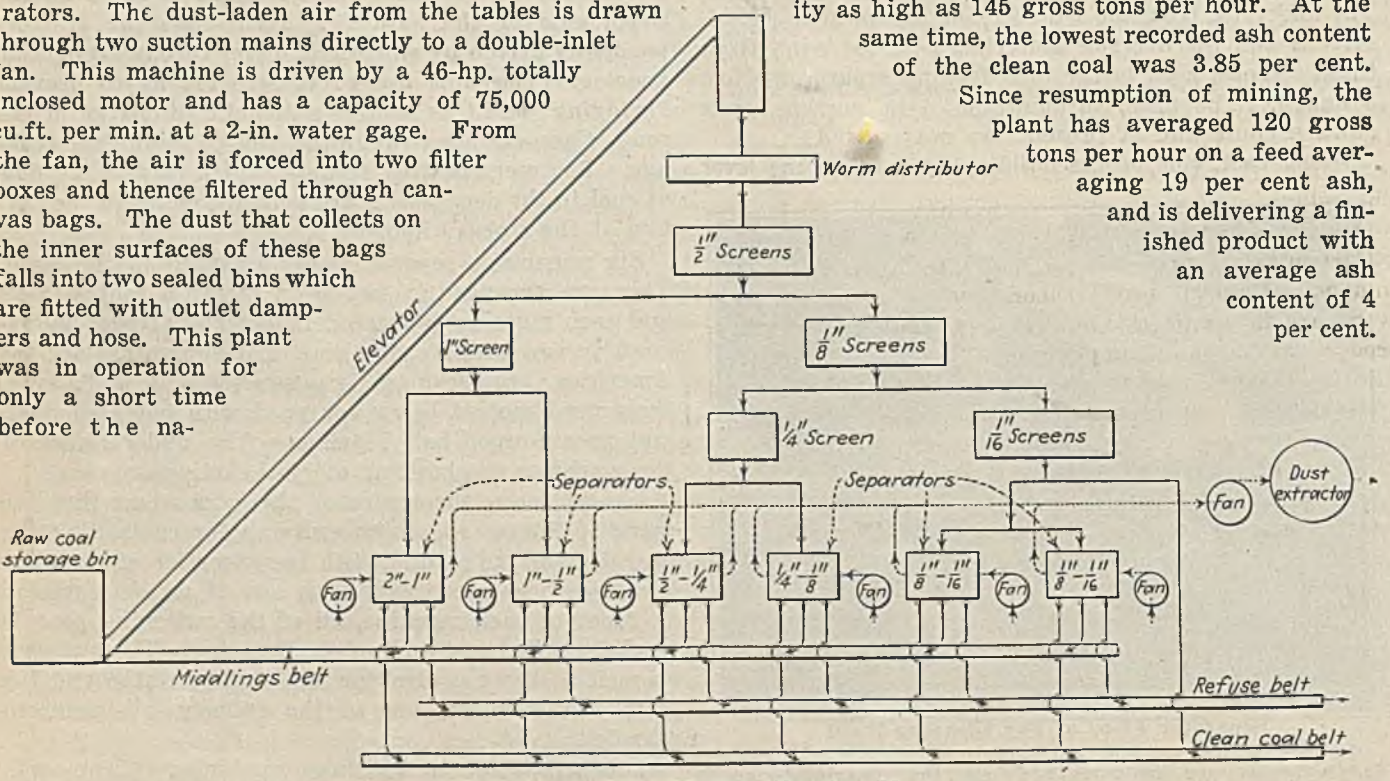
The necessary fans and motors are located on the second floor of the preparator. The arrangement of this equipment is such that each separator is provided with its own fan and motor, thus making it a self-contained unit. Each motor drives a separator by means of a sprocket chain whereas the fan is driven through a belt. The reciprocating feeder is also driven by a sprocket chain from the same motor thus insuring a definite speed ratio between the separator and its feeding mechanism.

The west end of the structure houses the dust recovery system. This is so arranged that its suction side is connected, by means of steel trunking, to fixed hoods over each of the separators. A dust-tight flexible joint of canvas is maintained between the hoods and the separators. The dust-laden air from the tables is drawn through two suction mains directly to a double-inlet fan. This machine is driven by a 46-hp. totally inclosed motor and has a capacity of 75,000 cu.ft. per min. at a 2-in. water gage. From the fan, the air is forced into two filter boxes and thence filtered through canvas bags. The dust that collects on the inner surfaces of these bags falls into two sealed bins which are fitted with outlet dampers and hose. This plant was in operation for only a short time before the national coal strike. During that period, however, although designed for 100 gross tons an hour, it attained a capacity as high as 145 gross tons per hour. At the same time, the lowest recorded ash content of the clean coal was 3.85 per cent. Since resumption of mining, the plant has averaged 120 gross tons per hour on a feed averaging 19 per cent ash, and is delivering a finished product with an average ash content of 4 per cent.



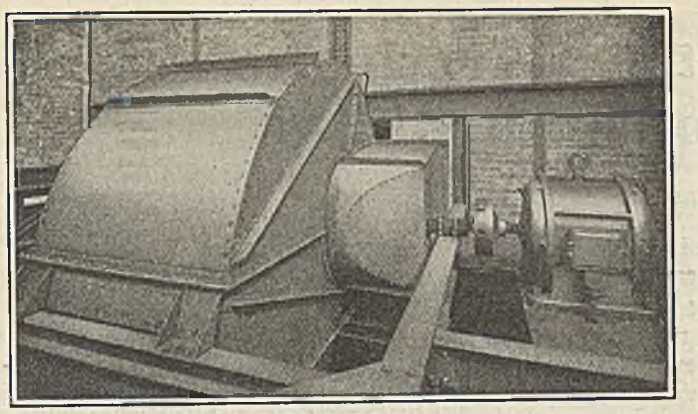
Interior of Dust Extractor House

After passing through the fan, the air from the separators is forced into two filter boxes and then through the canvas bags shown in the illustration. The dust that collects on the inside of these bags falls into two sealed bins from which it is periodically withdrawn. To permit of the free passage of the filtered air, this part of the building is constructed of wooden louvres.



Flow Sheet of British Dry Cleaning Plant

So far as possible, the coal in this plant is transported by gravity. Where this type of handling is impossible, belt conveyors are used. Each separator is a self-contained unit being provided with its own fan, motor and starter. All of the coal-handling and preparation equipment is totally inclosed to prevent escape of dust. The laws of Britain are stringent regarding the discharge of industrial dusts into the atmosphere as most of the country is thickly settled.



Dust Extraction Fan and Motor

The dust-laden air is drawn from the separators through steel trunking and two suction mains directly to the fan. This fan has a double inlet, a capacity of 75,000 cu.ft. per min. at 2 in. water gage, and is driven by a 46 hp. totally inclosed motor.

The almost universal lubrication of the plant equipment by means of grease guns and self-sealing nipples, may account in part for the small energy consumption. Including the power required to operate the elevators, screens, separators, fans and dust extractor, the total consumption is but 1 kw.-hr. per ton of coal treated.

Classification of Carbonization Processes

Differentiated on the basis of the method of heating, says the U. S. Bureau of Mines, the various processes of coal carbonization fall into two classes: Those using externally heated retorts in which the coal to be carbonized is heated through the walls of the retort and the products of distillation are not diluted with flue gases and those utilizing internally heated retorts in which the coal to be carbonized is heated by direct contact with hot gases or superheated steam passed through the retort in intimate contact with the charge.

Classified according to their construction, retorts may be designated as: Oven types, usually rectangular in shape, such as the standard by-product oven; vertival shaft types, such as the Scottish oil-shale retort; and rotating-cylinder types, either vertical, horizontal, or inclined, similar to revolving driers or cement kilns. The cylindrical types may also be stationary and fitted with a revolving internal stirring device.

Carbonization processes may be intermittent or continuous. Present high-temperature by-product coke ovens are intermittent, because such processes usually produce a firm and lumpy coke. Continuous vertical retorts are being used in ever-increasing numbers in the gas-making industry because continuous processes permit larger production and cheaper operation. The coke, however, has physical properties slightly inferior to those produced by retorts or ovens that are charged intermittently.

THROUGH the American Society of Mechanical Engineers the Lincoln Electric Co. of Cleveland, Ohio, is offering first, second and third prizes of $10,000 $5,000 and $2,500 for the best article suggesting application of the arc welding process to industry during the year 1927. This competition is open to anyone. Full details may be secured by addressing either the Lincoln Electric Co., Coit Road and Kirby Ave., Cleveland, Ohio, or the American Society of Mechanical Engineers, 29 West 39th St., New York City.

Ten Years Ago in Coal Age—March 10, 1917

Article entitled "Substations for Coal Mines" states that purchased power for coal mines offers certain advantages over power generated locally. Several installations are illustrated.

"Recovery of Benzol at Byproduct Ovens" by F. W. Sperr, Jr., Chief Chemist, Koppers Co., Pittsburgh, Penna., describes plant layout and states that indications are that there will be a good peace-time market for benzol, the production cost of which varies from 4 to 7c. per gallon.

LABOR SITUATION

Labor scarcity exists in the anthracite region, some claiming that there is a shortage of at least 25 per cent. As a result of the demand for men at munition works, because of strikes and holidays, and also consequent upon the shorter day and a large call for coal, the mines cannot meet the demand and there is no question but that there will be steady work this year.

The 80 Roscoe, Penna., mine workers, who were fined $4 each by the Pittsburgh Coal Co. in accordance with an agreement which stipulated such action for strikes in violation of contracts, have withdrawn their suits. Although only $320 was directly involved in the suits, the company actually retained about $1,600 from its employees.

The mine workers of southeastern Kansas, most of whom are foreigners, are going on strike with the slogan: "No beer, no coal." They do not like the "bone-dry" prohibition law recently passed by the state. At latest reports, a strike occurred at but one mine but a general meeting was held on March 4 to discuss what the mine workers regard as a restriction of their liberties.

MARKETS

Anthracite.—An unusual situation prevails in the hard-coal trade. Ordinarily, this is the season of price reductions, lessening demand and curtailed production. Despite this established precedent, the market has seldom been stronger and it is regarded as highly improbable that the usual reductions will be made on April 1. Egg, stove and nut quoted at $7@$7.50 per gross ton, f.o.b. New York tidewater; pea, $6.75@$7.25; buckwheat, $6.50@$6.75; rice, $4.50@$5.25; barley, $4@$4.25; boiler, $3.50@$3.75.

Bituminous.—Never has the trade rounded out the season's business so brilliantly. Heavy storms have accentuated the transportation difficulties occasioned by the heavy freight congestion on the Atlantic seaboard and supplies are still seriously short in many instances. Average price of 12 representative bituminous coals for week ending March 10 is $5.36@$5.61 per net ton f.o.b. mines. Prices vary from $7@$7.25 for Pocahontas and New River, to $3@$3.75 for Williamson and Franklin Co., Ill., mine-run and screenings.

Pittsburgh Mining Institute Is Trying to Learn True Meaning of Mining Laws

Legal verbiage is often confusing or even contradictory. Thus the true meaning of the framers of statutes is in many instances obscure, and interpretations are necessary. It is with the idea of searching out the true meanings of the law that the Pittsburgh Mining Institute is undertaking its careful study. These activities will be carried on as more or less of a side line not affecting the regular work of the organization.

AS MEASURED by its accomplishments, the Pittsburgh Coal Mining Institute is steadily growing stronger even though its membership is declining. In 1925, when the organization was formed, it had a membership of 1,200. At the close of 1926, because of a large turnover in management personnel throughout the district, the paid-up members numbered only 319.

At the first quarterly evening meeting of 1927 held in Pittsburgh on Jan. 29, John I. Pratt resigned as president and was succeeded by William L. McCoy, safety engineer of the Bertha-Consumers Co. The following vice-presidents were elected for the year: H. C. Howarth, superintendent of the Bruceton experimental mine, U. S. Bureau of Mines; J. C. Davies, mine inspector of the U. S. Fidelity & Guaranty Co., and H. J. Sloman, instructor in coal mining, Carnegie Institute of Technology. P. J. Callahan, state mine inspector, was made secretary. All these men reside in Pittsburgh. The meeting voted that last year's executive and advisory committees should continue in office.

The institute contemplates making a study of the Pennsylvania bituminous mining laws in order to gain a correct interpretation of their meanings. The purpose of this study is not only intimately to acquaint the members with the true intent of these laws, but also indirectly to bring about their revision so that they may be in keeping with modern practice. The decision to do this came as a result of much difference of opinion in the application of some of these statutes.

In case of doubt as to the true intent and purpose of any law, or group of laws pertaining to the same subject, the institute will appeal to the attorney general of the state for an interpretation. This work will be handled as more or less of a side issue and will not interfere with the regular program arranged for each meeting. W. G. Duncan, a faculty member of Pennsylvania State College, suggested this study. At the next meeting Sec. 8 of Art. 9, will be taken up.

The institute has not yet arrived at a satisfactory answer to a question the substance of which is: "In live workings, at what point, with respect to the last open breakthrough, should the trolley wire end?" This had been discussed at several meetings but as no acceptable conclusions had been reached it was again taken up on Jan. 29. C. P. Byrne, state mine inspector, of Charleroi, Pa., would not sacrifice the advantages and benefits derivable from the use of electrical equipment because certain types are capable of producing an arc or flame. He also asserted that if properly developed and maintained, the mines are reasonably safe when operated electrically.

John I. Pratt, also a state mine inspector, took an entirely different view. He maintained that trolley wires and other power lines should not be extended into entries from which rooms have been turned — even on the so-called fresh-air side. He approves storage batteries as the source of power for all machine operations at the face. The tendency toward the elimination of open lights must logically embrace the exclusion of electric lines.

H. C. Howarth disagreed with Mr. Pratt in this last remark, claiming that there is a big difference between the two. The open light is movable whereas the electric wire is stationary.

The majority of those who took part in the discussion defended the stand taken by Mr. Byrne. Mr. Howarth contends that the advantages accruing from the use of electricity should not be sacrificed, particularly since correct methods of ventilation will preclude danger of gas ignition. H. J. Sloman concurred with Mr. Howarth. Explosions will not occur where the intent of the mining law is accepted and practiced. "Does ventilation constitute a potential danger because it is not always properly maintained?" he asked. "If not, why is not flameproof equipment dangerous for the same reason?"

Against Extending Wires Past Rooms

William L. Maize, mine inspector of the Pennsylvania Rating Bureau, Uniontown, Pa., is not in favor of removing wires entirely from butt entries. Nevertheless, he is opposed to their extension past rooms, inasmuch as these latter may give off gas. He would carry power lines only as far as the first room on an intake. This point, in his judgment, is the beginning of the return.

Mr. Sloman stated that in many instances the methods of mining now followed are wrong. From an economic and safety standpoint mine sections should be worked in full retreat, driving rooms only after the entries from which they are turned have been carried to their limits. When this is done the trolley wire can be installed to a point 50 ft. outby the rib line.

Conditions have changed and the safety agencies supervising the operation of coal mines must face these changes squarely was the opinion voiced by Mr. Duncan. Since electricity as an agent in mining is here to stay, nothing is gained by attempting to eliminate its present forms of use. Why make electricity bear the onus and blame it for weaknesses in operation that in many instances are attributable directly to the mining laws? It is possible to make mines so safe that they cannot be operated because of the great cost involved.

Mr. Byrne said no mine is safe, even though it be provided with the safest of equipment, if it is operated

haphazardly. He intimated that "safety" is only a relative expression and remarked that no mine is absolutely safe unless it allows travel to any point, without danger, with an open light. When an operator provides adequate ventilation, a state mine inspector is privileged to allow him considerable leeway in the use of electricity. Thorough ventilation is the all-important consideration.

The only paper of the evening was delivered by Mr. Sloman and dealt with general problems in mine haulage. Ballast, he said, should never be composed of roof slate or any other material that will quickly disintegrate. He discouraged the use of open ditches paralleling the haulage roads because they are likely to become blocked by spillage from passing trips or by coal or slate that spalls from the ribs.

TREATMENT TRIPLES MINE TIE'S LIFE

Coal companies should follow the example of railroads and treat with a preservative all ties that are permanently installed and that otherwise would rot before they are worn out. The average life of an untreated haulage tie is between two and three years. If the life of mine ties were tripled by preservative treatment, and this can easily be expected of those on a main haulway, the expenditure for such treatment is warranted if only from the standpoint of the cost of materials, to say nothing of the saving in the labor of replacements. He gave the cost of treating 5 x 6 in. x 5 ft. ties by the dipping method at two mines in the coke regions of Pennsylvania. At one of these plants the cost per tie for preservative and labor of application were 9.5c. and 5.5c. respectively, or a total of 15c. At the other plant the total cost per tie of about the same size was 15.1c.

Track curves should be of 100-ft. radius where both speed and safety are desired. Many derailments at switches and frogs are attributable to dirty roadways. Supporting switch points and frogs on concrete is a matter worthy of careful consideration.

When locomotives weighing more than 15 tons are required, the tandem unit is preferable because of its greater flexibility both in operation and repairs. Tandem units cause less stress on the track, are put back with less difficulty following a derailment and their repair is facilitated by the fact that the parts to be replaced are smaller. Furthermore, only one of the two locomotives making up the tandem unit is apt to get out of order at a time, the other being kept in operation by the addition of a spare unit which serves as a mate.

Where permanent roof support is needed, steel timbers are superior to wood. They are much lighter in weight and are less obstructive than wood when of the same strength. They do not suffer greatly from corrosion if they are properly and periodically painted. In many cases steel legs may be protected from acid water by being placed on concrete piers.

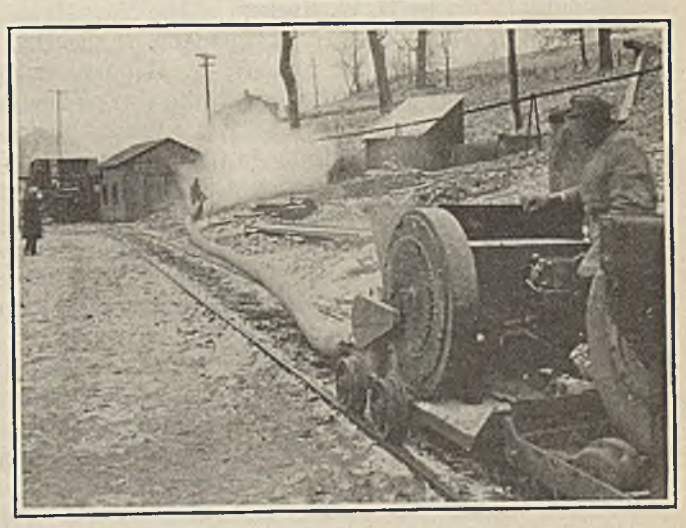
From Manpower to Horsepower

In 1907, the coal cut by machines in the United States was 35 per cent of the production, while the percentage in Great Britain was but 5 per cent. In 1924, the comparative figures for coal cut by machine were 70 per cent for the United States and less than 19 per cent for Great Britain.

The social interest in the extent to which labor-saving mechanical devices are utilized in every industry arises from the fact that such devices lessen the cost of production and in turn the price of the product. With all due allowance for favorable mining conditions here and the energy of the American people, the superiority of our industry in supplying industrial fuel at a low cost must in part be attributed to the enterprising readiness of mine operators to develop and utilize labor-saving devices.

The conditions under which mines are operated present peculiarly difficult technical problems. In a manufacturing establishment operations are concentrated and carried on in the full light of day. In the designing of the plant, operations can be planned in a way to secure most economical performance. Mining, on the other hand, is carried on in underground darkness. The operations must follow the veins of coal over widely scattered areas.

There was a time when all the operations around a coal mine were performed by human labor. The coal was mined by hand, was carried to the mouth of the mine either on the backs of men or on small cars pushed by the men, and, where hoisting was necessary, was raised by means of a windlass turned by hand. The process of mechanization has been going on for many decades. How great an advance has been made may be seen from a mere enumeration of the more important changes that have taken place. Somewhat in the order of their development have come mechanical hoisting; haulage, first by horses and mules, then by locomotives; mechanical drills; cutting machines; conveyors and loaders. Some of these devices have already become practically universal in all progressive bituminous coal mining districts, while others are just coming into use. As a typical example of the progressiveness of the American coal mining industry in this respect, I mention the extent to which coal-cutting machines are utilized here and in Great Britain.—*Walter Barnum, president, National Coal Association before International Bituminous Coal Conference.*



How to Rock Dust Those Back Entries

Ever since rock dust was recognized as a combatant of coal dust ignition, the problem of getting it to, and spreading it in, the back entries has faced the operator. One solution of this problem is here shown. To the outlet orifice of this machine, which is capable of producing a high pressure, is attached a 10-in. canvas duct that carries rock dust 150 to 200 ft. and discharges it as a cloud into the atmosphere. This performance, staged at the federal experimental mine at Bruceton, suggests the application of the scheme to the rock dusting of airways. The machine here shown is the Legrabon.

New Ways for Old in Mining Proposed In Rocky Mountain Meeting

Intensive Training for Inexperienced Miners Develops Careful, Competent Men—Some Conferees Suggest That a Catalyst May Exist That Will Prevent Methane and Air From Exploding and Yet Not Render the Mine Atmosphere Poisonous to Men

Horace Moses
President and Chairman of meeting

BOLD INDEED were the suggestions made in the two closing days of the session of the Rocky Mountain Coal Mining Institute in Denver, Feb. 24 and 25. A system of training in the practice of mining by men instructed in proper methods and anxious to impart them to others is suggested as an apprenticeship for inexperienced would-be mine workers. Something more than that it would be, for the men who would give the instruction would have been themselves entrusted with the best methods and "sold" on their value. Those who advocated the training declared it a far better way than sending men into the mines to pick up, haphazard and by hearsay, the rudiments of their new work, often from men who had only a meager conception of what their jobs entailed.

Bolder yet was the suggestion that methane itself might be curbed and made harmless so that a chance light, a spark from a pickpoint, or a flash of electricity, would not ignite firedamp and ingulf the workings in flame. With so much suggested and so little actually stated, one must wait, with what patience one may, for actual explanation, demonstration and proof.

The second day of the meeting of the Rocky Mountain Coal Mining Institute started with a symposium and demonstration by D. W. Rockey, of the New Mexico State Board of Education, H. A. Tiemann of the U. S. Vocational Training Board and W. C. Holman, chief engineer of the Stag Canon Branch of the Phelps Dodge Corporation, Dawson, N. M. The two outstanding developments in vocational training in the West have been the mining school first, and then the development of foremanship training.

Much aid is given by the state and the federal government to mining companies in organizing and financing this work. In New Mexico the state pays one-fourth of the cost of a full-time instructor, the company paying the rest of the expense. In the other three states, one-half of the cost is carried by the taxpayer; in some places he carries the entire cost. In Colorado the local school board carries one-half the expense, the state and federal departments the other half.

Messrs. Rockey, Tiemann and Holman detailed specifically the work done at Dawson, N. M., where the education provided has been more systematic than elsewhere. Mr. Holman gave an account of the work the Phelps Dodge Corporation was doing to overcome the shortage of practical miners. An underground school has been established somewhat similar to the apprentice system in use in shops, training absolutely inexperienced men with no underground experience and therefore with no preconceived ideas.

Under a practical miner, who had been previously given training experience as a teacher, the novices take up a course of some forty-five essential points, from the checking of the men into the mine through the testing of a place for safety, the setting of props, the use of the shovel and pick, the care of tools, the distinguishing of coal from rock, sprinkling, cleaning up, shooting, safety and first aid.

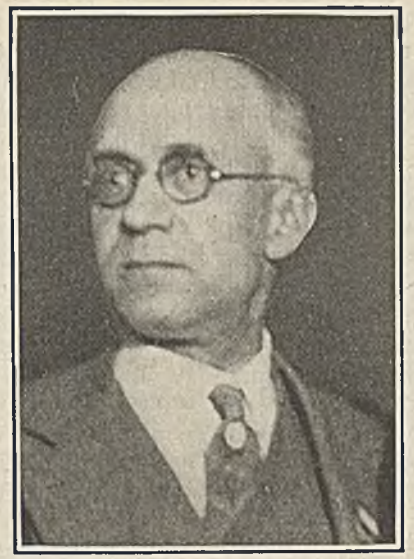
MEN OF MANY NATIONS TRAINED

Applicants of many nationalities were trained, including men from many European countries but a large proportion also of "Spanish Americans" (born in this country of Mexican parents), men born in Mexico and negroes. The Spanish Americans and Mexicans showed the greatest tendency to complete the course and to stay on the job afterwards. The result has been an unusually good class of miners, more competent than the old and better able to take care of themselves.

Of the 116 men who began this course 53, or about 40 per cent, completed it and 41 of these were rated as competent. Of these latter 27 stayed with the company and 14 quit to take other employment. Twenty-five of the 116 proved hopeless as miners and nine were too slow and for this reason were eliminated. The 41 appear to be good miners and likely to stay on the job. W. D. Brennan, the manager of the company, explained that no miracles were performed nor expected, but the work previously done by the allied company, the Copper Queen Branch of the Phelps Dodge Corporation had shown them that good results would be accomplished. Incidentally, the Copper Queen Branch took southern negroes, in fact, many forms of so-called unintelligent labor, and, with one month's to two months' training, made excellent hard-rock miners of them, with a large percentage sticking to the job. He commended heartily the help given by the Vocational Training Bureau and the New Mexico Department of Education.

Mr. Tiemann, for the United States Vocational Bureau of Training, Department of the State of Colorado, demonstrated a conference of experienced foremen,

Edward K. Judd, Who with J. K. Mabbs Invented the Methane Detector Described at the Meeting



Benedict Shubart, Secretary of Institute

J. K. Mabbs, Who Said He Had Great Hopes that a Catalyst Would Solve the Methane Problem

showing how the foremen are trained to pick out the acts and omissions that cause danger, and how to teach the men to handle these points properly. The meeting put eight questions to this presumed mine-foreman conference covering bad conditions underground, bringing out degrees of carelessness and culpability with the means of correcting them, showing with concrete ideas just how this school is handled. Mr. Tiemann showed the methods his instructors use in teaching the foremen, so that the latter can in turn instruct the men, pinning down on each man his responsibility for the elimination of those accidents that are due to ignorance.

Six Mile Tunnel Through Rockies Described

C. A. Betts, office engineer of the Moffat Tunnel Commission, gave a talk on the building and driving of the six-mile Moffat tunnel through the backbone of the Rocky Mountains, not the world's longest railroad tunnel, it is true, but the one having the greatest overburden. This was illustrated by a hundred lantern slides.

Frank B. Thomas, chief electrician of the Victor-American Fuel Co., addressed the institute on the "Authority of the Mine Electrician," asking that he be given more power to take machinery out of the mine when it showed that it was getting into bad condition and needed repairs, thus preventing it from becoming further disabled and providing for greater safety. He demanded too, that the mine electrician be permitted to shut down any work that was obviously, or even in that official's personal opinion, unsafe.

H. P. Burnell, assistant general superintendent of the Owl Creek Coal Co., of Wyoming, read a paper on "Modern Developments in Rock Dusting," discussing mine-dust analyses, methods of taking them, and ways of promoting economy in rock dusting while affording maximum protection. He mentioned the danger of the use of any of the present rock-dusting machines, unless care is used to keep them operating so that they are always distributing dust, instead of merely raising a breeze that stirs up the coal dust and might in itself start an explosion. He urged that though dusting by hand was more expensive, it was safer and more reliable.

He showed by figures the fact that temperature and humidity have comparatively little effect on the explosibility of coal dust. His recommendation of the new type of "V" barrier was combatted by W. F. Murray of the United States Geological Survey and E. H. Denny of the United States Bureau of Mines, who declared that it did not contain sufficient dust.

Judd Gas Detector Creates Sensation

The sensation of the meeting was the demonstration of the Judd gas detector. Prof. E. K. Judd, J. K. Mabbs and Harold E. Fabian gave a demonstration lasting several hours, which continued into the day following. A brief description of this is given in the Feb. 17 issue of *Coal Age*. Anything short of a demonstration entirely fails to show the simplicity, lightness, safety, and accuracy of the instrument. The entire apparatus, excepting the belt battery, now weighs only 11 lb. in its crude state, and there is no reason why this weight cannot be cut in two.

Friday, the third day of the session started with an announcement by J. K. Mabbs of the methods by which the Utah Mine Research Committee hopes to eliminate methane at the coal face. The first public announcement of this work which Mr. Mabbs is supervising is substantially as follows:

Methane has long been considered a coal-mine hazard which could not be overcome and which must be guarded against in every conceivable manner. The committee realizes, therefore, that any scheme for methane-explosion prevention may appear Utopian and visionary. So have many ideas in the past which are today accomplished facts.

Industrial chemistry is in some respects still in its infancy. New chemical processes and the application of new combinations of materials are constantly being discovered.

In attacking this basic hazard of the coal mine, a program which is being conducted under the auspices of the Utah Operators' Research Committee, two general chemical methods have been considered: 1. The absorption of methane in some medium which would permit its safe removal from the mine. 2. The "neutralization," or rendering harmless of explosive methane-air mixtures.

Much study has been devoted to possible gas-absorb-

ent materials, in the hope that some substance or a combination of them might possess an unusually large absorptive capacity for methane, as acetone does for acetylene. Nothing of promise has resulted to date from this phase of the investigation.

The second method, however, is the one upon which Mr. Mabbs' hopes are based. The idea in mind is to render methane incapable of combining with the oxygen of the air by the introduction of some material or combination of materials into the supposedly explosive mine atmosphere. With such a safeguard, the body of explosive gas could then be removed by ventilation.

The explosion of a methane-air mixture of maximum explosive power (9.5 per cent of CH_4) has already been prevented, but the means employed have not proved feasible from practical and toxic standpoints.

European Scientist Working on Problem

The aid of a European scientist, Dr. W. P. Jorissen, assistant professor of chemistry, University of Leyden, Holland, has been enlisted in the attempt to solve this problem. Many are familiar with his research work up to the present. According to information which Mr. Mabbs received in a recent letter, he is resuming his work on methane-explosion inhibitors and is investigating some new ideas on the subject.

Mr. Mabbs draws attention to a branch of chemistry concerning the operation of which little is understood from the theoretical standpoint; namely, catalysis. A catalyst is a material which facilitates or retards chemical reaction while remaining entirely unchanged itself. Those speeding up the reaction are termed positive catalysts, those tending to retard it, negative. Such materials are rarely discovered through intention. They are usually stumbled on by an investigator pursuing a line of investigation which may or may not be entirely disconnected with the catalytic effect discovered.

The Utah Mine Research Committee with the facilities afforded them by the Linde Air Products Co. and the Union Carbide & Carbon Co. are studying possible negative catalytic materials and experimenting with them under the supervision of Mr. Mabbs and Prof. Judd, with the hope of finding some such materials as will inhibit explosions of methane-air mixtures. Enough positive results have been accomplished, it is said, to make the experimenters certain that the results can be accomplished, although the method is still entirely in the dark.

The paper of L. C. Ilsley, of the United States Bureau of Mines, was read by K. L. Marshall, an engineer in the same organization. There was no discussion. The talk was well received, and there was no adverse comment whatsoever regarding the policy and procedure of the Bureau in regard to permissible equipment.

Compensation for injuries is often a source of great expense and annoyance to coal operators. The law of the state of Wyoming is probably the fairest, certainly one of the most advanced laws, in the United States. The Union Pacific Coal Co. has found the law exceedingly satisfactory. H. J. Harrington, supervisor of compensation, of that company, read a paper entitled "Why We Should Be Interested in Mine Compensation."

R. L. Hair, general superintendent of the Colorado Fuel & Iron Co., mentioned a serious difficulty that that company had found in its compensation work. Complaint would be made by an employee sometimes five or six days after the supposed injury was received when there are no witnesses, or when perhaps even the man's "buddy" denied any knowledge of the injury. Yet the man goes before the Compensation Board with his wife; both make an affidavit that the injuries were received, and the lenient Compensation Board alloys compensation. Thus the operator pays for many fradulent cases which cannot be disproven.

W. E. Dickson of the Associated Insurance Co. recalled similar cases where there was collusion with the physician, collusion in reporting the injury where it did not exist, in exaggerating the extent of the injury, and in making and charging for visits that were either unnecessary or were not made.

Accidents of different types are pecuilar to different nationalities. The Greeks for instance, are prone to injury from lifting. The Italians follow them closely in this.

In the final afternoon session, the Safety Committee consisting of William Littlejohn, coal operator; James Dalrymple, state mine inspector for Colorado; and Hugh McLeod, chief mine inspector for Wyoming, proved that three Scotchmen can agree, and the report has now been accepted and will be published in full.

Proceeding to the election of officers, the following will head the Institute for the coming year:

Edward Bottomley, president; F. L. Peart, vice-president for Colorado; R. R. Kirkpatrick, vice-president for Utah; A. W. Dickinson, vice-president for Wyoming; Allan French, vice-president for New Mexico; with an executive committee consisting of: S. M. Thompson, James Struthers, P. H. Burnell, A. L. Gillin, L. M. Kuhns, V. B. B. Hanger, L. R. Weber, and Charles Leger.

There were a large number of the most prominent operators present; in fact no meeting of the Institute has ever shown such a large percentage of actual coal-mining men, there being in all 186 individual registrations.

Oil Furnaces Emit Odor and Are Noisy

"Drawbacks in the use of oil for domestic heating are a slight noise, a slight odor and the possibility of a shutdown, the last a difficulty which always attends the continuous action of any complicated machine under automatic control," declared Prof. E. H. Lockwood, of Yale University at a session of the Metropolitan Section of the American Society of Mechanical Engineers, Feb. 11, at the Engineering Societies' Building, New York City.

"Oil is usually burned by domestic consumers," he remarked "in the furnaces already installed and designed for use with coal, special burners having been fitted for the combustion of the new fuel. A variety of oil burners is now in use, most of which employ an electric motor to deliver oil or air or both into the combustion zone.

"In general these burners are capable of producing good combustion with satisfaction to the users. Thermostatic control is provided which usually operates by putting the burner off or on, so as to give a uniform temperature in the building.

"Oil burners have given to many users a new conception of comfort and convenience in heating. Once accustomed to these conveniences users will be loath to return to the comparative discomforts of hand-fired coal furnaces. The inherent drawback of heating by oil is the future scarcity which is likely to result from a decline in the production of petroleum."

Viewpoints Of Our Readers

Has Lewis Honored Jacksonville Pact?

In the issue of *Coal Age* of Jan. 27, on p. 173, you print a statement from J. L. Lewis, international president of the United Mine Workers of America, wherein he declares that the union has lived up to the union agreement. I cannot believe that Mr. Lewis is ignorant of the negotiations regarding the scale for mechanical loading in Illinois.

The Jacksonville agreement provides that any coal company may install machines or any device for lowering the cost of producing coal, provided the earnings remain in accordance with the Jacksonville agreement. We have mines in Illinois loading coal with machines which have been operating for over one year and still they have no agreement, even though the men employed at the mine have sent letters and telegrams to Frank Farrington, till recently president of the Illinois district, and to the committee of operators and miners saying that they were well satisfied with the conditions under which they were working.

Nowhere have I read that Mr. Lewis was in Illinois seeking to make a loading scale for those who wish to operate such machines within the provisions of the Jacksonville scale. I know several Illinois coal companies which are desirous of installing loading machines but are not permitted to do so by the United Mine Workers. Mr. Lewis bitterly criticizes the coal operators for violating the Jacksonville agreement. Let him now tell the dear public why the United Mine Workers have not complied with its provisions. JOSEPH HASKINS.

Catlin, Ill.

From the Ultimate Consumer

From a number of direct-mail circulars which have come to me from local coal merchants I note that the coal industry, locally at least, has finally gotten around to something in the way of advertising aside from the time-honored "business-card" style—"John Smith, Coal and Wood." These circulars usually bear a telltale legend down at the bottom which mark them as syndicated copy.

In each case, the text is devoted almost exclusively to pointing out the earmarks of *poor* coal. It would appear to the average reader that the object was, first to establish the fact that there is a lot of poor coal being offered in this locality; and secondly to qualify the reader to pick the good from the bad. Certainly one effect is to arouse suspicion as to the business integrity of *somebody* in the coal business hereabouts.

Now, in each specific case, it is clearly stated that "*Our* coal is good coal." The inference is that the other fellow is the culprit. If every coal man sent out this kind of a message, the humble consumer might assume that "He doth protest too much," and begin to wonder if the whole coal business wasn't a little bit off color. Don't forget that said h. c. went through a very trying winter not so long ago, and still remembers it.

Not so long ago he had to use coal to keep warm, but time wags on until he *can* use oil. And he is doing so, more and more. If he does, as I do, and also uses a little gray matter, he really gets quite a kick out of the spectacle of the coal fraternity casting reflections at one another in an effort to divide the coal business among themselves, when their real competition is oil, at least it is here.

Not all the reports from eminent gentlemen at Washington about our dwindling oil resources will stop him, for in that respect, how much better off are we on coal supply? Nor is he deterred by advertising in the name of a coal association which cites the troubles of Hiram Maxim *some years ago* with *one* oil burner. The enthusiasm of his friends and fellow commuters over their oil burners robs this one lone case of its terrors.

When will the good old coal industry stop thinking and talking in terms of worn-out traditions, and build its plans to some extent on what the customer says to himself when the question of a coal supply comes before him. Burns was not a business man, but he was wise. "Oh, wad some po'er the giftie gie us, to see oursel's as ithers see us!" Coal merchants might well frame that and hang it in their inner sanctums.

Montclair, N. J. LUTHER MCG. MOYER.

Why Is Life of Ropes So Short?

The Madison Coal Corporation has been hampered by serious rope trouble at a comparatively new mine. No difficulties were encountered during the first three years of operating life, after which the ropes began breaking either at the socket or within a few inches of it. Thimbles and clamps were then installed. These apparently have ended this particular trouble. The ropes then began breaking near the center, about where they would be on the sheave wheel with the cage at the shaft bottom.

The ropes originally hoisted about 350,000 tons before the usual signs of failure indicated the need for replacement. Since the trouble developed, the ropes, with one exception, have failed at from 75,000 to 200,000 tons short of their previous average service. Six different makes of standard ropes have failed in fourteen months.

The hoisting engine is a double first-motion hoist, with a 26x42-in. cylinders equipped with governor to prevent excessive hoisting speed. The drums are cylindrical, of 7-ft. diameter with 1⅝-in. grooves for 1½-in. rope. The total load on each rope is 32,000 lb. and the unbalanced load 8,500 lb. The sheave wheels are the usual bicycle type, 8 ft. in diameter with a 1⅝-in. groove, which recent inspection has shown to be full size and in good condition. The hoisting rope is 1½-in. extra strong. Nearly all standard makes have been tried. The cages are of the usual self-dumping platform type. The shaft is 111-ft. deep. The distances from shaft bottom to the center of sheaves is 202 ft. The average rate of hoisting is 2½ dumps per minute and the maximum rate 3 dumps per minute.

The equipment is in first-class mechanical condition and the alignment is perfect. Hoisting and rope experts have been unable to point out the trouble. Hoisting conditions, every detail of inspection, maintenance, lubrication of ropes, etc., remain unchanged, and the same hoisting engineers have handled the engines throughout the entire period.

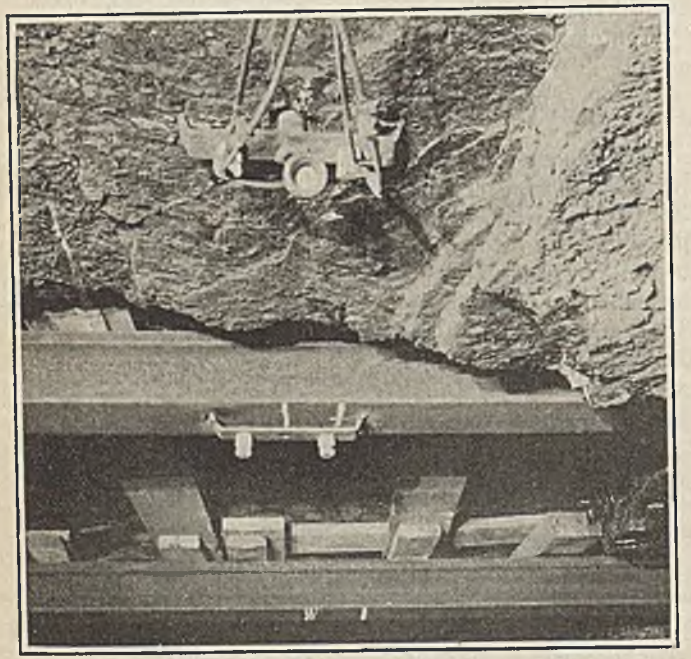
Some of your readers may be able to aid us.

G. E. LYMAN,
General Superintendent, Madison Coal Corporation,
Glen Carbon, Ill.

Practical Pointers For Electrical And Mechanical Men

Drilling Weakens Roof Beams, so Wire Hangers Are Welded in Place

Rails and beams employed as roof supports are greatly weakened by the holes sometimes drilled in their flanges for the mechanical attachment of trolley wires or other electrical conductors. In most cases such holes pierce the lower flanges which are under the greatest stress. If enough of the metal is thus cut away the beam will



Wire Hanger Welded in Place

Bolt holes drilled in the lower flange of roof beams were the cause of many beam failures. These hangers are now welded to the roof supports as this type of attachment does not weaken the beam in the least. The hanger here shown is for the support of electric light wires but the design is such that it may be attached directly to the mine roof if such a course becomes desirable.

bend prematurely if indeed it does not even fail. At the Valier mine in southern Illinois this difficulty is overcome by attaching all conductor hangers to the steel roof supports by welding as shown in the accompanying illustration.

As may be here seen the hanger, attached to a 90-lb. rail, carries a pair of electric light wires. This hanger is fashioned from a piece of ¼ x 1¼-in. strap iron about 10 in. long which is bent as indicated. Two holes are drilled in this strap for the reception of the bolts holding the porcelain-knob insulators. Midway between them is placed an 11/16-in. hole for the accommodation of a ⅝-in. expansion bolt, by means of which the hanger may be attached directly to the mine roof, if this be desirable. Trolley hangers themselves may be welded directly to steel roof supports in an exactly similar manner.

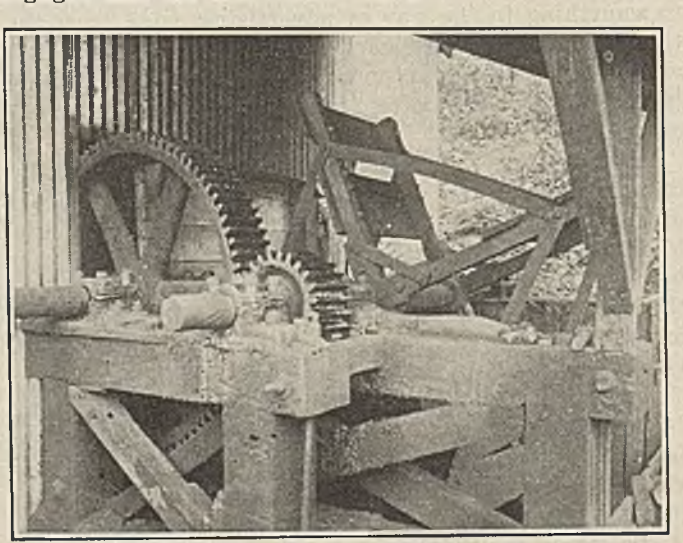
Fan Connected to Hoist Drum Serves As an Automatic Brake

Screeching, smoking, and rapid wearing of brakes on slope hoists and incline machines are a cause of worry and expense. No doubt a fan has been considered in many instances as a means of dissipating the energy. Yet few such applications have been made.

Because the power required to drive a fan at the start is practically only that necessary to overcome inertia and bearing friction, and because the power increases as the cube of the speed, a fan makes an almost ideal governor for a hoist drum when lowering loads.

Several years ago someone at the coal mine of the Roane Iron Co., at Rockwood, Tenn., must have remembered tinkering with a clock and recalled the air-paddle governor of the striking mechanism. To the hoist at this mine there has been applied an air-paddle or fan governor which is a gigantic reproduction of the clock application just mentioned. Although the fan is of a crude type and the drive has no mechanical refinements the equipment is doing regular duty as a brake and speed limitator of the hoist.

The fan is without housing and is located in an open-side shed adjoining the hoist house. It is 8 ft. in diameter and has four flat paddles, each 3 ft. wide. It is gear driven from a counter shaft which in turn is belt driven from a clutch pulley mounted at the end of the drum shaft. When a trip of cars is being hoisted the clutch pulley is disengaged and the fan is idle. When the empty trip is to be let down the 5,000-ft., 11-per-cent slope, the drum clutch of the hoist is disengaged and the fan clutch engaged.



Showing Fan and Countershaft

This equipment is without mechanical refinements but for many years has been doing regular duty as a brake and automatic governor of the hoist when lowering empty trips down the long slope in the mine. The fan wheel is 8 ft. in diameter and 3 ft. wide, and is without housing.

The hoist drum and fan soon accelerate to the speed where the power required to drive the fan equals that generated by the rotating drum. The hoist brake is relieved of all duty except to stop the trip at the bottom. Dangerous overspeeding due to possible negligence of the hoistman or to a brake failure is prevented.

Information as to the maximum horsepower dissipated by the fan and the number of years that this fan has been used was not available. The hoist appears to be quite old. It is steam driven but is equipped with a modern auxiliary drive consisting of a 500-hp. induction motor.

Distances Determined Without Scaling By Concentric Circling

Suppose that a conference is being held in the mine office relating to some underground matter. During the discussion some one asks the distance from some certain point to the shaft bottom or tipple. Some one present scales this distance on the mine map, but this process consumes five minutes or so during which time the deliberations come to a standstill, so that this time is needlessly wasted.

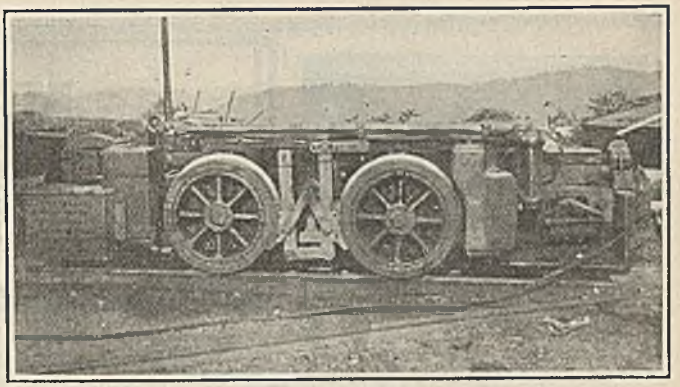
As a means of determining almost at a glance how far any location within the mine may be from a fixed point such as the shaft bottom or tipple, the following method is suggested by F. F. Green, superintendent of the Valier mine in southern Illinois: On the map, drawn to a scale of, say, 500 ft. to the inch, describe: concentric circles, with the shaft or tipple as a center, the radii of which increase by increments of 1 in. All points on each succeeding circle are thus 500 ft. farther from the center chosen than corresponding points on the next smaller circle. By this means the distance of any point shown on the mine map from the shaft, tipple or other point may be ascertained almost immediately and without difficulty. These distances, furthermore, are sufficiently accurate for most purposes.

Haulage Locomotive Was Changed to Reel

In the accompanying illustration is shown one of several 6-ton locomotives which were changed from the haulage type to the cable-reel type, for gathering duty. This work was planned and carried out by the local mechanics of the Wolfpit mine of the McKinney Steel Co. These altered locomotives have proved quite satisfactory in the new service, and in general appearance compare favorably with machines built expressly for that use.

What was formerly the cab end was utilized for mounting the cable reel. The controller was placed in a space made in the other end by cutting away the upper corners of the open-type frame. Arranging the brake wheel in this end was somewhat of a problem. There would not be sufficient clearance for it if put in the center (the easy place to put it), and moreover, the rotation would not be standard.

The difficulties were overcome by using two 5-in. diameter pump pinions, one on the old handwheel shaft and the other on a short shaft to which the handwheel was transferred. This located the wheel so as to leave sufficient clearance between it and the controller, and also corrected the rotation.



Altered for Gathering Service

Several of these 6-ton haulage locomotives having 904-C motors were fitted with cable reels and otherwise changed for gathering service. The upper corners of the open-type frame were cut away to form a cab for the new controller position. Pump pinions were utilized to move the brake handwheel from the center of the locomotive, and to arrange the wheel for standard rotation.

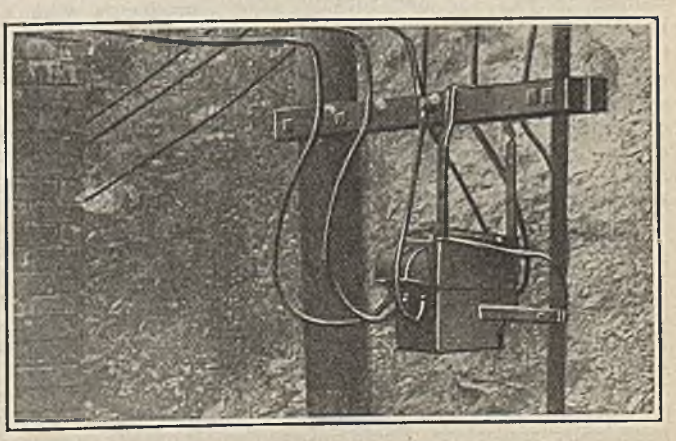
The resistance which was formerly in the space now alloted to the cab, was moved to the reel end. The perforated end shield can be seen in the photograph. No change was made to the driving equipment which consists of two type 904-C 250-volt motors.

Emergency Cutoff Is Provided By Outdoor Switch

It has happened a number of times that a man has watched a substation converter or motor generator wreck itself because danger prevented his getting to the motor switch or to the disconnects to cut off the power. This condition is forestalled at the substations of the McKinney Steel Co., at Wolfpit, Ky., by the use of hand-operated oil switches on the outside of the buildings.

The accompanying photograph shows the 4,000-volt oil switch connected in the line that enters the No. 1 substation. This switch is mounted low enough so that it can be operated from the ground without the use of a pole. The switch case is grounded electrically by a heavy wire, as a protection against possible shock.

This use of a switch on the outside of a substation has another advantage. It provides a convenient means of cutting off the power for inspection or repair of the indoor lightning arresters and of the wiring on the line side of the disconnect switches.



Oil Switch Outside of Substation

In case of fire or electrical trouble, power can be cut off the equipment even if the building is locked or dangerous to enter.

News Of the Industry

No Outward Change in Wage Impasse; Plans for Possible Strike Influenced By Position of Pittsburgh Coal Co.

By Sydney A. Hale
Associate Editor *Coal Age*

Developments in the Central Competitive Field wage muddle during the first week of March were chiefly of the under-cover variety. Officially, both operators and leaders of the United Mine Workers held to the positions taken at the time of the unsuccessful Miami conference. Unofficially, however, it is intimated that another joint meeting will be called before the expiration of the Jacksonville agreement and hope is expressed that such a conference might prove more fruitful of direct results than was the Florida fiasco.

In the meantime both groups are looking over the situation and making plans for the campaign to be followed in the event that the union orders a suspension of work in the Central Competitive Field on April 1. Permission already has been accorded to outlying districts to continue to work after March 31 at the Jacksonville basis pending the negotiation of an agreement in the four-state field. Some operators have announced their acceptance of this permission; other groups are considering it.

Attitude Pending Settlement Open

Whether the union will go a step further and extend like permission to producers in the Central Competitive Field itself where such producers are willing to pay the Jacksonville scale until an agreement has been made for their district or state has not yet been disclosed. That there are operators who probably would avail themselves of such permission is well known. Decision on this question, however, doubtless will be withheld until the policy committee of the United States Mine Workers has another meeting.

A survey of the situation in the Central Competitive Field shows pro-union sentiment among the operators strongest in Illinois and weakest in western Pennsylvania. Illinois is the least disposed of any state to challenge union authority. For one thing, the miners' certificate law leaves the operators practically powerless. For another, the feeling in the coal fields is belligerently union and the shadow of Herrin appalls the rash.

Moreover, Illinois is the most hopeful that a way may be found by which union relations can be continued unimpaired and the operators be placed in a better competitive condition. There are many producers in that state who believe that a modification of working conditions, carrying with it a restoration of discipline surrendered in earlier years, is the solution. This viewpoint, however, is not shared by all operators in the state and there also is considerable difference of opinion as to the measure of relief such changes would yield.

Indiana in Tight Place

Indiana, which has complained bitterly of petty strikes under the Jacksonville compact, probably feels nonunion competition more severely than its sister state. It is closer to the nonunion fields of the South, and its freight-rate protection, except in markets where it competes directly with Illinois, is less secure. That there is some merit in its complaint against petty strikes is privately admitted, but union officials decline to accept the entire burden of responsibility for this situation.

Operators in that state are widely split upon the question of machine loading. Certain of the official spokesmen are accused of being opposed to rates and conditions which will make the operation of these machines successful. Because of this there are other producers who are out of sympathy with the attitude of such spokesmen. Union leaders are well aware of this divergence in viewpoint and it is one of their assets in dealing with the Indiana situation. The reported willingness of the stripping mines to play with the organization is another shot in the union's arsenal.

Ohio in Passive Opposition

Ohio has dealt with the United Mine Workers for so many years that there are influential operators in that state who still seek some way to continue this relationship. There are others who have abandoned all hope that such a way can be found, and some of these interests are convinced that further negotiations with the union are impossible. Nevertheless they have not reached the point where they are willing to take anything more than a stand for a passive fight, and some of this group have declared their willingness to attend another joint conference.

Western Pennsylvania is the most open in its declaration that nothing seems left but open-shop operation. As a matter of fact, it is authoritatively reported that certain important producing interests in the Pittsburgh district have served notice on the union that they will run open-shop after April 1 unless the United Mine Workers accept the Toledo plan for "a continuously competitive wage scale." On the other hand, there are said to be operators in that district who are anxious to meet the union's terms.

Insist on Competitive Wages

Neither Ohio nor western Pennsylvania sets any store by a modification in working conditions without a reduction in the base rates called for in the Jack-

Trade Not Warfare; Will Flourish if Unfettered

Recent cables, according to the *New York Times*, have quoted economic authorities in Europe as opposing the idea of a European Customs Union or lower tariff schedules between the various Continental countries on the ground that the United States has maintained a high tariff and flourished amazingly under it. At one of the recent annual bank meetings in London a somewhat different view was taken. J. W. Beaumont Pease, chairman of Lloyds Bank, said to his shareholders regarding the United States:

"That country offers us some valuable lessons as to what we should strive for and what we should avoid. The absence of restrictions of trade which she enjoys within her own borders presents us with an example which Europe has been advised to follow in the document known as the Plea of the Bankers, which was published last October. Her greater recognition of the community of interest between employers and employed is another factor contributing to the unexampled prosperity she has experienced in recent years. We have here a double lesson of the truth that trade is not warfare, and that if trade is to flourish it can only be in an atmosphere free from disturbance."

sonville scale as a solution to the problem. These operators are insistent that the wages must be brought down to levels competitive with those of the non-union mines. Nor is complaint made of petty strikes. On the contrary, Pittsburgh district operators are frank in their commendation of the manner in which district union officials have compelled observance of the contract.

In both Ohio and western Pennsylvania discussion centers around the Pittsburgh Coal Co. Although it is the policy of the union to question the tonnage and efficiency of that company under open-shop operation, producers in the districts mentioned appear sold on the idea that the Pittsburgh company has been successful in its fight against the union. For that reason they argue that they must have a wage scale which will make it possible for them to meet the competition at their own doorstep.

Horace F. Baker, president of the Pittsburgh Terminal Coal Corporation, emphasized this point during the negotiations at Miami. That the union is not unmindful of the menace was indicated by the fact that John L. Lewis, president of the United Mine Workers, spent three days in Pittsburgh last week getting a first-hand picture of the situation. During his visit Mr. Lewis made a tour of the mines in that district and held several conferences with his chief lieutenants in the field.

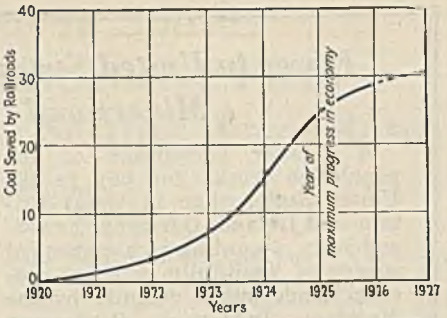
Expect Suspension April 1

Despite the possibility of another conference within the next fortnight, operators in all parts of the Central Competitive Field expect a suspension on April 1. With reserve stocks accumulating at the present rate such a suspension will worry only the producers and the miners, as it would be several weeks, if not months, before consumers would feel any pinch. If the suspension takes place without any provision for a resumption of negotiations, the question of future policy will be passed up squarely to Ohio and western Pennsylvania.

If the struggle takes place in earnest, the chances are that it will be one of the most bitter in the history of the bituminous coal fields. Already some operators are talking of foregoing certain of the amenities which have marked other contests between the union mine workers and their employers. On the other hand, it is not improbable that the union would concentrate its fighting force against operating groups which it felt were primarily responsible for stiffening opposition.

Solid Front Urged on Labor

Finally, the question of the attitude of organized labor generally looms large. William Green, president of the American Federation of Labor, is a former international officer of the United Mine Workers of America. At the Indianapolis convention of the miners he urged the workers to stand solidly back of any program which their leaders might adopt. Even without this indorsement, it is hardly possible that organized labor would contemplate placidly a movement designed to further weaken one of its strongest units and to spread the doctrine of the open-shop.



Since 1920 Railroads Have Cut Bills for Coal Millions of Tons

Ordinates are expressed in millions of tons saved year by year from 1920's consumption. Note how 1925 shows a maximum progress in economy. In 1926 the saving was greater but the advance was smaller over 1925 than that year showed over 1924. Evidently the "law of diminishing returns" is at work in the economies in the use of railroad fuel.

Welsh Mine Explosion Takes Heavy Toll of Lives

An explosion early in the morning of March 1 in the Marine colliery at Cwm, Wales, entombed fifty-one miners, most of whom perished. The total of known dead on the afternoon of the blast was twenty-three, but hope had been abandoned for twenty-eight others who were imprisoned in a section about a mile and a half from the main shaft.

At the time of the explosion there were 135 men in the mine. Rescue squads fought grimly through the long morning hours to reach their comrades and more than eighty men were brought to the surface alive.

The task of the rescuers was most difficult because of gas and many who descended into the mine were overcome and taken to hospitals.

Sheridan-Wyoming Bonds Issued

Lee, Higginson & Co. are offering $3,000,000 Sheridan-Wyoming Coal Co. closed first mortgage 6 per cent sinking fund gold bonds, dated July 1, 1927, and due July 1, 1947, priced at 99½, yielding over 6 per cent. The company owns and operates 90 per cent of the bituminous coal properties in Sheridan County, Wyoming. Sales in 1926 totaled 781,397 tons and earnings $678,062.

The bonds are unconditionally guaranteed as to interest and sinking fund, sufficient to retire 60 per cent of the entire issue by maturity, by the United States Distributing Corporation. They are further secured by closed first mortgage on entire fixed properties and leaseholds valued at $9,578,000.

Alabama Rate Hearing Set

The Alabama Public Service Commission has set for hearing in Mobile, March 28, the complaint of the Deep Water Coal & Iron Corporation against the Northern Alabama, Southern and Louisville & Nashville railroads. This complaint alleges unjust and unreasonable rates on coal from points of origin on the Northern Alabama to Mobile in connection with the Southern and Louisville & Nashville. Protest also is made against alleged inadequate tipple and transfer facilities for such shipment at the Port of Mobile.

B. R. & P. Cancels Option On Lease to Loree

The board of directors of the Buffalo, Rochester & Pittsburgh Ry., at its meeting March 2, unanimously decided to exercise its option to terminate any commitment of that company to lease its properties to the Delaware & Hudson Co. The uncertainty during the past eighteen months as to whether the lease would become effective has made it difficult to make necessary plans for the conduct and development of the property, and it was the opinion of the board, after careful consideration, that this period of uncertainty should not be further prolonged.

At special meetings of the stockholders of the Delaware & Hudson and the B. R. & P. held in September, 1925, a lease of the property of the B. R. & P. to the Delaware & Hudson was authorized for a period of 999 years from Jan. 1, 1926. The terms were to provide for net rental equivalent to 6 per cent per annum on all outstanding preferred and common stock of the B. R. & P. and the payment of fixed charges and maturing debts. The lease was to be effective as soon as the Interstate Commerce Commission approved the plan.

L. F. Loree, president of the Delaware & Hudson, on being interviewed declined to comment on the action of the directors of the B. R. & P. in refusing to extend the option on the lease of the latter road. Official of the B. R. & P. refused to amplify President Noonan's statement.

It has been learned from official circles that Mr. Loree will offer his bid again to the Buffalo, Rochester & Pittsburgh, but will not pay more than the original terms offered, in spite of the bidding of other roads for rights. As far as the New York Central is concerned, the Interstate Commerce Commission is almost sure to refuse its approval for it leasing the B. R. & P. lines, its reason being that the company is too large to allow it to expand in that manner in the East, and that such expansion would be detrimental to public interest.

Technically the Interstate Commerce Commission still has pending before it the application of the Delaware & Hudson to lease the B. R. & P., and it also has pending before it a trackage agreement between the Pennsylvania and the D. & H. for use of the Pennsylvania lines to form the connecting link. As the matter now stands the plan of the D. & H. appears on the surface to be much upset, and the roads which have opposed the plan apparently have obtained their objects.

The Interstate Commerce Commission has a number of courses open to it. It may drop the entire matter; it may approve the lease of the B. R. & P., thereby blocking the Baltimore & Ohio or any other road in any attempt to lease.

The next move in any event is to be made by the Commission. But there seems to be little doubt, in view of the attitude of the Interstate Commerce Commission, that it will approve the lease of the Delaware & Hudson for the Buffalo, Rochester & Pittsburgh, thereby allowing Mr. Loree to go on with his plans for a fifth trunk line.

Orders Anthracite Rate Cut To Northern New York

Revision of the rates on anthracite to northern New York was ordered, effective June 20, by the Interstate Commerce Commission in a decision made public March 1. The Commission held that present rates are unreasonable and, to some points, unduly prejudicial. A just and reasonable basis of rates was prescribed.

This ruling is the result of the Commission's general investigation of the rates, charges, regulations and practices governing the transportation of anthracite and because of the numerous complaints filed with it by civic organizations and retail coal dealers in upper New York against the application of higher rates on this commodity from producing fields in Pennsylvania to northern New York over joint-line routes than contemporaneously applied over single-line routes.

The Commission ordered that the rate of $3.15 per ton on prepared sizes of coal to Rochester, N. Y., be reduced to $3.02 per ton over certain routes and that the rate of $2.77 on pea and smaller sizes be reduced to $2.65 over certain specified routes. Rates on prepared sizes on pea and smaller sizes to Carthage and Clayton over routes on which a rate of $3.28 now applies to Watertown were ordered changed to $3.28 and $2.77 to Carthage and $3.41 and $2.88 to Clayton.

"Our conclusions," the Commission said, "are designed to bring about nonprejudicial rate relationships as well as a reasonable level of rates generally. The resulting revision will be in the nature of a general readjustment peculiar to this particular traffic."

At the same time the Commission ruled that the proposal of certain carriers to increase their rates on anthracite from mines in Pennsylvania to points in northern New York was not justified. It held, however, that the proposal to reduce rates from and to the same points was justified in part.

Ohio Asks Congress to Lift "Rate Discrimination"

A joint resolution was adopted by the Ohio Legislature March 4 to memorialize Congress to act "to remove the unreasonable rate discrimination existing against Ohio coal freight rates, established by the Interstate Commerce Commission." The resolution was adopted by both houses without a dissenting vote. It asserts that the coal operators in states to the south, under the present zone coal freight tariffs, can ship their coal into territory adjacent to Chicago and the lower lake ports at a lower rate than Ohio operators.

It asks Congress to investigate as to what extent the Interstate Commerce Commission is permitting a discrimination to exist between southern and central coal fields and to pass a law or amend the present statute to relieve the situation.

Representative W. T. Roberts, author of the resolution, said: "There is something radically wrong with the Interstate Commerce Commission. There is no justification for this discrimination, nor for the Commission retaining the present rate differentials in the face of recommendations from their own attorney examiners who investigated the conditions."

Fewer in United States Now Work for Living; Miners and Clerks Increase

A smaller percentage of the population works for pay in the United States than in Great Britain and Ireland, Germany, France and Italy, according to a statistical survey of "gainfully occupied persons" made public recently by the National Industrial Conference Board. The report said:

"Less than four out of every ten persons in the United States in 1925 were working for a living. The other six either were living on the returns of their investments or were being supported by others or at public expense. Whereas the gainfully occupied in 1910 numbered 38,167,336 persons, or 41.5 per cent out of a total population of 91,972,266, there were 41,614,248 out of a total of 105,710,620, or 39.4 per cent so occupied in 1920. But for 1925 the gainfully occupied are estimated at 42,910,000, constituting only 37.2 per cent of the census-estimated total population of 115,378,000.

"The Netherlands and Denmark recorded a lower proportion of gainfully employed than the United States for 1920, their number constituting 37.7 per cent of the total population."

The decrease since 1910 in the number of "gainfully employed" persons in proportion to the total population was attributed to relatively larger school and college attendance and restriction of immigration.

The report continued as follows:

"Persons engaged in agriculture show a decided decrease, constituting 24.5 per cent of the gainfully occupied in 1925, as against 33.2 per cent enumerated in 1910, the year of the last pre-war census. The proportion of those in the manufacturing and mechanical industries, according to the analysis, has increased only slightly, from 27.8 per cent in 1910 to 29.9 per cent in 1925. Miners and transportation workers likewise show a slight relative increase. Clerical workers nearly doubled their proportion to other workers, constituting 4.6 per cent of the gainfully occupied in 1910, and 8.9 per cent in 1925."

May Extend D. T. & I. to Ohio And Kentucky Coal Fields

There is a strong probability that the lines of the Detroit, Toledo & ronton R.R., the Ford-owned system, will be extended down the Scioto Valley from Chillicothe to large coal fields in Pike County, Ohio, and Harlan County, Kentucky. A survey of the proposed route is now being made and will be completed in a short time, when the final decision will be made.

C. G. Liebold, vice-president of the D. T. & I., recently made this statement: "The survey being made by our engineers in the Scioto Valley has been in progress for a year. Whether or not a railroad will be built on this line depends entirely on what the survey reveals."

Anthracite Circular Prices For March at New York

(Per Gross Ton, F.O.B. Mines)

	Broken	Egg	Stove	Nut	Pea
Lehigh & Wilkes-Barre Coal Co...	$8.25	$8.75	$9.25	$8.75	$6.50
Hudson Coal Co...	9.00	8.75	9.25	8.75	6.50
D.L.&W. Coal Co.	8.25	8.75	9.25	8.75	6.50
M. A. Hanna Co...	9.00	9.25	9.60	9.25	6.50
Phila. & Reading Coal & Iron Co..	9.15	9.15	9.40	9.15	6.50
Lehigh Valley Coal Sales Co.....	8.50	9.00	9.35	9.00	6.50
Lehigh Coal & Navigation Co..	9.25	9.25	9.50	9.10	6.35

Steam sizes: No. 1, buckwheat, $3; rise, $2@$2.25; barley, $1.50@$1.75, and birdseye, $2.

Old Home Coke Plant Sold To W. J. Rainey

W. J. Rainey, Inc., has acquired the Old Home plant of the W. J. Parshall estate, at Uniontown, Pa. The transfer, which includes the remaining coal and the present coke operations of the Parshall estate, became effective March 1. The price is estimated to have been in the neighborhood of $250,000 to $300,000, though no official announcement could be obtained.

As sold to the Rainey interests the plant consists of about 100 acres of unmined coal and a coke yard with 100 beehive ovens recently equipped with mechanical drawer and crusher. The Old Home, which is one of the best known of the independents in the Connellsville region, was built and operated by W. J. Parshall. Since his death several years ago it has been operated as the W. J. Parshall estate under the direction of James M. Parshall, a son.

The Chesapeake & Ohio Ry. has awarded contracts for rebuilding 570 ton steel hopper-bottom gondola car bodies at a cost of approximately $800,000 to the Richmond Car Works and the American Car & Foundry Co., Huntington, W. Va. The work involves removing and dismantling car bodies from trucks, cutting and loading scrap and making necessary repairs to trucks. The contract is equally divided.

The Northern Pacific has placed 300 gondolas with the Ryan Car Co.

An outstanding inquiry is from the Norfolk & Western for rebuilding of 1,000 hopper cars of 57½-ton capacity. The company is asking for new bodies and also repairs to trucks.

Expanding Coal Output in South Makes Central Competitive Field Poor Unit for Setting Wage Rates

By Paul Wooton
Washington Correspondent of *Coal Age*

C. E. Lesher, of the Pittsburgh Coal Co., makes the point that the Central Competitive Field is a much worse unit upon which to determine the rates of wages paid coal miners in the union fields than was the case when that issue was discussed in 1922. There are figures to substantiate Mr. Lesher's contention and to demonstrate the great shift which has taken place in competitive relations since the old unit of negotiation was established in 1898. New partners and new opponents in the race for trade are now operating.

In 1899, the first year after the present system of collective bargaining went into effect, the Central Competitive Field produced 32.2 per cent of the total tonnage of the country. Central Pennsylvania produced 13 per cent. Iowa and Michigan produced 3 per cent. The four states of the Southwest Interstate field—Arkansas, Kansas, Missouri and Oklahoma—produced 4.7 per cent. The Northwest group, including the Northern Rocky Mountains, the Dakotas and Washington, produced 4 per cent. Here was a total of 58 per cent lying either in the Central Competitive Field or in other districts which by geographical position or by union affiliation, or both, naturally would follow the lead of the Central Competitive Field. A scale satisfactory to that central block would be a suitable base for the other districts.

The old unit of negotiation maintained its relation to the total production of the country with surprisingly little change up to the time of the war. For example, in 1913 the Central Competitive Field still produced 33.7 per cent of the country's total. The rapid growth of southern Illinois and Indiana kept it in step with the growth of the Southern fields. There had been some shrinkage in the production of outlying districts, but, taken together, the group still contributed over half of the country's total—53.3 per cent—and the old competitive relation continued.

Central Competitive Lead Wanes

By 1925, however, the cumulative changes of the market had become very apparent. In that year the production of the Central Competitive Field had shrunk to 29.7 per cent of the total. Central Pennsylvania had dropped to 7.6 per cent. Iowa and Michigan had fallen to 1.1 per cent, the Southwest Interstate to 2.1 per cent and the Northwest to 2.6 per cent. Thus the block of districts which at the beginning of the century controlled 58 per cent of the output now could claim but 43 per cent of the production.

Coincidental with the shrinkage of the Central Competitive Field and its satellites the Southern fields grew apace. Western Kentucky had increased its output from 1.4 per cent to 2.3 per cent of the total. While the volume was not great, it showed a remarkable rate of increase. The three great non-union counties of Pennsylvania, Fayette, Westmoreland and Somerset; the southern Rocky Mountain non-union areas, and also Alabama and Tennessee had lost relative ground, but a phenomenal increase had occurred in the output of the two Virginias and eastern Kentucky. Maryland's output rose from 14.5 per cent in 1899 to 20 per cent in 1913, and to 34.8 per cent in 1925. Thus the Central Competitive Field had ceased to be the largest single block of tonnage. The center of gravity had shifted to the Middle Appalachian region; whereas in 1899 the tonnage of the Central Competitive Field had outweighed the Middle Appalachian by more than two to one, in 1925 it was actually less.

Middle Appalachian Field Dominant

The dominant influence of the Middle Appalachian region as shown by the tonnage of 1925 is all the greater because of its ability to ship either east or west. The levels of wages paid have determined the competitive pressure on union standards, not only in the lake trade but to an increasing degree in the Middle West and all along the Atlantic seaboard, whereas in 1899 central Pennsylvania was but little affected by the competition of the Southern fields in its chosen markets of the Northeast. Today Southern coal, shipped by way of Hampton Roads, is the controlling factor in prices at all seaboard points and for long distances inland. Central Pennsylvania is necessarily less concerned in the Central Competitive scale than it was in 1898, but it is very much concerned in the wage levels of the Middle Appalachian fields.

Moreover, it is pointed out frequently that competitive shifts have occurred inside the Central Competitive Field itself. In 1898, when Pittsburgh and Hocking Valley coals were sold regularly in the Chicago market, it was a matter of great importance to maintain a parity of labor costs in Illinois on the west and Pennsylvania in the east. With the growth of the Middle Appalachian region, however, Pittsburgh no longer is concerned with the wage levels of Illinois and recognizes that West Virginia and Kentucky are its chief antagonists.

Geographers have speculated over a continent which may have existed in the region of the present Atlantic Ocean. The last thirty years have caused a new continent to emerge in the American coal industry—the continent of the Middle Appalachian. Any coal operator navigating his bark in the waters of this continent must take his bearings from Logan and Pocahontas, now that the old reckonings based on Hocking Valley and Danville would run him on the rocks.

Highbrow Mule Dies

Old Dick, an aged but not ornery mule, which had the reputation among the older employees of anthracite collieries in the Yorktown district, near Hazleton, Pa., of being one of the brightest of his kind, died Feb. 25. For more than twenty years he was the most famous mule in the region because of his intelligence. It was said that he could open a latch, untie a knot, open and close the stable door, remove his own harness and perform many other unusual feats.

Railroad Consolidation Bill Presented by Parker

A measure providing for voluntary railroad consolidation, embodying the policies tentatively agreed to by the House Committee on Interstate and Foreign Commerce, was introduced in the House at Washington on March 3 by Representative James S. Parker, chairman of the committee.

Mr. Parker explained in presenting the bill that it represents the results of the committee's deliberations upon the bill introduced by him at the first session of the 69th Congress, and he has introduced this bill in order that its provisions may be available for analysis and study by the public prior to the meeting of the next Congress.

The bill relieves the Interstate Commerce Commission from the impossible task now imposed upon it in the preparation of a plan for the consolidation of all the carriers within the United States, Mr. Parker explained. Adequate corporate power is granted the carriers to carry out consolidations, when approved by the Interstate Commerce Commission and consented to by the carriers. A flexible procedure is prescribed and for each proposed unification there should be one or more methods found in the bill fitted to the practical conditions confronting the carriers, he said. Dissenting stockholders are protected.

"If the principles of this bill become law and unifications of railway properties are authorized," said Representative Parker, "the public interest will be adequately and properly protected, a long stride toward the solution of our weak-line problem will be made, a limited number of strong, efficient and well-balanced railroad systems will be ultimately established, economy promoted, better service afforded, a simplified and more effective regulation of carriers provided, unnecessary duplication and wasteful combinations eliminated, existing competition essential in the public interest will not be lessened and the advantages of competition between the systems established will be obtained.

"It is not supposed that consolidation presents a panacea for all the ailments of our present system. I am confident, however, that voluntary consolidations will mark a decided step forward toward the ultimate satisfactory solution of our transportation problem."

Chicago Interests Lease Kentucky Mines

One of the largest transactions involving coal properties in eastern Kentucky during the past twelve months was consummated March 5 when the South Chicago Coal & Dock Co. of Chicago obtained a lease on the mines and property of the Dudley Coal Co. in Letcher County.

A five-year lease with the privilege of three five-year renewals, making a total of twenty years, were included in the contract signed by the Chicago company and W. S. Dudley, president of the Dudley Coal Co., whose principal office is in Lexington.

The Chicago company will immediately begin the erection of 100 new houses on the properties of the company, which are located on Caudill's branch of Rockhouse Creek. The Chicago company also plans to double the production of the Dudley plants. Improvements costing approximately $200,000 will be put on the property within the next six months.

The price paid for the lease was not divulged, but it is understood to call for a yearly payment of approximately $50,000. Details for the leasing of the property were handled by W. S. Dudley, who in addition to being president of the company, was also its manager.

The Dudley Coal Co. was organized in 1920 by Mr. Dudley and a number of associates, who took over the property of the old Caudill Branch Coal Co. The Dudley company, while an operating company, does not own the mineral right to the property it controls, but in turn leases them from the Kentucky River Coal Corporation, of which Mr. Dudley is also president.

Industrial Storage Piles Show Gradual Rise

January, the month of inventories, reflected a slight decrease in the consumption of coal by industries. The total used, according to the National Association of Purchasing Agents, was 44,671,000 tons—a daily consumption of 1,441,000 tons. This compares with 45,085,000 tons consumed in December.

Stockpiles are being steadily but quietly increased, the association reports, the total on Feb. 1 standing at 57,450,000 tons, which represents an average supply for 40 days. The figure on Jan. 1 was 55,010,000 tons.

Comparative Estimates of Output, Consumption and Stocks

(In Thousands of Tons)

	Output	Industrial Consumption	On Hand in Industries
September	57,424	37,512	40,682
October	63,267	41,115	44,271
November	68,556	42,324	45,535
December	66,104	45,085	49,373
January	*63,128	44,671	55,010
February 1	.....	.....	57,450

* Subject to revision.

The proceeds derived from the lease will be paid as dividends to the stockholders of the Dudley Coal Co., which is capitalized at $600,000 and has one of the best producing properties in Letcher County.

The property controlled by the Dudley Coal Co. consists, in addition to its modern mine equipment and tipples, of 4,000 acres of high-grade coal lands.

Filibuster Holds Up Funds For Bureau of Mines

The filibusters which characterized the final week of the 69th Congress prevented Senator Oddie from carrying out his plan to attach his bill, providing for additional funds for the Bureau of Mines, as an amendment to the second deficiency bill. The failure of that measure also prevented the appropriation of funds for the continuance of the oil-shale plant of the Bureau in Colorado and for the work on manganiferous iron ores at the Minneapolis experiment station.

In response to a well-defined demand in the West the Senators from the mining regions were prepared to lend all the support within their power to make the Oddie bill a part of the deficiency appropriation bill. The Oddie bill had been reported favorably by the Committee on Mines and Mining. The general interest in the legislation was attested by the many letters received supporting the proposed appropriations. The demand from the metal-mining regions for studies of geophysical methods of prospecting was particularly strong.

The unusual demand for printed copies of the hearings dealing with the proposed appropriations is regarded as further evidence that the mining industry is becoming more assertive and will be more insistent in the future that the federal government do its part in helping the industry with those problems which cannot be undertaken effectively by individual companies.

Western Senators are returning to their homes imbued with the idea that a drive must be made at the next session for a greater recognition of the mining industry.

Commercial Bituminous Coal Mines in the United States Classified by Size of Output, in 1925

(Exclusive of product of wagon mines)

State	Class 1A Producing Over 500,000 Net Tons: No.	Per Cent of Total Mines	Per Cent of State Output	Class 1B Producing 200,000-500,000 Net Tons: No.	Per Cent of Total Mines	Per Cent of State Output	Class 2 Producing 100,000-200,000 Net Tons: No.	Per Cent of Total Mines	Per Cent of State Output	Class 3 Producing 50,000-100,000 Net Tons: No.	Per Cent of Total Mines	Per Cent of State Output	Class 4 Producing 10,000-50,000 Net Tons: No.	Per Cent of Total Mines	Per Cent of State Output	Class 5 Producing Less Than 10,000 Net Tons: No.	Per Cent of Total Mines	Per Cent of State Output	Total, All Classes: No. Mines	State Output, Net Tons
Alabama	4	1.7	15.9	19	7.9	27.6	40	16.7	28.3	46	19.3	17.1	73	30.5	10.1	57	23.9	1.0	239	20,004,395
Alaska	...	....	....	...	....	....	...	....	....	...	....	....	3	33.3	94.9	6	66.7	5.1	9	82,868
Arkansas	...	....	....	...	....	....	...	....	....	2	2.1	10.4	43	44.8	75.2	51	53.1	14.4	96	1,220,039
Cal., Ida., Ore	...	....	....	...	....	....	...	....	....	...	....	....	1	20.0	79.2	4	80.0	20.8	5	12,625
Colorado	...	....	....	13	5.7	36.4	20	8.7	29.1	26	11.4	19.0	47	20.5	12.4	123	53.7	3.1	229	10,310,551
Georgia	..	....	....	...	....	....	...	....	....	1	100.0	100.0	...	....	....	...	....	....	1	66,174
Illinois	48	10.3	59.8	48	10.3	22.6	45	9.7	9.9	33	7.1	3.8	73	15.6	2.8	219	47.0	1.1	466	66,909,359
Indiana	3	1.5	12.6	33	16.3	50.1	34	16.7	23.1	21	10.3	7.5	50	24.6	5.7	62	30.6	1.0	203	21,224,966
Iowa	...	....	....	5	2.4	31.8	7	3.4	22.8	10	4.8	16.7	44	21.3	20.6	141	68.1	8.1	207	4,714,843
Kansas	...	....	....	1	.4	6.8	10	4.3	29.9	17	7.4	27.6	54	23.5	23.9	148	64.4	11.8	230	4,524,251
Ky., Eastern	6	1.2	10.8	49	10.2	33.3	94	19.6	30.9	91	19.0	15.3	134	27.9	8.6	106	22.1	1.1	480	42,882,113
Ky., Western	...	....	....	15	9.3	30.0	32	19.9	36.8	37	23.0	21.8	55	34.2	10.8	22	13.6	.6	161	12,186,557
Maryland	...	....	....	3	3.4	24.8	3	3.4	14.3	9	10.2	27.9	29	33.0	28.3	44	50.0	4.7	88	2,694,572
Michigan	...	....	....	2	20.0	57.2	1	10.0	13.4	3	30.0	24.5	2	20.0	3.6	2	20.0	1.3	10	808,233
Missouri	...	....	....	...	....	....	6	3.9	26.0	9	5.8	26.1	38	24.7	36.3	101	65.6	11.6	154	2,694,215
Montana	3	5.6	57.9	1	1.9	7.4	3	5.8	16.5	3	5.8	8.0	9	17.3	7.2	33	63.4	3.0	52	3,043,686
New Mexico	...	....	....	2	5.3	28.6	6	15.8	35.3	10	26.3	30.0	6	15.8	4.9	14	36.8	1.2	38	2,556,851
North Carolina	...	....	....	...	....	....	...	....	....	...	....	....	2	100.0	100.0	...	....	....	2	65,153
North Dakota	...	....	....	...	....	....	4	2.6	43.6	2	1.3	8.5	14	9.2	25.7	132	86.9	22.2	152	1,324,620
Ohio	2	.3	4.7	32	5.0	37.3	51	8.0	25.0	62	9.7	16.1	155	24.3	13.0	337	52.7	3.9	639	28,034,112
Oklahoma	...	....	....	...	....	....	2	2.0	12.8	10	10.0	30.9	48	48.0	48.2	40	40.0	8.1	100	2,325,840
Pennsylvania	48	2.4	26.3	132	6.7	30.7	176	8.9	18.1	221	11.2	11.5	652	33.0	11.4	745	37.8	2.0	1,974	136,928,019
South Dakota	...	....	....	...	....	....	...	....	....	...	....	....	...	....	....	17	100.0	100.0	17	14,447
Tennessee	...	....	....	3	2.7	14.3	18	16.2	48.1	15	13.5	17.5	37	33.3	17.1	38	34.3	3.0	111	5,454,011
Texas	...	....	....	...	....	....	1	2.7	12.9	1	2.7	5.1	32	86.5	80.1	3	8.1	1.9	37	1,008,375
Utah	...	....	....	10	24.4	66.5	8	19.5	24.4	3	7.3	4.9	4	9.8	3.0	16	39.0	1.2	41	4,690,342
Virginia	6	5.3	31.6	19	16.8	40.8	12	10.6	11.2	17	15.1	9.4	26	23.0	6.1	33	29.2	.9	113	12,799,443
Washington	...	....	....	4	7.2	42.1	5	8.9	28.4	5	8.9	15.9	11	19.6	9.5	31	55.4	4.1	56	2,537,890
West Virginia	25	2.1	12.2	169	14.4	39.8	234	19.9	27.2	226	19.3	13.1	321	27.4	7.0	198	16.9	.7	1,173	122,380,959
Wyoming	...	....	....	9	14.8	37.0	21	34.4	47.2	11	18.0	13.3	6	9.8	1.9	14	23.0	.6	61	6,553,232
	145	2.0	20.9	569	8.0	32.8	833	11.6	22.7	891	12.5	12.4	1,969	27.6	9.4	2,737	38.3	1.8	7,144	520,052,741

Compiled by U. S. Bureau of Mines.

News Items From Field and Trade

COLORADO

A Setback for Coal.—Experts representing the Standard Oil Co. are investigating plants of the Colorado Fuel & Iron Co. at Pueblo, Colorado Springs and Denver with a view of constructing a gas pipe line from the Amarillo gas fields and converting the plants from the use of coal to gas. The line would go through Trinidad, Walsenburg, Pueblo, Colorado Springs and terminate at Denver. If the plan goes through it will be a serious blow to the coal industry of the state, as the company consumes between 2,500,000 and 3,000,000 tons of coal annually and produces over one-third of the coal output of the state.

Sets New Output Record for Day.—The State mine of the Boulder Valley Coal Co., near Erie, hoisted 2,111 tons of coal in eight hours on Feb. 10, establishing a new state record. No preparations were made for the run, the mine having worked as usual the previous day. During the last winter this operation has been one of the largest producers in the northern part of the state with an average daily output of 1,700 tons. The coal is undercut and sheared by up-to-date electric machines. The owners expect to spend $100,000 on new equipment next summer, making it the best fitted out mine in the state, and by next autumn expect to attain a daily output of 2,500 tons. The officers of the company are P. M. Peltier, president; E. Nesbit, secretary; J. A. McFadden, local superintendent.

The Employers' Mutual Insurance Co., which insures mines producing two-thirds of the total production of coal mined in Colorado, recently elected the following officers: President, H. Van Mater, National and Royal Fuel companies; vice-presidents, Frank Bulkley, Crested Butte Coal Co., and Crested Butte Anthracite Mining Co., and Wm. E. Russell, Russell Coal Co.; secretary, Harry F. Nash, Rocky Mountain Fuel Co.

Union Sympathizers Active.—Labor agitation has been stirred up by union supporters trying to organize forces in the Colorado field. Secret meetings have been held in Routt County and other fields. The operators, however, say that this activity is not causing them any alarm.

ILLINOIS

The Rex coal mine, located southeast of Warner, has been taken over by a new company, to be called the Warner Coal Co. Operations will begin at once with John Price of Rock Island as superintendent. The new officers are: President, F. H. Edwards; vice-president, M. K. Stewart; secretary-treasurer, L. C. Warner.

State Convention Postponed.—The Illinois state convention of the United Mine Workers which was scheduled to convene at Peoria on March 1, and various sub-district conventions planned for March have been postponed indefinitely because of the failure of the Miami wage conference. The state convention will await a call of the state executive board. It is the custom to hold the state meeting immediately after the drafting of a new wage agreement.

Machine Men's Earnings Heavy.—With demand for southern Illinois coal heavy because of the possibility of a strike, operators of coal-cutting machines in the Madison County fields have been earning from $20 to $22 per day. One mine near Edwardsville with an average of 550 miners paid $49,000 in wages for eight days. One machine operator was paid $183.89, or an average of $22.98. The peak for a loader was $166.23 and the top earned by a gangman $159.63. The top workers also have been receiving high wages as a result of the rush. For two weeks' work track and timbermen received $133.36; motormen, $122.11, and other laborers, $101.50.

Circuit Judge E. S. Smith has signed a $956,379 decree for foreclosure of the mining properties of the United Fuel Co. of Chicago, the decree covering all properties in Sangamon, Macoupin and Menard counties. The foreclosure suit was brought by the Central Trust Co. of Chicago. The master-in-chancery of Sangamon County was directed by Judge Smith to sell the property of the company to satisfy unpaid principal and unpaid interest in bonded indebtedness totaling $953,879 and costs of $2,500.

The Roanoke mine has resumed work, following a shutdown of four weeks. The Senior mine, Lenzburg, and the Golden Rule mine, at the same place, also have reopened.

Work has been resumed at Mine No. 6 of the Saline County Coal Corporation, at Grayson.

A fire which broke out in the mine of the Marion County Coal Co., four miles south of Centralia, the morning of Feb. 24 has been extinguished. There were about 400 men in the mine when the fire started, but all escaped injury. It is believed that a spark from a cutting machine ignited gas, causing the fire. This was the second fire at the mine in less than a year. The first fire caused a shutdown of several days. The mine resumed operations the morning after the second fire.

INDIANA

Official returns in the run-off election held by District 11, United Mine Workers, tabulation of which has just been completed, give the presidency to Harvey Cartwright, Bicknell, and international board membership to C. C. Webster. William Mitch was elected secretary-treasurer in the first election, held last December.

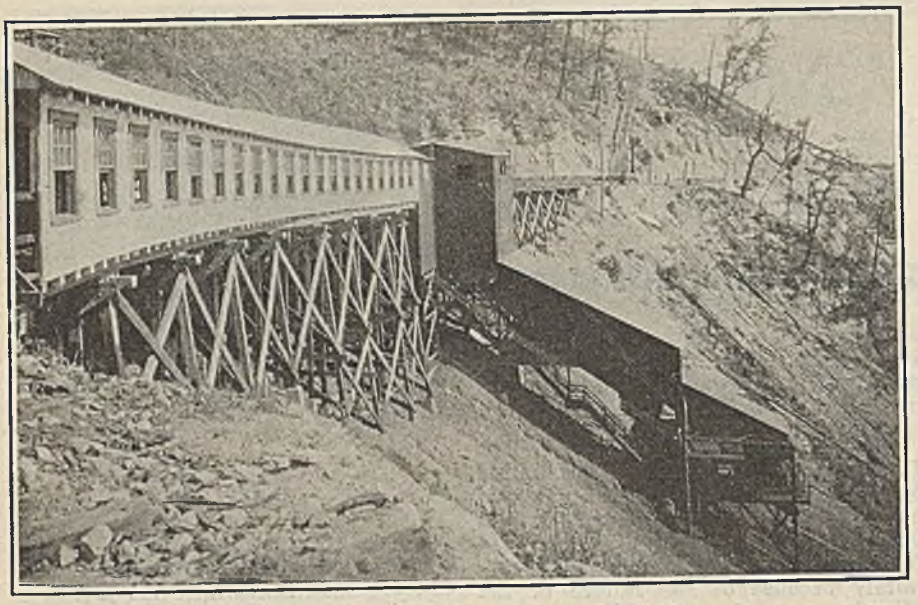
Warrick Strip Mine Sold.—L. A. Folsom, receiver for the Pigeon Creek Coal Co., a strip mine located southeast of Boonville, sold the property in four parcels March 2 at auction. The property brought $83,700. At a sale held last June the same property brought $64,500 when sold to the Patoka Coal Co., but the Warrick Circuit Court set aside this sale because the bond-holding concerns thought the sale should bring 10 per cent more. Harvey C. Vernon of the Chicago bondholders bought parcels 2, 3 and 4 at $74,000, and Wm. R. Bootz bought parcel 1 at $9,700.

IOWA

The Scandia Coal Co. has acquired the mine of the Madrid Coal Co. near Ness. The mine will be operated as Scandia No. 6. The acquisition of this property makes the Scandia company the largest producing company in the state. All of the employees and foremen of the Madrid Coal Co. will be retained, although Fred Burch, the present foreman at mine No. 4, will become foreman at No. 6 and Tom Reese, senior assistant foreman at No. 4, will succeed Mr. Burch as foreman there. Owen Reese, general superintendent, will continue in charge of all the properties.

The Brand Coal Co. has begun the sinking of a coal mine at Moravia.

Iowa Operators Protest.—Declaring that the United States Government is guilty of discrimination against Iowa, Des Moines coal operators have begun a campaign to obtain a revision of new specifications just received from Washington which would bar Iowa coal from being used at the Fort Des Moines army post for the coming year. The new specifications, it was said, require that coal to be used at the fort must contain not more than 3 per cent of moisture and 10 per cent ash. It was



Headhouse of the Bonny Blue Coal Co.

This mine is on the Virginia side of Little Black Mountain near St. Charles. The mine cars are unloaded in a two-car rotary dump. Compressed air operates the undercut gates through which the monitors are loaded.

emphasized also that the specifications would exclude the product of Illinois, Indiana, and western Kentucky. Only West Virginia and eastern Kentucky coals meet the new requirements. it was said.

KANSAS

Annual Output Lower.—Kansas coal mines, contrary to early estimates, failed last year to produce as much coal as during the preceding 12 months, according to the annual report of James Sherwood, state mine inspector. The 1926 output was 4,562,955 tons, 250,133 less than in 1925. The falling off, Mr. Sherwood said, is due largely to the fact that returns for last year were not complete on the smaller operations. There were 220 deep mines and 49 strip pits in operation during 1926, as compared with 266 and 38 respectively in 1925, further accounting for the lesser productivity. Miners each worked an average of 144.6 days last year and 122.5 the year before.

Report of Central Coal & Coke Co. and subsidiaries, for the year ended Dec. 31, 1926, shows net loss of $242,592, after depreciation, depletion, interest, taxes, etc., comparing with net profit of $74,144, equal to $3.95 a share earned on $1,875,000 preferred stock in 1925.

KENTUCKY

A conference of officials of District 23, United Mine Workers, was scheduled to be held on March 10 at Central City or Louisville. The conference, which, it is said, will affect some 17,000 miners in the Kentucky field, was called as the result of the failure of the joint wage scale committee to reach an agreement at the Miami conference. Miners in District 23, with few exceptions, are now working on an open-shop basis under the 1917 wage scale. While union leaders claim the field has been reorganized, no new demands have yet been made on the operators.

A. J. Johnson has sold to C. D. Reed of Shamokin, Pa., his interest in the Jacks Creek Coal Co. at Johnsonia, Ky.

L. & N. to Expand Facilities.—R. D. Ross, superintendent of the Kentucky Central division, Louisville & Nashville R.R., recently confirmed reports regarding plans to materially enlarge the road's facilities for handling turnover traffic through its Decoursey yards, at Decoursey and Spring Lake. The company has purchased a large acreage just south of Decoursey, to handle the heavy volume of coal and other traffic coming north and going through the Cincinnati gateway. Tremendous coal tonnages moving from the various eastern Kentucky divisions of the lines go through these yards, which have been inadequate for some time. Plans for enlargement, it was said, had been held up pending decision of the Chesapeake & Ohio R.R. regarding enlargement of the Ohio River bridge at Cincinnati, that road having decided to go ahead with the work.

The Upper Elk Coal Co., of Argo, has increased its capital stock from $5,000 to $20,000.

The Monroe Coal Co., Greenville, has filed amended articles decreasing its capital stock from $25,000 to $10,000.

The Consolidation Coal Co. has completed a new tipple at mine No. 4, at Jenkins, and coal is being dumped over the new structure. The company also has had a large force of carpenters employed in repairing the miners' houses. This repair work, now about finished, has been going on for nearly a year.

Purchased Power Advances.—Purchased power made notable headway in the Big Sandy field in 1926. During the year the following coal companies contracted with the Kentucky & West Virginia Power Co. for service, which has, or will, shut down individual plants: North East Coal Co. (at the Thealka mines), Pike Floyd Coal Co., Standard Elkhorn Coal Co., Blue Beaver Elkhorn Fuel Co., Elkhorn Block Coal Co., Turner Elkhorn Coal Co., Blue Comet Coal Co., Black Beaver Coal Co., Barrowman Coal Corp., May Coal Co. and Bailey Coal Co.

MASSACHUSETTS

Stocks of domestic anthracite in the yards of Massachusetts coal dealers on Feb. 1 last totaled 760,797 net tons, which is slightly more than on the preceding normal corresponding date—1925—when the figure was 733,034 tons. Receipts during the first ten months of the current coal year were 4,866,914 tons, against 4,436,033 during the corresponding period two years ago. Deliveries to consumers during the ten months ended Jan. 31 last were 4,400,504 tons, which compares with 4,426,577 tons in the period ended Jan. 31, 1925.

MONTANA

Gebo Relinquishes Holdings.—S. W. Gebo, who is now in California, has retired from the Cascade Coal Co. and the partnership between him and Fred H. Cozzens has been dissolved. Mr. Gebo has transferred all his interests in the Cascade company to Mr. Cozzens. Articles of incorporation were recently filed. The incorporators are F. H. and R. C. Cozzens and M. T. Masselt and the capital stock is $150,000. The company has large coal-land holdings and leases in the Hound Creek and Deep Creek districts and is going ahead with the development of its mines in those sections.

OHIO

The Ohio State Geological Survey in conjunction with the mineralogical department of Ohio State University has made a survey of the early development of the coal mining industry in eastern Ohio and particularly in the Pittsburgh No. 8 field. This survey shows that the first development of the industry was at Bellaire in 1825. Mining at that time was a crude hand process and the coal was mined that was easy of access. In 1835 the first coal was shipped from the small mines in operation in the vicinity of Bellaire by barge on the Ohio River to points down the river, even as far as Cincinnati. Since that time the coal industry in Belmont County has developed to the point that the annual output is about 9,000,000 tons.

Marmet Company Passes Out.—The closing chapters of the Otto Marmet Coal Co., which for over seventy-five years was an interesting and powerful factor in the coal trade of the Middle West, are being written in the U. S. District Court for Southern Ohio. There was a time when this company's fleet of tugs and towboats was among the largest on the Ohio River, but for fifteen years its elevator, wholesale and retail trade has gradually dwindled On Feb. 28 Judge Smith Hickenlooper handed down an ancillary decree by

which the Fourth and Central Trust Co. will receive $58,454.16 in satisfaction of a judgment for $1,416,888 against the company. The decree is in accordance with the original decree of the federal court of the Southern District of West Virginia, granted Feb. 23 last. A total of $77,989.92 was received from the sale of the property of the company to Otto Reemelin, in satisfaction of the judgment. The amount awarded the trust company, after expenses have been paid, leaves a balance of $1,358,434.17 yet to be recovered by the bank.

PENNSYLVANIA

Sale of Big Coal Pile Reported.—It was reported in mining circles in Scranton last week that Burns Brothers of New York has purchased all of the hard coal in various sizes stored by the Hudson Coal Co. at Carbondale. There are 200,000 tons of anthracite stored at Carbondale, which is more than the Hudson company had on hand at that place at the start of the last anthracite strike. Officials of the Hudson company have refused to discuss the reported purchase.

Schools Save by Using Steam Coal.—A saving of $150,000 a year has been made by the school district of Philadelphia in the coal bill by having the heating plants made suitable for the smaller sizes of anthracite. A recent report to the school directors by the coal committee shows that while the district is today using 50 per cent more anthracite than in 1920 the cost of fuel as compared with 1920 has been cut 15 per cent. This stands out as one of the biggest savings put into effect by any public body in the state through the use of smaller sizes of hard coal.

Anti-Subsidence Bill Presented.—A bill creating a commission to investigate conditions in the bituminous region of the state with a view to preventing the surface subsidence prevalent in the anthracite districts, was introduced in the Legislature last week at Harrisburg by Representative Howard F. Rieder, Westmoreland County. The bill carries an appropriation of $10,000. The Governor is empowered by the measure to appoint a commission of seven members, consisting of mining and hydraulic engineers, a geologist and a bituminous mine inspector, to investigate the geologic formation and strength of bituminous coal, the practicable thickness of barrier pillars and other matters. The commission is to report to the Legislature of 1929. Representative Rieder also offered a bill providing for the proper ventilation of bituminous coal mines.

The report of the Mahoning Coal Railroad Co. for the year ended Dec. 31, 1926, shows net income of $1,591,091 after taxes and charges, equivalent after allowing for dividend requirements on 5 per cent preferred stock to $51.93 a share (par $50) earned on outstanding 30,000 shares of common stock. This compares with $1,413,848, or $46.02 a share, in 1925. Net income after the above charges for the fourth quarter of 1926 totaled $355,624, equal to $11.57 a share on common after preferred dividends, against $308,514, or $10 a share, in the fourth quarter of the previous year.

CANADA

The Advisory Board on Tariff and Taxation of the Dominion of Canada has not yet announced a date for hearing on the application by Nova Scotia coal companies for increased protection for coal and coke. In his annual budget speech the Minister of Finance recently stated to Parliament that the government does not expect to propose any changes in the customs tariff at the present session. This seems to indicate that no action will be taken with respect to the duty on coal and coke until next year. However, changes might be brought about by administrative measures such as the establishment of a fixed valuation for duty purposes, etc., as has been done in other commodities from time to time, although that is not anticipated.

May Sell Minto Holdings. — The Minto Coal Co. has given an option on its holdings of 18,000 acres in the Grand Lake bituminous coal fields in central New Brunswick to Welton-Henderson, Ltd., of Minto. The Minto Coal Co. was a pioneer in developing the coal areas in the Minto district on an extensive scale and some years ago with the co-operation of the Canadian Pacific Ry. extended the Fredericton & Grand Lake Coal & Railway Co.'s line from Minto to Gibson to connect with the C.P.R. system for coal deliveries to the C.P.R. and for shipment to Western points. Sir Thos. Tait, of Montreal, is president of the Minto Coal Co. John Henderson, former manager of the Minto Coal Co., has associated with him in Welton-Henderson, Ltd., Harvey Welton who has been prominent in coal-mining operations in the Minto district, and Archibald Fraser, president of the Fraser Companies, Ltd., owners of pulp and paper mills.

Would Revise Mines Act.—Safer and more efficient conduct of the coal mines of Nova Scotia is aimed at in a bill given second reading in the Legislative Assembly of Nova Scotia on motion of G. S. Harrington, Minister of Works and Mines. The bill is an act to revise and consolidate the Coal Mines Regulation Act. Provision is made in amendments to prevent persons not holders of certificates under the act from interfering with the management or control of mines and because of the importance of the duties of mine examiners greater restrictions are placed upon them and higher qualifications demanded than heretofore. Other amendments provide that steam boilers must be in charge of certificated firemen; empower deputy inspectors to take immediate action on discovering dangerous conditions instead of merely reporting them, as before; new regulations regarding the adequate testing of safety lamps; tests for physical competency of operators of mechanical apparatus; complete provision for recording every person entering a mine so that in the case of disaster there will be accurate information available of those involved and many others designed to increase the safety of those who work underground.

Coal Shot Down from First Cut of Room Neck

This is in the Crown mine of the Royal Blue Coal Co. (formerly the Crown Coal Co.), Chrevolet, Ky. The mine is in the Harlan seam and coal averages 57 in. in thickness. The production is 28,000 tons per month.

Association Activities

The Fairmont Coal Operators' Association met Feb. 28 and elected the following officers: President, C. H. Jenkins, vice-president, Hutchinson Coal Co., Fairmont, W. Va.; vice-president, A. Lisle White, general manager, Fairmont & Baltimore Coal & Coke Co., Clarksburg; treasurer, J. A. Clark, Jr., general superintendent, Clark Coal & Coke Co., Fairmont; acting secretary, T. N. Moran, secretary, Northern Coal Bureau, Fairmont.

Among the Coal Men

Harry Gandy, executive secretary of the National Coal Association, will address the Forum of the Cincinnati Chamber of Commerce on March 29 on "Coal, Its Production, Distribution and Sale." In the evening a dinner will be tendered to him at the Cincinnati Club by the Cincinnati Coal Exchange and the local retailers. This is in line with the new spirit of exploiting the vastness of the Cincinnati market and the work in hand by a committee representing the trade as a whole, a meeting of which was held March 1 and at which bigger things for the market were talked over. One of the direct results may be a paid secretary for the Coal Exchange.

Col. Tom Morgan, former president of the Cincinnati Coal Exchange and now with the Richvein Coal Co. in Cincinnati, is dangerously ill with pleurisy in St. Elizabeth's Hospital in Covington, Ky.

Ralph Knode, of Philadelphia, president of the General Coal Co., the sales organization of the Stonega Coke & Coal Co. and affiliated interests, has been named as chairman of the marketing committee of the National Coal Association, which committee was recommended by a special committee which studied the transcript of the bituminous coal sales managers and agents sectional meeting held in Chicago last June during the ninth annual meeting of the association. This committee was authorized at the last meeting of the board of directors. The other members of the committee as announced by President Barnum follow: Jas. Bonnyman, president, Blue Diamond Coal Co., Cincinnati, Ohio; J. P. Bradin, sales manager, Pennsylvania Coal & Coke Corp., New York City; William Collins, vice-president, M. A. Hanna Co., Cleveland, Ohio; H. A. Glover, vice-president, Knox Consolidated Coal Co., Indianapolis, Ind.; F. B. Lockhart, sales manager, Hillman Coal & Coke Co., Pittsburgh, Pa.; Chas. R. Moriarty, vice-president, Cabin Creek Consolidated Coal Co., Cincinnati; Jas. B. Smith, president, Spring Canyon Coal Co. of Utah, San Francisco, Calif.

B. M. Clark, president of the Rochester & Pittsburgh Coal & Iron Co., with headquarters at Indiana, Pa., has been ill for some time from an affection of the heart. A few days ago he was taken from his home in Indiana to New York City for treatment in the Murray Hill Hospital. He made the trip comfortably in a private car, being accompanied by Mrs. Clark and their son, Reath.

Albert H. Schory, who has been district manager of the Landstreet-Downey Coal Co., Columbus, Ohio, has left that concern to become manager of the Columbus office of the North American Coal Corporation, which will handle the product of the Landstreet-Downey company in Ohio territory.

Samuel D. Warriner, Philadelphia, president of the Lehigh Coal & Navigation Co., has presented a new church to the Episcopal congregation of Montrose, Pa., where Mr. Warriner has a summer home. The church will serve as a memorial to the coal operator's father, the late Rev. E. A. Warriner, who was a clergyman in Montrose for thirty years.

A. M. McDowell recently joined the force of the Pittsburgh Coal Co. as

A. M. McDowell

assistant to Arthur Neale, general manager. Mr. McDowell, who is secretary of the Mine Inspectors' Institute of America, formerly was connected with the Davis Coal & Coke Co. as manager of the department of industrial relations.

Six of the seven members of the coal committee of the Northwest Shippers' Advisory Board have been reappointed to serve during 1927, it was recently announced at the board's headquarters in Minneapolis. The members renamed are A. B. Pratt, traffic manager, Northern States Power Co.; Wayne B. Ellis, Northwestern agent, Berwind Fuel Co.; J. J. Murphy, chairman, South Dakota Railroad Commission; Ivan Bowen, member of the Minnesota Railroad & Warehouse Commission; J. L. Enright, general manager, Washburn Lignite Coal Co., and S. M. Low, traffic manager, Minnesota By-Products Coke Co. Fay Harding, member of the North Dakota Railroad Commission, was selected in place of Frank Milhollan, president of the commission. Mr. Harding was named at the request of Mr. Milhollan, who serves on several other committees. Mr. Pratt served as chairman of the coal committee last year, and it is probable that he will be re-elected.

Walter D. McKinney, for many years secretary of the Southern Ohio Coal Exchange, has been appointed by Governor Donahey a member of the Ohio Utilities Commission. Besides having a wide knowledge of the coal business, especially in the matter of costs of operation and freight rates, Mr. McKinney has had extensive railroad experience. He also is well versed in telephone operation and construction, being a member of the Telephone Pioneers of America. The appointment is subject to the approval of the state Senate, but, as Mr. McKinney is a Republican and that party is in power in the Senate, his confirmation is reasonably certain.

Obituary

John W. Chamberlin, correspondent at Buffalo for *Coal Age*, died at his home, 350 Elmwood Avenue, on Feb. 26, after a two weeks' illness resulting from a stroke. He was 78 years old, but up to his last illness had been in good health and able to attend regularly to his work. He had spent nearly all of his mature years as a newspaper man, first on the Buffalo *Express* and other local papers, and then, for a period of over thirty years, as a trade-paper correspondent. Mr. Chamberlin was a graduate of Cornell University in the class of 1873, whose fiftieth reunion he attended four years ago. He always retained his interest in the university and regularly attended the commencement exercises for many years. He kept up his interest in study all his life and was fond of the best literature and made a hobby of gardening. He also was fond of music and was a member of the Buffalo Community Chorus. He is survived by his wife and a sister. The funeral was held on March 1. Among the many floral tributes were those of the Buffalo Wholesale Coal Association and of the "coal table" of the Buffalo Athletic Club. Interment was in Forest Lawn Cemetery.

Joseph Cox, former Colorado mine owner and rancher, died Feb. 22 at Phoenix, Ariz., where he had gone for the benefit of his health in December. At one time he owned the Midway mine and the Ideal mine, which he sold. He lived at Hillrose, Colo., for a number of years, owning a large part of the stock of the Trowel Land, Cattle & Investment Co., at Brush. He was 75 years old.

J. Fred Weaver, of Clearfield, Pa., who had extensive coal and lumber interests, was drowned in the Susquehanna River at Clearfield on Feb. 26. Whether death was accidental or the result of an attempt at suicide is undetermined. He had been in poor health and is reported to have believed himself financially involved. He leaves a wife and two daughters.

H. O. Prytherch, who for fifteen years served as mine inspector in the Fifth (anthracite) district of Pennsylvania, died in Scranton, Pa., recently at the age of 64. He had been ill three months. Mr. Prytherch was born in Wales and came to this country forty years ago. Previous to his appointment as inspector he had been superintendent of an independent anthracite operation at Olyphant, Pa., and for five years conducted the Pennsylvania School of Mines, in Scranton.

Production And the Market

Storage Buying by Industries and Utilities Retains Major Market Role; Lake Trade Stirring

Storage buying by industrial consumers and public utilities is still the major factor in the bituminous coal markets of the country. The effects of this accumulation of reserve stocks in anticipation of a strike in the Central Competitive Field on April 1, however, have not been uniformly felt. There has been a notable strengthening of quotations on steam coals in some sections of the country, but these advances have been negatived by weakness in other sizes. The net result has been a further slight decline in average spot prices for the country as a whole.

The nearest approach to a universal effect has been in the maintenance of high weekly levels of production. Although the observance of Washington's birthday pulled down the total tonnage mined the week ended Feb. 26 to 12,761,000 net tons, preliminary figures for loadings last week indicated that the output again would approximate that of earlier weeks in the year, when the average was well over 13,000,000 tons. In fact, it is not improbable that such an average will hold good throughout the first quarter of the current calendar year.

Average Spot Prices Weaker

Coal Age Index of spot bituminous prices on March 7 was 170 and the corresponding weighted average price was $2.06. Compared with the figures for Feb. 28, this was a decline of 1 point and 1c. Compared with the figures in effect a year ago, the 1927 levels show an advance of 3 points and 4c. Advances in quotations on screenings in Illinois, Indiana, Kentucky, western Pennsylvania and the high-volatile districts of southern West Virginia checked a sharper decline.

These advances largely offset a general weakening in quotations on low-volatile coals for inland delivery, unsettlement in prepared sizes of Eastern high-volatile and unevenness in tidewater prices on pool coals. The influence of industrial stocking was felt in prices and in buying in practically every section east of the Mississippi River outside of New England and territory local to Baltimore. This influence, however, was most marked in the Chicago and Cincinnati areas.

Lake Trade Enters Picture

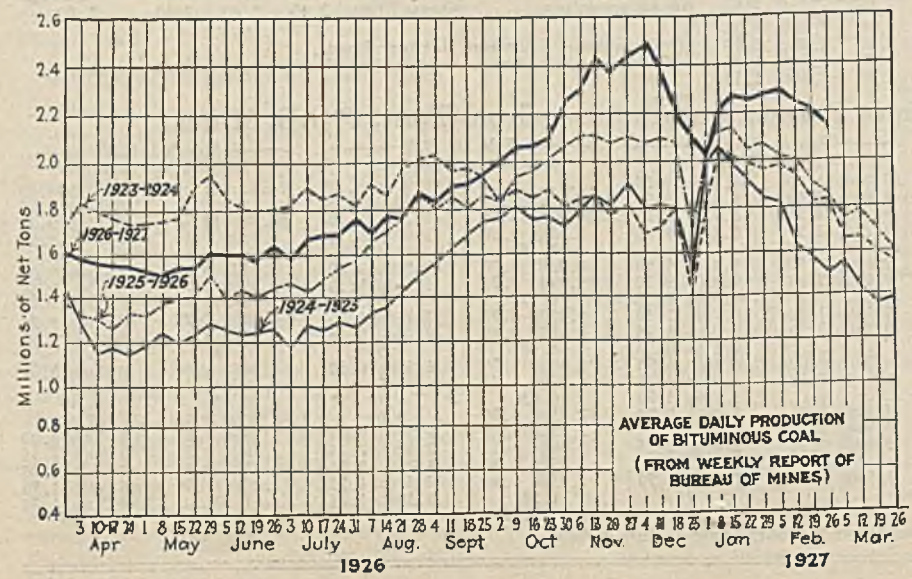
Aside from storage buying, the lake trade is attracting the most attention at the present time. Early negotiations have established offers at 30 to 35c. above the bases which ruled contracts last season. One of the largest West Virginia factors, for example, has been asking $1.75@$1.85, mine-run basis, against $1.40@$1.50 in 1926. Advance dumpings at the lower ports have been unusually heavy. During February 2,020 cars were dumped; a year ago the total for the same month was only 99. A few anthracite cargoes have been loaded at Buffalo.

Generally speaking, Ohio and western Pennsylvania are out of the lake picture at the present time because of the uncertain labor outlook. Unless there should be a sudden change between now and April 1 mines in those areas, as well as in Illinois and Indiana, will go down. There also is a possibility of some interruption to production in the western Kentucky field, and mines in that section are chary about promising deliveries during the first week in April.

Reductions in Anthracite

Two of the old-line anthracite interests reduced prices on chestnut, egg and stove on March 1 in order to bring their quotations in line with those maintained by their competitors. In retail circles there is considerable agitation for a sharp slash in circular prices on April 1 and suggestions ranging from 50c. to $2 per ton are heard. Producers, however, have given no hint that such suggestions will receive favorable consideration. At the same time, the operators realize that they have a real sales problem on their hands and are striving to improve merchandising policies and contacts.

The Connellsville coke trade is largely marking time. There is a fair spot demand for heating and foundry coke. Blast furnaces, however, appear indifferent to spot offerings and to the negotiation of second-quarter contracts. They look for no repetition of the surprise drive of 1922 when the United



Estimates of Production

(Net Tons)

	1926	1927
BITUMINOUS		
Feb. 12	12,011,000	13,487,000
Feb. 19 (a)	11,509,000	13,193,000
Feb. 26 (b)	10,890,000	12,761,000
Daily average	1,846,000	2,163,000
Coal yr. to date (c)	491,106,000	539,410,000
Daily av. to date	1,758,000	1,929,000
ANTHRACITE		
Feb. 12	35,000	1,501,000
Feb. 19	408,000	1,569,000
Feb. 26 (b)	1,609,000	1,363,000
Coal yr. to date (c)	42,652,000	86,171,000
BEEHIVE COKE		
Feb. 12	362,000	188,000
Feb. 19 (a)	353,000	191,000
Feb. 26 (b)	321,000	189,000
Cal. yr. to date (c)	1,510,000	2,734,000

(a) Revised since last report. (b) Subject to revision. (c) Adjusted to equalize number of days in the two years.

Mine Workers induced numbers of the coke-field workers to make common cause with the union in its fight against the operators. Prices are unchanged, but the undertone is stronger.

Screenings Lead in Midwest

Spurred by the threat of a general suspension April 1, dilatory industrial consumers in the Chicago district have been begun to flood shippers with orders for Illinois and Indiana steam coal. Forehanded buyers have 60 to 120 days' supply on hand and others are trying to augment their stocks. Railroads are active factors in the market. The stockyards interests also are playing a leading part, with one concern reported to have placed orders for 210,000 tons of screenings. Fine coal at some mines is selling at mine-run prices.

Although the mining fields are still enjoying a fair run of domestic business, brought on by colder weather the earlier days of the month, the Chicago market for prepared coal has slumped with a rising thermometer. In some cases operators have billed coarser coals as straight mine-run in order to keep up with demands for screenings and other steam sizes. Eastern domestic coals fare no better than Illinois and Indiana and prices on West Virginia offerings are soft.

The weather stimulus in the mining fields last week was not strong enough, however, to check the accumulation of domestic "no bills." As a result, some Franklin County egg sold as low as $2.50 to the trade and some nut down to $2.25. The railroads were liberal buyers of strip-pit tonnage, but locomotive-fuel business at the shaft mines was spotty. In the Jackson County-Duquoin sector the general situation is on all fours with that in southern Illinois proper.

Mt. Olive District Active

The Mt. Olive district continues to enjoy a substantial volume of business. Railroad tonnage is heavy and there is an active movement of steam coal to Missouri River crossings. There also is a large storage movement between the mines and St. Louis. While practically all mines in the Standard field are carrying "no bills," the situation from a tonnage standpoint is healthy. Some mines are working full time and many others are getting four and five days a week. Realizations, however, are disappointing.

Weather conditions revived domestic demand in the St. Louis market last week and buying took in southern Illinois, smokeless, anthracite and coke, as well as the cheaper-priced coals. Dealers who drew on reserve stocks of the cheaper coals have been compelled to start restocking. Country demand, while not ignoring the higher-priced fuels, has favored middle-grade Illinois and western Kentucky coals. Country storage is less active than in the city. Steam business is brisk.

Louisville retail trade also benefited from colder weather at the beginning

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

	Market Quoted	Mar.8, 1926	Feb.21, 1927	Feb.28, 1927	Mar.7 1927†
Low-Volatile, Eastern					
Smokeless lump	Columbus	$3.85	$3.35	$3.10	*$2.75@$3.00*
Smokeless mine run	Columbus	2.10	2.35	2.35	*2.00@ 2.25*
Smokeless screenings	Columbus	1.15	1.55	1.60	*1.40@ 1.65*
Smokeless lump	Chicago	3.75	3.25	3.25	*2.75@ 3.00*
Smokeless mine run	Chicago	1.95	2.50	2.50	*2.00@ 2.25*
Smokeless lump	Cincinnati	4.00	3.25	3.25	*2.75@ 3.25*
Smokeless mine run	Cincinnati	2.10	2.50	2.35	*2.00@ 2.25*
Smokeless screenings	Cincinnati	1.30	2.10	2.00	*1.90@ 2.00*
*Smokeless mine run	Boston	4.45	4.60	4.60	*4.20@ 4.50*
Clearfield mine run	Boston	1.95	1.80	1.70	**1.65@ 2.00**
Cambria mine run	Boston	2.30	2.20	2.10	**1.95@ 2.35**
Somerset mine run	Boston	2.05	2.00	1.90	**1.80@ 2.15**
Pool 1 (Navy Standard)	New York	2.85	3.00	3.00	2.75@ 3.25
Pool 1 (Navy Standard)	Philadelphia	2.80	3.05	3.05	2.90@ 3.20
Pool 1 (Navy Standard)	Baltimore	2.25	2.60	2.60	2.50@ 2.75
Pool 9 (Super. Low Vol.)	New York	2.30	2.20	2.25	**2.15@ 2.50**
Pool 9 (Super. Low Vol.)	Philadelphia	2.35	2.40	2.40	2.25@ 2.60
Pool 9 (Super. Low Vol.)	Baltimore	2.10	2.15	2.15	**2.15@ 2.40**
Pool 10 (H.Gr.Low Vol.)	New York	2.00	2.00	2.00	1.80@ 2.25
Pool 10 (H.Gr.Low Vol.)	Philadelphia	2.05	2.10	2.10	1.85@ 2.35
Pool 10 (H.Gr.Low Vol.)	Baltimore	1.85	1.90	1.90	**1.90@ 2.05**
Pool 11 (Low Vol.)	New York	1.85	1.75	1.80	1.60@ 2.00
Pool 11 (Low Vol.)	Philadelphia	1.80	1.80	1.80	1.55@ 2.10
Pool 11 (Low Vol.)	Baltimore	1.75	1.75	1.75	*1.65@ 1.75*
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.60	1.55	1.50	**1.35@ 1.75**
Pool 54-64 (Gas and St.)	Philadelphia	1.45	1.50	1.50	1.35@ 1.70
Pool 54-64 (Gas and St.)	Baltimore	1.55	1.55	1.55	**1.55@ 1.65**
Pittsburgh scr'd gas	Pittsburgh	2.45	2.30	2.30	*2.00@ 2.25*
Pittsburgh gas mine run	Pittsburgh	2.10	1.95	1.95	1.90@ 2.00
Pittsburgh mine run (St.)	Pittsburgh	2.05	1.85	1.85	1.80@ 1.90
Pittsburgh slack (Gas)	Pittsburgh	1.25	1.45	1.45	**1.50@ 1.60**
Kanawha lump	Columbus	2.10	2.50	2.35	*2.00@ 2.50*
Kanawha mine run	Columbus	1.55	1.55	1.55	1.40@ 1.75
Kanawha screenings	Columbus	.70	1.20	1.30	*1.15@ 1.35*
W. Va. lump	Cincinnati	2.25	2.50	2.10	**1.75@ 2.75**
W. Va. gas mine run	Cincinnati	1.50	1.60	1.50	**1.50@ 1.75**
W. Va. steam mine run	Cincinnati	1.35	1.40	1.35	1.25@ 1.50
W. Va. screenings	Cincinnati	.85	1.30	1.15	**1.15@ 1.50**
Hocking lump	Columbus	2.50	2.50	2.35	2.25@ 2.50
Hocking mine run	Columbus	1.50	1.85	1.75	1.65@ 1.90
Hocking screenings	Columbus	1.05	1.35	1.40	*1.25@ 1.45*
Pitts. No. 8 lump	Cleveland	2.40	2.20	2.25	**1.90@ 2.65**
Pitts. No. 8 mine run	Cleveland	1.85	1.75	1.80	1.75@ 1.85
Pitts. No. 8 screenings	Cleveland	1.25	1.45	1.45	1.40@ 1.50

	Market Quoted	Mar.8, 1926	Feb.21, 1927	Feb.28, 1927	Mar.7, 1927†
Midwest					
Franklin, Ill. lump	Chicago	$3.00	$3.15	$3.15	$3.15
Franklin, Ill. mine run	Chicago	2.40	2.60	2.60	2.50@ 2.75
Franklin, Ill. screenings	Chicago	1.65	2.15	2.15	**2.50@ 2.75**
Central, Ill. lump	Chicago	2.60	2.35	2.55	2.35@ 2.75
Central, Ill. mine run	Chicago	2.10	2.10	2.10	2.00@ 2.25
Central, Ill. screenings	Chicago	1.40	1.85	1.85	1.75@ 2.00
Ind. 4th Vein lump	Chicago	2.85	3.05	3.05	3.00@ 3.15
Ind. 4th Vein mine run	Chicago	2.30	2.45	2.45	2.40@ 2.50
Ind. 4th Vein screenings	Chicago	1.70	2.30	2.30	**2.25@ 2.50**
Ind. 5th Vein lump	Chicago	2.15	2.50	2.50	2.40@ 2.65
Ind. 5th Vein mine run	Chicago	1.95	2.20	2.20	2.10@ 2.35
Ind. 5th Vein screenings	Chicago	1.30	1.65	1.65	**1.75@ 2.00**
Mt. Olive lump	St. Louis	2.75	2.75	2.75	**2.75@ 3.00**
Mt. Olive mine run	St. Louis	2.15	2.50	2.50	2.50
Mt. Olive screenings	St. Louis	1.40	1.65	1.65	1.60@ 1.75
Standard lump	St. Louis	2.50	2.45	2.45	2.40@ 2.50
Standard mine run	St. Louis	1.80	1.80	1.80	1.75@ 1.90
Standard screenings	St. Louis	1.15	1.20	1.35	1.25@ 1.50
West Ky. block	Louisville	1.85	2.35	2.10	2.00@ 2.25
West Ky. mine run	Louisville	1.35	1.50	1.45	**1.40@ 1.75**
West Ky. screenings	Louisville	.90	1.40	1.40	**1.30@ 1.60**
West Ky. block	Chicago	1.75	2.25	2.25	2.00@ 2.50
West Ky. mine run	Chicago	1.50	1.85	1.85	1.75@ 2.00
South and Southwest					
Big Seam lump	Birmingham	2.35	2.60	2.60	2.50@ 2.75
Big Seam mine run	Birmingham	1.75	1.75	1.75	1.50@ 2.00
Big Seam (washed)	Birmingham	2.10	2.00	2.00	1.75@ 2.25
S. E. Ky. block	Chicago	2.60	2.60	2.35	2.00@ 2.75
S. E. Ky. mine run	Chicago	1.65	1.65	1.65	1.60@ 1.75
S. E. Ky. block	Louisville	2.50	2.50	2.25	**2.00@ 2.75**
S. E. Ky. mine run	Louisville	1.40	1.65	1.65	*1.40@ 1.75*
S. E. Ky. screenings	Louisville	1.00	1.40	1.40	1.25@ 1.60
S. E. Ky. block	Cincinnati	2.35	2.25	2.35	*1.75@ 2.00*
S. E. Ky. mine run	Cincinnati	1.50	1.60	1.40	**1.15@ 1.80**
S. E. Ky. screenings	Cincinnati	1.00	1.25	1.25	1.10@ 1.40
Kansas lump	Kansas City	4.50	4.60	4.60	4.50@ 4.75
Kansas mine run	Kansas City	2.85	3.00	3.00	3.00
Kansas screenings	Kansas City	2.40	2.40	2.40	**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	March 8, 1926 Independent	March 8, 1926 Company	Feb. 28, 1927 Independent	Feb. 28, 1927 Company	March 7, 1927† Independent	March 7, 1927† Company
Broken	New York	$2.34	$9.00@11.50	$8.25@$9.25	.....	$8.25@$9.25	.....	$8.25@$9.25
Broken	Philadelphia	2.39	9.00@12.50	9.00@ 9.25	.....	8.50@ 9.15	.....	8.50@ 9.15
Egg	New York	2.34	9.25@11.50	8.75@ 9.25	$8.00@$8.50	8.75@ 9.25	**$8.25@$8.75**	8.75@ 9.25
Egg	Philadelphia	2.39	9.25@12.50	9.15@ 9.25	8.35@ 9.50	9.00@ 9.15	8.35@ 9.50	9.00@ 9.15
Egg	Chicago*	5.06	.....	8.13	8.26	8.13	8.26	8.13
Stove	New York	2.34	9.60@11.50	9.25@ 9.50	8.25@ 9.00	9.25@ 9.60	8.25@ 9.00	9.25@ 9.60
Stove	Philadelphia	2.39	9.60@12.50	9.35@ 9.50	9.00@ 9.75	9.25@ 9.50	9.00@ 9.75	9.25@ 9.50
Stove	Chicago*	5.06	.....	8.33@ 8.58	8.71	8.58	8.71	8.58
Chestnut	New York	2.34	9.25@11.50	8.75@ 9.15	8.00@ 8.75	8.75@ 9.25	**8.25@ 8.75**	8.75@ 9.25
Chestnut	Philadelphia	2.39	9.25@12.50	9.00@ 9.15	8.60@ 9.40	9.00@ 9.15	8.60@ 9.40	9.00@ 9.15
Chestnut	Chicago*	5.06	.....	8.33@ 8.53	8.48	8.53	8.48	8.53
Pea	New York	2.22	6.00@ 8.00	6.00@ 6.35	6.00@ 6.50	6.35@ 6.50	6.00@ 6.50	6.35@ 6.50
Pea	Philadelphia	2.14	6.50@ 7.50	6.00@ 6.50	6.00@ 6.75	6.50	6.00@ 6.75	6.50
Pea	Chicago*	4.79	.....	5.65@ 5.80	6.03	6.10	6.03	6.10
Buckwheat No. 1	New York	2.22	2.50@ 3.50	3.00@ 3.50	2.75@ 3.50	3.00	*2.75@ 3.00*	3.00
Buckwheat No. 1	Philadelphia	2.14	3.00@ 3.50	3.00	2.75@ 3.75	2.50@ 3.00	2.75@ 3.75	2.50@ 3.00
Rice	New York	2.22	2.00@ 2.50	2.00@ 2.25	2.00@ 2.25	2.00@ 2.25	2.00@ 2.25	2.00@ 2.25
Rice	Philadelphia	2.14	2.25	2.25	1.85@ 2.00	1.75@ 2.25	1.85@ 2.00	1.75@ 2.25
Barley	New York	2.22	1.50@ 1.75	1.60@ 1.75	1.25@ 1.50	1.50@ 1.75	1.25@ 1.50	1.50@ 1.75
Barley	Philadelphia	2.14	1.75	1.75	1.50	1.50@ 1.75	1.50	1.50@ 1.75
Birdseye	New York	2.22	.....	2.00	.....	2.00	.....	2.00

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

of the month. Dealers, however, were not eager to rebuild their stocks. On the steam side of the market both eastern and western Kentucky slack is tight and many consumers have turned to mine-run to augment their reserve supplies. A number of steam contracts have been renewed and several other important ones are pending. Western Kentucky producers are uneasy over the labor situation and few, if any, are willing to guarantee deliveries during the first week in April.

Slack Holds Position

The general price list shows the greatest strength in fine coal and weakness in some of the larger sizes. Western Kentucky screenings have advanced to a minimum of $1.30; mine-run is $1.40; nut, $1.60; lump and egg, $1.75; 6-in. block, $2. The minimum on eastern Kentucky slack is $1.25, with mine-run at $1.40. Most of the 4-in. block is moving at $2@$2.25, with nut and egg at $1.50 and small lump, $1.75. In exceptional cases up to $2.75 has been asked on block.

Increasing industrial activity and a desire to be protected against any interference with the normal movement of coal up the lakes this spring are creating an active market for steam coals at the Head of the Lakes. As a result, dock operators experience little difficulty in moving all grades of free tonnage. Screenings are in a strong position, with a minimum of $5 on all classes. Higher prices are predicted. On the domestic side dealers report a growing demand for anthracite. On the present basis of operations, the docks will enter the spring with an unusually small carryover of both anthracite and bituminous.

Owing to the unusually mild weather which hit southeastern Wisconsin the latter half of February, demand for coal from the Milwaukee docks tapered down. The situation so far this month has not been strong enough to revive large-scale buying. As a result the Milwaukee market is colorless, but dock operators are busy canvassing the possible developments in the new lake shipping season, which probably will open some time next month. Local prices are unchanged. The domestic market at the Twin Cities is seasonably active; there is no undue excitement in the steam trade.

Southwest Unmoved by Cold Wave

Demand for domestic grades of coal in the Southwest perked up last week under the influence of snow and freezing temperatures, but the operators were ready with a large number of "no bills" to take care of spot orders. The general situation, however, is unsatisfactory. The Spadra anthracite mines are down and the Arkansas semi-anthracite operations are accumulating lump and nut. The only Kansas and Oklahoma mines running full time are those crushing coal for the steam trade. Screenings are stronger.

The cold snap which ushered out February cut Colorado "no bills" from 570 to 340 cars. Orders poured in from Missouri River territory and from Colorado. Nevertheless the state as a whole was unable to register better than half-time operation. The Utah market is quiet. A few large industrial consumers have been storing coal, but that movement is not general because there is little danger of labor troubles in the state. Slack prices range from $1 to the circular quotation of $1.50. "No bills" are heavy.

A sustained demand for slack, which in some instances pushed prices to or above mine-run levels, featured the Cincinnati market last week. Heavy buying by byproduct interests and the refusal of some mines to produce anything but mine-run played a large part in this development, which, incidentally, left the domestic market in a badly disorganized state. Railroads were in the market for mine-run and lake business also was part of the picture, with rumors of 2-in. coal at $1.75.

Domestic Sizes Unsteady

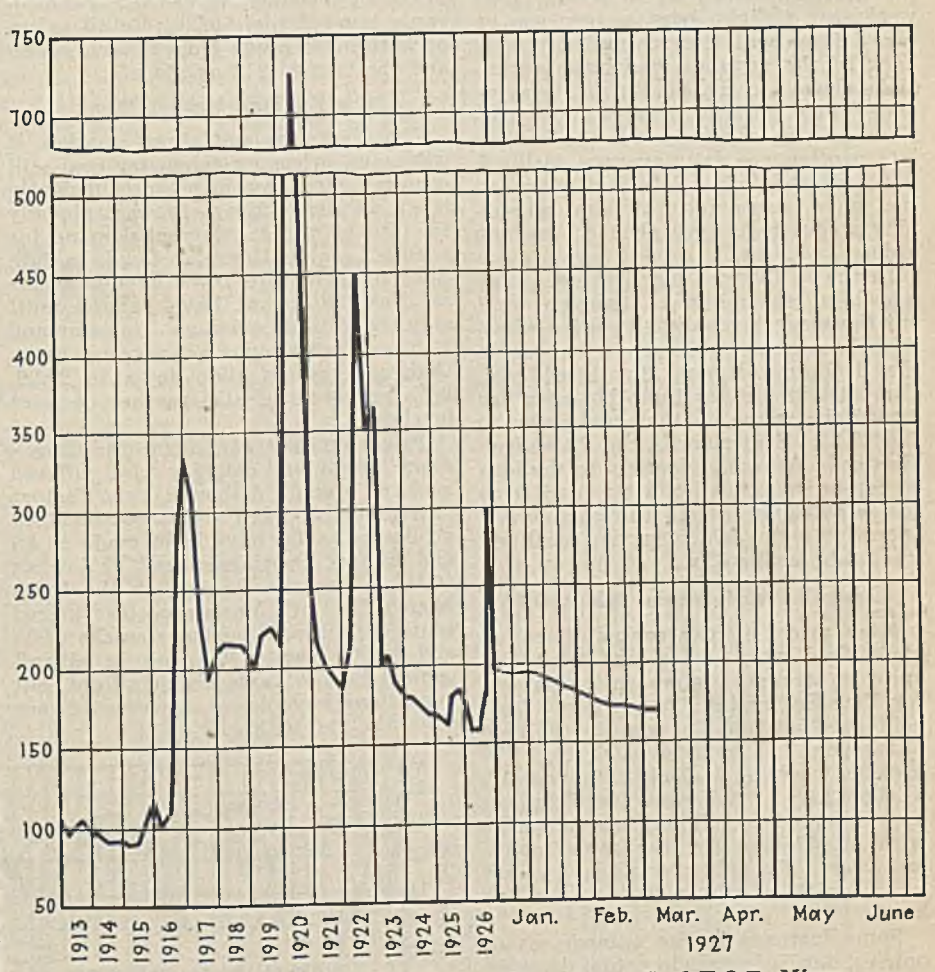
Most of the smokeless mine-run held to $2.25, but lump and egg, with a $3 circular, fluctuated between $2.75 and $3.25. High-volatile egg sagged so badly that some shippers offered it as low as $1.50, or practically at mine-run prices. Retail prices on bituminous lump in the Cincinnati market slumped from $6.50 to $6.

Compared with the preceding week there was little change in the movement of coal through the Cincinnati gateway during the week ended March 5. The total number of loads moved was 12,644—69 cars more than during the preceding week and 1,836 cars ahead of the corresponding period last year. There was a sharp drop in the number of empties en route to the mines, the total falling from 14,567 to 12,255 cars. On the Louisville & Nashville the loss was 2,048 cars.

Central and southern Ohio have not been helped by the collapse of the Miami wage negotiations. In fact, the Columbus market has been weaker because of a spell of warmer weather and dealers decline to augment their stocks. Railroads and public utilities seem to be nearing the end of their stocking program. Other industrial consumers seem little disposed to increase their stocks above normal, evidently figuring that West Virginia and Kentucky can take care of them in the event of a strike in the Central Competitive Field.

Lake Tonnage Brings Higher Prices

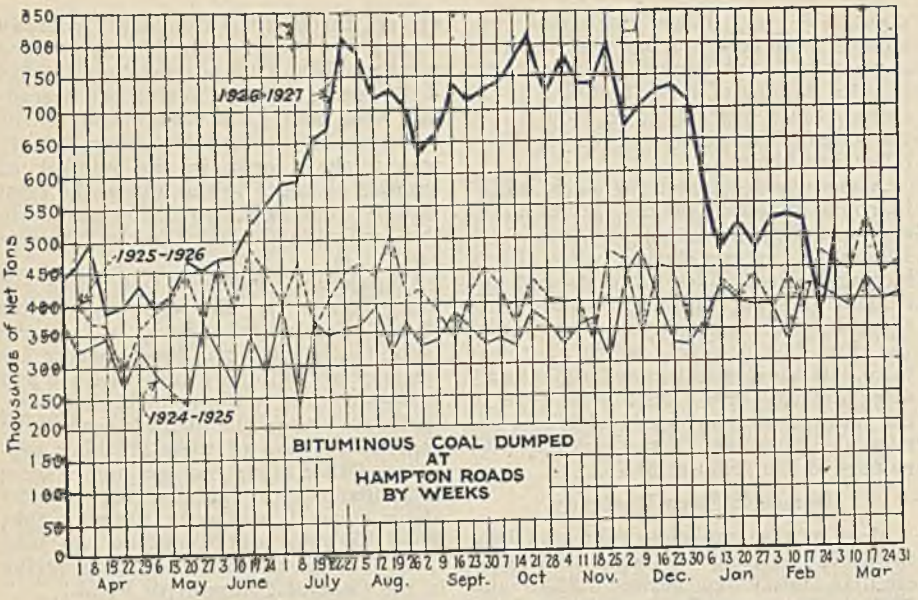
Contracts for lake tonnage are being made at prices 30 to 35c. higher than those which prevailed last season. Large blocks of West Virginia and Kentucky coal have been sold, it is reported, on a mine-run basis of $1.60@$1.75. Ohio



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

	1927				1926	1925
	Mar. 7	Feb. 28	Feb. 21	Feb. 14	Mar. 8	Mar. 9
Index	170	171	173	174	167	167
Weighted average price	$2.06	$2.07	$2.09	$2.11	$2.02	$2.02

This diagram shows the relative, not the actual, price on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportion 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, 1924, 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.



mines, however, are taking only a passive interest in the lake situation. Southern Ohio output is at a low point. Only the larger mines are working and most of these are running part time.

The pending shutdown of eastern Ohio mines on April 1 has not stirred the Cleveland market into action. Last week saw a slight increase in prices on No. 8 lump, but the volume of buying back of the advance was inconsequential. Output in the No. 8 field the week ended Feb. 26 was only 267,000 tons. Even making allowance for the holiday interruption, the daily average declined. Some of the industrials and railroads that have been quietly building up surplus stocks now have shut off storage orders.

In the Pittsburgh district, slack coal has been assuming a stronger tone, but the modest advances in price which have been registered have been due to the declining demand for sized coal. Competition for gas lump business has forced the range on that coal down to $2@$2.25. Sentiment in the Pittsburgh district is swinging strongly to the idea of non-union operation after April 1 as the only thing left to the commercial operators who wish to survive local and interstate competition.

Central Pennsylvania Prices Off

Mine prices in the central Pennsylvania field were easier last week, despite a stronger range in quotations for New England delivery. Pool 1 was held at $2.30@$2.50; pool 71, $2.15@$2.25; pool 9, $2@$2.15; pool, 10, $1.75@$1.95; pool 11, $1.65@$1.70; pool 18, $1.60@$1.65. Production for February approximated 78,298 cars, as compared with 82,648 cars for the same month last year. The field started the current month with about 2,000 "no bills" on hand.

Some increase in the number of inquiries, but little gain in actual demand, is the report which comes from the Buffalo bituminous trade. Most of the inquiry appears to originate with the smaller steam plants. Pittsburgh and No. 8 steam lump is quoted at $2@$2.15; mine-run, $1.75@$1.85; slack, $1.35@$1.45; Allegheny Valley lump, $2.25@$2.50; mine-run, $1.75@$2; slack, $1.40@$1.50; Youghiogheny gas slack, $1.60.

There has been little activity in the Toronto market in recent weeks. Mild weather has held down domestic buying and there has been no pressure exerted by industrial consumers for increased shipments. Three-quarter bituminous lump is quoted at $6.40, f.o.b. cars, Toronto; Pocahontas, $8.40; Pennsylvania low-volatile, $6.30. Retail prices on anthracite range from $15.50 on egg and chestnut to $16 on stove.

New England Market Weak

The New England steam market is weak and prices on tidewater coal still decline. Stocks on hand are sufficiently large to allow buyers to wait placidly for dips in prices. Current demand for contract coal at Hampton Roads in dull. Spot inquiries are few and quotations on Navy Standard have sagged until only the choicest offerings can command $4.50 per gross ton, f.o.b. vessels. From that peak prices slide down to $4.20, with prospects of still further declines in sight.

Prices on cars at Boston and Providence, for inland delivery have suffered a sharp break. Although some factors still quote $6.35 at Providence and $6.50 at Boston, sales have been made at $6 and less at Providence and as low as $6.10 at Boston. Last week the Commonwealth of Massachusetts placed some institutional business on the $6.35 and $6.50 bases. Business in all-rail central Pennsylvania coals is light, but quotations have been somewhat firmer since the end of February.

Bituminous movement is steady in the New York market. Storage buying by both large and small consumers is the chief supporting element. Better grades of coal are holding the lead, while some of the cheaper offerings are more or less neglected by the buyers. Ordinary spot trading is backward. New business in that field is so scarce that customers with firm orders at times are able to pick up attractive bargains.

Philadelphia Masks Interest

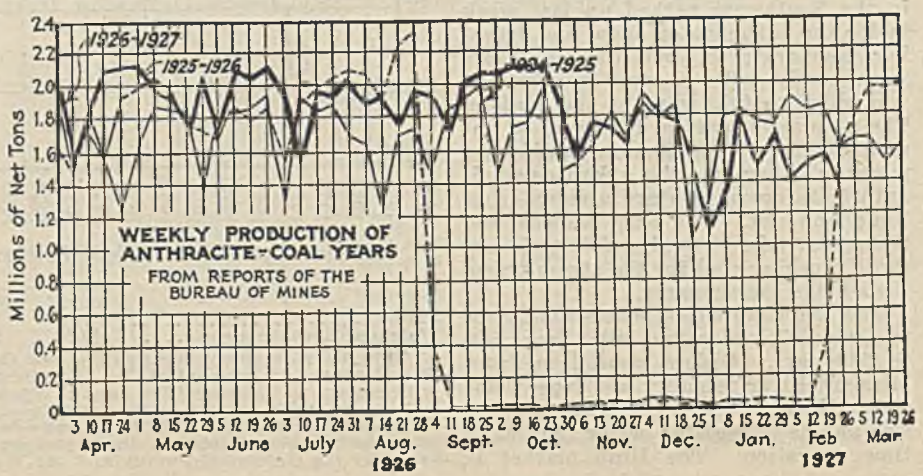
Philadelphia buyers are sternly repressing any signs of quickened interest in the bituminous situation. Most consumers profess to believe that non-union tonnage after April 1 will meet all requirements. There is storage buying, to be sure, but it is done without feverishness and prices have not advanced. Railroads still seek to pick up blocks of tonnage at bargain prices, but their efforts in that direction are not always successful. Shippers are suggesting renewal of industrial contracts at $2.20@$2.75, depending on the grade. Considerable business has been closed.

The threat of a strike in the Central Competitive Field leaves the Baltimore market cold. There is too much coal now seeking a market to suit the sellers. Aside from railroads and public utilities, few consumers are showing any interest in increasing their storage reserves. Spot quotations, however, are somewhat stronger on pools 9, 10 and 54 and weaker on pool 11 coal. Export movement is exhibiting the predicted decline.

Colder weather in Alabama helped the retail trade last week, but added no great amount of business to the shippers' books. Spot steam buying continues light. The industrial market has been slowed up further by the fact that the railroads appear to have completed their storage programs. Mines have trimmed operating schedules to conform to reduced buying, so that there is little surplus tonnage at the collieries. In some cases, however, operators are compelled to sacrifice domestic sizes to keep up with steam orders.

Anthracite Prices Reduced

Reductions in the prices of domestic sizes of anthracite were announced on March 1 by one large producer and followed the next day by the sales agent of another operator. The reductions ranged from 10 to 25c. and applied on egg, stove and chestnut. Other cuts are



Car Loadings and Supply

	Cars Loaded—All Cars	Cars Loaded—Coal Cars
Week ended Feb. 26, 1927	923,849	201,959
Week ended Feb. 19, 1927	960,873	213,794
Week ended Feb. 27, 1926	912,658	180,434
Week ended Feb. 20, 1926	931,743	169,913

	Surplus Cars—All Cars	Surplus Cars—Coal Cars	Car Shortages All Cars	Car Shortages Coal Cars
Feb. 23, 1927	273,031	78,069	.....	.....
Feb. 15, 1927	259,556	68,373	.....	.....
Feb. 27, 1926	207,683	74,151	.....	.....

expected to follow, as demand still is extremely backward. Egg is much stronger than nut or stove and there are a number of loaded boats of the latter sizes in the harbor. No. 1 buckwheat is easier.

At Philadelphia small-lot consumer buying has helped the retail distributor of anthracite but has been of little benefit to the hard-coal producer. Part-time operation is still the rule and there is a considerable tonnage of unbilled loads at the mines. Dealers are demanding a substantial reduction in prices on April 1, but the leading shippers have given no indication that they will meet such a demand. Some independents have offered coal for March delivery with the understanding that any reduction which might be made next month would be retroactive.

From the user's standpoint the steam situation has improved. Free tonnage has increased and premiums are diminishing. Baltimore retailers enjoyed a late weather spur in demand, but insist that spring buying will be backward unless prices are reduced April 1. A reduction of 25c. in the circular on egg and nut has been announced by one shipper at Buffalo. Forward buying, however continues light. Loading of boats already has started and a number of cargoes will be ready when navigation opens.

Connellsville Coke Market Quiet

The Connellsville coke trade is marking time. There is a moderate running demand for heating and standard furnace coke—none of it, however, coming from the blast furnaces—and a fairly active market in spot foundry fuel. Prices show no quotable change. The undertone, perhaps, is stronger. Spot furnace is $3.35@$3.50; foundry, $4.25 @$4.75. Blast furnaces exhibit indifference when the question of second-quarter contracts is raised. Furnaces do not seem to be worrying over the possibilities of a strike.

Production of beehive coke in the Connellsville and Lower Connellsville region during the week ended Feb. 26 was 140,500 net tons, according to the Connellsville *Courier*. Furnace-oven output was 66,200 tons, an increase of 6,050 tons when compared with the output the preceding week. Merchant-oven production was 74,300 tons, a decrease of 1,250 tons.

Orestes H. Caldwell, editor of *Electrical Merchandising* and *Radio Retailing*, member of the American Institute of Electrical Engineers, the radio committee of the American Engineering Council and director of the New York Electrical Board of Trade, has been nominated by President Coolidge to membership on the federal Board of Radio Control. As the Senate did not act on the nomination because of the filibuster in the closing days of the session Mr. Caldwell becomes a recess appointee.

Closing Chinese Contracts

Shanghai, China, Jan. 20.—Negotiations for 1927 coal contracts have been active during the past fortnight. A fair amount of short-term business, covering three to six months' deliveries has been done with Chinese dealers. The latter, however, seem unwilling to commit themselves for a year at the present high rate of foreign exchange as based on the Chinese silver. Contract prices for this year are $2 to $3 a ton above last year's prices.

Owing to the greatly increased demand for dust coal, both for Japanese and overseas consumption, prices on Japanese coal have advanced 20 sen a ton and it is difficult for the supply to keep pace with the demand.

The supply of coal from the mines in Shantung province is not yet sufficient to allow any appreciable quantity being reported, as the output is consumed in North China. Steamers are finding no difficulty in filling their bunker requirements at Tsingtao.

Three forty-acre tracts of coal land in Montana and Utah have been ordered leased by the Department of the Interior. Jos. F. Livingstone of Salt Lake City and George W. Ivory of Fountain Green, Utah, will lease a tract of forty acres in Sevier County which adjoins a tract they are already mining. The government will collect a royalty of 10c. per ton and the initial investment must not be less than $10,000. One of the other leases involves a tract of coal land in Kane County, Utah, with an initial investment of $500 as the minimum and the payment of 15c. per ton royalty.

Estimated Coal Output in 1926, by States, with Comparative Figures for Preceding Years

(In Net Tons)

	1913	1918	1920	1921a	1922	1923	1924a	1925a (Final)	1926 (Estimate)	Per Cent of Error in 1925 Estimate
Alabama	17,678,522	19,184,962	16,294,099	12,568,899	18,324,740	20,457,649	19,130,184	20,004,395	22,356,000	+ 5.8
Arkansas	2,234,107	2,227,369	2,103,596	1,227,777	1,110,046	1,296,892	1,451,503	1,220,039	1,720,000	+15.6
Colorado	9,232,510	12,407,571	12,278,225	9,122,760	10,019,597	10,346,218	10,444,098	10,310,551	10,579,000	— 0.2
Illinois	61,618,744	89,291,105	88,724,893	69,602,763	58,467,736	79,310,075	68,323,281	66,909,359	69,700,000	+ 2.8
Indiana	17,165,671	30,678,634	29,350,585	20,319,509	19,132,889	26,229,099	21,480,213	21,224,966	22,839,000	+ 4.0
Iowa	7,525,936	8,192,195	7,813,916	4,531,392	4,335,161	5,710,735	5,468,450	4,714,843	5,069,000	+ 1.9
Kansas	7,202,210	7,561,947	5,926,408	3,466,641	2,995,170	4,443,149	4,247,733	4,524,251	4,531,000	— 9.5
Kentucky: *b*										
Eastern	11,098,960	20,723,023	24,492,504	22,972,414	27,931,999	33,780,553	36,127,133	42,882,113	47,906,000	— 5.4
Western	8,517,640	10,798,690	11,036,258	8,615,856	13,734,123	10,890,279	9,020,071	12,186,557	15,424,000	+ 1.9
Maryland	4,779,839	4,497,297	4,065,239	1,827,740	1,222,707	2,285,926	2,133,703	2,694,572	3,487,000	— 6.7
Michigan	1,231,786	1,464,818	1,489,765	1,141,715	929,390	1,172,075	831,020	808,233	649,000	—10.1
Missouri	4,318,125	5,667,730	5,369,565	3,551,621	2,924,750	3,403,151	2,480,880	2,694,215	2,697,000	— 6.9
Montana	3,240,973	4,532,505	4,413,866	2,733,958	2,572,221	3,147,678	2,905,365	3,043,686	2,905,000	—12.8
New Mexico	3,708,806	4,023,239	3,683,440	2,453,482	3,147,173	2,915,173	2,786,063	2,556,851	2,866,000	— 3.3
North Dakota	495,320	719,733	948,625	864,903	1,327,564	1,385,400	1,200,527	1,324,620	1,156,000	—16.7
Ohio	36,200,527	45,812,943	45,878,191	31,942,776	26,953,791	40,546,443	30,473,007	27,034,112	29,150,000	— 7.6
Oklahoma	4,165,770	4,813,447	4,849,288	3,362,623	2,802,511	2,885,038	2,329,615	2,325,840	2,339,000	— 3.7
Penna. bituminous	173,781,217	178,550,741	170,607,847	116,013,942	113,148,308	171,879,913	130,633,773	136,928,019	151,119,000	+ 2.1
Tennessee	6,860,184	6,831,048	6,662,428	4,460,326	4,876,774	6,040,268	4,556,555	5,454,011	5,897,000	+ 6.9
Texas	2,429,144	2,261,135	1,615,015	972,839	1,106,007	1,187,329	1,147,011	1,008,375	1,061,000	—13.4
Utah	3,254,828	5,136,825	6,005,199	4,078,784	4,992,008	4,720,217	4,488,157	4,690,342	4,434,000	— 1.3
Virginia	8,828,068	10,289,808	11,378,606	7,492,378	10,491,174	11,761,643	10,693,464	12,799,443	13,493,000	— 2.7
Washington	3,877,891	4,082,212	3,757,093	2,428,722	2,581,165	2,926,392	2,653,667	2,537,890	2,548,000	— 4.8
West Virginia	71,254,136	89,935,839	89,970,707	72,786,996	80,488,192	107,899,941	101,662,897	122,380,959	147,209,000	+ 1.4
Wyoming	7,393,066	9,438,688	9,630,271	7,200,666	5,971,724	7,575,031	6,757,468	6,553,232	6,968,000	+ 5.1
Other States *c*	341,317	171,412	159,054	180,468	253,126	261,910	260,700	241,267	188,000	.....
Total bituminous	478,435,297	579,385,820	568,666,683	415,921,950	422,268,099	564,564,662	483,686,538	520,052,741	578,290,000	+ 0.6
Penna. anthracite	91,524,922	98,826,084	89,598,249	90,473,451	54,683,022	93,339,009	87,926,862	61,817,149	85,000,000	+ 0.5
Grand total	569,960,219	678,211,904	658,264,932	506,395,401	476,951,121	657,903,671	571,613,400	581,869,890	663,290,000	+ 0.6

(*a*) Figures for bituminous coal exclude output of wagon mines. (*b*) Kentucky tonnage of wagon mines is distributed between eastern and western districts in 1913. This tonnage was undistributed for 1918, 1920, 1922 and 1923, but is included in the total (bituminous), and is as follows: for 1918, 90,904 tons; for 1920, 162,000 tons; for 1922, 468,053 tons, and for 1923, 106,485 tons. (*c*) Includes production of Alaska, California, Georgia, Idaho, Nevada, North Carolina, Oregon and South Dakota, whenever reported, although not all of these states produced coal in each year shown.

Compiled by U. S. Bureau of Mines.

Foreign Market And Export News

Inquiries and Exports Gain In British Market

London, England, Feb. 21.—Inquiries for coal in the British market are steadily increasing, though the trade in the aggregate is uninteresting. Prices are low despite the fact that exports are now approximately at the same figure as a year ago. Buyers are still holding off for lower prices before placing large orders, but the producers are strongly resisting any further reductions. Occasionally a concession of about 1s. is made, but very grudgingly.

Algerian Rys. are inviting tenders for 34,000 tons of locomotive coal and 100,000 tons of patent fuel; Irish Rys. have invited offers for 40,000 tons and the Spanish Norte Rys. have taken 30,000 tons for March and April at 20s. f.o.b. A South American electrical plant has signed for 125,000 tons of nuts and beans for delivery from May to December at 18s. f.o.b.

The South American trade is good, the French better, the Spanish brisk and the Italian steady.

Spot prices are. Best Admiralty large, 21s. 6d. @ 22s. 6d.; best steam smalls, 15s.@15s. 6d.; best gas, 17s. 6d. @18s., and best bunkers, 17s. 6d.

Production during the week ended Feb. 19 totaled 5,363,900 gross tons, as compared with 5,360,900 tons the preceding week and 3,884,200 tons at the beginning of the year.

French Coal Market Feels Industrial Decline

Paris, France, Feb. 17.—While the French coal market is not faced with a crisis, orders have been slowing down to such an extent because of reduced activity at industrial plants that the trade is feeling the effects keenly. Incidentally stocks in the bins of domestic and industrial consumers are low, due to a policy of waiting for a reduction in prices. Industrial consumers have been disappointed in the price cuts on fuel suitable for their use, but it is unlikely that there will be any further reductions until April 1, and even then only in the event that a decrease in wages can be brought about.

Demand for household coals has been better of late, thanks to a spell of cold weather, but the improvement was not sufficient to affect prices. French and Belgian producers have been negotiating on the prices to be placed in effect in the Paris area and the East region beginning March 1. The new quotations are to be on an intermediate level compared with the winter schedule, now in effect, and the summer circular, which goes into effect April 1.

Imports are comparatively low as requirements are restricted; the tag end of tonnage ordered in America during the British strike is now arriving.

Transportation facilities are normal and the freight rate from Bethune to Paris is 30 fr.

New prices on indemnity fuels established by the O. H. S., effective yesterday, range from 137 to 149 fr. on unscreened bituminous grades, 161 to 210 fr. on washed peas and 190 to 257 fr. on coke. The new list shows reductions of 5 to 20 fr., the heaviest cuts being on coke.

The only development in the coke market is a discussion between French consumers and Ruhr ovens on a proposed reduction in imports to relieve our metallurgists of the oversupply which has followed a falling off in industrial activity. German ovens seem disposed to insist that the buyers take their regular quotas. Nevertheless there has been some slowing up in deliveries.

Belgian Demand Slipping

Brussels, Belgium, Feb. 16.—While there have been no startling changes in the Belgian coal situation in the past week, the prevailing undertone is weaker. Some of the smaller mines which started up again under the British strike boom probably will be unable to face the combination of higher wages and lower selling prices. Aside from anthracites, all classes of domestic coal are falling and a decline of 20 fr. is quite general.

Prices on coal from the Charleroi district for delivery to France during March were cut 15 to 60 fr. under an agreement reached at a meeting of the interested parties on Feb. 14. Gaillets drop from 245 fr. to 227@230; large cobbles from 280 and 300 fr. to 2[illegible]5 and 255; small cobbles, from 300 and 330 fr. to 263 and 273; nuts, from 320 and 350 to 285 and 290; beans, from 245 to 223@230 fr.

Industrial demand is slow and competition from foreign producers is increasing. Couchant de Mons producers will be forced to lower their prices to meet recent reductions in British quotations and most existing contracts have been revised downward 10 fr. Lean smalls and duffs are less and less in demand. Coking smalls also are weaker.

French Output Up

Production of coal and lignite by French mines increased 4,444,500 metric tons last year. The 1926 output approximated 52,478,000 tons, as compared with 48,033,500 tons in 1925 and 40,922,500 tons in 1913. The 1926 total, however, includes 5,224,000 tons from the Lorraine district, which was German territory in 1913.

Notwithstanding this addition to coal-producing areas, and despite the devastation of its largest coal basin, the fact remains that in less than 13 years French output showed a net increase of 6,331,500 tons over pre-war totals. In the Nord and Pas de Calais the increase over 1913 was 5,133,000 tons.

French coal consumption last year—exclusive of any allowance for stocks on hand at the beginning and the end of the period—approximated 63,660,000 tons. Imports totaled 15,403,000 tons and exports, 4,205,000 tons.

Coke production at the mines last year was 3,775,000 tons, or an increase of 710,636 tons over 1925. In addition, about 2,500,000 tons of coke were produced at outside plants. Patent fuel output—4,088,000 tons—showed a gain of 435,000 tons.

Export Clearances of Coal, Week Ended March 3

FROM HAMPTON ROADS

	Tons
For United Kingdom:	
Br. Str. Nubian	8,316
For New Brunswick:	
Br. Str. Wearbridge, to St. John	6,251
For France:	
Fr. Str. P. L. M. 20, to Marseilles	7,931
For Brazil:	
Amer. Str. Commercial Trade, to Rosario	4,445
Br. Str. Sailor Prince, to Santos	2,738
For Mexico:	
Amer. Str. Commercial Pioneer, to Puerto Mexico	2,979
For Peru:	
Peru. Str. Amazonas, to Callao	1,402
For Cuba:	
Dan. Str. Leifland, to Santiago	2,130

FROM BALTIMORE

For Cuba:	
Am. Str. Santore, to Felton	3,940
Dan. Str. Nordamerika, to St. Lucia	3,999
For Porto Rico:	
Am. Str. Irene, to Guanica	266
Am. Str. Delisle, to Fajardo and Ponce	804
For Ireland:	
Br. Str. Jersey City, to Queenstown for orders	9,058
For Argentine:	
Br. Str. Ena DeLarrinaga, to Buenos Aires	6,184

FROM PHILADELPHIA

For Santo Domingo:	
Swed. Str. Struesholm, to Santo Domingo City	——

Hampton Roads Coal Dumpings*

(In Gross Tons)

	Feb. 24	Mar. 3
N. & W. Piers, Lamberts Pt.:		
Tons dumped for week	152,085	171,400
Virginian Piers, Sewalls Pt.:		
Tons dumped for week	104,378	115,698
C. & O. Piers, Newport News:		
Tons dumped for week	89,764	165,015

*Data on cars on hand, tonnage on hand and tonnage waiting withheld due to shippers protest.

Pier and Bunker Prices

(Per Gross Ton)

PIERS

	Feb. 24	March 1†
Pool 1, New York	$5.75@$6.00	$5.75@$6.00
Pool 9, New York	5.25@ 5.50	5.25@ 5.50
Pool 10, New York	5.00@ 5.25	5.00@ 5.25
Pool 11, New York	4.50@ 5.00	4.50@ 5.00
Pool 9, Philadelphia	5.25@ 5.45	5.25@ 5.45
Pool 10, Philadelphia	4.90@ 5.20	4.90@ 5.20
Pool 11, Philadelphia	4.45@ 4.85	4.45@ 4.85
Pool 1, Hamp. Roads	4.80@ 4.90	*4.75@ 4.85*
Pool 2, Hamp. Roads	4.65@ 4.75	*4.50@ 4.60*
Pool 3, Hamp. Roads	4.00@ 4.10	4.00@ 4.10
Pools 5-6-7, Hamp. Rds.	4.30@ 4.50	*4.15*

BUNKERS

	Feb. 24	March 1†
Pool 1, New York	$6.00@$6.25	$6.00@$6.25
Pool 9, New York	5.50@ 5.75	5.50@ 5.75
Pool 10, New York	5.25@ 5.50	5.25@ 5.50
Pool 11, New York	4.75@ 5.25	4.75@ 5.25
Pool 9, Philadelphia	5.50@ 5.70	5.50@ 5.70
Pool 10, Philadelphia	5.15@ 5.45	5.15@ 5.45
Pool 11, Philadelphia	4.70@ 5.10	4.70@ 5.10
Pool 1, Hamp. Roads	4.90	*4.85*
Pool 2, Hamp. Roads	4.75	*4.60*
Pools 5-6-7, Hamp. Rds.	4.50	*4.20*

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

Coming Meetings

New York State Coal Merchants' Association. Ninth annual group meeting, Hotel Pennsylvania, New York City, March 15. Executive secretary, G. F. W. Woodside, Albany, N. Y.

American Society for Testing Materials will hold certain committee meetings, among which will be one on coal and coke, in conjunction with a four-day group meeting at the Bellevue-Stratford, Philadelphia, Pa., March 15-18. Secretary-treasurer, C. L. Warwick, 1315 Spruce St., Philadelphia, Pa.

American Welding Society. Annual meeting, April 27-29, at Engineering Societies Building, 29 West 39th St., New York City. Secretary, M. M. Kelly, 29 West 39th St., New York City.

American Mining Congress. Annual convention May 16-20, Cincinnati, Ohio. Secretary, J. F. Callbreath, Munsey Bldg., Washington, D. C.

American Society of Mechanical Engineers. Spring meeting, May 23-26, at White Sulphur Springs, W. Va. Midwest regional meeting at Kansas City, Mo., April 4-6. Secretary, Calvin W. Rice, 29 West 39th St., New York City.

American Wholesale Coal Association. Annual convention June 1-3, Toronto, Canada. Secretary-treasurer, R. B. Starek, Chicago Temple Bldg., Chicago, Ill.

National Retail Coal Merchants Association. Annual convention June 6-8, Detroit, Mich. Resident vice-president, Joseph E. O'Toole, Washington, D. C.

Association of Iron and Steel Electrical Engineers. Annual convention in conjunction with the Iron and Steel Exposition, at Pittsburgh, Pa., June 13-18. Secretary, John F. Kelly, Empire Bldg., Pittsburgh, Pa.

New England Coal Dealers' Association. Annual meeting June 14-16, Hotel Griswold, New London, Conn. Executive secretary, E. I. Clark, Boston, Mass.

Colorado and New Mexico Coal Operators Association. Meeting at Boston Building, Denver, Colo., June 15. Secretary, F. O. Sandstrom, Denver, Colo.

National Coal Association. Annual meeting June 15-17, at Edgewater Beach Hotel, Chicago, Ill. Assistant secretary, J. C. Crowe, Washington, D. C.

American Institute of Electrical Engineers. Summer convention, June 20-24, at Detroit, Mich. Regional meetings, March 17-18, at Kansas City, Mo.; April 21-23, Bethlehem, Pa., and May 25-27, Pittsfield, Mass. Secretary, F. L. Hutchinson, 29 West 39th St., New York City.

Recent Patents

Mine Signals; 1,614,257. Fritz Scheffler, Kiel, Germany. Jan. 11, 1927. Filed April 11, 1925; serial No. 22,428.

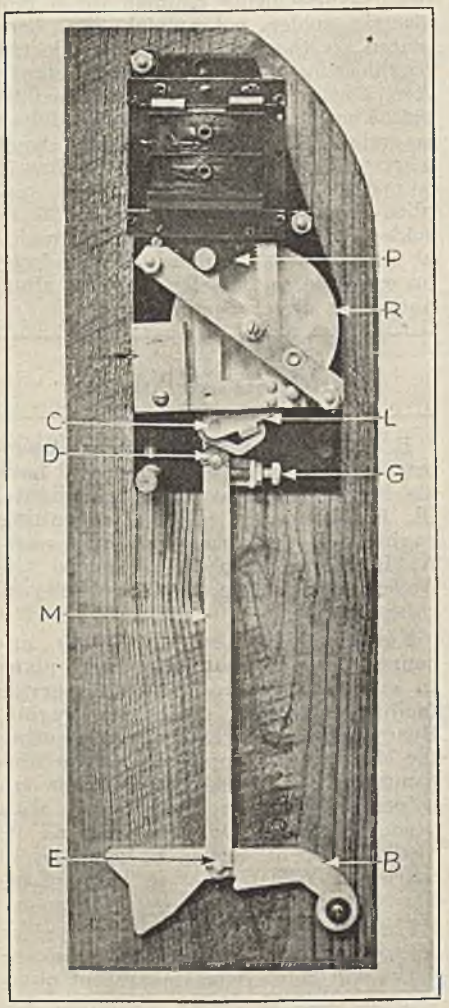
Rock Drill; 1,614,216. Harry H. Swartz, Bell, Pa. Jan. 11, 1927. Filed June 17, 1924; serial No. 720,592. Renewed Sept. 18, 1926.

New Equipment

Keeps the Motor Running

A low-voltage time-release attachment, designed for use with hand compensators that can be applied to existing compensators to furnish an undervoltage trip of the latch that holds the hand compensator in the closed position has been developed by the General Electric Co. This device prevents the tripping of the compensator until approximately 1½ sec. have elapsed after the failure of voltage. As most dips in voltage, met with under ordinary circumstances, are of shorter duration than 1½ sec., this device prevents the costly delays and shut-downs due to short interruptions in voltage which trip compensators equipped with the ordinary undervoltage tripping device.

In order to provide the time-delay feature on magnetic apparatus, a time-delay push-button station was developed. Upon failure of voltage, a small mechanical escapement within this special push-button case starts to function, and, if the voltage is not restored within 1½ sec, the holding circuit is opened and the control apparatus goes to the "off" position. If the dip in voltage lasts for less than 1½ sec., the control device is automatically returned to the running position and allows the motor to continue to operate.



Every Interruption Does Not Stop Motor

This low-voltage time-release device is intended for attachment to hand operated compensators. For magnetic compensators a push button time-delay device is used.

Flameproof Tandem Storage Battery Locomotive

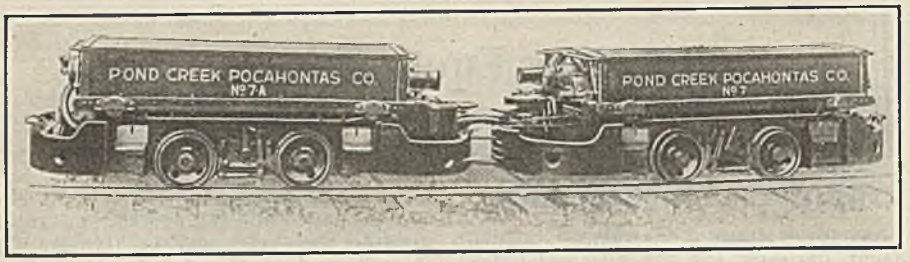
A recent development in main-haulage locomotives is a one-man control tandem storage battery machine designed and built by the Mancha Storage Battery Locomotive Co., St. Louis, Mo. This unit is built in either permissible or open type and is particularly adapted to gaseous mines.

One of the obstacles which both the manufacturer and operator has had to avoid in main-haulage locomotives of the storage-battery type has been the excessive size and bulk necessary because of the space necessary for a battery large enough to operate throughout an entire shift on one charge. The total weight of a locomotive of this type would be approximately 20 tons, and its length about 19 ft. 6 in., while its height would be close to 50 in. This would limit its use to the main line where track conditions are maintained at the very best. The tandem unit was built to do main-haulage work where conditions would not permit one of the larger single-unit locomotives. It is claimed that the first tandem locomotive built by the Mancha company has been in operation in a southern West Virginia mine for some time and has produced some excellent results.

This tandem machine is composed of two Mancha Hercules-AX locomotives each having a battery of 117 lead cells with a capacity of 62 kw.hr. which gives a total capacity of 124 kw.hr. for the unit. This capacity is sufficient to operate the machine throughout one full shift with one charge of the battery.

The control of this unit is effected by a specially designed connection which permits the operation of both locomotives through one controller on either of the two machines, the controller of the opposite locomotive being automatically cut out of the circuit. The controller to be used can be selected at the will of the motorman. Both the brakes and sanding levers in both locomotives are within easy reach of the motorman regardless of which machine he may be riding.

The electrical connection between the two locomotives is designed with an integral automatic circuit breaker which prevents any arcing or burning of the contacts should the locomotives break apart because of a failure of the draw links between them. This is a necessity on a locomotive operating in a gaseous mine. Should the two units break apart it is stated that no harm can be done as the locomotive on which the motorman is riding will continue to



May Be Operated Singly or in Tandem

These locomotives are arranged for tandem operation by one man. Fuses are so arranged that the electrical connections are broken before any wires are pulled apart so that all possibility of flashing is eliminated. These machines may be used together for haulage or separately for gathering or for furnishing power for cutting machines.

run until he shuts off the controller and the other machine will have its current cut off instantly at the time of breakage. Thus, should the draw links fail when hauling a trip, the motorman being on the rear locomotive, the leading machine would be dead as soon as it reached the end of the coupling cable.

The two machines may be separated and operated as independent gathering locomotives. Each is equipped with a sufficient number of cells to permit it to be used as a power truck supplying the correct voltage for operating undercutters, loading machines, pumps, etc.

As a main haulage locomotive, the total weight is approximately 20 tons, but being composed of two separate machines, this weight is equally distributed over eight driving wheels. This permits the complete machine to be operated upon light rails and track that does not have to be maintained as carefully as would be necessary for a 20-ton locomotive. Its short overall length (each unit being only 13 ft. 3 in. long) and the fact that it has a turning length of 10 ft. because its rounded ends permit it to be used in places where a large locomotive could not be employed.

By the use of an extra battery and box for each locomotive in connection with the Mancha patented transfer rack, the extra battery which has been charged during the day shift can replace the one on the chassis that has been discharged. Each machine then becomes a power truck capable of furnishing power for cutting coal on the night shift. As there is provided on each box a receptacle for attaching the trailing cable of a cutting machine, a locomotive of this kind not only provides power for operating the cutting machine, but also propels it faster than would be possible if the machine were to travel under its own power.

Another Speed Reducer

The Palmer-Bee Co., Detrot, Mich., has recently put on the market a new design of speed reducer. This mill-type reducer comprises a set of spur gears mounted on the main drive shaft, the high-speed shaft, and the countershaft, respectively. The high-speed and main drive shafts are axially concentric, and the power is delivered to the driven unit directly on a line with the point where it is received. The machine-cut gears are unusually large, it is claimed.

The bearings are long, cast integral with the bottom half of the casing, and are bronze bushed. All moving parts are lubricated by a patented oil bath, splash and gravity feed system. The entire mechanism is inclosed in an oil-tight and dust-proof housing of rugged design.

The casing is split horizontally on the center line of the shafts, and the upper half, or cover, can be easily removed for inspection of the gears or for changing the ratio. The bearing caps are independent of the casing, so that removal of the cover does not disturb the bearings.

Safety and Convenience In Melting Pots

Greater safety and convenience are two features being claimed for a new electric solder pot, which has been placed on the market by the Electric Engineering Co., Inc., 11712 Atlantic Ave., Richmond Hill, N. Y. This solder pot, known as the Electro Melter, is adaptable to maintenance work wherever solder, lead or babbitt has to be melted. This pot, which can be supplied in two sizes—15 lb. and 30 lb. solder capacity—is wired for operation at four different temperatures and can be operated on 110- or 220-volt alternating or direct current.

Industrial Notes

E. S. Black has rejoined the **American Manganese Steel Co.** and will have his headquarters at Chicago Heights, Ill. His duties are those of consulting engineer, both mechanical and sales. **A. H. Exton** also has rejoined the Amsco organization, in the capacity of chief engineer.

Koehler Mfg. Co., Boston, Mass., announces that, in connection with plans to extend Koehler sales and service facilities in the anthracite region, **Henry Theiss**, formerly representing the Mine Safety Appliances Co. in Alabama and West Virginia, has been appointed Koehler representative with headquarters at Dugger, Ind. **G. A. Luckenbach**, of Scranton, remains in charge of Wheat sales in the anthracite region.

The New York office of the explosives department of **E. I. duPont de Nemours & Co.** will move from its present quarters in the Equitable Building, 120 Broadway, to the new Graybar Building, just east of the Grand Central Terminal, toward the end of April, when its present lease expires.

Elliott Company, Pittsburgh and Jeannette, Pa., with works also at Ridgway, Pa., and Wellsville, N. Y., announces the election of **G. F. Elliott** as vice-president and assistant to the president, W. S. Elliott. He has also been appointed general manager in charge of the Ridgway Dynamo & Engine Works. **R. N. Ehrhart** has been elected a vice-president in charge of engineering. James E. Watson continues as executive vice-president.

John Alden Plimpton has been appointed Western manager by the Pennsylvania Crusher Co., Philadelphia, Pa. He has taken charge of the Chicago office, where he succeeds C. S. Darling, who has taken up association work.

The Chicago Pneumatic Tool Co., 6 East 44th Street, New York City, announces the closing of its own offices in Dallas and Houston, Texas, incident to the appointment of **Whealton & Townsend, Inc.**, with main offices at 120 East Brady Street, Tulsa, Okla., as distributors of Chicago Pneumatic products in the State of Texas east of meridian 102. Whealton & Townsend, Inc., will maintain sales and service offices in both Dallas and Houston, and will establish additional offices elsewhere when conditions warrant.

The Climax Engineering Co., Clinton, Iowa, has completed arrangements with the **Koehring Company Associates**, 50 Church Street, New York City, to handle the sale of its products for export exclusively in the following countries: Argentina, Colombia, Italy, Panama, India, Philippine Islands and the Japanese Empire.

About $400,000 will be expended in removing the plant of the **Champion Switch Co.** from Buffalo, N. Y., to Kenova, W. Va. J. F. Sinclair, treasurer and general manager of the company, announces that the company will occupy buildings formerly used by the Kenova Mine Car Co. The sales offices of both the Champion Switch Co. and the Jeffrey-Dewitt Co., formerly located in Buffalo, will be removed to Kenova, it is stated. F. D. Stranahan of Toledo is president of the Champion Switch Co. and R. A. Stranahan, also of Toledo, is vice-president.

Publications Received

Low-Temperature Carbonization of Coal, by A. C. Fieldner. Bureau of Mines, Washington, D. C. Technical paper 396. Pp. 46; 6x9 in.; illustrated. Covers fundamental principles and brief descriptions of representative types of processes.

The Support of Underground Workings in the East Midland Coalfield (Yorkshire, Derbyshire, excluding South Derbyshire, and Nottinghamshire). Safety in Mines Research Board. Paper No. 30. Price, 2d net. H. M. Stationery Office, Adastral House, Kingsway W. C. 2, London, England. Pp. 48; 6x9 in.; illustrated. This paper, the third in the report of the committee appointed to investigate methods of reducing number of accidents due to falls of ground in coal mines, gives descriptions of the usual methods of supporting the workings in the East Midland coal field and draws attention to points that may be commended or criticised.