COAL AGE

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Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

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Where Statistics Would Help

AS TO HOW FAR, if at all, the federal government should go in setting up a system of compulsory fact-finding in the coal industry there is much honest difference of opinion. Even some of those who are most sympathetic toward the idea are in doubt as to the constitutionality of proposed legislation. Opponents who rely upon constitutional guarantees offer a formidable list of court decisions to bulwark their argument that such an innovation would be beyond the authority of Congress. At least until the Supreme Court of the United States shall have spoken in the *Claire Furnace* and *Maynard Coal Co.* cases, confusion and disagreement will continue.

There are, however, certain statistical activities that the federal government properly might expand or inaugurate. Concerning these there could be no challenge. These statistics relate to production, distribution and consumption. The government is, of course, and has been for some time, collecting and publishing weekly data on production. The only criticism which may be leveled against those figures is their lack of detail. A big step forward was taken when the production figures were broken down into tonnages by states. But the analysis should go further. The state figures should supply information as to the output of the important producing districts. The Bureau of Mines already is working on this particular problem, and it should be encouraged in its undertaking.

It is several years since any attempt was made to publish data on distribution. Yet such data are a necessary complement to the production figures. The latter tell only half the story. There are no insurmountable difficulties to the collection and compilation of distribution statistics. It is merely a question of setting the proper machinery in motion. For years the Illinois and Indiana Coal Traffic Bureau, a railroad organization, has been compiling such data with respect to the distribution of the production of those two states. The Ohio Bureau of Coal Statistics has been performing a similar but less voluminous service for certain other fields. In neither case, however, are these monthly reports available to the general public or to the coal industry at large.

The activities of these bureaus in their limited areas suggests how the problem of collecting statistics, national in scope, should be met. The railroads have the basic data. The task of assembling it from the carriers' records would be comparatively simple. The task of collating individual reports from thousands of operators every month would be almost impossible.

Moreover many producers selling through sales agencies do not know the final destination of part of their tonnage. The Interstate Commerce Commission might well issue an order requiring the railroads under its jurisdiction to furnish it with monthly distribution reports. In fact, no other agency is so well situated for the collection and publication of this information.

With complete data on production and distribution available, there still would remain statistics on stocks in the hands of consumers and consumption. These statistics are essential to a well-rounded picture. They are necessary if the industry is to conduct its business intelligently and if the consumer is to place his orders wisely. The coal industry cannot supply these figures. The consumer alone has the data. The Bureau of the Census, in co-operation with the Bureau of Mines, has made some studies of this situation, but the studies to date have been neither comprehensive enough nor issued with sufficient frequency to serve as a sensitive barometer of conditions. The work should be expanded and quickened.

Post-Convention Soliloquies

A CONVENTION is much what we make it. The seed is good if, as at Cincinnati, it is well chosen, but the growth depends on the soil in which it is sown. Quick planting stimulates growth. A convention a month old has little of its vitality left, so try and arrange affairs in a manner that will permit of quick action. Companies which have sent men should take care that the gain made is not lost by inaction.

There is need that the problems of the industry be seen in a large way. Little improvements in practice are good, but vital changes are better. Some striking development should be planned; further data should be accumulated; visits should be made to places where improved operation is in actual practice. The pile of letters on the desk should be promptly reduced, so as to leave the manager and superintendent time to plan. It is to be remembered that the business of an alert mine official is not to travel the old well-beaten paths of his predecessors, but to break a new road to efficiency.

Have you no reserve of imagination? Will you let your negations be more numerous and more potent than your affirmations? Have you attended the convention with a firm conviction that what is new is not true, and what is true is not new? If so the convention is lost to you. The world moves along. There have been hundreds who questioned all that was original, but the few who saw and believed what was worth seeing and believing advanced industry and profited, and with them the world.

In conventions the wisdom of many men is pooled. We learn what has succeeded, and if anything has failed why it did not succeed. From this we can chart a safe course to larger accomplishment, but no one succeeds who does not act. It is perhaps easier to rest immobile, but those who do so get nowhere. The convention at Cincinnati will move many men forward and leave the rest to muddle along unhappily toward

failure and bankruptcy, for in a moving line those who stand still gravitate rapidly to the rear where are found the misfits and ne'er-do-wells whose lamentations would have us believe that the coal industry is without awards and opportunities for any.

Free of Detail

MOST OF THE men around a mining plant have a daily grind to perform, an endless succession of duties that makes them servants rather than masters of their jobs. The superintendent is responsible for everything. He must pull every string. Perhaps we hold him too closely for every fault that his subordinates make. In consequence he has no time to think, plan, read, visit other mines or attend conventions.

Some companies keep a research engineer to make inquiries into new methods of achieving results. He can spend a week or a month visiting the workings under consideration and other mines at remote points. He prepares estimates. He suggests the necessary surveys. He consults with manufacturers' representatives. He discusses the suggested improvement with men who have tried it, if any have done so, and in the end he gathers up his data and puts his conclusions into a carefully planned report, and then, after consultation, his chiefs decide on the merits of the suggested improvement, keeping in mind the return on the necessary capital investment, which should be about 15 per cent for safety and should have long enough life to return the capital expended. This is the modern way. Our coal mines have all too few research engineers.

A Virtue in Delay

EUCLID AVE., Cleveland, extends for over one hundred blocks. It was decided in an evil hour to regulate the signals at the various crossings by an electrical current, so that all would indicate "Stop" at one time. But when the scheme was tried, all the street cars on the avenue were stopped and started at the same moment and as there were many of them the starting brought such a heavy load on the substation that the plan was discarded. Furthermore, the city's plan tended to disrupt Cleveland's diversity factor.

Much the same effect is experienced when power fails in the mine and is suddenly restored. Every motorman, every machine cutter, every pumpman wants his motor, cutter or pump, whichever it may be, to get immediately into action. It takes more power to start than to run machinery, so the demand for power is abnormal for the first minute after the restoration of the current. The Davis Coal & Coke Co. has met the difficulty with its motormen by instructing half of them to wait one minute after power is restored before attempting to start. In consequence a power failure does not cause a heavy peak. The men respond quite readily, which perhaps is strange, because the average motorman irks at waiting and wants to be up and doing.

It has been suggested, however, that it might be possible to put a time-limiting relay on a locomotive that would make it dead till a certain fixed length of time after the power is re-established. That would, however, come into action every time the trolley wheel was adjusted to the wire. So perhaps it is best to leave the matter in the hands of the motormen and others.

Guessing or Knowing

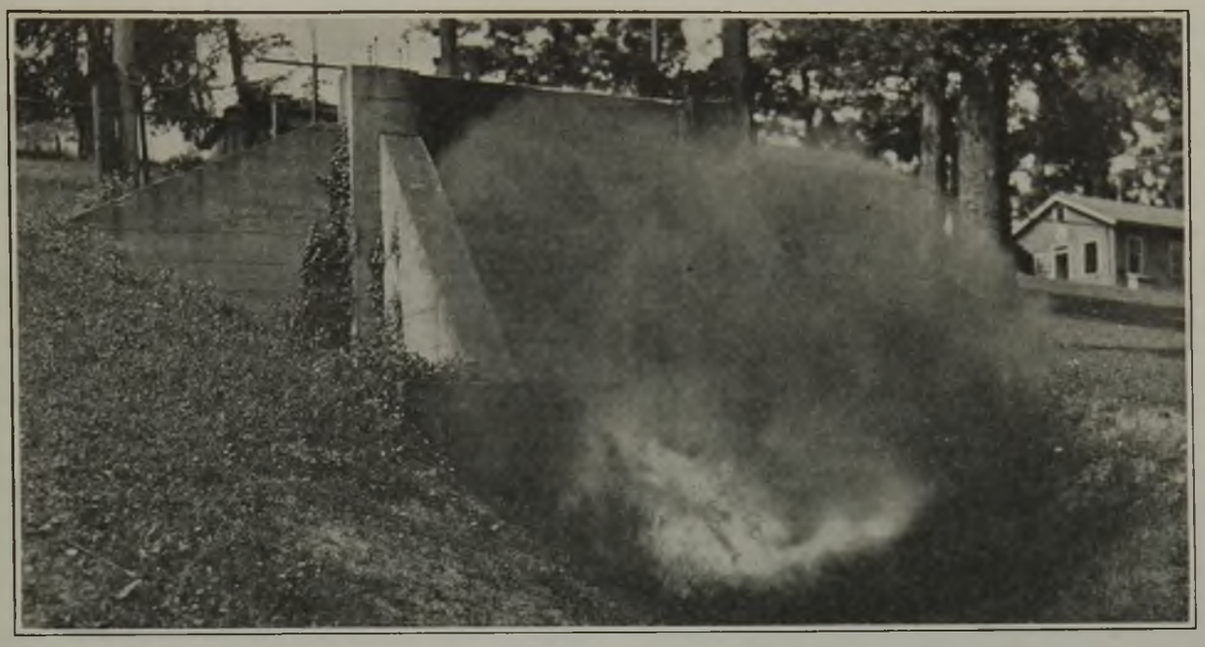
TOO OFTEN the mine foreman does not know at anytime in the day just how many men there are in the workings and in what section these men may be found. How, then, can he arrange his trips and his gathering forces? In the early morning he assumes that all the places are cut that should have been cut and that every man who ought to be working is at work or that a certain proportion of the men are present, the number depending on the remoteness of a past, or the nearness of a coming payday, on the hunting season, on sheriff's sales, the circus, or other counter-attractions. As a result of the foreman's lack of knowledge, drivers and motormen travel through the headings, hunting in some places for coal to haul and at other times having more coal to haul than they can handle.

All this may be avoided if, early in the day, the telephone is used to advantage by someone who endeavors to ascertain how many men are out. Further information will be available if the men check into the mine and the night force leaves a record as to what has been done during that shift. Sometimes places are not cut, a switch is not laid, water compels a man to lay off, men are sick or have sickness at home. When these facts are ascertained, drivers can be dispatched here or there; roadmen sent to clean up; tracklayers directed to lay switches; bratticemen sent to mend a fallen stopping or build one in the nearest outby crosscut wherever a new crosscut has been completed.

After an hour's investigation, the mine force can be apportioned with efficiency. Perhaps the full complement of gathering units is not needed, and the foreman will be saved from the necessity of looking for a miner to replace some motorman or driver who has laid off for the day. Planning is necessary in directing anything so scattered as a mine, and how shall a man plan unless he knows the facts?

Obtaining that knowledge should be not the foreman's but a subordinate's duty. The foreman should be given the data so that he can act on them. Nothing aids morale more than a fast-working fact-finding arrangement. Many a man leaves the mine because he finds he cannot work as soon as he reaches his place and doubts if he will get service. He comes out to argue with the boss when he should know that he can stay in his place and get the service he needs. He should be told just when he will get it. Many a needless trip will be saved if someone is collecting facts and distributing word from the boss that the service will shortly be forthcoming.

Anything that prevents men from jumping loaded trips to come to the surface decreases the possibility of accident. Furthermore, when props are delivered promptly in answer to a telephone demand the miner is less likely to take a chance in an improperly timbered room. Many a word passed to a motorman fails to reach the right person at the surface and by appointing a man to receive such information action is made more certain. The telephone and a man to answer it having a pad on which he can take notes and a ruled and tabulated sheet on which he can correlate information will save a boss much annoyance and help him plan his work methodically. The mine foreman always has plenty to do and every assistance should be afforded him in the doing of it. Perhaps this service can be restricted in a small mine to certain hours, but in the early morning it should certainly be afforded.



How Mines with Underground Dumps Are Trying To Eliminate Coal-Dust Hazard

No Complete Cure Has Been Found, but Shafts Are Being Made Dead as to Ventilation, Automatic Doors Installed to Keep Dust from Mine and Coal Is Being Wetted at Face and Dump

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IN THE LAST FIVE YEARS there has been a growing use of underground dumping in shaft coal mines where large production is desired. This is largely due to the economies resulting from dumping into underground bins and hoisting the coal with skips or conveyors and to the fact that more coal can be hoisted from a single opening in this way than is possible with the usual method of car hoisting. However, as many hoisting shafts are used as intake or downcast airways, the coal dust resulting from dumping operations is carried back into the mine, augmenting the ever-present danger of a coal-dust explosion, unless some provision is made to intercept the dust.

The danger from accumulations of coal dust is apparently fully realized by coal-mine operators and in every installation visited, provisions have been made to nullify this hazard. The Bureau of Mines has made a preliminary survey of a number of schemes for combating the coal-dust hazard that have been put into practice in mines equipped with underground dumping systems. The purpose of this paper is, by describing the methods now in use, to bring to the attention of operators contemplating the use of such a system some of the difficulties involved in its use.

The explosibility of coal dust when in a dense cloud is universally recognized by coal-mining men. For coal dust to ignite or explode, there are three necessary factors, namely, a source of ignition; a sufficient quantity of dry coal dust and an agent which will raise the coal dust into a dense cloud.

There are two general sources of ignition common to coal mines—open lights and arcs from electric wires or electrical equipment. According to Tracy in 1892, at Durham, England, a cloud of coal dust, raised by men shoveling pulverized coal in a coal bin, was ignited by open lights hung near the bottom of the bin. The resulting explosion killed three men. At a western coal mine material from an old dump was being loaded by steam shovels, and in order to loosen the material, shots were fired. This resulted in unburned coal dust, which had been loaded from the tipple onto the top of the rock pile, being raised in a dense cloud which, coming in contact with the flames of the burning refuse, ignited and burned nearby workmen.

The Bureau of Mines has repeatedly demonstrated that an open light will ignite a cloud of coal dust in the absence of gas. One method of making such a test is as follows: Near the portal of the main entry at the Experimental Mine, Bruceton, Pa., coal dust is piled on a V-shaped shelf laid across the entry near the roof. An open-flame lamp is suspended about 6 ft. outby the shelf. By means of compressed air the coal dust is blown in a dense cloud down upon the flame. Immediately the dust ignites and burns rapidly, a swirling, boiling mass of flame passing out of the entry. An observer standing inby the point of ignition is made

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The headpiece shows the flame emerging from the Experimental Mine of the Bureau of Mines at Bruceton, Pa., from an explosion caused by allowing fine coal dust to fall from a V-shaped shelf onto a flame or electric arc located about 6 ft. outby the shelf.

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fully aware of the pressure being developed by the crackling of his ear drums and by the way in which his body is swayed back and forth by the pressure wave developed.

A similar test is made, substituting an electric arc lamp for the open-flame lamp. The resulting ignition of the dust is similar to that obtained by using the open-flame lamp. In the headpiece the mass of flame from one of these tests is shown issuing from the mine mouth, the volume of this mass of flame being about 1,600 cu.ft.

The exhibition coal-dust explosion gallery of the bureau has been extensively used over the United States in the last two years in effectively demonstrating the

Fig. 1—Miniature Reproduction of Mine Gallery

This box, which is 6 ft. long and of 6x6 in. cross-section, is provided with means to blow compressed air into a pile of coal dust within the box thus raising a cloud. An open-flame lamp placed inside the "gallery" ignites the dust, causing an explosion which can be clearly seen through the glass walls. As no gas is present, the dust is demonstrated to be capable of causing an explosion without the aid of gas.

explosibility of coal dust from open flames in the absence of gas. This gallery is 6 ft. long and 6x6 in. square, with all four sides of glass; the rear end may be tightly closed. One-half oz. of coal dust is placed upon the floor of the gallery at the rear and blown by compressed air down over a carbide lamp placed 18 in. inby the open end of the gallery. The coal-dust cloud ignites and a mass of flame, sometimes of a volume of 200 cu.ft., issues from the mouth of the gallery. This miniature entry way is shown in Fig. 1.

These tests prove the probability that explosions will occur from the ignition of coal dust when no gas is present. They substantiate the conclusions reached after the Starkville (Colo.) explosion of 1910, the Dolomite No. 3 mine explosion at Dolomite, Ala., in 1922 and the Dawson No. 1 Mine explosion, Dawson, N. M., in 1923. The second explosion mentioned was caused by cars breaking loose, running down a slope, wrecking themselves and stirring up a coal-dust cloud, which was ignited by an electric arc of a ruptured power cable.

The first and third explosions were caused by wrecked trips knocking out timbers and also raising dense coal-dust clouds which were ignited by arcs from short-circuited trolley wires. These accidents confirm the experimental results, which show that coal dust can be ignited with open lights or electric arcs in the absence of explosive gas.

Underground dumping presents a similar hazard. In the dumping operation, frequently a dense cloud of coal dust is put into suspension. In many mines open-flame lamps are worn by the workmen. Electrical equipment for dumping is frequently installed and even where pneumatic dumps are employed, electrically driven car hauls are used nearby.

The mine may, therefore, have an extremely hazardous condition—a known source of ignition and the likelihood of a dense coal-dust cloud. It is a solution of this problem that confronts the coal-mine operators where underground dumping of coal is practiced or is in contemplation.

It is interesting to observe that every mine visited during this preliminary investigation had adopted some method to prevent the coal dust that is formed in underground dumping from traveling back into the mine workings. There are two predominating systems which are often combined. One is to put a dump on a separate split of air and the other to use a water spray.

A notable example of having the dump on a separate split is the Harmar Mine of the Consumers Mining Co., Harmarville, Pa. When the two-car rotary dump and skip hoist were first installed as the shaft was downcast, coal dust accumulated in dangerous quantities at the shaft bottom and on the intake airways. In order to overcome this condition, the hoisting shaft was made neutral and 12,000 cu.ft. of air per minute was passed over the dump, approaching it from both sides.

Cut a Hole in Concrete Lining

About 10 ft. inby the shaft a hole about 5x5 ft. was cut in the concrete lining, allowing the air to pass through a crosscut, over an overcast and thence to the fan shaft (Fig. 2). The cross-section of the crosscut is about 6x12 ft., and the sudden decrease in velocity of the air in passing from the smaller to the larger area causes a large quantity of the dust to settle on the floor. The air exhaust from the dump plays upon the threshold of the 5x5-ft. hole and thus prevents accumulation of dust there. Fig. 2 is a sketch showing the layout at the shaft bottom and the direction of the air through the bypass.

The shaft entry has been lined with concrete and thoroughly rock-dusted. Any coal dust settling on the white surface would be readily discerned, but only slight quantities were seen on the inby side of the dump. The atmosphere is very clear during dumping. In order to further remove the coal dust from the air passing through the bypass, the company is considering installing a water spray at the 5x5-ft. port.

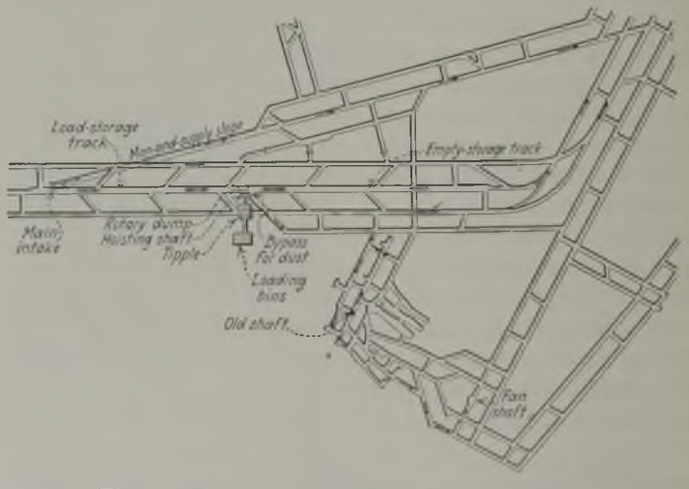


Fig. 2—Dust Prevention at Harmar Mine

The shaft has been made neutral as far as ventilation is concerned, but a hole 5x5 ft. in cross-section, has been cut in the concrete lining of the shaft bottom, which hole is connected with the return. Into it air is drawn from the mine. The air exhaust plays on the threshold of the hole and thus prevents dust from accumulating at that point.

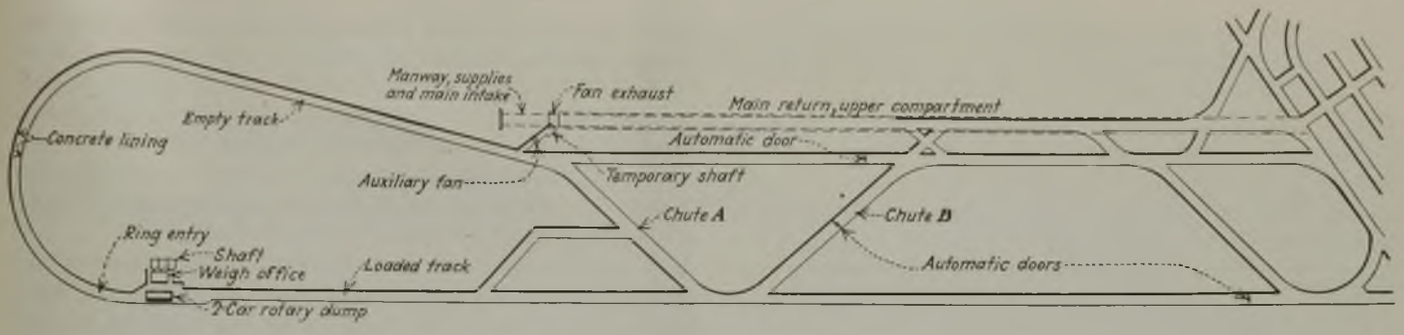


Fig. 3—Powhatan Dump Is at Foot of an Upcast Shaft; Much Dust Settles on Timbers

Three automatic mine doors have been introduced to prevent the dust from entering the mine when the air is reversed. An auxiliary fan of a capacity of 50,000 cu.ft. per minute causes air to flow along the empty track to the dump where it joins the air coming through chute *A* and through the trackway for loads. This air passes up the shaft. In this instance the dust accumulates on the stairway and buntons in the hoisting shaft as well as on all surfaces on the shaft bottom. The latter is flushed with water every night, and a water line is being laid for the flushing of the shaft from the surface.

The Springdale Mine of the Allegheny Pittsburgh Coal Co., Logans Ferry, Pa., is unique, in that the hoisting shaft is reached by a pair of entries driven under the Allegheny River. The coal is dumped by a two-car pneumatic rotary dump into chutes which load directly into a double-deck skip. A thick cloud of dust is raised during this operation.

An auxiliary fan, delivering 50,000 cu.ft. of air per minute ventilates these under-river entries the air passing up the hoisting shaft. At present only single doors are placed on the haulage roads at the beginning of the split. Whenever these doors are opened there is a reversal of the air current, which tends to draw the coal dust back into the mine.

Plans have been made to install automatic doors forming an air lock of sufficient length to accommodate a trip of cars, thereby eliminating the reversal of the air current. As the river entries are very wet, little dust passes into the main part of the mine, which is rock-dusted.

Automatic Doors Keep Dust from Mine

The Powhatan Mine of the Powhatan Mining Co., Powhatan, Ohio, dumps the coal into a skip hoist by means of a two-car rotary dump at the bottom of an upcast shaft. Much coal dust is raised into suspension while the coal is being dumped. In order to prevent this coal dust from returning into the mine, automatic doors have been installed on the two shaft entries and a connecting chute *B* (Fig. 3) and an auxiliary fan, delivering 50,000 cu.ft. of air per minute, causes air to flow along the empty track to the dump, where it joins the air coming through chute *A* and the loaded track, and from thence passes up the shaft. Much of the coal dust thrown into suspension when dumping accumulates on the stairway and buntons in the hoisting shaft, as well as on all surfaces at the shaft bottom. Every night the shaft bottom is flushed with water and on the surface a water line is being laid to the top of the shaft to provide a means of flushing out the shaft.

The shaft entries are rock-dusted. Coal dust accumulates on the surfaces of these entries, especially from the dump inby to chute *A*, due to the reversal of air whenever the automatic doors are opened.

Mine No. 3, National Mining Co., Cowden, Pa., which uses skip hoists, has a rotary dump at the bottom of a shaft, which is downcast. The dump is, therefore, on the intake air, but the air velocity over the dump is low. In an attempt to prevent the dust, formed in dumping the coal, from being carried back into the mine, water sprays were first tried but they were abandoned for the present method.

Steel plates saparate the shaft from the dump and in this plate have been cut two openings, 1 ft. 6 in. x 3 ft. Opposite the dump is a crosscut in which is placed a concrete stopping. A bleeder opening 15 x 22 in. permits a small quantity of air to short-circuit and pass into the return airway.

Rock Dust Sifts Down on Coal Particles

Directly over this opening is placed a steel hopper (Fig. 4) with a capacity of about 350 lb. of rock dust. A perforated iron strap, 2 in. wide is placed in the bottom of the hopper, to each end of which is attached a steel rope which passes over a pulley and thence to the weigh basket.

As the weigh basket moves, the iron strap also moves back and forth, the holes register with holes in the bottom of the hopper thereby causing rock dust to sift down over the opening and mix with the coal-dust cloud. It will be necessary, however, to install an agitator to prevent the rock dust from packing. The rock-dusted entry on which the dump is located shows that little coal dust passes back into the mine.

The installation of a single-car rotary dump and skip hoist in the Harwick Coal Co.'s mine at Harwick, Pa., immediately presented a great coal-dust hazard. In a single day coal dust would accumulate from ¼ to ⅜ in. thick for 100 ft. inby the dump. To overcome this condition a 12-in. pipe was connected to the upcast shaft and brought to the dump. A strong suction was obtained at the end of this pipe, but being located at the roof and against the left rib, considerable quantities of the dust passed into the entry beyond.

The dump is on a strong intake current, and the necessity of preventing the coal dust returning into the mine is fully appreciated. The pipe was not entirely successful, so arrangements have been made to install water-spray curtains. Also a canopy or hood may be placed over the dump and connected with the suction pipe or a horizontal slit run across the entry at the roof and connected with the upcast shaft through the pipe.

When the H. C. Frick Coke Co. consolidated its Colonial Nos. 1, 3 and 4 mines and installed the now-famous belt conveyor, 22,930 ft. long, means were taken to provide enough coal to keep the belts loaded at all times. Two rotary dumps, 374 ft. long were installed, with a capacity of from thirty-five to forty cars each. The coal dust formed in dumping such a large number of cars is not great. Red signal lights at one end of the dump may be easily seen from the other end, 374 ft.

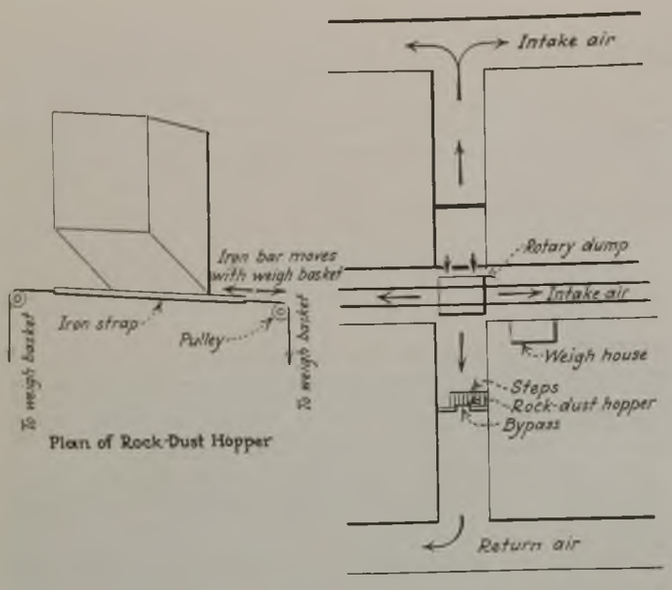


Fig. 4—In Downcast Shaft at National Mine No. 3 Return Air Is Bypassed Through Dump

The air velocity in the shaft is low and it was thought that water sprays would be adequate to prevent dust from entering the mine. These failed, however. So air was brought through a crosscut and through the steel plates between the shaft and dump, whence it passed into the return airway. The bin shown on the left is kept supplied with powdered rock. The movement of the weigh hopper opens holes in the bottom of this bin causing the pulverized rock to be sprinkled on the coal dust.

distant, while trips are being dumped. The small quantity of dust is due to the thorough wetting of the coal at the face by the miner.

However, to prevent any dust returning into the mine, about 26,000 cu.ft. of air is brought into the dump at each end and then passes upward and out of openings, three of them on the right side and four on the left, to the return airways. At each opening is installed a water spray to beat down coal dust from the air passing into the return.

Another mine in the same district also uses water on the cutter bars of the mining machines, and the miners sprinkle the coal before it is loaded out. As a further means of laying the coal dust, the rotary dump, which is used in connection with a skip hoist in a neutral shaft is covered with a steel hood.

Curtain Spray from Water Ring

As the cars are turned over the coal dust is beaten down by a curtain spray from a water ring composed of 2-in. pipe, placed on all four sides of the dump, in which $\frac{1}{8}$-in. holes are drilled every 3 in.; the water is under a pressure of about 95 lb. per square inch. No dust was seen anywhere on the bottom. The walls, although whitewashed about nine months previously, were fresh and white.

Where the hoisting shaft is downcast and the dump is on the intake airway, as in the Harwick and National No. 3 mines, there is a great tendency for the coal dust to be carried back into the mine. The use of a single suction pipe with no special nozzle or no hood or canopy over the dump has failed at the former mine. The bypass in the National mine appears to remove the greater part of the coal dust from the air. In each case there was considerable coal dust on the floor and down in the chamber below where the weigh basket was located. This coal dust must be loaded out every night.

The Springdale and Powhatan Mines, by making the shaft upcast prevents the dust from returning into the mine, except when the connecting doors on the haulage roads cause a reversal of the air. Air locks will eliminate this feature, but accumulations of explosive dust in the shaft affect the most vital part of the mine. Danger would result from an explosion in the shaft. Dust accumulations at the shaft bottom and in the pit below the dump are added dangers. Some solution of the problem will doubtless be worked out.

A neutral shaft, as at the Harmar Mine, allows the dust to be collected through a bypass. However, here again we are confronted with dust accumulations on and below the dump. Undoubtedly the neutral shaft is the best means of providing for dust collection and elimination but a bypass with dry-collecting methods have not satisfactorily met the problem.

Water at Face at Colonial Mines

The Colonial Mines' use of water at the face, is a step forward toward the solution, but above, on and below the dumps, there is an accumulation of dry dust. The lessening of dust where water is used on the cutter bars of the mining machines and the sprinkling of the coal by the miner, as well as a strong water spray in an enclosed dump and a neutral shaft gives at least one solution of the problem. In the bins and the chambers surrounding them there was no dry dust, thereby reducing the dust hazard to a minimum.

Much dust is formed by cutting machines, by blasting and by the miner in picking down the coal and shoveling it into the mine car. The dust problem at the underground dump is materially helped by the application of water on the cutter bar and by the wetting the coal before it is loaded at the face. In the shaft the accumulation of dry dust may be much lessened by use of a water ring in connection with a neutral shaft, which, however, in winter would require a small split of warm return air to prevent the water from freezing.

The use of water may be impractical in some mines; more especially where the dump is on the downcast which may result in freezing the water in winter. Satisfactory removal of the coal dust formed in dumping may be obtained under these conditions if the shaft or slope be made neutral, a bypass be provided at or near the dump, and a water spray installed to remove the dust from the air in the bypass.

In addition, the bypassed air should be allowed to expand immediately after leaving the dump and before reaching the return air. This is done at the Harmar mine and the result of this sudden decrease in velocity of the moving air is to deposit about 75 per cent of its coal dust before reaching the return airway. This method prevents coal dust being carried back into the mine, but has the disadvantage of allowing dry coal to accumulate around the dump.

Several large coal companies are investigating the possibilities of a dust-collecting system which will remove the coal dust from the bypassed air and deliver the cleaned air to the return airway. It is the opinion of several well-known ventilating and dust-collecting engineers that some such system could be adapted to mine conditions, one which would be practicable, and would collect at least 85 per cent of the dust.

It will be seen that the coal-dust problem from dumping underground has not yet reached a fully satisfactory conclusion for all conditions of shaft and ventilation layout, but there is every reason to believe that in time the problem will be solved.

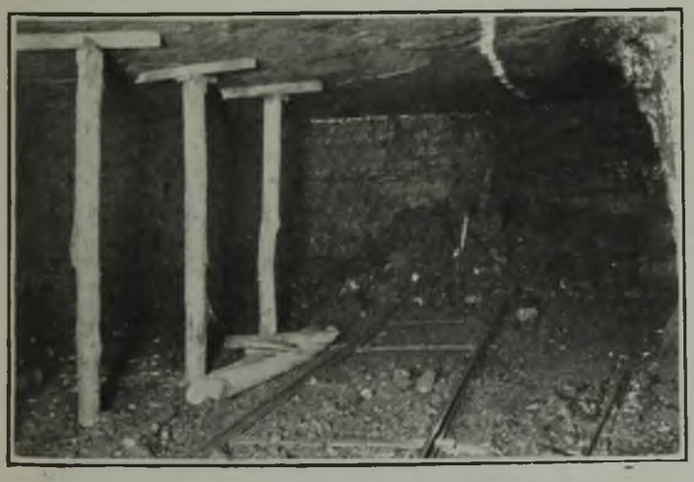
Crozer Roadways Having Reached Boundaries of Property, Mines Now Work in Full Retreat

Drainage and Haulage Grades Planned Before Roads Were Driven — Advancing-Work Profit Paid Development Cost—4¼-Mile Haul—Track Laid Like Railroad as to Lines and Grades

By a Staff Correspondent

THE OPENING UP of the Crozer mines of the Crozer Coal & Coke Co., at Elkhorn, McDowell County, W. Va., which is midway between Bluefield and Welch, dates back to the early days of the Pocahontas field, when coal land sold for a song. At that time the Crozer Land Association acquired connected fee tracts aggregating over 10,000 acres underlaid with the Pocahontas No. 3 seam. This property has been mined for nearly forty years and will not be entirely exhausted a quarter century hence and perhaps not even then. The acreage is being mined by the Crozer Coal & Coke Co., the Upland Coal & Coke Co. and the Page Coal & Coke Co., all of which are subsidiaries of the land company. Several companies also have leased from the Crozer concern. It is with the systematic methods by which this property has been operated in the past, as exemplified by present methods at one of the plants, namely, that of the Crozer Coal & Coke Co., that this article deals.

The territory allotted to this plant consisted of 1,838 acres of thick coal belonging to the Pocahontas No. 3 seam. The mine started operations in 1887. Of this acreage, 1,064 acres have been mined out during the last thirty-eight years. Of the coal that remains 145 acres are in pillars and 629 acres in the solid. The average recovery during the past life of the property is 86.7 per cent, but in late years it has been about 90 per cent.



One of the Rooms in the Crozer Mines

The seam is 7 ft. 10 in. thick. Note that the sight line has been extended to the face and that a supply of timber, cap pieces and wedges are kept on hand. This place is 18 ft. wide.

The headpiece shows the town and plant of the Crozer Coal & Coke Co., at Elkhorn, W. Va. Most of the power consumed in the Crozer mine is generated in the steam plant shown. The office and store building occupies the center of this picture. The railroad in the valley is the Norfolk & Western which is electrified along this stretch.

The operation consists of five mines, all of which lie under one hill. A fingered hollow almost completely divides the property into two territories which are connected by a rather narrow neck. Of these two areas that which is adjacent to the Norfolk & Western R.R., which serves this operation, is by far the larger.

Within the boundaries of this larger territory are Mines Nos. 1 and 2. Mine No. 2 is exhausted to such an extent that in it the coal being mined is derived solely from the barrier and chain pillars of the main entry which is on the retreat. No. 3 mine is now entirely mined out. During its life coal from it was hauled through the narrow neck which joins the two main territories and through No. 2 mine to the tipple.

Decided to Advance Entries to Crop

No. 1 mine is depleted except for the barrier and chain pillars of the main entry and a few room pillars which are being mined in the final stages of the retreat toward this entry. As this main heading of No. 1 mine must serve as a part of the main haulway from Mines Nos. 4 and 5, the pillar coal which protects it will not be mined until after the latter operations are finished. Mines Nos. 4 and 5 which lie in the smaller of the two main territories already mentioned, are comparatively new operations.

The development of these two mines was started in 1915 and was continued through the years of the World War when most of the coal produced at this plant came from Mines Nos. 1 and 2. It was decided at the beginning of this period to advance the entries in these new mines, leaving the coal practically intact until the boundaries were reached, and then to remove by rooms and pillars the coal thus developed, working all the time on a full retreat.

The high prices for coal obtained during the last few years of the Twenties did not swerve the management from its predetermined plan. The company balanced the high cost of this development work in its two new mines by the lower cost of the coal from its old mines. During the prosperous years, while the old mines were on the retreat, the new mines were being developed on the advance.

Today, as already intimated, little coal is being produced by the old mines, but the plant nevertheless produces about 1,700 tons per day. Most of this coal is being won in the new mines which, having been de-

By This Bridge a Circuitous Roadway Is Obviated

This steel structure is 630 ft. long and incorporates a 210-ft. span. Its elevation above the bottom of the valley is 115 ft. By its erection the road was shortened and straightened. Had it not been built, the tramway would have been compelled to follow the outcrop up the ravine, tracing the contour of the hill in most of its many erratic turns.

veloped to their boundaries, are now on the retreat. In 1925 the Crozer plant produced 443,000 tons. In recent years prior to the last it maintained its standing as a big producer in the field, a fact which under the circumstances indicates the value of a nice balance between the high cost and lesser productivity of territory under development on the one hand, and the lower cost and greater productivity of territory being mined by rooms and pillars on the other.

Projected Lines and Grades

Prior to the beginning of the development work in Mines Nos. 4 and 5, the area to be traversed by these mines was surveyed. Levels also were taken to determine what would be the most logical layout. This preliminary work was carefully collated so as to obtain in advance the data necessary for predetermining a layout with particular reference to grades and drainage and to the possibility of easy access to the areas lying within promontories in the crop line. Accordingly, entries were projected on the map, and this layout has since been followed to advantage with scarcely any variation.

The success of this scheme shows that it is good policy to plan a mining operation with almost the same exactness with which a surface development is designed. Many mines in regular seams are extended on short-time projections which are chosen without much regard for the future of the property. In contradistinction the program at Crozer embraced operations over long periods of time.

The Pocahontas No. 3 seam in these mines has an average thickness of 94 in. and contains two partings. One of these is a 2-in. hard shale occurring about 9 in. from the roof, which the miners call a sulphur band, and the other is a 4-in. bed of bony coal which occurs about 55 in. from the bottom. No attempt is made to remove these impurities at the face. The separation is made by hand picking at the tipple and by means of a Bradford breaker in accordance with a procedure which is described elsewhere in these pages.

The mining system provides for the greatest possible degree of concentration in mining the rooms and pillars. Rooms are driven only as needed and the pillars are drawn immediately in a retreat from the limits of the property and on a 45-deg. extraction line. Each room entry provides an average of nine working places, of which five are advancing rooms and four are retreating room pillars. Rooms are driven 18 ft. wide on 70-ft. centers and are 330 ft. long. Entries are driven 12 ft. wide on 70-ft. centers. The major entries are protected by barriers which in width vary from 150 to 500 ft.

Ninety per Cent Recovery

Although the necessity for concentration of working places in the room-and-pillar system of mining has for many years been realized, until recently few companies followed this practice. The Crozer Coal & Coke Co. is numbered among that few. By practicing concentration during the last 38 years, it has recovered 86.7 per cent of the coal in the area mined. Due to further refinements of its methods in recent years, its recovery has been about 90 per cent.

Practically none of the roof, which is of shale, is taken with the coal. The thickness of cover above these mines varies from 250 to 500 ft., of which 60 to 70 per cent consists of sandstone. The sandstone beds are more or less shaly, except the Eckman, which is massive. This bed varies from 20 to 50 ft. in thickness and occurs 75 to 100 ft. above the coal seam. Perhaps no other seam in the country breaks less readily. Nevertheless it is being controlled without much difficulty by concentration methods. This would not be the case, nor would the recovery be nearly as high, if the rooms had been driven promiscuously and pillars drawn irregularly.

The fact that a projection was determined before work commenced in Mines Nos. 4 and 5 has already been mentioned, but something should be said as to the accuracy with which the development is made in accordance with that plan and as to the manner in which that accuracy is attained. All entries and rooms are driven on sights. On the entries, sight spads are put

Loaded Trip En Route to Tipple

Coal from the face to the tipple at the Crozer mines is handled in two lifts. It is hauled one-third of the way by 15-ton locomotives to a sidetrack which adjoins the far end of the bridge and by 20-ton locomotives from this point to the tipple. Here is shown a 20-ton motor coupled to a standard trip of 40 cars. Each car holds 3½ tons of coal.

in place by the engineering corps at intervals of 200 to 250 ft. Sight lines in rooms are painted by the trackmen. Levels are run every three months to determine drainage and grades. These are taken at intervals of 50 ft. on all entries and in all rooms which dip to excess.

Such details as listed above are more or less the routine of the engineering corps at any modern mine. However, the duty and responsibility of the Crozer corporation does not stop here. The engineering department keeps in close touch with the operating management and keeps informed as to the "strategy" which must be followed in driving rooms and pulling pillars. The mine officials of course have their say in determining what this strategy shall be. The engineering corps not only locates proposed working places, but it also informs the underground officials as to when this or that room or entry shall be started and when work on a pillar shall be started or stopped.

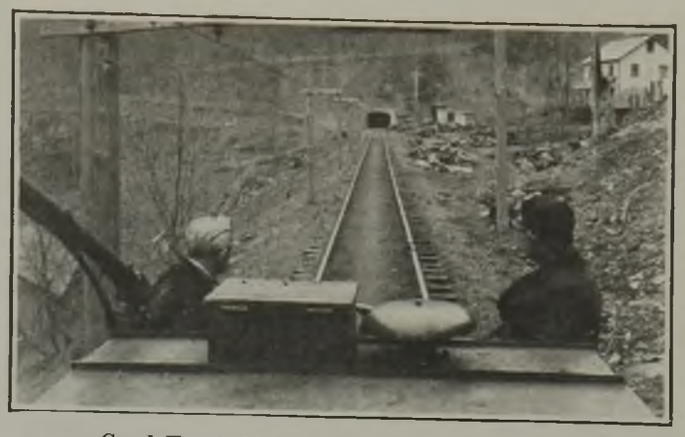
Between visits of the corps the underground officials naturally must have jurisdiction, and furthermore may make an appeal against any decision of the former with regard to the sequence of working. This three-sided arrangement gives each of the factions which compose it an opportunity to make suggestions and obtain a clear knowledge of the purposes underlying the system of extraction.

At the beginning of a retreat from the boundaries, the hauls must of necessity be unusually long. The distance from the innermost point on the main haul in No.

A Long Straight Haul Through No. 1 Mine

Derailments on the main haulageroad in the Crozer mines are practically unknown. This stretch of straight track is 5,800 ft. long. The rails weigh 56 lb. per yard and are laid on 6x8-in. oak ties. A uniform grade of 0.7 per cent against the loads has been established on the stretch. Note the track cleanings on the side, which is a further indication that every precaution is taken to make haulage efficient and safe.

4 mine to daylight is about 5,000 ft.; in No. 5 mine this distance is about 7,200 ft. From the main portal of No. 4 mine, which also serves as an exit for trips from No. 5 mine, the haulage to No. 1 mine consists of an outside tram road, 3,100 ft. long, which spans by a bridge the mouth of a deep hollow. This bridge is a steel structure which is 630 ft. long and lies at a maximum level of 115 ft. above the hollow. Without this



Good Track Makes Derailments Infrequent

From face to tipple on the main haul, through a distance of about 4 miles, the track is as good as that here shown. Note how carefully the trolley wire has been hung and aligned.

bridge the haulage would have been compelled to follow a circuitous path along the crop line of this ravine.

The length of the main haul through No. 1 mine is about 8,300 ft., and from this mine to the tipple along an outside tram road the distance is about 3,750 ft. The maximum haul from No. 4 mine to the tipple, therefore, is 20,150 ft. or 3.81 miles and from No. 5 mine to the tipple 22,350 ft. or 4.23 miles.

Long Haul But Few Derailments

Generally speaking, the chance of derailments is proportional to the length of the haul. Conditions being the same in a haul of one mile as in a haul of two, derailments in the latter are likely to occur twice as often as in the former. In the Crozer mines derailments on the main 4-mile haulways are indeed rare.

The tracks in the rooms are laid with 20-lb. rails and rest on steel ties; room entries are tracked with 30-lb. rails and the main haulways with 56-lb. rails. The heavy rails in the latter case are laid on 6x8-in. oak ties spaced at 15- to 18-in. centers. These main tracks are ballasted with cinders from the boiler house, the company generating the larger portion of the power used at its mines.

As shown by several accompanying illustrations of stretches of track, inside and outside the mine, the rails are aligned and ballasted with a precision which rivals that of steam railroads. Grades are flattened out as much as possible over long stretches which are generally

Tipple Recently Built to Replace Older Structure

Lump, egg, nut, pea and slack are prepared in this tipple. Refuse is handled from a mine track which has been built on the embankment between the two-stepped stone walls.

Picking-Table Floors in Crozer Tipple

This illustration is from a photograph taken during a short shutdown of the tipple equipment for which reason some of the pickers are absent. Note the simplicity of the screen and picking facilities and the abundance of light.

straight. One stretch of faultlessly straight track in the No. 1 mine is 5,800 ft. long, the grade being 0.7 per cent against the loaded trips.

Where curves are required they are described on a long radius. On the main haulways leading to No. 5 mine are two curves, one of 500-ft. radius and the other of 400 ft.

The mine sidetracks are of such length as to accommodate 20 mine cars. They are so located as to be not more than 1,000 ft. and not less than 600 ft. from the working places they serve.

Locomotives Better than Mules

Coal, in the concentrated workings of Nos. 4 and 5, is gathered by seven 6-ton, storage-battery and one cable-reel locomotive. What little pillar coal is now being mined in Mines Nos. 1 and 2 is being gathered by mules. In 1925 the average daily duty of each of the storage-battery locomotives was 45 cars of 3½ tons capacity. The cable-reel locomotive last year gathered on average only 36 cars per day, due to the fact that the working places which it covered were scattered.

Four single teams and one double team of mules each gathered an average of 28 cars per day. The grades, which at most mines would not be considered heavy, are approximately equal in the various sections in which these several gathering agents are employed. The maximum grade in a working place which is driven on the dip is about 3 per cent, but as places are not thus driven the maximum grade against the loads is less.

The duty of the gathering locomotives in the past has not been high, because as the entries were being advanced to the boundaries in all directions their faces were widely scattered. Now that the limits of the property have been reached and the direction of mining has been turned from an advance to a retreat, the management is in a fair position to derive those advantages which go hand in hand with concentration. In consequence the day's work of the gathering locomotives should be measurably increased.

From the underground sidetracks in Mines Nos. 4 and 5 loaded cars in trips of twenty are hauled by two 15-ton locomotives to the "daylight sidetrack." This parting is about 800 ft. long. At this point two 20-ton locomotives operating individually haul trips of 40 cars to the tipple, these trips arriving at the dump at 25-min. intervals. A third 20-ton locomotive is maintained as a spare.

Will Test Value of Roller Bearings for Locomotive Armatures

The Pennsylvania Coal & Coke Co., of Cresson, Pa., is testing the application of tapered roller bearings to the armatures of its locomotives and will make careful study of their availability for this service. Play caused by radial and end-thrust wear will be taken up as is done with the bearings of automobile wheels.

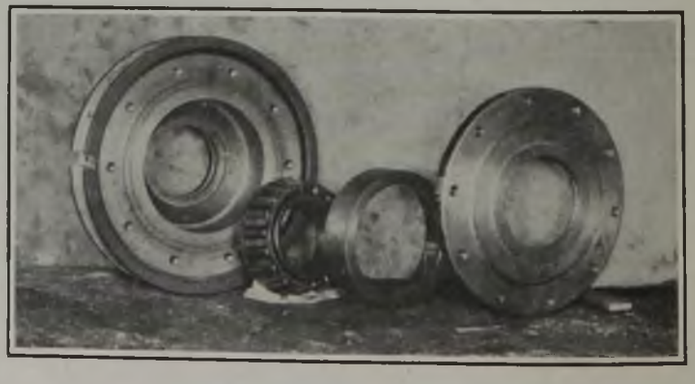
J. F. MacWilliams, the electrical engineer of the company, has worked out an assembly which he believes makes it possible to use the housings now in place. The chief advantages claimed for this design are ease in assembling and taking apart, a provision for adjustment, and ruggedness of the retaining plate and locking device. The accompanying illustration shows the application of the bearing to 10-ton locomotives.

On the commutator end, the armature shaft is left the same size as that which was formerly used. The shoulder on this shaft, however, is turned farther back and this portion of the shaft threaded for the bearing sleeve. This sleeve carries a shoulder against which the inner race of the bearing fits, and is locked by a ¼x¼-in. key fitting in a slot cut in the end of the shaft. A locknut holds this key in place.

The inner race is renewed by unscrewing the sleeve from the shaft. It is the intention to apply the inner race to the sleeve only at the main shop, thus avoiding possible abuse of the race in the hands of unskilled repair men. A retaining plate is fastened over the end of the bearing by six studs which extend through holes drilled in the housing and are electrically welded at the rear end. When a new bearing is applied filler shims are placed between the retaining plate and the housing. These can be removed to take up bearing wear.

Arrangement of the pinion-end bearing is somewhat similar to that on the commutator end. A steel sleeve is put on the shaft and a cast-steel bushing is pressed into the housing. This bushing is necessary because the bearing formerly used was of larger diameter than the roller bearing. The retaining plate on this end of the shaft is made from a piece of 1¼-in. boiler plate. Ten ½-in. cap screws hold it in place.

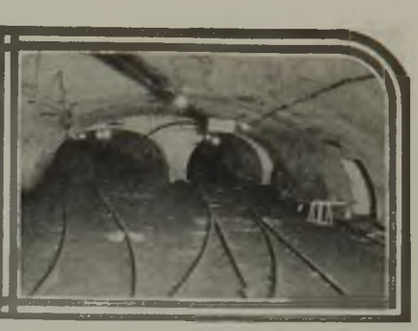
The company now has three locomotives operating with roller-bearing armatures.



Pinion-End Roller-Bearing Parts

In case the "fit" of the old housing is worn it is built up by means of the oxy-acetylene torch and a manganese-bronze filler rod, after which it is machined to proper size. The housing cap is held firmly in place by means of cap screws.

Underground Operation



What Concrete-Block Stoppings Cost And What They Achieve

Average Cost Under Forty Dollars—Each Stopping Holds 100 Cu.Ft. of Air That Wood Brattice Had Been Passing — Blocks Made in Mine

By G. N. Pfeiffer
Consulting Engineer,
Herrin, Ill.

Cement-block stoppings have proved their value at No. 5 Mine of the Franklin County Coal Co., Herrin, Ill. They prevent losses of air where wood brattices gave no direct evidence of leakage, were found ineffective. The following data regarding their method of construction and cost have been supplied by T. Pilkington, the mine manager:

Cost of Cement Blocks at a Herrin Mine

Material	Cents per Block	
Cement, 10 blocks to a sack	7.50	
Sand, 360 blocks to a cubic yard	0.56	
Coal oil for molding plates	0.05	
		8.11
Hauling		
Water	0.50	
Ashes, sand and cement	1.65	
		2.15
Labor		
Screening and loading ashes	3.04	
Making blocks	8.33	
		11.37
Depreciation of machine and tools		1.37
Cost per block in cents		23.00

Cost of Cement-Block Stopping

	Cost, Average Stopping	
Blocks 85@23c. each		$19.55
Mortar		
Lime, ¼ bbl.	$1.10	
Sand, ¼ yd.	0.51	
Cement, 1 sack	0.75	
		$2.36
Hauling water and material		2.38
Labor		
Hitches and cleaning	$3.75	
Mason	11.25	
		$15.00
Total		$39.29

The blocks which are solid and measure 8x8x16 in. are hand-tamped in a small machine. The mixture by volume consists of 1 part cement, ¾ part sand, 6 parts of ashes and 1½ parts of water. The cement costs 75c. a sack at the mine. Ordinary river sand is used which costs $1.50 a ton delivered at the mine. The ashes, from the mine boilers, are screened by hand over a ¼-in. screen, the cost of the operation being on an average $3.50 for 115 blocks. It takes a trifle more than 2½ cu.yd. of screened ashes for 115 blocks.

This high cost is due to the fact that the ashes made from the coal at this mine are relatively free from clinker. Even when the refuse from the picking tables is burned the ash seldom fuses so as to cause trouble. The cement, sand and screened ashes are loaded into mine cars during the day.

Send Blocks Down at Night

These cars are lowered into the mine on the night shift when the regular mine material is sent down. The labor of delivering the material to the point where the blocks are made is the equivalent of two hours' work for one man. The cost of delivery of the material, therefore, is about $1.90.

The location selected for making the blocks is a room not yet abandoned and located nearly a mile from the shaft. No extra track has had to be laid and no new timbering has been necessary. When the room is abandoned it will be easy to move the equipment.

The temperature and humidity of the air is practically the same, winter and summer. Consequently there is no danger that the blocks will freeze in the winter or dry too fast in the summer; considerations that might be harassing if the blocks were made on the surface.

With good mine tracks and delivering other mine supplies on the same trip the cost of hauling the materials is practically the same whether the location selected is a mile or a thousand feet from the shaft. The illumination in the improvised block factory is furnished by the carbide lamp of the man who makes the blocks.

The only place in the mine where water is pumped to the surface is at the shaft. Some of the working places, it is true, make a small quantity of water. This is baled into barrels and hauled away to the shaft or old workings by the night shift. In some cases the water is used for sprinkling the roadways.

Use as Little Water as Possible

The water used for the blocks and for building the stoppings really costs nothing, but a charge has been made for water in figuring the cost of both manufacturing the blocks and building the stoppings. This water contains 2 to 3 per cent of salt. It is not acid, at least not to the extent that it will corrode pipes or a pump.

The quantity of water used depends upon the dryness of the sand and ashes as received in the mine where the mixing is done. The mixture is kept as dry as possible consistent with the need to make a block so coherent that it can be removed from the machine without breaking.

Blocks Set on Bottom Plate

A bottom plate is placed in the machine for each block, and the product is removed from the machine resting on the plate on which it is allowed to remain for 24 hr. during which time the cement takes its permanent set. After this the blocks are cured for 9 days. The plates are wiped with coal oil. This makes them separate easily from the concrete.

In the process of manufacture, the material for the blocks is well tamped by hand into the mold so that the block will be so dense that the air will not leak through it when it

is incorporated into a stopping. As a tight joint between the blocks and the coal is necessary, the practice is to clean away the accumulated gob and to cut hitches 6 in. deep into the solid coal for the blocks and mortar.

Such stoppings are highly efficient. Ordinary wood stoppings are usually erected when the entries are driven, block stoppings being added when more air is needed at the face. The block stoppings are erected without disturbing the old wood brattices which, on examination, appear practically tight.

Air Goes Through Wood Stoppings

When, however, a block stopping is erected in front of one of them the mason frequently is annoyed in placing the last block or two because of the high velocity of the air passing through the uncompleted part of his work.

The efficiency of the block stoppings is well proved by the air readings taken before and during erection. As a result of such readings it has been determined that if a pair of entries is passing 20,000 or 25,000 cu.ft. of air per minute, the air at the last crosscut under average conditions will be increased 1,000 cu.ft. per minute for every ten block stoppings erected—quite a sizeable gain in ventilation.

Should Make 45,000 Blocks

In figuring cost no allowance was made for superintendence, as the mine manager and other bosses are on a salary basis and the supervision of the construction of the stoppings is considered a part of their routine work. The allowance for depreciation is at best a guess. The machine now used has already made 4,500 blocks. For this mine alone the machine is expected to make 40,000 more. It cost $250. To be on the safe side the depreciation was based on the assumption that the machine would make 25,000 blocks without replacement.

Sounds Alarm if Methane Or Bad Air Is Present

Many have been the attempts to devise equipment for detecting the presence of dangerous gas in a mine. In this country the flame safety lamp is the all but universal means employed for this purpose. It is subject to many shortcomings, however, and in other countries trials are constantly being made of other devices. One of the latest of these is known as the Czechie-Sliva firedamp indicator and alarm. This is described by the *Iron and Coal Trades Review* in part as follows:

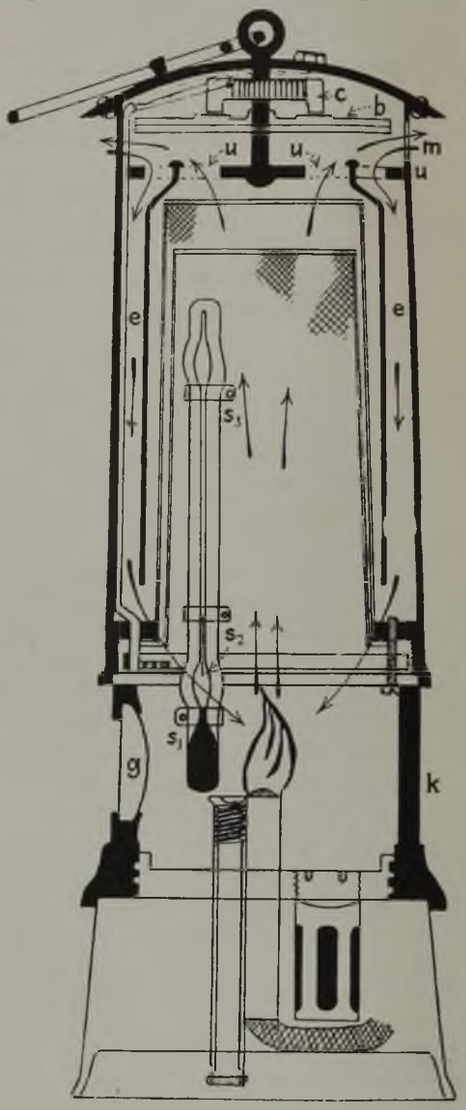
This device, invented by Milosh Sliva, a Czech miner, now in France, consists of two fairly distinct elements, the one serving as an indicator and the other as an alarm. The two are connected electrically. The indicator portion resembles a Wolf bottom-feed safety lamp and burns benzine. Both the air inlet and exit are placed in the uppermost portion of the outside cover of the lamp (see *m*, in the accompanying cross-section). Air entering at this point travels down the outside of a sheet-iron tube *e* placed between the gauze bonnet and the outside lamp casing. Below the air inlets is a perforated cover *u*, above which is suspended by means of a small solenoid *c* an asbestos-lined sheet-iron plate *b*. If this plate drops it cuts off the air supply to the flame.

Beside the flame is a thermometer fitted with three electrical contacts. The bulb of this thermometer is on a level with the flame and its distance from it governs the speed of operation of the alarm. At a mean temperature of 260 deg. C the indicator records the presence of gas in not to exceed 15 sec. The glass chimney of the ordinary safety lamp is replaced in this device with a metal cylinder *k* in the side of which is placed a lens *g* for purposes of observation.

Alarm Separate from Lamp

The alarm portion of this device is a separate appliance being connected to the indicator by means of a 3-conductor cable. When the lamp is lighted the mercury in the thermometer expands until it touches the electrical contacts S_1 and S_2. The current thus flowing from the battery in the alarm box energizes the solenoid *c* which holds the plate *b* in suspension and allows the lamp to burn. Should flammable gas be encountered the extra heat generated within the lamp causes the mercury to rise in the thermometer until the contact S_3 is reached. This short circuits a fuse in the alarm box and burns it off. The solenoid is thus demagnetized dropping the disk *b* which cuts off the air supply to the lamp extinguishing it, as well as the burning methane. Should the lamp be extinguished from the presence of an inert gas a signal light shows in the alarm equipment and a buzzer is sounded.

Tests have been conducted on this apparatus at the French National Mining Institute's station at Frameries. In a current of air containing 9 per cent of methane moving at the rate of 6 ft. 7 in. per second the lamp was extinguished, and the alarm device came into operation in from 10 to 15 sec. In a second test the percentage of gas was so regulated as to cause the flame to be elongated until it reached the gauze. After about two minutes the mercury short-circuited the apparatus and sounded the alarm.



A Lamp, Not for Lighting, but for Indicating Gas Electrically

This portion of the apparatus much resembles an ordinary safety lamp. If a dangerous quantity of methane is encountered the flame is extinguished and a warning sounded in the other element or alarm box. If inert gas is entered the flame is smothered, an electric bulb lights up and a buzzer is set in operation.

As a result of these and other trials the appartus was modified somewhat in detail with the idea of making its action somewhat more positive.

Practical Pointers For Electrical And Mechanical Men

Seamless Tubing and Arc Makes Bearings

In a period of six or seven years electric welding has come into such general use at coal mines that the lack of a welder in a repair shop of any size is a matter of comment. When a shop has a lathe and a power drill press, one expects to find that some sort of electric welding equipment is also provided.

The combination of an arc welder and a lathe makes possible the handling of a wide range of work. This may vary from complicated repair jobs, to the manufacture of parts in an emergency or in cases where a saving can be effected.

Two arc-lathe jobs photographed in the central repair shop of the Pennsylvania Coal & Coke Corp., near Cresson, Pa., are shown in the accompanying illustration. At the left are two solid bearing boxes and at the right is the field frame of a mine locomotive motor.

Seamless Steel Tubing

The boxes were made by welding short pieces of seamless steel tubing onto pieces of bar steel. A hole was then drilled through the bar, the tubing bored out, faced and fitted with a bronze bushing. It is by this same plan that the boxes are made for the portable 20-ft. belt conveyors which the company uses in several of its mines. By keeping in stock a few short lengths of tubing of various sizes, bearings can be made on short notice.

The motor field frame in the photograph has had the worn fits of the axle boxes and the bearing housings filled ready for machining. This finishing is done by means of a special boring bar set up in a lathe. The motor frame is clamped on the carriage during the boring process.

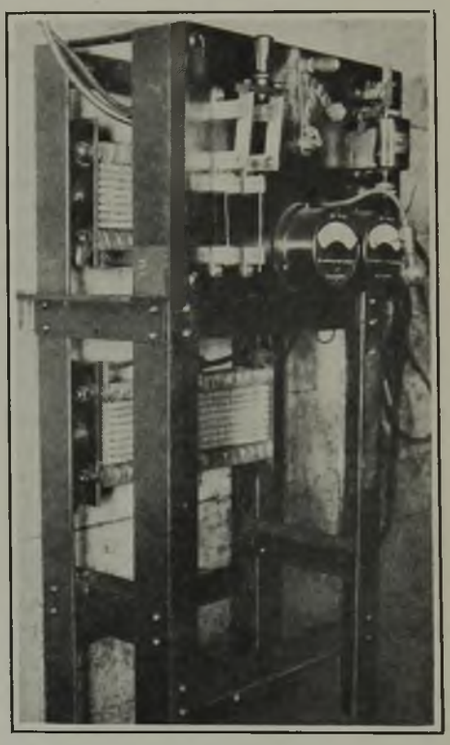
The numerous welding jobs to be seen in this shop show how J. F. MacWilliams, the electrical engineer, utilizes to the full the possibilities of autogenous welding. In addition to the electric welder, an oxy-acetylene outfit is used for welding cast iron and on other jobs where a manganese-bronze filler rod is considered best.

Charging Panels Constructed Specially for Mine Use

Mine equipment should be built sufficiently rugged for the rough service expected of it. This need for more rugged equipment was kept in mind by the Kingston-Pocahontas Coal Co. when they built their panels for charging battery locomotives in the Exeter mine, at Hemphill, near Welch, W. Va.

It was desired also to have panels which were semi-portable, for the reason that as charging is done from the 275-volt trolley circuit the stations can be, and often are, moved to suit the progressive development of the mine. One of the homemade panels, mounted in the combination pumproom and locomotive-charging station, is shown in the accompanying illustration.

The panel proper, which is 20x30 in., is made of 1¼-in. asbestos board and is painted black. The knife switch, instruments and automatic-



This Panel Will Not "Get Wobbly"

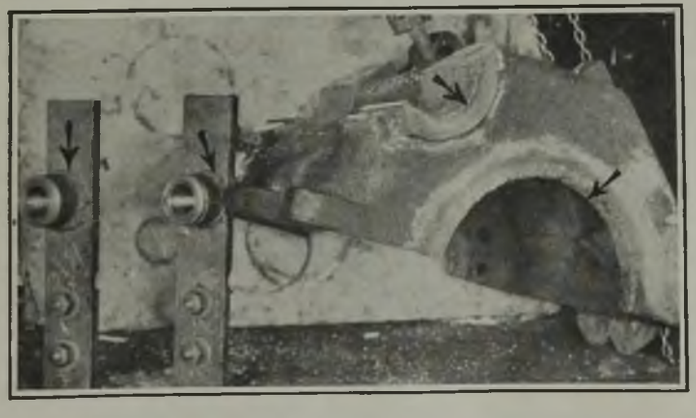
The corner angles are 4x4x⅜ in. and rivets are used in the assembly. Asbestos board 1¼ in. thick forms the panel on which the switches and indicating instruments are mounted.

reclosing breaker are standard parts, but the dial switch was made in the company's machine shop.

Standard Material Used

Resistors for limiting the charging current are made from grids and other parts regularly kept in stock for use in the mine locomotives, which feature is advantageous from the standpoint of maintenance. The four corner members of the frame are 4x4x⅜-in. angles and the bracing is such as to make the assembly quite rigid.

Although the panels are of a liberal design in so far as weight of material is concerned, it is reported that the cost of assembling in the company shop was not in any way excessive.



Welded Parts

The solid boxes are made by welding short pieces of seamless steel tubing to a flat bar. The motor field frame will be like new after the welded fill is machined. Arrows show welds.

Compressed Air Opens Door To Pass Trip or Car

In a recent number of the *South African Mining and Engineering Journal* is described an air-operated door. The mine gangway is closed by a pair of doors set at right angles and at an angle of 45 deg. to the track, the doors coming together at the track center. A double-acting cylinder controlled by a four-way valve operates two radius rods which are attached to the doors. A spring supported ramp between the rails is depressed by the mine car, and this by a system of levers operates the four-way valve admitting compressed air to one side of the air-cylinder piston and opening the doors. The ramp is extended on both sides of the opening so that as the car or trip leaves the ramp, the depressed springs restore it to its original position and close the doors. The cylinder is attached to the top and center of the gangway. Strips of discarded belting are attached to the outer surface of the doors to serve as buffers when the doors are opened and pressed back against the timbers.

Made in Two Sections

F. C. Isaac, resident engineer of the Modder Deep, designed the door. Making it in two sections reduces the size of the parts to be opened and thus makes the contrivance more readily operated. The 45-deg. angle of the doors reduces the swing to 45 deg., but other angles appear to be worthy of consideration. For example, a pair of doors set at an angle of 15 deg. to the track gives a swing of 75 deg. With gangway 6 ft. wide, each door will have a width of 3¼ ft., whereas the 45-deg. door has a width of slightly more than 4¼ ft.

Assuming radius rods 3½ ft. in length and attached to the center of each door near the top, a cylinder stroke of 2¼ ft. would be required as against a cylinder stroke of 1$\frac{5}{16}$ ft. for the 45-deg. door. A door placed at an angle of 30 deg. would have a swing of 60 deg. and would require a cylinder stroke of 2 ft. and a width of 3½ ft. With the 30-deg. door there would be a saving of 1½ ft. of door width for both doors. The smaller doors are easier to construct and without doubt can be more easily operated.

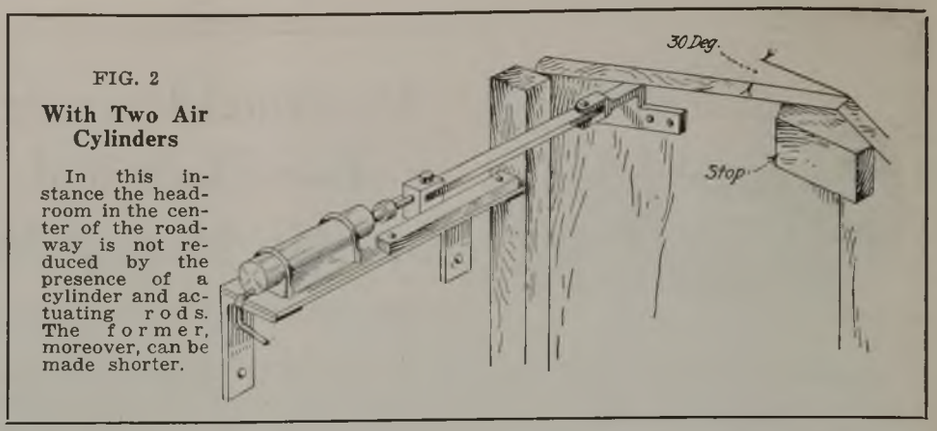


FIG. 2

With Two Air Cylinders

In this instance the headroom in the center of the roadway is not reduced by the presence of a cylinder and actuating rods. The former, moreover, can be made shorter.

Can Avoid Skimpy Headroom

In Fig. 1, a cylinder rig is sketched for the 30-deg. door. An objection that might be made against this arrangement is the restriction of headroom in the center of the gangway. To avoid this objection a pair of cylinders, one for each door, could be arranged as shown in Fig. 2. A comparatively short cylinder and link would be required for this design, the details of which can be readily worked out. The operation of the four-way valve can be controlled by wire-rope pulls instead of a ramp, which has the advantage of automatic operation and would be especially suitable for one or a few cars, but would not be especially advantageous for train operation. As an alternative to the ramp and to the wire-rope pulls, an electric solenoid rig could be devised to operate the four-way valve from either side of the door.

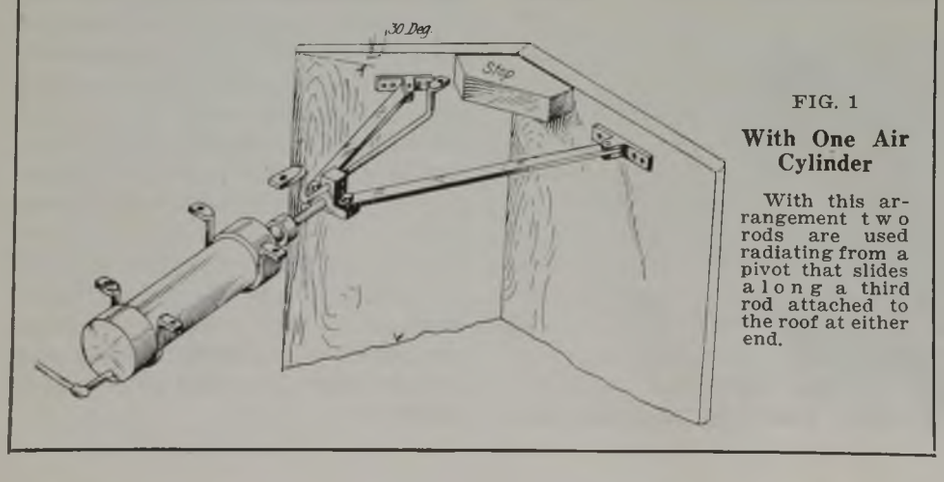


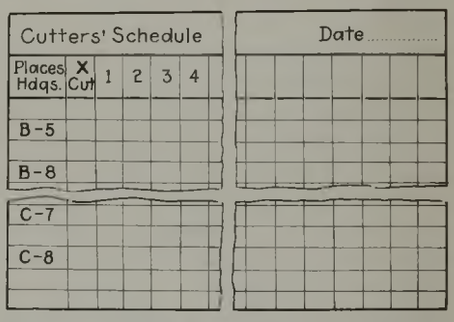
FIG. 1

With One Air Cylinder

With this arrangement two rods are used radiating from a pivot that slides along a third rod attached to the roof at either end.

Dispatch Board Saves Time Of Cutting Crews

A board such as illustarted will be found useful in giving cutting crews, when the cutting is done at night, information as to the location of places ready to be cut. One of these boards is placed at the entrance to each section of the mine, at the main entrance or at some location that all the loaders pass.



Blackboard for Recording What Places Await Cutting Crew

This is placed near a mine or a section entrance to inform the cutting crews as to the location where places are ready to cut. It is useful whenever the cutting is to be done at night. Such a board saves the time of cutters and prevents their overlooking any rooms needing their services.

The miner on his way home marks the board at the point corresponding to his working place if it is ready to cut. If it is not ready he does not make any mark. As every miner is anxious to have his place cut ready for work on the next working day he is not likely to fail to make the necessary mark on the board.

He is far more disposed to do his part than would be the foreman to do it for him, for he is the person most at interest. The foreman, furthermore, is at a disadvantage in routing cutters because he cannot tell just what places have been cleaned up and he must depend on the uncertain information of drivers and motormen, who look upon the collection of such data as a duty in which they have little interest and for which they have no time to spare. Those who have used such boards have found them satisfactory.

Viewpoints of Our Readers

Mine Locomotives Will Give Poor Service If Not Given Special Attention

Any Equipment on Wheels Is Subject to Constant Shocks Which Cause Looseness of Parts and Misalignment—Failure of One Part Affects All

By O. E. Kenworthy
Electric Field Engineer, Lehigh Valley Coal Co.
Wilkes Barre, Pa.

TOO many believe that an electric locomotive is a rugged piece of equipment. Possibly this is so, but it cannot be denied that a locomotive possesses some characteristics which put it into another class. It does not possess the ruggedness of a hoist despite opinions to the contrary. To prove that this is true, let us compare the two.

First of all, locomotives are mounted on wheels, and the journal bearings have to carry their weight and to take the shocks due to their inertia. This is a considerable disadvantage which cannot be overcome by any design, however careful. It will wreck the machine if the proper alignment of bearings is not maintained.

Hoist Bearings Escape Shocks

A hoist, on the other hand, has the greater part of its weight rigidly supported on a firm and immovable foundation, and its bearings are not subjected to repeated shocks. Only wear is likely to destroy the hoist. The attention necessary to keep a hoist bearing in alignment is almost negligible compared with that which will keep in condition the bearings of an electric mine locomotive.

The costs of maintenance and operation of an electric locomotive are large because its weight rests on wheels rather than on solid ground under them. This statement is the gist of the whole story. If the reader were to make a detailed analysis of the cost of operation he would find that the items of "sets of wheels and axles," "rear-axle brasses," "gears," "pinions," "journal brasses," "journal boxes," and "journal-box guides" all rise together. This is true because the wear on any one of these parts affects the wear on all the rest. The wheels and axles, of course, are the most expensive parts to replace, and worn journals are to be avoided as much as possible because with new journals axles must be purchased.

Gears and pinions do not always wear out. Sometimes they are pounded to pieces and teeth broken, because the rear-axle brasses are not kept tight. This is easy to understand, and it is just as easy to realize that motor casings will have to be renewed or rebuilt because of the pounding action between the gear and the pinion. The loosening of the studs in the brass caps of the rear axle causes a backlash between the gear and pinion which in turn transmits a shock to the stud. These shocks sometimes break the studs and then the flapping of the cap wears the armature casing at this point. Worn gears and pinions cause backlash, and when this occurs the condition is aggravated.

Misalignment Causes Trouble

It is not difficult to visualize the multiplicity of troubles that will be occasioned by misalignment of these parts. For example, journal boxes and journal-box guides have to take the shock of the inertia of the locomotive whenever it rounds a curve or strikes a latch. Should the side play between the axles and guides of the journal be too great, it is obvious that the boxes and guides of the journal brasses will be pounded rather than worn. The inertia places a thrust on the wearing plate which is transmitted to the guides.

Further trouble can develop by letting bumpers get out of condition. Loose bumpers will in time wear the studs which hold the corners of the frame and this in turn will throw the whole locomotive out of alignment. A locomotive should never be allowed to travel with a loose bumper even for a short time.

Thus far, only the mechanical "running gear" of the locomotive has been discussed. It is only a step further to visualize the effect that a bad condition of "running gear" will have on the electrical parts of the locomotive. The pounding of gears against pinions is further responsible for increased cost of armature bearings and if these bearings are not properly maintained burned-out armatures may result. Vibration, which also attends misalignment, has a bad effect on field coils.

Not only is pounding responsible for damaged armature bearings and burned-out armatures, but it also increases friction, overloading the motor. It means heavier currents through the controller with the consequent burning of fingers and segments. In most cases of trouble with the electrical equipment of a mine locomotive, the fault lies with the mechanical parts.

Follow Maker's Advice

In the operation of a mine locomotive it is well to consider the advice given in the instruction books of every locomotive manufacturer as to the care and maintenance of such equipment. Rigid inspection of mine locomotives is indeed imperative.

The following is a quotation from an instruction book published by a prominent manufacturer: "Give special attention to the examination of all bolts and nuts to see that they are kept tight. Mine locomotives, perhaps more than any other class of equipment, are subject to severe shocks and vibration. Bolts, nuts, etc., are, therefore, liable to get loose and for that reason, should be given painstaking care. Failure to give thorough attention to this point may involve costly repairs and sometimes serious accidents, particularly in connection with brake rigging and motor-suspension parts."

Batteries on Line Are New Only at Coal Mines

Mr. Edwards' article on the use of storage batteries to reduce power peaks in the April 22 issue of *Coal Age* shows that others have recognized the advantage of an installation such as I have had in my mind for some time. It is gratifying to see that the Pond Creek Pocahontas Coal Co. has utilized one of its batteries in this way, and many other companies could, in a similar manner, smooth out their peaks and reduce their current bills appreciably.

A number of the public-utility companies are using storage batteries for standby service, including such concerns as the New York Edison Co., New York; the Commonwealth Edison Co., of Chicago, Ill.; the Edison Electric Illuminating Co. of Boston, and others.

The batteries used are of different sizes, but a typical installation may be considered as 150 cells of from 77 to 141 plates per cell, each plate measuring 30 11/16 x 5 5/16 in. The Consolidated Electric Light & Gas Co., of Baltimore, has in service a 170-cell standby battery with a capacity of 10,500 amp.-hr. at the one-hour rate.

W. Van C. Brandt.
Philadelphia, Pa.

Too Early to Make Standards For Face Conveyors

Wherever face conveyors are being used successfully, working areas have been concentrated so that equal tonnage is produced with fewer men, mining hazards have been lessened, a larger percentage of the coal available in the seam mined has been prepared for market, the mining force has been kept under more adequate supervision, men of a higher degree of intelligence have been willing to engage in loading and, most important of all, the cost of coal has been sufficient to permit active competition in the market.

But unless careful forethought is given to the needs of face conveying, the same difficulties which have retarded the progress and application of the loading machine will hinder the advance of the face conveyor. Whenever and wherever the loading machine has failed, that failure has retarded the initiative of those who purposed the introduction of these machines into their mines, though any one of them might have made a success of the same machine, operating under nearly, if not quite, the same conditions. This fact has not only militated against a more rapid development in design by the manufacturer. But against a more general use of the machine by the industry.

Flexible Standards Needed

The loading machines we have today have been developed more or less with a sense that standardization should be immediately attained. Their makers have attempted to produce a loading machine that could be used everywhere. They have sought to create a single standard for an industry that by the very nature of the elements with which it works cannot use a single standard but must have several.

Many years ago conveying was reduced from an art to a science. There are many companies which have engineers in their employ who are capable of designing the right type of conveyor to accomplish any kind of work. However, this does not mean that these conveyor engineers also are mining engineers. They cannot and should not be expected to submit a mining plan to be used in connection with a face conveyor of their design.

To date no one, in or out of the industry, has been able to devise a system of mining, using hand, loading machine or face conveyor, which would be applicable to even a small minority of the mines. Each mine presents an individual problem, and every mine needs to apply a form of mechanism for gathering and transferring the product appropriate to its needs.

Therefore, face conveyors cannot be standardized until such time as they have been successfully applied to conditions sufficiently varied to permit of such a course. The coal operator who tries to apply a standard unit built to fit general conditions, should prepare for trouble, unless his property is exceptionally well suited for the equipment available.

Can Correlate Efforts

Many operators are insistent on the purchase of standard units. If the manufacturer, however, is not asked to show how standard equipment can be made to give best results under the mine conditions existing, but to design equipment that will best meet those conditions of operation, then the chances for a successful installation will be greatly enhanced.

Many will say that such a plan is impracticable and, if not impracticable, too costly. But it has been proved that the initial cost of a specially designed conveyor is little greater than that of those that are called standard. The difference in cost is a low price to pay to insure success.

Some day face conveyors and loading machines will be numerous enough so that standards can be made for them, but until that time more progress will be made and more benefits will accrue to the industry if face conveying is treated as an engineering problem and not one to be standardized for the benefit of the manufacturer.

Chicago, Ill. Rex Martin.

Does Oxidation of Face Cause Increased Movement?

On p. 436 of your issue of March 25, F. C. Cornet refers to the increase of temperature in certain coal mines which becomes quickly apparent when the ventilating current is interrupted and which is accompanied, at least at times, by a more rapid transpiration of gas, than is normal to the mine. Mr. Cornet's explanation of this rapid evolution of gas is that the increase of temperature accelerates the expansion of the seam and that this movement accompanied by cracking causes the increased outflow of gas. All that seems to be lacking is an explanation of the increase in temperature.

Temperature Rises—Why?

This rise in the temperature of the seam may be due to the more rapid absorption of oxygen which follows a smaller increase of temperature due to the stopping of the ventilating current. So long as this current is moving the surface of the coal is slightly cooled, and this is especially apparent if moisture is present. Even a slight increase of temperature results in a more rapid absorption of oxygen, which in turn raises temperature and further increases oxygen absorption. As is well known this process, in the case of coal stored in piles, frequently continues until active combustion occurs.

Unless the evolution of gas is so rapid as to prevent the entrance of oxygen into the fissures of the coal, the existence of gas in these fissures will not be an obstacle to oxidation because the diffusion of gases will permit penetration of oxygen into the crevices. It has been demonstrated that the evolution of gas from coal is increased by a rise of temperature as well as by the increase of surface due to the cracking of the coal. It would seem therefore justifiable to assume that the phenomena described by Mr. Cornet may be due to the increase of temperature consequent upon oxidation of the coal face.

C. M. Young,
Professor, Mining Engineering.
University of Kansas,
Lawrence, Kans.

News Of the Industry

Fate of Proposed Coal Legislation Is Uncertain; Parker and Copeland Favor President's Recommendations

The fate of the proposed federal coal legislation in this session of Congress is very much in doubt.

There is a strong sentiment among some members of the House committee on interstate and foreign commerce, which gave the better part of two months to hearing advocates and opponents of federal control, to postpone consideration of the question until the next session of Congress. Representations to that effect have been made to the President.

On the other hand, Chairman James S. Parker has several times announced that his committee would report out a bill before the expiration of the present session of Congress and that he entertains hopes that the House, at least, will pass the committee's bill. Early last week there was talk of having the powerful rules committee give the measure a preferred place on the legislative program, but nothing further has been heard along that line in the past few days.

President Desires Action

The President, too, has indicated his desire for some action upon the recommendations which he has twice made in messages to Congress. It is understood, however, that the Chief Executive is not disposed to force the issue to the point of demanding that the party leaders drive the bill through before adjournment. But proponents of regulation continue to carry their pleas to the White House. In the past week Senator Copeland of New York and Representative Treadway of Massachusetts have seen Mr. Cooldige on this matter. Representative Fish of New York added his voice to these pleas in a White House conference on May 24.

Representatives Merritt of Connecticut and Wyant of Pennsylvania have appeared as spokesmen for a policy of delay. After a conference with the President on May 21 these two members of the House committee expressed the opinion that legislation at this time would have a bad effect upon the industry now struggling to recover from the losses caused by the anthracite strike. With 75 per cent of the bituminous production non-union and a four and one-half year agreement in the anthracite region, there is little danger, said these Congressmen, that labor disturbances can menace the coal supply. The manner in which the railroads are handling traffic offered them eliminates the possibility of a runaway market caused by a car shortage.

Mr. Treadway, one of the most persistent advocates of regulation, insists that his position is in accord with the recommendations of President Coolidge. Senator Copeland, after a White House visit last Thursday, said that he "was pleased to find that President Coolidge has no objections to any features of my bill. The President looks upon the measure as one which carries out his recommendations in his last two messages to Congress."

The Senator from New York seems determined to force action on his bill, which already is on the Senate calendar. It came up in the regular order on May 18, but was passed over at the request of Senator Willis of Ohio, who stated that the Senator from Pennsylvania objected to consideration of the measure in his absence. Senator Neely of West Virginia interrupted the brief debate that day to insert into the record two newspaper articles hostile to government regulation.

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Representative James S. Parker

Chairman of the House committee on interstate foreign commerce, who has announced that his committee would report out coal legislation before the expiration of this session of Congress. He has hopes that the House will pass the measure.

Photo International

Senator Royal S. Copeland

After a visit to the White House last Thursday the New York Senator expressed gratification that President Coolidge "had no objections to any features" of the Copeland bill. The doctor apparently intends to bring pressure for action on his measure.

The Copeland bill, S. 4177, was offered as a measure "to regulate interstate and foreign commerce in coal and to promote the general welfare dependent on the use of coal, and for other purposes." The Parker bill, H. R. 12209, is entitled a bill "to protect the government and the public from shortages of coal." Its purpose, as stated in the enacting clause, is "to protect the government and its agencies, the instrumentalities of interstate or foreign commerce, and the public from shortages of coal, and to have adequate and necessary facts available, in the event of an emergency, for the immediate enactment of such further legislation as Congress may deem advisable and for the proper execution of existing law."

In this clause it is apparent that the author of the bill has endeavored to incorporate every justification which witnesses before the committee conceded might possibly exist for the exercise of fact-finding powers. Unlike the Copeland bill, however, there is no specific authorization giving the Bureau of Mines, as the proposed government fact-finding agency, "access to and the right to copy any book, account, record, paper or correspondence relating to any method which the Bureau of Mines is authorized to investigate." On the other hand, the Copeland bill names no penalty to be inflicted upon persons or corporations refusing to give information or make reports requested.

Sloan Bans Further Mining At Cassidy Operation

William Sloan, Minister of Mines for British Columbia, has ordered the permanent closing of a large section of the Granby Consolidated Mining, Smelting & Power Co.'s Cassidy colliery, near Nanaimo, on Vancouver Island, because of the danger of "blowouts," one of which caused the death of two miners on April 6, last. There were two fatalities from this cause also in 1921. The company is to be allowed to withdraw all coal that has been mined from the condemned area, but must not mine any more coal.

The colliery has been a poor investment for the Granby company. Harassed for a supply of coke for its smelter by strikes and lockouts in the Vancouver Island mines, the company purchased the coal lands about ten years ago, and proceeded to develop the colliery. As soon as the colliery had been put into operation the company's title to the land was questioned by Canadian Pacific Ry. interests, which had received large grants of land on Vancouver Island as a consideration for constructing the Esquimalt & Nanaimo Ry. A series of costly law suits followed, in which the Granby company ultimately was successful. Then it was found that the Cassidy coal failed to make a satisfactory metallurgical coke, and about 35 per cent of coal from mines in Alberta had to be blended with it.

The company now has developed a large hydro-electric plant at its smelter, which entirely eliminates the use of coal for power purposes, except during one or two months in unusually cold weather, when the creeks supplying the water become frozen, and the elaborate series of reservoirs that it has built are not sufficient to carry the company over the period of water shortage. Thus, it is expected that by the time the coal already mined has been raised the company will be fairly independent of other collieries, having substituted other things for that one-time cheap and useful commodity, coal.

Gealy Informs Engineers of Opportunities for Profit

At Wilkes-Barre, Pa., May 20, E. J. Gealy, of *Coal Age* described to the Engineers' Society of Northeastern Pennsylvania the results of his inquiries into the possibility of making savings in the production of anthracite, the outcome of a survey of conditions in hard- and soft-coal mines. He cited many cases in which savings had been made, without, however, violating confidences by naming the mines or the companies by which those reductions in cost had been achieved. As this paper will be published later it will not be necessary to describe it at length in this notice.

In discussion of the paper, C. R. Seem, president of the society, who acted as chairman, said that the use of oil had made inroads into the anthracite market, even though oil was a more expensive fuel. He added that electric drives necessitated much less steam energy in electric turbines than for supplying steam direct to mine steam engines. Good steam-driven machinery at most mines requires more than 40 lb. of steam per horsepower-hour, whereas the amount required to do the same work by electricity generated in a modern turbo-generator was about 8 to 9 lb. per hour. When electrical energy is generated in turbo-generators, he pointed out, steam can be bled from the turbine to heat the buildings.

R. D. Hall made a few remarks on the past services of the mining engineer, declaring that in early days the mining engineer led in almost all mechanical progress, but said that modern industry had done much to advance all the developments that the mine industry had initiated. It was time for mining engineers to add to their originating ability a power to borrow from other industries, notably the public utilities and the electric railroads, and thus decrease costs. By establishing engineers with limited ranges of service, such as ventilation, turbine and pump engineers, men could be chosen with special aptitudes who would be able to follow developments in their respective lines, not only in coal mines but in all related lines.

Rock Springs (Wyo.) Landmark Disappears

Entrance to the manway of old No. 1 mine of the Union Pacific Coal Co. being filled in. It was one of the old familiar sights of the town, having stood for nearly fifty years.—*Courtesy Union Pacific Coal Co.*

Business Speaks Its Mind at Washington

Where the associated business interests of the country stand on the important economic and social problems of the day was disclosed at Washington, D. C., May 10-13, when 3,000 delegates attended the fourteenth annual convention of the Chamber of Commerce of the United States. After listening to addresses, committee reports and discussions from the floor, the committee on resolutions summarized the opinions expressed in a series of resolutions, which were unanimously adopted in the closing session of the convention. According to these resolutions, business stands for:

(1) Full co-operation in crime prevention.

(2) Continuation of the Federal Reserve System.

(3) Co-operation with farmers in solving farmers' problems.

(4) Refusal to recognize Soviet Russia.

(5) Permanent establishment of a federal foreign commerce service under the Secretary of Commerce.

(6) Simplification of customs formalities.

(7) Change in methods of conducting tariff investigations abroad.

(8) International highway conferences.

(9) Removal of restrictions on parcels post with Cuba.

(10) Issuance of certificates of arrival to immigrants, but no compulsory registration of all aliens in the United States.

(11) The budget system for state and local government expenditures.

(12) A substantial reduction in the existing federal corporation income taxes.

(13) Changes in methods of forest taxation for the purpose of promoting conservation and reforestation.

(14) Opposition to control of coal and other industries by governmental agencies.

(15) Proper control and utilization of the forage resources of the public domain.

(16) Performance of public construction projects, wherever possible, by contract and not by hiring day labor.

(17) Promotion of civil aeronautics, with reasonable federal regulation.

(18) Reasonable federal regulation of radio service.

(19) Creation of government radio facilities where private service is not available, but discontinuance of such service upon the establishment of adequate privately owned facilities.

(20) Opposition to compulsory automobile accident insurance.

(21) Opposition to regional appointments to the Interstate Commerce Commission.

(22) Compilation of vital statistics and a uniform system for recording such statistics.

British Coal Strike Unsettled; Mine Workers and Owners Reject Premier Baldwin's Peace Proposals

The deadlock in the British coal strike is unbroken.

While industry generally is trying to repair the damage done by the general walk-out of May 3, both the mine owners and the mine workers have rejected the peace proposals put forward by Premier Baldwin.

The owners objected to the government program because of the constitution of the proposed national wage board and also took exception to the use of the March quarter in fixing rates of pay.

The miners attacked the proposals because they involved an immediate wage reduction of approximately 10 per cent. They contend that the general reorganization of the industry outlined in the recommendations of the Royal Coal Commission should precede such a reduction. They are equally firm in rejecting the owners' proposals for a longer working day. "Not a penny off, not a minute more," is their rallying cry.

The Premier, in letters sent to the representatives of both parties to the controversy last Saturday, warns the miners that the government's offer of a temporary subsidy will be withdrawn with the end of the month and accuses the owners of uncompromising obstinacy.

"The Premier," said the letter to the mine owners, "profoundly disagrees with your association in attributing the troubles in the mining industry to 'political interference.' The government repeatedly has made it clear that they do not desire to interfere in trade disputes where there is indication the parties are able and willing to settle the disputes for themselves.

Interference Due to Incapacity

"But the Premier would point out that what is called political interference in the mining industry has been entirely due to the incapacity, now again so conspicuously shown, of that industry, unlike other industries, to settle its disputes for itself.

"He deplores your association's apparent inability to recognize it was quite impossible for any government to have stood aside in matters where the national well-being was so vitally and disastrously affected.

"The essential feature of the proposal laid before you by the government was that both sides should agree to leave the crucial point of the dispute—the figure of the minimum percentage on a basis in various districts—to be determined in last resort by arbitration. This is a principle that has been accepted over and over again by other great industries.

"It is true the attitude of the other side makes it impossible of application in the present dispute, but the Premier cannot refrain from the comment that, in summarily rejecting this proposal as one that 'seeks to impart an element of coercion into the machinery of the negotiations,' your association appears to show an inadequate appreciation both of the nature of the proposal and of the gravity of the present situation."

Further attempts to effect an agreement probably will be made as soon as the Whitsuntide celebrations are over.

In the meantime there have been some sharp exchanges between union leaders and government officials. The executives of the Trades Union Council are under attack for their action in calling off the general strike. A. J. Cook, secretary of the Miners' Federation, accuses them of a betrayal, and advocates nationalization.

Three members of the Council charged Sir Herbert Samuel with giving them definite assurance that his peace proposals would be accepted as a basis of negotiation by the government. Sir Herbert retorted that, to the best of his recollection, the protestants had not been present at the conferences, and that he had made it plain at those parleys that he was acting in an unofficial capacity.

Von Giesche Mines in Poland Now in American Control

Control of the Polish holdings of the George von Giesche heirs passed to the Anaconda Copper Mining Co. and W. A. Harriman & Co., American bankers, last week after negotiations lasting since last November. The Von Giesches control 10 per cent of the world's zinc production and own some of the finest coal mines in Germany, besides lead and silver smelting works, brick factories and porcelain works, three basalt quarries and artificial silk and sulphuric-acid factories.

George von Giesche founded the firm in 1704, and the shares in the concern have been handed down from generation to generation. Outsiders were barred for a long time, but recently the former German Crown Prince was permitted to become a shareholder.

In 1913 the Von Giesches valued their possessions at 300,000,000 marks, the highest valuation of any undertaking in Germany, not excepting the Krupps. When the World War broke out the concern bought German war bonds for 100,000,000 gold marks.

The partitioning of Upper Silesia when Germany lost the war found four-fifths of the Von Giesche possessions under the Polish flag. The 100,000,000 marks invested in the war loans became almost worthless, the cash reserves melted away, and the Von Giesches had to go borrowing.

The offer of the Americans for the Von Giesche property in Poland was heartily welcomed by the Polish Government and the shareholders approved the proposition, but it took six months to iron out the legal, financial, political and administrative problems.

At the request of the Prussian State Government, the Harriman-Anaconda representatives agreed not to interfere with the ore exploitation operations of the Von Giesche properties in Germany.

American Mining Congress And Machinery Exposition Opens with Big Attendance

With thirty principal speakers, an equal number pledged to contribute discussion and ninety-two exhibiting companies the National Exposition of Coal-Mine Equipment of the American Mining Congress opened auspiciously May 24 at the Music Hall, Cincinnati, Ohio. A large number of members and delegates were in attendance.

The first session culminated in a request to the chairman, S. A. Taylor, to nominate a committee to plan a course of action relative to water pollution for the coal and metal industries. J. F. Callbreath, secretary of the Congress, stated that in Idaho the courts had decided that water removed from streams must be returned to them in the same condition as when removed. This would destroy the whole lead industry of the state, which is the main source of income of that commonwealth. The coal and metal men, said Mr. Callbreath, should fight their battles together, with a proper conception, however, as to the ends rightly to be attained. H. N. Eavenson, H. I. Young and J. J. Rutledge were nominated on this committee.

Reforestation and conservation of timber are to be standardized for coal mines by a new subcommittee, No. 6, of the mine timbering committee, standardization division. R. E. Krape, in charge of timber and supplies, Rochester & Pittsburgh Coal & Iron Co., becomes chairman, mine timbering committee, in place of R. L. Adams. J. D. Snyder, division engineer, Consolidation Coal Co., becomes chairman subcommittee on use of structual steel for mine timbers. George M. Hunt, chairman, preservation of mine timbers subcommittee, is abroad studying preservatives not involving the use of creosote.

At a luncheon held Tuesday L. E. Young, Union Colliery Co., St. Louis, Mo., was elected chairman of mining and loading equipment standardization subcommittee. At the meeting of the manufacturers' division on Monday H. K. Porter, Hyatt Roller Bearing Co., was elected chairman; H. A. Buzby, Keystone Lubricating Co., and F. J. Maple, John A. Roebling's Sons Co., vice-chairmen, and J. C. Wilson, Ohio Brass Co., and N. S. Greensfelder, Hercules Powder Co., honorary chairmen. Porter, Wilson and Callbreath were appointed on the convention committee of this division.

Summer Course at Carnegie Tech

Carnegie Institute of Technology, Pittsburgh, Pa., announces a four weeks' summer course in coal mining beginning June 14. Sessions at Carnegie Tech in the morning will include studies of mine laws and regulations, mine ventilation, mine gases, safety lamps, methods of working mine explosives, mine timbering and mine arithmetic. In the afternoons at the U. S. Bureau of Mines station the subjects will include mine-rescue and first-aid training, coal-dust explosion and permissible-explosives demonstrations at the experimental mine, and lectures and motion pictures on mine safety.

Both Sides on Legislation In Washington Point to British Coal Situation

By Paul Wooton

Washington Correspondent of *Coal Age*

Interest in Washington continues to center on the British situation, despite the effort being made on each side of the Capitol to obtain coal legislation. Many expect to see the British work out a plan for cheaper coal for use at home rather than try to dominate the world's sea-borne trade. Any such adjustment naturally would have an important bearing on our export trade in coal, and for that matter on our trade in other commodities and on our merchant marine problem.

It long has been accepted that the availability of coal for outbound cargo has been the principal element in the great export trade of Great Britain, tending to keep low the inbound freight on foods and raw material.

As some analyze Britain's foreign trade, there is no such close relationship between outbound and inbound cargoes. The great bulk of British exports go to France and the Netherlands and to points on the Rhine and on the Baltic. Heavy shipments to those destinations would have no effect on the inbound freight rates on wool from Australia or wheat from Argentina. There is some movement of coal to the Argentine, but not sufficient to balance the inbound movement of meat, grain and other commodities. A large proportion of ships leave in ballast for River Plate points. The balance is not between particular ports, such as those on the Tyne and on the Bristol Channel, on the one hand, and Buenos Aires and Calcutta on the other. It is rather between Western Europe and South America.

Coal Trade Traditions Upset

This view is upsetting to the notions of most persons interested in the world coal trade, particularly to the British themselves, but in the reorganization of the industry in the United Kingdom this phase of the situation is certain to be considered. The British may find it more to their advantage to shrink their production to the capacity of their lower cost mines and use a larger proportion of that coal at home, so that the outbound cargoes will consist more of manufactured material rather than raw material which has to be sold at small profit.

The British situation also is furnishing ammunition for each side in Congress. Those who are urging coal legislation see in the unrest of the British miners proof that trouble of the same character lies ahead in this country. Attention is called to the approaching end of the Jacksonville agreement, which leads to the demand that legislation be provided to meet a possible strike.

Spokesmen for the industry and others who oppose such legislation see in the British trouble the consequences of the government in business. They point out that since the war the British Government has not withdrawn definitely and completely from the field of private industry. As a consequence it cannot avoid taking part in the recurring crises.

From parliamentary intervention for the fixing of the length of the working day the government has been drawn into arbitration, into subsidy payments and finally was forced to break a strike. Had the government never placed itself in a position of quasi-responsibility the general strike never would have been called, argue the opponents of coal legislation for this country.

Industrial Board Observes Tenth Birthday

The tenth anniversary of the founding of the National Industrial Conference Board was celebrated May 20 at a meeting in New York City. Frederick P. Fish, chairman of the board since its organization, has declined re-election and has been elected honorary chairman. He has been succeeded by Loyall A. Osborne, president of the Westinghouse Electric International Co. Magnus W. Alexander continues as president.

Reporting on the ten years of activity Mr. Alexander pointed out that the board now spends approximately $300,000 a year in getting facts regarding industry and related business and social conditions. The results of the board's work have been given to business through 115 research and 35 special reports and many monographs. Sixteen bulletins have been issued on industrial-economic conditions in the United States, 132 charts on current economic trends and conditions here and abroad, and a graphic analysis of the growth of manufacturing from 1849 to 1920. In addition much special service has been rendered to subscribers of the board, governmental organizations and others through the exhaustive files of non-published material.

Investigations of the Board have covered such subjects as wages and hours of work, cost of living, industrial pensions, employment of young persons, cost of government, tax burdens and public expenditures, the economic significance and legal status of trade associations, public regulation of competitive practices, interallied debts, and the agricultural problem as related to industrial activity.

New Haven R. R. Wants Coal

The New York, New Haven & Hartford R.R. requests bids for 360,000 to 400,000 net tons of high-volatile bituminous mine-run coal required on the east end of its line, or on 200,000 to 225,000 tons for the Boston district. Deliveries are to be made alongside the company's coal-discharging plant at South Boston in approximately equal monthly quantities between July 1, 1926, and July 1, 1927. Complete specifications may be obtained at the office of the company's fuel agent, J. F. Manning, New Haven, Conn. Bids will be opened at noon on June 4.

Burns Bros. Likely to Buy Rubel Coal Co.

Negotiations now said to be under way foreshadow the early acquisition by Burns Brothers of the Rubel Coal & Ice Corporation, one of the largest distributors of coal in Brooklyn and adjacent sections of Long Island.

Sanders Wertheim, president of Burns Bros., refused to confirm or deny reports of negotiations for the purchase of the Rubel company. "I do not want to make a statement about it now," he said, but did deny a report that the deal had been closed, saying positively, "We have not bought them."

Samuel Rubel, president of the Rubel Coal & Ice Corporation, when asked about the report, answered through his secretary that he knew nothing about it. From other quarters, however, it is learned that conferences on a proposed merger of the two companies have been held and it is believed that a consolidation is likely soon.

The Rubel Coal & Ice Corporation has expanded rapidly from the days when it was started by Samuel Rubel, a poor Russian emigrant, with a coal peddling wagon. In the past year it has had a particularly rapid growth. About a year ago Mr. Rubel acquired a large number of independent coal and ice companies in Queens County. More recently his company bought the Commonwealth Fuel Corporation, one of the leading distributors in Brooklyn with large pockets strategically located both on the waterfront and alongside railroads.

The Burns Bros. company last year added to its facilities in Brooklyn by the acquisition of the Wyoming Valley Coal Co.

Dalrymple Flouts Suspension; Incompetence Charged

Fort Smith, Ark., May 24.—District No. 21, United Mine Workers, has two presidents, but the muddle may be cleared up here when William R. Dalrymple, supposed to be suspended, is tried on charges alleging incompetence in office. Gomer Jones, vice-president of the district, has been appointed acting president by the Executive Board, which suspended Dalrymple. Dalrymple has ignored the action of the board, however, and has retained charge of the Muskogee district headquarters.

George Patterson, secretary, said that Dalrymple regards the board as a "rump" organization and that he has refused to turn over the office to Jones without instruction from international President John L. Lewis, who never has recognized Jones as acting president.

According to Patterson, only five of the seven members of the board were present when Dalrymple was suspended, making the action illegal, according to interpretation of the by-laws. All five voted for Dalrymple's suspension, however.

"The rump board meeting charges Dalrymple with everything in the world," Patterson said. "Their main grievance, however, is his refusal to meet with the coal operators and discuss wage reductions."

Uniform, Acceptable Preparation of Anthracite Demanded by Retailers; Voice Opposition to Federal Control

Strict maintenance of uniform and acceptable standards of anthracite preparation was demanded by the National Retail Coal Merchants' Association at its ninth annual convention, held at the New Willard Hotel, Washington, D. C., May 17-19. Producers also were asked to inform each distributor of the standards in force so that dealers may "test all shipments and obtain proper adjustment on all tonnage that does not conform to the standards so established."

The association, in a resolution adopted the closing day of the convention, reiterated its opposition to government control. Attempts to regulate mine labor, it declared, are futile. To single out coal would not only be discriminatory but dangerous in that it would "create a precedent for the injection of government and a federal bureaucracy into the field of business, which should not be allowed to become a battle ground of politics."

The stand taken on anthracite preparation was foreshadowed the first day of the convention, when a majority of the delegates agreed that most producers were shipping coal containing more than the permissible maximum percentage of undersize. "In the old days," said Roderick Stephens, chairman, government relations committee, who opened the attack, "we heard a lot about 'flexible standards of operation.' Whenever the situation arose where it seemed necessary to 'ease the situation,' it was done, and no operator felt that he was guilty of any improper or unethical standard if he adjusted his production. However, it seems to me that an operator, generally speaking, would look down with scorn on any dealer who mixed pea coal with chestnut and sold it as nut, or sold buckwheat and mixed rice with it. I submit that that practice on the part of the retailers is equivalent to fraud. I do not charge the operators with fraud because I do not think we have put it up to them right, but I think it is up to us to do it, and I think we can with the buyer's help."

General Complaint of Undersize

The resolution as reported to the convention stated it had been "the general experience of the retail trade since the termination of the strike that a large amount of chestnut, pea and buckwheat had contained a greater quantity of undersize than authorized under the new standards." This was modified to read: "It has been the general complaint." In indorsing this change, Mr. Stephens said he believed the retailers could develop specific facts to warrant their accusations, but that it might be unfair to make the flat assertion in a formal resolution until supporting data had been put on record. There was, however, no question that "complaint" had been general.

Part of the present difficulties confronting the dealers in moving anthracite, in the opinion of some of the New York State groups, lies in the trade nomenclature. These groups urged that the operators abandon the name "chestnut" and give a new designation to that size. The suggestion was referred to the resolutions committee, headed by W. A. Clark, president, New England Retail Coal Dealers' Association. That committee, however, took no action in the matter, preferring to leave the question for the consideration of the incoming board of directors.

The first session of the convention was devoted to the presentation of reports of officers and standing committees. President Samuel B. Crowell pointed to the English situation as a warning against government regulation of coal and declared an unhampered industry could function best in the public interest. Joseph E. O'Toole, resident vice-president, urged greater financial support of the organization. Mr. Stephens reviewed the legislative situation. There is, he said, no justification for omitting coke and fuel oil from a regulatory program, but the public interest will be best served if there is no regulation of any kind.

Operators Seek Good Will

Daniel T. Pierce, vice-chairman, Anthracite Operators' Conference, said "there never was a time when the operators were so anxious to discharge their responsibility, so eager for the good influence of the public, for the cooperation and the help of the dealers, and generally so determined to maintain their position in spite of every obstacle." The producers proposed to use the four and one-half years' freedom from labor troubles under the new agreement to engage in an intensive merchandising campaign.

Mr. Pierce expressed the hope that the industry, "within a short time," would adopt standards under which certified coal "will be sold by dealers handling only certified coal." With such machinery in operation, "it would not be a question of putting it up to the dealer to 'kick' about coal he thought was not up to specifications." The coal "would be subject to inspection that would dispose of that and relieve the dealer of any embarrassment in dealing with such cases."

Disclaiming any intention of uttering a threat, the speaker asked the retailers what they would do if they had $750,000,000 invested in the business, "and the dealers who were distributing the products were, in a good many cases, quite as much interested in soft coal." He was certain, he said, that the anthracite operators "are not going to allow this product to be handled as the adjunct of an oil business or as the tail-end of a soft-coal business." Retailers who would co-operate with the anthracite industry, he declared, would find the door wide open. "If you don't know us better, if you don't get out of us what you want, it is going to be very largely your own fault."

Photo Underwood & Underwood

James C. Tattersall

Newly elected president of the National Retail Coal Merchants' Association.

"Trade-Marked Coal" was the first topic of discussion at the meeting on May 18. Mr. Pierce thought it impossible to physically brand the coal, but agreed there should be some protection which would assure the dealer he was actually receiving what he purchased. Stanley C. Higgins, secretary, New River Coal Operators' Association, said that one shipper actually labeled some of the coal.

Mr. Clark decried the policy of many coke producers who distributed their product direct to the consumer. Lester C. Bosler, of Madeira, Hill & Co., and D. H. Pape, assistant to the executive secretary of the National Coal Association, discussed methods of meeting fuel-oil competition.

Domestic Future for Smokeless

W. C. Atwater, president, Pocahontas Operators' Association, the principal speaker on May 19, predicted a big domestic future for screened smokeless coal. He cited the growth of deliveries of that fuel in his own retail business at Fall River, Mass., to support his belief. Low-volatile coal, he said, was too good to burn under steam boilers. "In New England, so far as our coal is concerned, it is entirely in your hands. You can make us or you can break us. We are here; we have a fine product and we are going all the while. We are not afraid of gas; we are not afraid of oil; we are not afraid of anthracite. If you could visualize twenty-five or fifty years from now you would see in New England a place where coal from southern West Virginia is known in every household."

James C. Tattersall, Trenton, N. J., was elected president, succeeding Mr. Crowell, who declined to consider another term. Rudolph Reimer, Brooklyn, was chosen as treasurer. Milton E. Robinson, Jr., Chicago; J. Maury Dove, Jr., Washington, D. C. (re-elected); W. A. Clark, Boston, Mass. (re-elected); G. W. Malcomson, Detroit, Mich.; C. B. Staats, Albany, N. Y. (re-elected), and George T. Kinney, Kansas City, Mo., were elected vice-presidents.

Desist Order Issued To Midwest Retailers; Sanborn Co. Absolved

The Federal Trade Commission has issued a cease and desist order directed to the Mid-West Retail Coal Association, formerly known as the Missouri State Retail Coal Merchants' Association, its officers and members. The respondent association, according to its constitution, made eligible for membership those engaged in the business of selling coal, coke or other fuel at retail with facilities and stocks sufficient to meet the reasonable demands of the public in their respective communities. The association's office is in St. Louis.

The proceedings against the J. B. Sanborn Co., of Chicago, Ill., named as a respondent in the complaint, were dismissed by the Commission.

The Commission found that the respondents, co-operating together and acting in concert, hindered and prevented the purchase of coal in interstate commerce by and between producers, jobbers and wholesale dealers and individuals by various unfair means.

Cites Alleged Unfair Practice

The unfair methods used by the respondents, according to the Commission, and which the order specifically prohibits, are indicated by the terms of the order, which state that the respondents must discontinue:

(1) Arbitrarily classifying sellers and purchasers of coal and shipments thereof as "Snowbird" shippers, "Snowbirds" and "Snowbird" shipments, respectively, or by any similar or other terms because of or according to the extent or degree of equipment owned by the said purchasers or employed by them in the sale, movement or distribution of coal, or causing any such classification to be published in any trade paper or other publication, or to be communicated to others or among themselves, in that or any other manner.

(2) Designating or causing to be designated, in articles or editorials in any trade paper or other publication, or in any other manner or by any other means, any individual, firm, corporation or association, or groups thereof, as the vendor or purchaser of coal, or their shipments of coal by using or causing to be used denunciatory, scurrilous, abusive or derogatory language of and concerning them or either of them.

(3) Soliciting or receiving between or among themselves or with others and or circulating between and among themselves or with others communications or reports, either printed, written or verbal, having the purpose, tendency or the effect of inducing, coercing or compelling producers, jobbers or wholesale dealers in coal, their agents or their brokers, directly or indirectly, to refuse to deal with or to sell coal to any person, firm, corporation or association.

(4) Threatening with loss of patronage or custom, any producer, jobber or wholesale dealer in coal, or his agent or broker, for selling or agreeing to sell to any person, firm, corporation or association, or from persuading any such producer, jobber or wholesale dealer in coal not to sell coal to any person, firm, corporation or association.

Memorial Tablet to Professor Stoek

Friends Present Stoek Tablet To Illinois University

Memorial exercises in honor of Prof. Harry Harkness Stoek, who died on March 1, 1923, were held in the engineering library at the University of Illinois on May 2, when a tablet in commemoration of his work was presented to the university.

Prof. A. N. Talbot, head of the department of theoretical and applied mechanics, presided. E. A. Holbrook, dean of the School of Mines of Pennsylvania State College, delivered an address emphasizing the work of Prof. Stoek as engineer, editor and educator. Prof. S. W. Parr's topic was "Professor Stoek —Friend."

The tablet, which is of bronze, about 42 by 60 in. in size, was the gift of nearly two hundred friends of Prof. Stoek. It was presented to the University on behalf of the Stoek Memorial Committee by Prof. A. C. Callen, head of the department of mining engineering, and was accepted for the university by Prof. A. P. Carman, head of the department of physics. The memorial tablet is the work of the noted sculptor Lorado Taft, of Chicago.

Sonman Shaft Coal Co. Sold

One of the most important coal deals in central Pennsylvania in several years has just been closed, through which the Sonman Shaft Coal Co., with holdings at Sonman, Cambria County, has been sold by Thorne, Neale & Co., of Philadelphia and New York, to A. H. Powell & Co., Inc., of New Haven, Conn. The new owners will take over the property on June 1. J. Malcolm MacDougall, of Johnstown, general superintendent, and all of the other officials will be retained.

The Sonman Shaft Coal Co. property comprises more than 3,000 acres of coal. At the present time the company is working three seams and has a capacity of 750,000 tons a year. The operation employs more than 750 men when the mines are working at capacity. At present 600 men are at work.

California Dealers' Prepare To Combat Oil and Gas

California railroads, gas plants and manufacturing establishments largely rely upon petroleum for fuel. Hydroelectric power development has grown to a noteworthy extent and transmission lines lead to every important center. Marine bunkering has shrunk to insignificant proportions. Solid fuel has been displaced by liquid fuel until practically only the house-heating field remains and even in this the competition of both gas and oil is keenly felt. Although population has doubled in the past ten years, the solid-fuel business has remained practically stationary in aggregate sales and has diminished in number of distributors. Active selling campaigns by gas- and electric-appliance men have made inroads upon the field of solid fuel.

To study to conserve their market, the retail coal dealers formed the California Retail Fuel Dealers' Association, which held its annual meeting at Del Monte April 24 to 26. R. E. Wilcox is president of the Association and J. B. Muir, secretary.

In the report of the executive committee, it was stated that progress has been made in obtaining correct weight and less spillage on coal deliveries; the need for statewide advertising of better appliances for burning coal was touched upon; a summer storage advertising of better appliances for burning coal was touched upon; a summer storage advertising campaign was stated to have been successful; advertising coal on its merits was advocated; better preparation of coal by the mines was discussed and the need of co-operation between coal operators and dealers was stressed.

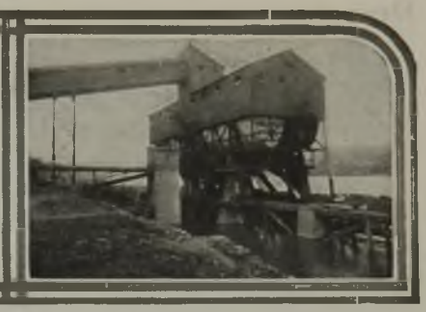
See Chance for Lower Rates

In the report of the traffic committee, J. C. Ewing stated that a new freight rate from Utah to Pacific Coast points to encourage the movement of pig iron has been made and as this is lower than that prevailing for coal, efforts were being made to obtain a similar rate for coal.

A paper by Louis Ross on the psychology of advertising was read by Secretary Muir. Mr. Ross said that coal merchants have not advanced beyond the point of telling the public that they have the coal for sale. The use of coal has many possibilities—the public has to be convinced that it needs coal and that there are many advantages attendant upon its use.

B. D. Myers, district freight agent of the Southern Pacific Co., who addressed the convention on the general subject of co-operation, made the announcement that the Southern Pacific was converting 48 freight locomotives from oil to coal burners and would return to coal on its El Paso division. M. F. Murry discussed the efficiency of coal furnaces and showed the necessity for good furnace construction and proper flue proportions. J. F. Mullen presented a report on the efforts now being made to amend the building ordinances by providing minimum flue dimensions for different situations as well as adequate chimney extensions.

News Items From Field and Trade



ALABAMA

The Southeastern Coal Co. is building fifty 5-room dwellings for its employees at Gorgas, or Winona, formerly operated by the Winona Coal Co. This mine is located in Walker County, on the Warrior River, adjacent to the Gorgas steam plant of the Alabama Power Co., which consumes the output of the mine, the operating company being a subsidiary of the power company.

Output High in Alabama.—Alabama produced 20,408,656 tons of coal during the calendar year 1925 according to official figures of State Mine Inspector Charles H. Nesbitt. This represents a gain of 792,725 tons over the output of 1924, which was 19,615,931 tons, and has been exceeded only twice before in the history of the industry in this state, 20,413,811 tons being mined in 1917 and 20,919,303 tons in 1923. Production to date this year is showing about a 5 per cent gain over 1925. Other statistics on the industry for 1925 are not yet available.

The commissary, office and supply houses of the Pratt Fuel Corporation at Dora No. 1 mine were destroyed by fire which started in the store building May 5. The loss is estimated in the neighborhood of $50,000. Walter Moore is president of the company, the offices of which are in Birmingham.

Dedicate Stadium.—The large new stadium of the Tennessee Coal, Iron & Railroad Co., recently completed at Fairfield, was formally opened May 19, with the spring festival of the social science department of the corporation. About 3,000 employees of the company were in attendance. The stadium is of concrete and steel construction and will accommodate about 10,000 people.

Construction by the Frisco line of the connecting link between its main line at Aberdeen, Miss., and Kimbrough, Ala., the northern terminus of the Muscle Shoals, Birmingham & Pensacola R.R., recently acquired by the Frisco, for which permission is now pending before the Interstate Commerce Commission, would afford a direct route from the coal fields of Walker County to the Port of Pensacola. It is planned to eventually construct a line from Bessemer, in the Birmingham district, to Magnolia, where it will tap the new line.

Railway Fuel Tipple Completed.—The new steel tipple of the Railway Fuel Co. at its Parrish Mine, in Walker County, has been completed and placed in operation. The cost of the structure was approximately $50,000. Two rotary dumps were installed and other improvements made which will allow an increased production from this operation, which is one of the largest in the Walker County field. The operating company is a subsidiary of the Southern Railway Co., the total output of which, around 2,500 tons per day, is used on the lines of the railroad system.

Mill Creek Washery Open.—A new washery has been completed at the Chickasaw mine of the Mill Creek Coal Co., near Carbon Hill, Walker County. This is an opening on the Jagger seam and is served by the Frisco railroad. The company also operates the Mill Creek mine, in the same vicinity.

Suspected Firebugs Caught.—According to reports from the State Fire Marshal's office in Montgomery, two men are under arrest in connection with the mysterious destruction by fire recently of the tipple and washer plant of the Galloway Coal Co. at Holly Grove, Walker County, which entailed a loss of about $75,000, with insurance of only $30,000. The fire is believed to have been of incendiary origin.

ILLINOIS

Kathleen Mine Mechanized. — The Kathleen mine, at Dowell, five miles south of Duquoin, is again operating after a period of no work and is now producing coal which is mechanically cut, loaded and hauled. While the mine was idle arrangements were made to bring into use a large number of loading machines which were already installed in the mine but had never been put into practical operation. With the machines in use fewer men are employed than formerly.

After a long period of idleness three hundred men have returned to work at Paulton No. 3 mine, near Marion, owned by the Cosgrove-Meehan Coal Co.

The Coal Belt Electric Ry., a short coal road in Williamson County, has filed a petition with the Illinois Commerce Commission for permission to discontinue operation of its line which runs from Marion to Energy, Energy to Carterville, and Energy to Herrin, a distance of 13.46 miles in all. The petition of the company states that it has not made operating expenses for the past ten years. In recent years it has suffered increasing loss owing to greater traffic by truck and autmobiles.

Peabody Mine No. 6 hoisted 4,727 tons of coal in one day recently, which broke the record of the Springfield subdistrict.

A company is being formed at McLeansboro to open coal mines in and around McLeansboro in Hamilton County, it has just been announced. Shaft mines will be driven.

Catlin Mine to Resume.—The Taylor-English Coal Co. is making preparations to reopen its mine at Catlin, a few miles from Danville. The mine has not been in operation for the last twelve months.

Involuntary bankruptcy proceedings have been begun against the Earl Mapleton Co-operative Coal Co., at Peoria, by creditors whose claims are $1,000. The company has assets of $15,000 and liabilities of $22,000.

Seven hundred men have been thrown out of employment by the shutdown of Peabody Mine No. 8, at Tovey. The mine, which had been working steadily for some time, will be closed until next November.

The closing down of Wasdon Coal Mine No. 1, east of Harrisburg, has been followed by the opening of Wasson Mine No. 2, just west of Carrier Mills. This mine had been closed about two years.

INDIANA

Modernization Advances.—The Knox Consolidated Coal Co., which owns the Indiana Creek, the Westphalia Fifth Vein and other mines in Knox County, is building a new steel tipple at the Indian Creek shaft and is converting the Westphalia mine into an electrically operated plant. Work at the latter place has gone on without interrupting the mining. The Indian Creek has been idle several months, due to destruction of the old tipple by fire. The new one is to be completed by July 1. It is to be fireproof and have two tracks. It will load four kinds of coal at the same time. The company employes about 2,100 men normally, excluding the Bruceville mine, which has been idle several years.

One of the most disastrous mine fires in the history of Indiana was sealed in the depths of the Ebbwvale mine, three miles south of Sullivan, last week after efforts to extinguish it proved unavailing. One hundred volunteers had fought the flames five hours. Three men who were in the mine when the fire broke out escaped unharmed.

Charles W. Cook, wealthy ice manufacturer of Evansville, has acquired an interest in the Stock coal mine, at Chandler.

Twenty-two union miners indicted for rioting at the Hampton-Schimmel mine near Newburg, on Feb. 16, were acquitted by a jury in Warrick County Circuit Court, at Boonville, May 15. Perjury charges may grow out of certain testimony offered by some of the defendants, Prosecutor Warren Martin declared. A grand jury will be asked to make an investigation, Circuit Judge

Caleb J. Lindsey said. Thirty-eight union miners were found guilty of assault and battery in the court three weeks ago on charges growing out of demonstrations at other southern Indiana mines on the same date.

The third mysterious fire in properties of the Knox Consolidated Coal Co. this year occurred May 13, when the tipple of the Fourth Vein coal mine, near Vincennes, burned. The loss is estimated at $50,000. Between 200 and 300 men were thrown out of work by the fire. The tipple will be rebuilt immediately, it was announced at headquarters of the company, at Indianapolis.

While pulling into the "high bank" under heavy strain the boom of one of the steam shovels at the mine of the Pike County Collieries broke, causing a repair job that may last 30 days. The men working on the shovel and in the coal pit below escaped injury.

IOWA

Work on the coal mine at Eldora is progressing steadily. Two shifts are now at work. The shaft is to be sunk 125 ft., where a good seam of coal is located.

KANSAS

Sinking New Mine. — The Pittsburg Coal Co. has begun sinking a new mine a mile south of Cherokee. Drillings show that the coal, which is at a depth of 120 ft., is of good quality and ranges from 3 to 4 ft. in thickness. The company plans to equip the mine with electric hoist, mining machines, electric haulage and other electrical equipment. When the shaft is fully developed it will employ 100 men. The company has operated extensively in the northern part of the Pittsburg field but this mine is its first development in the southern part.

KENTUCKY

Pays $23,300 for Coal Property.—W. O. B. Wright, president of the Cedar Creek Lumber Co., at Pineville, has purchased for $23,300 the bankrupt Kentucky Elkhorn By-Products Co. mines at Dorton, which were closed on Jan. 6. The properties three years ago were valued at $300,000, and $225,000 was refused. Improvements represent an outlay of $247,000. There is a tipple, side tracks, 41 miners' homes, commissary and a large coal tract including 221 acres in fee simple. One seam has 500 acres of 6-ft. coal; another 1,000 acres of 4-ft. coal and a third seam, unworked, has 1,110 acres. The buyer plans to start operations within thirty days, operating as the Wright-Elkhorn Coal Co.

Indications are that the Federal Power Commission will refuse the application of the Cumberland Hydro-Electric Co. for a permit to harness the Cumberland Falls, on the Cumberland River, as the result of a wave of protest against destroying a thing of beauty. The company, which is a subsidiary of the Kentucky Hydro-Electric Co. and the Kentucky Utilities Co., would supply current to a network of lines that carry current to many mines and towns over the state.

The State Tax Commission has reduced the recent 20 per cent special raise on Henderson County coal right assessment to 10 per cent. The original increase was $56,000, but as it now stands it will be only $28,000.

Elk Horn Coal Corporation reports for the quarter ended March 31, 1926 net profit of $61,653 after depreciation, depletion, interest and federal taxes. The company reported a deficit in corresponding period a year ago.

Ready for Heavier Loads.—W. F. Sheridan, superintendent of the Louisville division of the Louisville & Nashville R.R., reports that the road has started using much larger locomotives in the western Kentucky fields, due to replacement of some trestles with heavy fills and reduction of the grade over Muldraugh Hill, about forty miles south of Louisville.

L. & N. Surveying Coal Lands.—Surveying crews are reported to be working up the Middle Fork of Kentucky River, near Krypton, in Perry County, past Hyden and as far as Greasy Creek, on the southern edge of Leslie County, where there is much fine coal land, but no railroads. It is understood that the Louisville & Nashville R.R. is making the surveys.

The machine shop, supply houses, commissary, etc., of the Southeast Coal Co., at Seco, in Letcher County, near Whitesburg, was burned on May 16, in a $40,000 fire. The building will be rebuilt at once.

NEW YORK

More Semet-Solvay Ovens.—Semet-Solvay Co. has announced that construction of an additional battery of coke ovens which will result in doubling the capacity of its present plant near Buffalo is to begin soon. It is expected that the new ovens will be in operation in about a year.

Coal Maintenance Corporation, New York City, has filed a certificate in the Office of the Secretary of State at Albany increasing its number of shares from 500 shares preferred stock of $100 par value to 1,000 shares preferred of $100 par value and 100 shares common stock of no par value to 2,500 shares common of no par value. Max Silverstein, 305 Broadway, New York City, is attorney for the corporation.

The four steamers of the Eastern Grain, Mill & Elevator Co., of Buffalo, built in Scotland for the coal and grain trade are about ready for business from Buffalo. The "John S. Pillsbury" recently unloaded a cargo of coal at Toronto, and the other three, with two cargoes of coal and one of fluorspar, are at Montreal on the way in.

OKLAHOMA

Earl Wells and Frank Barrow, of Henryetta, have acquired the Sorrels coal mines, at Poteau, and will develop them.

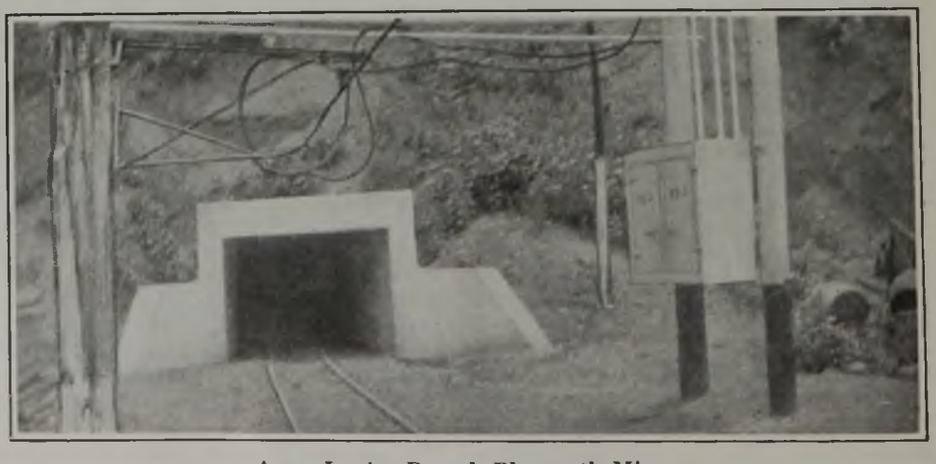
PENNSYLVANIA

Gas Blast Injures Three.—An explosion of gas at 8 a.m., May 14, in the Red Ash vein of the Nottingham colliery of the Lehigh & Wilkes-Barre Coal Co., at Plymouth, resulted in three mine workers being injured, one seriously burned about the head, face, hands and body, and the other two sustaining scalp wounds and bruises about the ribs. Assistant Superintendent Ted Griffith found that the blast occurred in the face of a chamber in No. 12 slope, 11th East Red Ash Vein. A pocket of gas was ignited, but just what set it off is not known.

The Vesta Coal Co., a subsidiary of the Jones & Laughlin Steel Corporation, has contracted for the erection of 150 dwelling houses for the new development being started in Greene County.

The Republic Iron & Steel Co. coal mines in the Connellsville coke region, which had been working nearly full for several weeks, are laying off one or two days a week.

Union Grip Waning.—Eighty per cent of the coal now being produced in central Pennsylvania bituminous district is being mined on a non-union



Anna Louise Portal, Plymouth Mines

Operation of the Hatfield-Reliance Coal Co., at Plymouth, near Winfield, W. Va., in Putnam County just below Charleston on the Kanawha River. Coal is loaded on the Kanawha and on the Kanawha & Michigan R.R. tracks. The track gage is 30-in.

Portion of the Mining Town of Six, W. Va.

The narrowness of the valley made it necessary to build some of the houses on the mountain side. Storage for the town water supply is in the tank at the upper left. In the center background are a dumphouse and retarding conveyor.

basis, Charles O'Neil, secretary of the Central Pennsylvania Coal Producers' Association, said. "Cambria is the only county among the 14 comprising the district that has retained the union scale and it is believed the mines there will soon be obliged to follow the other counties in order to sell in competition with sections east of the Ohio River," he said.

City Gets Bargain Coal.—The Philadelphia Board of Education has awarded a contract for delivery of 60,000 tons of buckwheat to Frank F. Mathers at $4.87 delivered in the cellars of the schools. The price has caused endless comment in the trade on account of its extreme lowness when compared with current company quotations. Based on the contract price of $2.50 of the biggest company shipper, plus freight of $2.14, on one-car price would be $4.64. As no one presumes that delivery can be made for 23c., it is conjectured that some large producer rather than store buckwheat on the ground at a cost of $1 a ton to lay it down and pick it up again, not to mention interest charges, simply deducted this charge from the price of the coal, which would give the dealer delivering it a margin of about $1.23.

Wooden Breaker for Hazle Brook.—A contract has been awarded for the erection of a new breaker at Keffers for the Hazle Brook Coal Co. It is understood that 1,000,000 ft. of lumber will be used in the new structure, which will be one of the few modernly equipped breakers in the anthracite field in which lumber will be used in preference to steel. The Hazle Brook company also is planning to construct sidings leading from the new breaker to the Philadelphia & Reading Ry.

Stripping Uses Big Blast.—One of the largest test blasts of dynamite in the history of the Shenandoah region was set off recently at the Shenandoah City colliery stripping when 7,000 lb. of dynamite lifted 12,000 cu.ft. of rock and earth and bared a long stretch of available coal. The dynamite was discharged from 36 holes varying from 25 to 50 ft. in depth. The charge exploded with a loud roar but the work was not spectacular for the rock and dirt appeared to be gently lifted a few feet into the air and then rolled down to the base of the stripping hole.

Idle Washery Destroyed.—Fire recently destroyed a washery at Dunmore owned by the Quinn Coal Co. The plant had been idle for several months, but the owner intended to resume operations.

Abandoned Breaker Burns.—Fire recently destroyed the abandoned breaker of the Madeira-Hill Coal Co. at New Boston. Fireman saved a valuable exposed coal vein, a culm bank and also prevented the flames from starting a forest fire in Broad Mountain.

WEST VIRGINIA

Production Report Nearly Ready.—The state Department of Mines announces that coal production in West Virginia in 1925 was approximately 122,000,000 net tons. These figures are in sight with only two reports lacking to complete the tabulations.

Rock-Dust Four Miles at Eccles.—No. 5 mine of the Crab Orchard Improvement Co., at Eccles, Raleigh County, where an explosion occurred in March, now has four miles of the entries rock-dusted.

Safety day will be observed in the mines of West Virginia on Aug. 31, according to Robert M. Lambie, chief of the state Department of Mines. Safety meetings will be held all over the state on that day, it is reported.

Modernizing Red Jacket.—The Red Jacket Consolidated Coal & Coke Co., Inc., Red Jacket, Mingo County, is rebuilding its tipple at No. 5 mine and is installing screens and making other improvements. At the No. 6 mine a new gathering motor recently was installed.

Postpone Institute Meeting.—Instead of holding the semi-annual meeting of the West Virginia Coal Mining Institute on June 1 and 2 as originally planned, Robert M. Lambie, chief of the West Virginia Department of Mines and president of the institute, announces that the meeting will be held on July 13 and 14. Inasmuch as many meetings are scheduled to be held in various parts of the state during the early part of June, postponement of the meeting of the institute was thought to be desirable so that the attendance might not be adversely affected.

Four hundred miners and their families attended a safety meeting at Havaco, McDowell County, on April 23, which was one of the largest of the present series. Addresses were made by Robert M. Lambie, chief of the state Department of Mines; W. H. Forbes, division engineer of the U. S. Bureau of Mines, and others. The mine of the New River-Pocahontas Consolidated Coal Co. is located there.

CANADA

To Merge River Hebert Mines. — A merger of coal operating companies in the River Hebert region is being effected under the title of the Canadian Coal Co. Randolph Emmerson, who is active in the negotiations, predicts the arrangement of final details within a few weeks. The intention is to float a bond issue of approximately $1,250,000, all of which to be placed in England, Ireland and Scotland. New shipping piers will be erected at Joggins, which would reduce the cost of shipping the coal by water. According to Mr. Emmerson, the new company will absorb practically all the companies operating in the River Hebert area except the Maritime Coal, Railway & Power Co., which will continue as a unit.

The Bras d'Or Coal Co., operating in the Bras d'Or Lakes territory, has placed a fleet of steam and a sailing craft in commission between the mines of the company and ports in the maritime provinces, New England and Newfoundland. George Burchell, president of this company, recently added the schooner "Arabia" to the fleet, and the fleet is now complete for the shipping operations of this year. Mr. Burchell expects the company's own fleet to create a big reduction in the cost of shipping the coal from the Bras d'Or pits this year. Hitherto, the company had to depend on chartered vessels and on the railroads.

Lowest Alberta Rate Is $9.—The Canadian National Rys. will not change its stand that $9 per ton is the lowest rate at which Alberta coal can be brought east, Sir Henry Thornton, president of the road, said on his arrival in Toronto. If instructions were issued that a lower rate should be fixed, Sir Henry said, it would be done, but, he added, someone would have to pay the cost.

Among the Coal Men

B. E. Riggs, mining engineer, who has been chief inspector for the Central Pocahontas Coal Co. at Welch, W. Va., will take a fling at the sales end of the business. He succeeds F. E. Yarnell as representative of the company at Fort Wayne, Ind. Mr. Yarnell some time since purchased a sand and gravel business in Philadelphia, which now requires his whole attention. He formerly was mining engineer and chief inspector for the company.

Lester E. Westenfelder, principal of mining at the U. S. Marine Corps Institute, Washington, D. C., announces the recent graduation of the following students in the firebosses' course: First Lieutenant Carl Gardner and Corporals Oliver Pauley, Frank D. Quinn and John Nagy.

Ben H. English, formerly superintendent of the Pemberton Coal & Coke Co., with headquarters at Affinity, W. Va., has assumed the duties of superintendent at Ashland, in the McDowell County field. He had been connected with the Pemberton company for the last five years.

Earl Harmon, formerly of the Carnegie Coal Co., Pittsburgh, Pa., has become associated with the General Fuel Co. of Philadelphia and Pittsburgh, in charge of the Pittsburgh office.

Francis Winslow, who has been in charge of the metal-mining branch of the Natural Resources Division of the Chamber of Commerce of the United States, will hereafter also direct the coal activities of the Chamber. This work previously was in charge of Major C. T. Starr, who recently resigned to accept the post of assistant to the president of the Pittsburgh Terminal Coal Corporation, with headquarters in Pittsburgh, Pa.

Leonard E. Adams, purchasing agent for the Knight Fuel Co., Salt Lake City, Utah, for the past decade, has been appointed general sales manager, succeeding J. A. Stallings, who died some months ago after holding that position for several years. The new purchasing agent is **D. Vern Shurtliff.**

A. D. Grasso, who left Buffalo about two years ago to become sales manager of the Valley Coal Co., at Brockway, Pa., which he had represented at Buffalo for some time, has organized a new coal company bearing his name, and takes over the Liberty mine in that vicinity with present output of about 400 tons. He has become president of the company. The Valley Coal Co. mine is shut down.

Col. C. W. Watson, president of the Consolidation Coal Co., with headquarters at New York, and other executives of the company inspected the mines of the Pocahontas and New River division of the company, on May 10. Others in the party were G. J. Anderson, executive vice-president, New York; F. R. Lyon, operating vice-president, Fairmont; G. W. Hay, general manager of operations, Fairmont; R. E. Rightmire, engineer of tests, Fairmont; C. S. Moss, general manager of stores, Fairmont; A. T. Watson, director of purchases and stores, Fairmont; H. T. Giffin, architect, Fairmont, and R. S. Melendy, New York. F. K. Day and other officials of the Pocahontas-New River division accompanied the executives on their tour of company properties in the southern West Virginia field.

Photo by Harris & Ewing

Wayne P. Ellis

Wayne P. Ellis was appointed Northwestern sales agent of the Berwind Fuel Co., with offices in Minneapolis, Minn., on May 1. Mr. Ellis organized the Ellis Coal Bureau nearly a year ago, previous to which time he was secretary of the Northwest Coal Dock Operators' Association. During the strike of 1922 he was in the employ of the U. S. Government, following two years as secretary of the Davis Coal & Coke Co.

Frank M. Davis, long connected with the Buffalo & Susquehanna Coal & Coke Co., has been made vice-president and manager of sales of the company. Dynamiters have lately tried to blow up the company's mine at DuBois, Pa., which is operating at a reduced wage rate.

"It's a good year for coal; I can't say much about steel," said **J. E. McLurg**, vice-president in charge of British Empire Steel Corporation operations, after a conference with President R. M. Wolvin. The vice-president would say nothing about rumors in circulation concerning a reorganization of the British Empire Steel Corporation.

J. G. Puterbaugh, president of the McAlester Fuel Co., McAlester, Okla., who is interested in a number of producing companies in Oklahoma and Arkansas and is a director of the National Coal Associaton, addressed the Texas Retail Dealers' Association, at Dallas, on May 17; the Oklahoma Retail Dealers' Association, at Enid, Okla., on May 18 and also talked to the Mid-Continent Retail Coal Dealers' Association at Kansas City, Mo., on May 25.

A. B. Lemmon, formerly Chicago manager of the Consolidation Coal Co., has been appointed Western sales manager of the Cleveland-Cliffs Iron Co., with headquarters at Green Bay, Wis. Mr. Lemmon is a son of Captain T. A. Lemmon, formerly connected with the Chicago, Wilmington & Vermilion Coal Co., predecessor of the Chicago, Wilmington & Franklin Coal Co.

Charles A. Cabell, president of the Carbon Fuel Co., Charleston, W. Va., has gone to Micco, Fla., to recuperate. He became ill with influenza at his home in Charleston and was threatened with pneumonia, being confined to his home for almost a month.

Harold Butt was appointed controller of the Colorado Fuel & Iron Co. and its subsidiaries effective May 1.

Obituary

Daniel F. Lepley, 64 years old, president and general manager of the Connellsville Manufacturing & Mine Supply Co., Connellsville, Pa., and an authority on mine machinery and mine equipment, died May 17 in the Connellsville State Hospital. His death was due to heart trouble, pneumonia developing. He organized the mine supply company in 1901 and became its general manager, succeeding to the presidency about three years ago, when Rockwell Marietta died. Mr. Lepley was considered one of the greatest mechanical engineers of this country. He had a very wide acquaintanceship with the leading engineers in his field. Machinery from his plant is to be found in all mining regions of this country and in the biggest mines in this country as well as in many foreign lands.

James C. Schallcross, president of the American Cannel Coal Co., of Cannelton, Ind., died at a hospital at Louisville, Ky., on May 12. He had been in the hospital for about three weeks. Mr. Schallcross was born in Kentucky, but had lived in Cannelton most of his life. Early in life he became interested in coal mining and for many years had been president and general manager of the American Cannel Coal Co. and for the past several years had had complete control of the management of the affairs of the company.

James R. Barnes, who was active in the development of the Klondyke and Greene County coal fields of western Pennsylvania, died May 8 in Hopwood, near Uniontown, Pa., in his 66th year. He worked in the mines with his father in early life, but, realizing the value of undeveloped fields, transferred his activity to the marketing of acreage.

Jacob F. Straight, former secretary and treasurer of the Rivesville Coal Co., Fairmont, W. Va., and for the last three years interested in the coal and real estate business in Florida, died May 17 in Jefferson Hospital, Philadelphia, as a result of diseased glands of the neck, resulting from pneumonia and influenza.

Traffic News

Illinois Rate Differentials Re-established

The Illinois Commerce Commission has vacated its suspension order on the re-establishment of freight differentials on coal traffic in Illinois, as authorized by the Interstate Commerce Commission a year ago last February. Revisions in rates from all fields to northern Illinois points were immediately made by railroads, which became effective last Thursday.

The case is known as the Illinois Blue Book Docket No. 14891 and tariffs under suspension were originally filed to restore recognized relationships as between various origin groups, effective Feb. 19, 1925. The effective date of these tariffs was postponed from time to time, and the expiration date of the last suspension was May 20, 1926. Hearings were held before the Illinois Commerce Commission on Nov. 10, 1925, Jan. 12, 13, 14 and 15, and Feb. 8, 9 and 10, 1926.

The Commission in its decision found that its order of suspension should be vacated and that the proposed rates should be permitted to become effective. The finding was made with the express understanding that consideration at a later date will be given to the complaint of the northern Illinois operators and to protests filed by consuming interests at Dixon, Rockford and Freeport, Ill.

In its order the Commission also stated that the recent revision in rates from all Illinois mines to East St. Louis and from the Danville group to Chicago made pursuant to its orders, should remain as now published.

In 1920 the Interstate Commerce Commission decided to make an investigation of the differential rates. Five years later the Commission authorized the railroads to promulgate what were considered more equitable rates.

Immediately the Illinois Commerce Commission suspended the rates on intrastate traffic, which gave Saline County operators in southern Illinois an advantage over other shippers in and outside the state. The new rates correct this situation and restore a differential from southern Illinois to northern Illinois destinations of approximately 70c. a ton as against $1 which previously applied.

Iowa Operators Lack Interest In Rate Question

Lack of interest on the part of Iowa coal mine operators stands in the way of the calling of a hearing by the state Railroad Commission to investigate intrastate freight rates on coal, as requested by Governor Hammill's Agricultural and Industrial Commission. This was revealed by Dwight Lewis, of Des Moines, chairman of the commission, four months after questionnaires were sent to every mine owner or operator in the state. Only five operators have replied, and none of the replies, Lewis said, contains any evidence that Iowa coal mines are being prevented from moving coal to the home market by freight rates.

The Governor's Agricultural and Industrial Commission, investigating the coal industry, suggested the rate probe, in a preliminary report to the Governor, showing that many miners are unemployed because of the comparatively small demand in Iowa for the home product.

Hard-Coal Rates to Iowa Held Unreasonable

The Interstate Commerce Commission has found that rates on anthracite from mines in Pennsylvania to points in Iowa are unreasonable as compared with the rates to Chicago and Peoria, Ill.; St. Louis, Mo., and St. Paul, Minn.

The Commission ruled that through rates on prepared sizes on anthracite from the Pennsylvania mines to Iowa points should be reduced where the present rate per ton is $7.20 or $7.33 to $6.81; from $8.22 to $7.40; from $8.34 to $7.66; from $8.46 to $7.86; from $8.58 to $8.06; from $8.71 to $8.26; from $8.83 to $8.38; from $8.75 to $8.50. For the smaller sizes of anthracite the roads were ordered to maintain the same spread under the rates for the prepared sizes as now exist.

Rates on Colorado Coal to Kansas Unreasonable

Reductions in rates from Colorado and northern New Mexico to local points in Kansas on the St. Louis-San Francisco, Midland Valley and Missouri-Kansas-Texas railways are ordered by the Interstate Commerce Commission in *Public Utilities Commission of Kansas vs. Atchison, Topeka & Santa Fe Ry. Co. et al.* The Commission finds that the rates on lump from the Walsenburg district should not exceed $4.60 to local points on the Frisco between Ellsworth and Augusta, $4.85 to local points on the Frisco between Augusta and Arkansas City, and to local points on the Midland Valley between Wichita and Arkansas City, and $5 to M.K.T. local points in Kansas and to certain Frisco local points in Kansas.

Rates on lump coal also are found unjust, unreasonable and prejudicial to the following extent: From the Canon City district to the extent that they exceed or may exceed the rates prescribed from the Walsenburg district, and from the other districts named to the extent that they exceed or may exceed the Walsenburg rates prescribed by more than the existing differences between the rates maintained from Walsenburg and the other districts to junction joints in the same general territory.

Charge of Discrimination in Car Supply Upheld

The Interstate Commerce Commission, in a second report in *A. Spates vs. Baltimore & Ohio R.R. Co. et al*, decided May 10, holds that the Baltimore & Ohio, in according Western Maryland Ry. service to mines of the West Virginia Coal & Coke Co. on the Coalton branch of the B. & O. from Oct. 14, 1922, to April 1, 1923, while failing to accord similar service to complainant's mine located intermediate thereto unduly prejudiced the complainant in the matter of car supply. To this extent the previous findings of the Commission, 192 I. C. C. 19, are reversed, and the case is held open to permit complainant to file a petition for a further hearing on the question of damages.

Bituminous Coal Loaded Into Vessels at Lake Erie Ports During Season to End of April

(In Net Tons)

Ports	Railroads	1926 Cargo	1926 Fuel	1926 Total	1925 Cargo	1925 Fuel	1925 Total	1924 Cargo	1924 Fuel	1924 Total
Toledo	Hocking Valley	392,605	12,754	405,359	739,538	21,879	761,417	449,041	12,390	461,431
	Big Four	60,894	356	61,250	138,101	.....	138,101	.....	.....	.....
	N. Y. C.-Ohio Central Lines	58,236	3,594	61,830	64,280	6,204	70,484	4,505	227	4,732
	Baltimore & Ohio	138,743	3,115	141,858	219,566	7,021	226,587	71,371	2,280	73,651
Sandusky	Pennsylvania	160,352	4,863	165,215	246,473	7,267	253,740	35,123	909	36,032
Huron	Wheeling & Lake Erie	46,768	1,754	48,522	115,037	5,056	120,093	81,668	3,188	84,856
Lorain	Baltimore & Ohio	36,830	7,787	44,617	21,848	10,308	32,156	42,739	7,976	50,715
Cleveland	Pennsylvania	.....	3,924	3,924	5,870	8,796	14,666	19,887	6,271	26,158
	Erie	.....	.....	.....	16,544	933	17,477	14,315	555	14,870
Fairport	Baltimore & Ohio	8,198	2,414	10,612	13,037	6,187	19,224	7,921	3,595	11,516
Ashtabula	New York Central	11,341	2,307	13,648	52,180	5,800	57,980	30,397	4,063	34,460
	Pennsylvania	54,310	2,952	57,262	36,048	2,554	38,602	26,666	4,630	31,296
Conneaut	Bessemer & Lake Erie	47,587	6,065	53,652	19,683	9,935	29,618	101,272	8,475	109,747
Erie	Pennsylvania	.....	1,123	1,123	5,589	5,064	10,653	4,343	5,654	9,997
Total		1,015,864	53,008	1,068,872	1,693,794	97,004	1,790,798	889,248	60,213	949,461
Storage loading		.....	.....	.....	*33,017	1,048	34,065	*182,060	4,940	187,000

* Coal loaded into vessels in December, of previous year, after close of navigation and forwarded from Lake Erie ports during year indicated.

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

Production And the Market

Prevalence of Seasonal Elements in Coal Market Robs Spot Trade of Notable Features

The bituminous coal markets of the United States are running true to seasonal form. That means that a good volume of tonnage is moving every day, but that the spot markets lack those elements of surprise and suspense which make for feverish trading. Even the British strike—for the time being at least—has lost its power to jar the soft-coal business on this side of the waters out of its unemotional routine.

The preponderance of non-union tonnage entering into the channels of commerce, however, is reflected in further declines in average spot prices. *Coal Age* Index of spot bituminous prices on May 24 stood at 157. The corresponding price was $1.89. The week previous the figures were 159 and $1.93, respectively. Sharp declines in quotations on low-volatile coals for New England, a weaker market at Pittsburgh and an easier tone to certain sizes of Kentucky and West Virginia coals were the underlying causes of the lower figures.

In the Middle West there has been a greater steadiness in prices. This has been achieved at the cost of drastic curtailment in production. Seaboard markets other than Boston also have shown more price stability, but the menace of distress coal still lurks in the background. An unbalanced demand as between sizes is a handicap under which almost every producing field in the country labors at the present time.

Slight Drop in Lake Loadings

Lake loadings at the lower ports showed a slight drop during the week ended May 23. The total tonnage dumped as cargo fuel was 993,444 tons. In addition, the vessels took on 40,300 tons for bunker purposes. For the season to date the total dumpings were 3,824,362 net tons, as compared with 4,161,821 tons a year ago.

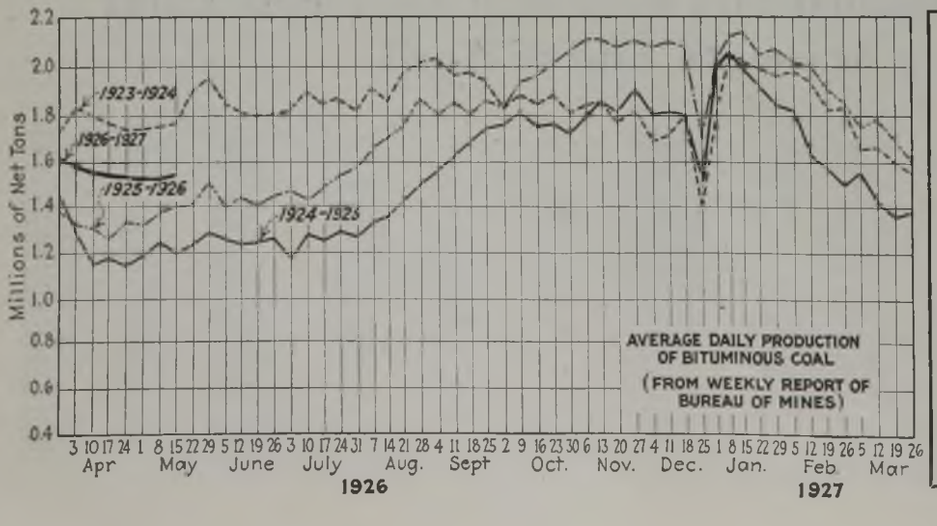
Production for the country as a whole took a slight upturn during the week ended May 15. The total for that week is estimated at 9,289,000 net tons, an increase of 2.8 per cent over the preceding week and the largest weekly output since mid-April. This upswing follows the rhythm of production in preceding years. The actual rate of output lies between that of 1923-24 and 1925-26.

Anthracite Output Declines

The disinclination of the public to stock heavily with anthracite coal finds statistical confirmation in recent figures on hard coal production. During the week ended May 15, according to the Bureau of Mines, the tonnage produced fell to 1,904,000 net tons, as compared with 1,985,000 tons the week preceding and 2,098,000 tons the week ended May 1.

Sales resistance in anthracite territory is increasing. There is little doubt that the consumers welcomed the return of hard coal at the close of the strike. But with winter behind them, the householders, in many cases, are willing to let somebody else carry the load of stocking. There are many retailers who feel that there are definite limits to what they can do. As a result premium coal is moving with difficulty and buyers are more discriminating in their choice of sizes.

The Connellsville coke trade weakens with the passing weeks. Spot prices on furnace coke are easier and little spot foundry coke moves at more than the minimum quotations on that grade. Production, too, is declining. Byproduct output, which reached its peak for the year in January, also is diminishing. The estimated production last month was 3,602,000 net tons, as compared with 3,777,000 tons in March.



Estimates of Production

(Net Tons)

	1925	1926
BITUMINOUS		
May 1	7,987,000	9,125,000
May 8 (*a*)	8,277,000	9,039,000
May 15 (*b*)	8,350,000	9,289,000
Daily average	1,392,000	1,548,000
Cal. yr. to date...(*c*)	179,003,000	205,770,000
Daily av. to date	1,559,000	1,791,000
ANTHRACITE		
May 1	1,936,000	2,098,000
May 8	1,987,000	1,985,000
May 15	1,950,000	1,904,000
Cal. yr. to date...(*c*)	32,858,000	23,463,000
BEEHIVE COKE		
May 8 (*a*)	143,000	212,000
May 15 (*b*)	136,000	204,000
Cal. yr. to date...(*c*)	4,387,000	5,374,000

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

Non-Union Coal Holds Down Prices

Heavy shipments of western Kentucky coal into Chicago and other markets of the Middle West are keeping down prices in the face of a steady demand for steam coal. Some western Kentucky mine-run is selling at 80c. Producers of high-grade southern Illinois coal, on the other hand, are trying to maintain $1.50@$2 on screenings and at times are slashing prices on "no bill" lump to clear their tracks for the shipment of steam sizes.

Domestic business is quiet. In the southern field few shaft mines are doing better than three days a week and most of these are depending upon railroad fuel orders. There is a steady accumulation of "no bills." Railroad business also is the saving factor in the Duquoin and Jackson County field. Mt. Olive, too, looks to railroad tonnage for its chief support. Domestic demand is so light that some producers are crushing coal to fill steam contracts. The standard district is hard hit on all sides.

The central Illinois and Indiana producing districts also suffer from the diminished demand for prepared sizes. For the most part, however, prices are well maintained. Breaks come when it is necessary to dispose of this coal to take care of steam business. The local St. Louis market has been helped by chilly weather, but there is little forward buying. Steam business is active because buying is on a hand-to-mouth basis.

Sun Shines Brighter on Kentucky

Low temperatures have turned the thoughts of domestic consumers in Louisville territory toward coal and there has been some buying for fall and winter use. Spot steam demand holds up, although general industrial consumers still fight shy of contracts. Railroad and public utility buying is on a seasonable basis. A number of state and municipal contracts are about to be placed on bids recently submitted.

With the opening of the lakes, eastern Kentucky operations find their prospects improved. Western Kentucky is moving considerable coal to northern industrial markets. Screenings top the list in the matter of strength to such an extent that mine-run and prepared sizes have been sacrificed to make way for the fine coal. Both fields are asking $1@$1.25 for slack, but western Kentucky mine-run has sold down to $1 and eastern Kentucky to $1.25.

Some western Kentucky block has been moved at $1.50, but the general range is $1.65@$1.85. Lump, egg and nut are $1.35@$1.65; mine-run and screenings, $1@$1.40. Eastern Kentucky block is held at $1.75@$2.25, with occasional sales of special grades at $2.50. Lump, egg and nut bring $1.75 @$2; slack, $1@$1.25; mine-run, $1.25 @$1.65.

Northwestern Buying Light

Patrons of the docks at the Head of the Lakes are confining their buying to immediate requirements. Contract renewals have been held back by an unsettled spot market in which cuts up

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

Low-Volatile, Eastern	Market Quoted	May 25 1925	May 10 1926	May 17 1926	May 24 1926†
Smokeless lump	Columbus	$2.85	$2.85	$3.10	$3.00@$3.25
Smokeless mine run	Columbus	1.85	2.00	2.05	2.00@ 2.15
Smokeless screenings	Columbus	1.45	1.25	1.25	1.15@ 1.35
Smokeless lump	Chicago	3.00	3.10	3.10	3.00@ 3.25
Smokeless mine run	Chicago	1.85	2.00	2.00	2.00
Smokeless lump	Cincinnati	2.85	3.00	3.10	3.00@ 3.25
Smokeless mine run	Cincinnati	2.00	1.80	1.80	**1.75@ 2.00**
Smokeless screenings	Cincinnati	1.30	1.35	1.30	1.25@ 1.35
*Smokeless mine run	Boston	4.25	4.60	4.85	*4.35@ 4.50*
Clearfield mine run	Boston	1.85	1.90	1.85	*1.65@ 2.00*
Cambria mine run	Boston	2.10	2.10	2.10	*1.90@ 2.25*
Somerset mine run	Boston	1.95	2.00	1.95	*1.75@ 2.10*
Pool 1 (Navy Standard)	New York	2.55	2.60	2.60	2.50@ 2.75
Pool 1 (Navy Standard)	Philadelphia	2.60	2.80	2.80	*2.50@ 2.80*
Pool 1 (Navy Standard)	Baltimore	1.85	1.95	1.95	1.90@ 2.00
Pool 9 (Super. Low Vol.)	New York	2.00	2.10	2.10	2.00@ 2.25
Pool 9 (Super. Low Vol.)	Philadelphia	2.00	2.35	2.35	*2.00@ 2.25*
Pool 9 (Super. Low Vol.)	Baltimore	1.75	1.75	1.75	1.70@ 1.80
Pool 10 (H.Gr.Low Vol.)	New York	1.85	1.85	1.85	**1.75@ 2.00**
Pool 10 (H.Gr.Low Vol.)	Philadelphia	1.70	2.05	2.05	*1.75@ 2.00*
Pool 10 (H.Gr.Low Vol.)	Baltimore	1.60	1.60	1.60	1.55@ 1.65
Pool 11 (Low Vol.)	New York	1.55	1.60	1.60	1.55@ 1.70
Pool 11 (Low Vol.)	Philadelphia	1.55	1.70	1.70	*1.45@ 1.70*
Pool 11 (Low Vol.)	Baltimore	1.40	1.45	1.45	1.45@ 1.50
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.55	1.40	1.40	1.30@ 1.55
Pool 54-64 (Gas and St.)	Philadelphia	1.50	1.45	1.45	1.35@ 1.55
Pool 54-64 (Gas and St.)	Baltimore	1.45	1.25	1.25	1.25@ 1.30
Pittsburgh sc'd gas	Pittsburgh	2.40	2.30	2.30	*2.20@ 2.30*
Pittsburgh gas mine run	Pittsburgh	2.15	2.05	2.05	*1.90@ 2.10*
Pittsburgh mine run (St.)	Pittsburgh	1.95	1.80	1.80	1.75@ 1.90
Pittsburgh slack (Gas)	Pittsburgh	1.55	1.55	1.50	*1.35@ 1.40*
Kanawha lump	Columbus	2.10	2.05	2.05	1.85@ 2.25
Kanawha mine run	Columbus	1.40	1.55	1.55	1.40@ 1.75
Kanawha screenings	Columbus	1.10	1.00	.95	*.85@ 1.00*
W. Va. lump	Cincinnati	2.15	1.85	1.85	1.75@ 2.00
W. Va. gas mine run	Cincinnati	1.50	1.55	1.50	*1.40@ 1.50*
W. Va. steam mine run	Cincinnati	1.35	1.40	1.30	1.25@ 1.35
W. Va. screenings	Cincinnati	1.15	1.00	1.05	1.00@ 1.10
Hocking lump	Columbus	2.25	2.35	2.35	2.25@ 2.50
Hocking mine run	Columbus	1.50	1.55	1.55	*1.40@ 1.70*
Hocking screenings	Columbus	1.30	1.05	1.05	1.00@ 1.15
Pitts. No. 8 lump	Cleveland	2.25	2.15	2.10	1.75@ 2.50
Pitts. No. 8 mine run	Cleveland	1.90	1.80	1.65	**1.70@ 1.75**
Pitts. No. 8 screenings	Cleveland	1.45	1.35	1.30	*1.00@ 1.40*

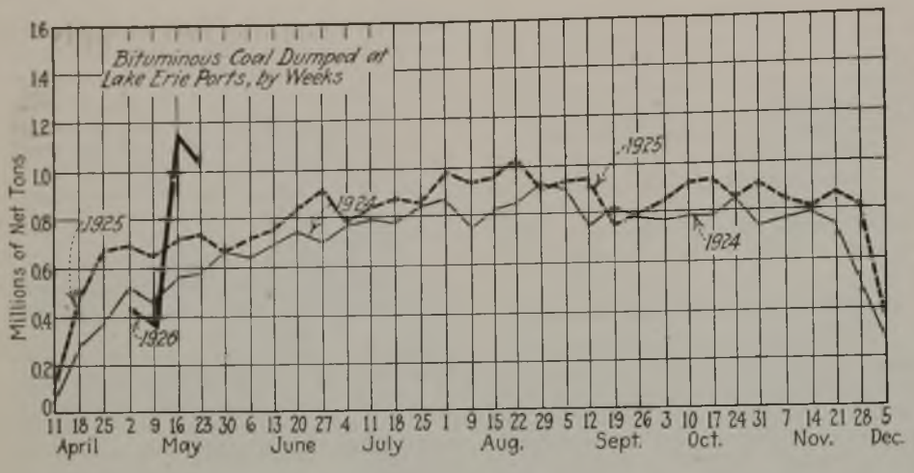
Midwest	Market Quoted	May 25 1925	May 10 1926	May 17 1926	May 24 1926†
Franklin, Ill. lump	Chicago	$2.60	$2.60	$2.60	$2.60
Franklin, Ill. mine run	Chicago	2.35	2.40	2.40	2.35@ 2.50
Franklin, Ill. screenings	Chicago	2.10	1.90	1.90	1.85@ 2.00
Central, Ill. lump	Chicago	2.35	2.30	2.30	2.25@ 2.40
Central, Ill. mine run	Chicago	2.10	2.05	2.05	2.00@ 2.15
Central, Ill. screenings	Chicago	1.85	1.55	1.70	**1.60@ 1.90**
Ind. 4th Vein lump	Chicago	2.60	2.40	2.40	2.25@ 2.60
Ind. 4th Vein mine run	Chicago	2.35	2.15	2.15	2.10@ 2.25
Ind. 4th Vein screenings	Chicago	2.00	1.80	1.80	1.75@ 1.90
Ind. 5th Vein lump	Chicago	2.25	2.15	2.15	2.00@ 2.35
Ind. 5th Vein mine run	Chicago	1.95	1.95	1.95	1.85@ 2.10
Ind. 5th Vein screenings	Chicago	1.60	1.35	1.35	1.30@ 1.45
Mt. Olive lump	St. Louis	2.50	2.50	2.35	2.25@ 2.50
Mt. Olive mine run	St. Louis	2.25	2.15	2.15	2.15
Mt. Olive screenings	St. Louis	1.75	1.40	1.55	1.50@ 1.60
Standard lump	St. Louis	2.25	2.50	2.25	2.25
Standard mine run	St. Louis	1.80	1.80	1.80	1.75@ 1.85
Standard screenings	St. Louis	1.70	1.15	1.30	1.25@ 1.40
West Ky. block	Louisville	1.65	1.75	1.75	1.65@ 1.85
West Ky. mine run	Louisville	1.35	1.25	1.25	*1.00@ 1.40*
West Ky. screenings	Louisville	1.20	1.10	1.10	1.00@ 1.25
West Ky. block	Chicago	2.00	1.75	1.75	1.65@ 1.85
West Ky. mine run	Chicago	1.30	1.15	1.15	.80@ 1.50
South and Southwest					
Big Seam lump	Birmingham	2.30	2.15	2.15	1.90@ 2.40
Big Seam mine run	Birmingham	1.75	2.00	2.00	1.75@ 2.25
Big Seam (washed)	Birmingham	1.85	2.00	2.00	1.75@ 2.25
S. E. Ky. block	Chicago	2.25	2.40	2.40	2.10@ 2.75
S. E. Ky. mine run	Chicago	1.70	1.65	1.65	1.50@ 1.85
S. E. Ky. block	Louisville	2.20	2.05	2.05	1.85@ 2.25
S. E. Ky. mine run	Louisville	1.30	1.50	1.50	1.35@ 1.65
S. E. Ky. screenings	Louisville	1.10	1.05	1.05	**1.00@ 1.25**
S. E. Ky. block	Cincinnati	2.30	2.50	2.35	*2.00@ 2.25*
S. E. Ky. mine run	Cincinnati	1.45	1.55	1.50	1.25@ 1.75
S. E. Ky. screenings	Cincinnati	1.15	.90	1.00	**.90@ 1.15**
Kansas lump	Kansas City	4.25	4.00	4.00	4.00
Kansas mine run	Kansas City	2.85	3.00	3.00	3.00
Kansas screenings	Kansas City	2.60	2.50	2.50	2.50

* Gross tons, f.o.b. vessel, Hampton Roads.
† Advances over previous week shown in **heavy type**; declines in *italics*

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

	Market Quoted	Freight Rates	May 25, 1925 Independent	May 25, 1925 Company	May 17, 1926 Independent	May 17, 1926 Company	May 24, 1926† Independent	May 24, 1926† Company
Broken	New York	$2.34	.....	$8.05@$8.60	.....	$8.25@$9.25	.....	$8.25@$9.25
Broken	Philadelphia	2.39	.....	8.60	$9.25	9.00@ 9.25	$9.25	9.00@ 9.25
Egg	New York	2.34	$8.40@$9.25	8.35@ 8.60	8.75@ 9.00	8.75@ 9.25	**8.75@ 9.25**	8.75@$9.25
Egg	Philadelphia	2.39	8.60@ 9.30	8.40@ 8.60	9.25@ 9.75	9.15@ 9.25	9.25@ 9.75	9.15@ 9.25
Egg	Chicago*	5.06	7.86@ 8.50	7.44@ 8.18	8.48	8.13	8.48	8.13
Stove	New York	2.34	8.75@ 9.25	8.85@ 9.10	9.25@ 9.75	9.25@ 9.50	9.25@ 9.75	9.25@ 9.50
Stove	Philadelphia	2.39	9.20@ 9.75	8.85@ 9.00	9.60@10.00	9.35@ 9.50	9.60@10.00	9.35@ 9.50
Stove	Chicago*	5.06	8.22@ 8.70	7.92@ 8.10	8.84	8.33@ 8.58	8.84	8.33@ 8.58
Chestnut	New York	2.34	8.25@ 8.50	8.35@ 8.60	8.75@ 9.25	8.75@ 9.15	8.75@ 9.25	8.75@ 9.15
Chestnut	Philadelphia	2.39	8.60@ 9.45	8.50@ 8.60	9.25@ 9.50	9.00@ 9.15	9.25@ 9.50	9.00@ 9.15
Chestnut	Chicago*	5.06	8.14@ 8.35	7.69@ 8.00	8.71	8.38@ 8.50	8.71	8.38@ 8.50
Pea	New York	2.22	5.00@ 5.50	5.00@ 5.60	6.25@ 7.25	6.00@ 6.25	**6.50@ 7.25**	6.00@ 6.25
Pea	Philadelphia	2.14	5.40@ 5.75	5.00@ 5.40	6.50@ 7.00	6.00@ 6.50	6.50@ 7.00	6.00@ 6.50
Pea	Chicago*	4.79	4.91@ 5.36	4.69@ 5.00	6.03	5.65@ 5.80	6.03	5.65@ 5.80
Buckwheat No. 1	New York	2.22	2.00@ 2.50	2.50	1.70@ 2.50	3.00@ 3.50	*1.70@ 2.25*	3.00@ 3.50
Buckwheat No. 1	Philadelphia	2.14	2.25@ 2.75	2.50	2.00@ 2.50	2.50@ 2.75	2.00@ 2.50	2.50@ 2.75
Rice	New York	2.22	1.70@ 2.00	2.00	1.40@ 2.00	2.00@ 2.25	*1.50@ 1.85*	2.00@ 2.25
Rice	Philadelphia	2.14	1.90@ 2.00	2.00	1.75@ 2.25	2.00@ 2.25	1.75@ 2.25	2.00@ 2.25
Barley	New York	2.22	1.35@ 1.50	1.50	1.25@ 1.50	1.50@ 1.75	1.25@ 1.50	1.50@ 1.75
Barley	Philadelphia	2.14	1.50	1.50	1.50@ 1.60	1.75	1.50@ 1.60	1.75
Birdseye	New York	2.22	1.60@ 1.85	1.60	1.30@ 1.60	2.00	1.30@ 1.60	2.00

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



to 50c. per ton have been made on lump and dock-run bituminous. The price war was started by two companies pooling forces against a third accused of persistent underselling. So far, screenings have escaped the price decline.

Several cargoes of anthracite already have been unloaded at Superior and Duluth. Many householders are ready to buy now despite the fact that prices are on the winter basis. There has been a heavy run of bituminous cargoes to the docks. These have been handled promptly. The industrial outlook is good. The market at the Twin Cities is marking time.

Business in the Milwaukee dock territory is on a satisfactory basis. Interest is centered largely upon the rapid unloading of incoming vessels. Up to May 20, Milwaukee had received 410,209 tons of bituminous and 54,400 tons of anthracite via the lakes, as compared with 390,660 tons of bituminous and 193,915 tons of anthracite during the corresponding period last year. Local quotations on buckwheat have been shaded, but other retail prices are unchanged.

Southwestern Domestic Trade Dull

Dullness is the outstanding characteristic of the domestic markets of the Southwest. Orders for threshing coal are trickling in to Kansas operators and there has been some school buying for late summer delivery. Shoppers do not find it difficult to obtain concessions in prices on prepared sizes of Kansas coal, and Arkansas semi-anthracite lump, officially listed at $4.75@$5.25, has sold as low as $4.

Colorado mines are averaging 60 to 65 per cent running time. Steam trade is the backbone of this business. Prices on Colorado coals and on domestic sizes from the Kemmerer-Rock Springs field are unchanged. Wyoming steam coal is quoted at $1.25@$1.40. In an effort to stimulate the movement of prepared sizes leading operators in Utah have named summer storage prices, offering lump and nut at $3, screened slack at $2.25 and straight slack at $1.50.

Cincinnati Market Steadier

The Southeast has settled down to a steady production grind to keep lake coal moving in an even stream. Prices at Cincinnati reflect this acceptance of things as they are. The outstanding exception is the break of New River mine-run to $1.75@$1.90, and that is a reaction from an earlier attempt to capitalize on the British strike. Lump and egg are firm at $3, nut is $2.25@$2.50 and slack does not rise above the $1.25@$1.35 level.

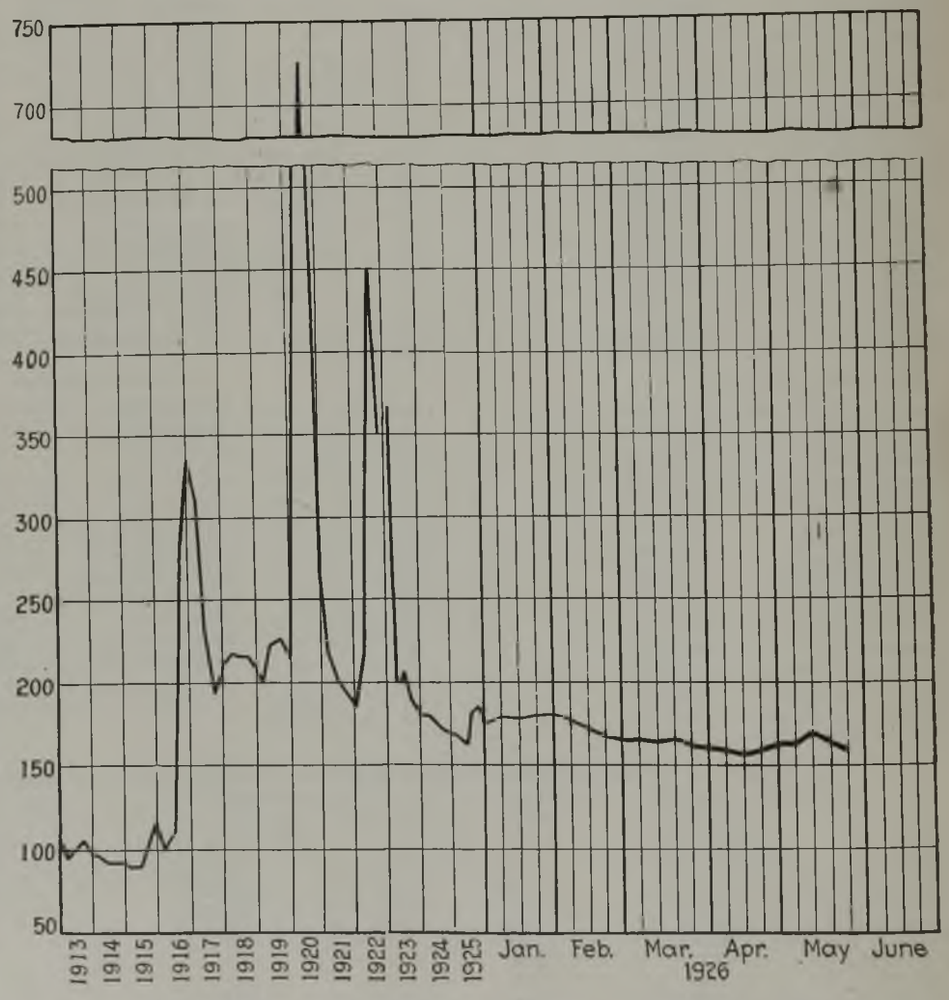
The high-volatile division of the trade seems resigned to a season without sensational developments. Hazard shippers are angling for $2.10 on lump, Harlan asks $2@$2.25 and extra choice Elkhorn and Jellico find buyers willing to pay $2.50@$3. Logan County block brings $1.75@$2. Steam mine-run from West Virginia and Kentucky swings between $1.25 and $1.35, gas moves at $1.40@$1.50 and byproduct coal demands $1.50@$1.75. Kentucky slack is 90c.@$1.15; West Virginia, $1@$1.10.

May retail business, season considered, has been excellent. River traffic is without feature. Movement of rail coal through the Cincinnati gateways is on the increase. During the second week of the month there were 10,897 loads, including 2,210 cars en route for the lakes, interchanged. More empties were on the way to the mines.

Pressure Lifting at Columbus

The flow of tonnage to the lakes has relieved some of the pressure on the Columbus market, but central Ohio prices and demand still are depressed. Little southern Ohio coal is being loaded for the lakes and that little is coming from mines with dock affiliations. Hopes that the late opening of the season would mean higher prices have been doomed. The prevailing quotation is $1.50, mine-run basis.

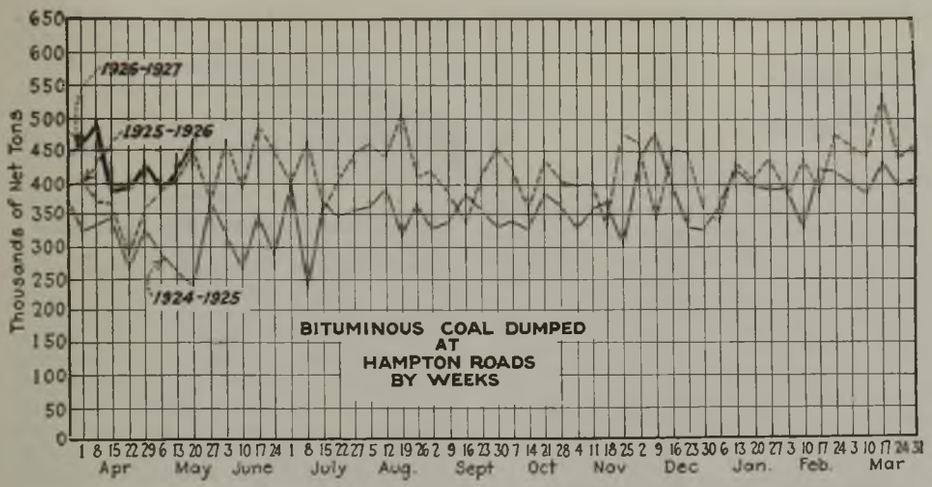
Most of the large industrial consumers are content to play the open market. To make matters worse, some are depending upon stockpiles already accumulated. Several railroad contracts still hang fire and public utilities are buying less freely. These factors



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

	1926				1925	1924
	May 24	May 17	May 10	May 3	May 25	May 26
Weighted average price	$1.89	$1.93	$1.95	$1.92	$1.96	$2.02
Index	157	159	161	159	161	167

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, obtained was compared with the average for the twelve months ended June, 1914, as 100, and second, with respect to the tonnage of each normally produced. The average thus 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.



Car Loadings and Supply

	Cars Loaded—All Cars	Cars Loaded—Coal Cars
Week ended May 8, 1926	996,527	162,453
Preceding week	995,641	165,627
Week ended May 9, 1925	981,370	154,214

	Surplus Cars—All Cars	Surplus Cars—Coal Cars	Car Shortages All Cars	Car Shortages Coal Cars
May 8, 1926	270,385	105,108	.....	.....
May 1, 1926	275,573	115,205	.....	.....
May 8, 1925	329,844	149,992	.....	.....

and a windfall in the way of vessel fuel to Pomeroy Bend have further weakened screenings. The southern Ohio output approximates 15 to 18 per cent of capacity.

Operators in the northern Ohio field are groping for market stability. Spot prices at Cleveland are less erratic and there have been some modest advances recorded. Steam demand, however, is very light and railroad buying is not up to the mark. The inauguration of the lake season has eased the slack situation, but prices have not declined. Eastern Ohio mines are running about 30 per cent of capacity. "No bills" are the rule.

Pittsburgh Still on Dead Center

The unprofitable *status quo* of the Pittsburgh district was undisturbed last week. If there was a slight recession in union production, it was offset by a corresponding gain in open-shop tonnage—and neither group claimed any profit for their efforts. The increasing percentage of non-union tonnage, however, is having a depressing effect upon prices. Youghiogheny three-quarter gas is $2.20@$2.30—a loss of 10@15c. Three-quarter steam has dropped from $2.10 and up to $1.90@$2.15. Gas mine-run and steam and gas slack also have weakened slightly.

Central Pennsylvania production the first half of the month showed a small increase over figures for the first two weeks in April. The district, however, reports 2,000 "no bills" on hand. Prices are unchanged.

The Buffalo bituminous trade continues to wallow in a slough of unrelieved gloom. As coal men there see it, the only relief possible must come through a further drastic reduction in output. Prices on Pittsburgh and No. 8 steam lump are off 20@25c. and Allegheny Valley mine-run has declined a dime. There is less consignment coal to upset the market.

Atlantic Seaboard Quiet

Atlantic seaboard bituminous markets are inactive. A moderate tonnage for export—contingent upon the duration of the British strike—is moving offshore, but steam demand in New England, for example, probably is less than a fortnight ago. Navy Standard is easy at $4.50 gross, f.o.b. Hampton Roads. Pool 2 can be had at $4.25 and slack still lower. On cars at Boston and Providence, pool 1 coal is offered for inland delivery at less than $5.50.

Little interest is displayed by New England in central Pennsylvania offerings. A few venturesome operators loaded coal in the hope of finding an extra outlet in the Northeast, but they have been unable to locate prompt buyers for their product. What little spot New England demand develops is concentrated upon West Virginia coals.

Consumers buying in the New York market are withholding orders. The tidewater market, however, gained in bunker business as a result of the British strike and there is very little distress tonnage left in the harbor. Bunkering also is the most active feature of the Philadelphia spot market. In the line trade, slack is the only bright spot; some plants are supplementing shipments with purchases of mine-run. Baltimore bituminous trade is colorless.

Alabama Slows Down

The Birmingham market is feeling the effects of the gradual slowing up in demand. The comparative inactivity however, is wholly seasonal in character. It presses most heavily upon the lower grade fuels, but there are no troublesome accumulations of unsold coal to plague the shippers as production is trimmed to more nearly meet the existing spot and contract demand. Very little tonnage is offered at cut prices. The coke market is quiet.

Independent anthracite producers are finding it difficult to sell coal at a premium over company prices in the New York market. Consumer buying is still backward, but distributors are taking egg and stove freely. Pea retains its strength. The steam market drags.

Practically the same situation with respect to independent tonnage prevails at Philadelphia, and some quiet, but not altogether successful, price cutting has been indulged in in the effort to move coal. The companies, however, seem to be able to sell their domestic output, although there have been some cancellations. It is recognized, of course, that the opening of the lake season has helped the larger producers.

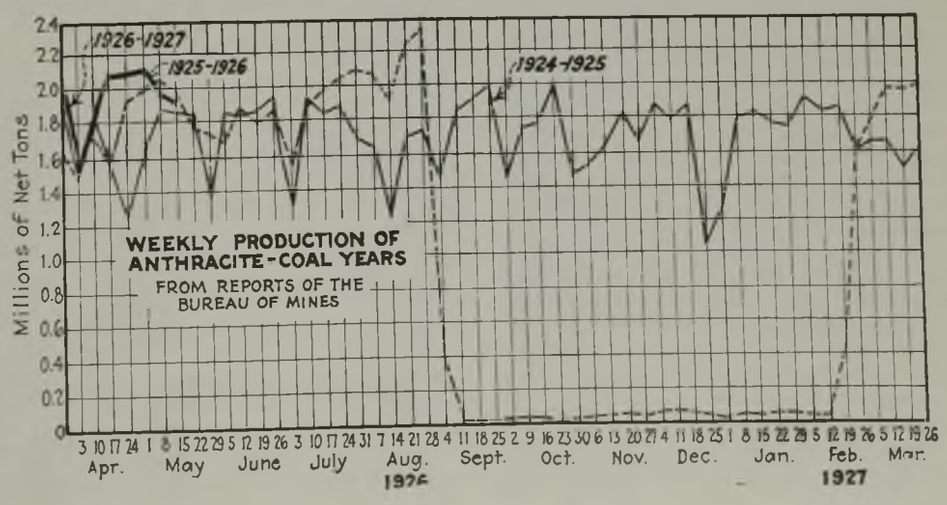
Use Pea to Move Nut Coal

Pea, while still popular, is not the leader that it was some weeks ago. Independents are using it, however, to force retailers to take in nut coal. In some cases the distributors decline to swallow this bait. Steam trade, as at New York, is sluggish, with No. 1 buckwheat the weakest size in the group. Baltimore householders show no anxiety over anthracite.

Local Buffalo demand for anthracite and coke is disappointing. Weather conditions again have interfered with the lake trade, slowing up the movement of coal. Anthracite shipments for the week totaled 87,200 tons, of which 18,300 tons were cleared for Chicago, 55,700 tons for Duluth and Superior, 7,200 tons for Green Bay and 6,000 tons for Milwaukee.

Coke Market Weaker

The Connellsville coke market is distinctly weaker. Spot furnace coke has sunk to $2.85@$3. Standard furnace holds to $4@$4.50, but the bulk of the limited spot tonnage moves at the lower figure and some off-grade fuel has moved at less than $4. Production during the week ended May 15 totaled 154,870 tons, according to the Connellsville *Courier*. Furnace oven output was 90,700 tons, an increase of 1,200 tons over the preceding week. Merchant oven output was 64,170 tons, a decrease of 6,670 tons.



Foreign Market And Export News

German Operators Favor Export Pact with Britain

Berlin, Germany, May 11.—The strike in Great Britain undoubtedly has brought the problem of a German-British coal agreement nearer maturity. When the question was taken up informally some months ago German operators were averse to such an understanding. Since then the British state subsidies have changed the situation.

The German export business has been maintained only at a considerable sacrifice in prices. The Ruhr syndicate suffered a loss averaging about four gold marks per ton on coal exported in competition with British coal. While there are no signs of retreat the large majority of German operators now are convinced that a British-German coal agreement is absolutely necessary in the interest of both parties and have obviously decided on the alternative of a price-cutting war or an agreement.

In the minds of the German operators it would be a desirable course of events if the British industry would create for itself an organization similar to that prevailing in Germany, either a uniform syndicate or local syndicates acting under central direction. As far as has been heard, the German syndicates are quite willing to come to an understanding with the British industry with regard to a price policy as well as the combined control of the export markets.

The German idea is that the export markets should be divided between Great Britain and Germany at a certain ratio of supplies—if possible the pre-war ratio. In the event of such an understanding the Ruhr coal syndicate is even prepared to abandon all attempts to eliminate British coal from German markets. It is hoped in German circles that the situation in the British coal industry after the end of the strike will accelerate an accord.

Strike Spurs French Market

Paris, France, May 12.—Stronger demand for French coals is the first reaction to the British strike felt in this country. Prices, too, are rising. In the Nord and Pas de Calais areas wage agreements which expire May 15 will be replaced by new contracts granting the workers a 10 per cent increase in base rates and a 15 per cent bonus on the cost of living. This means a maximum increase of 2.80 fr. daily and a minimum of 1.30 fr.

Industrial stocks are low. Inquiry for domestic fuels is increasing and shipments of ovoids seem insufficient to meet demands. High prices for pitch have discouraged the patent-fuel manufacturers. Quotations in the Centre, the South and in the Sarre are rising.

Receipts of indemnity fuels are declining. During April the O. H. S. received 410,800 tons of coal, 288,600 tons of coke and 29,000 tons of lignite briquets from the Ruhr. During the first ten days of May the O. R. C. A. received 85,200 tons of coke from the Ruhr. The price on reparation coke for June, July and August will be increased 20 fr.; official quotations on coking smalls will be advanced 12 fr.

Belgian Market Stronger

Brussels, Belgium, May 12.—The British strike has had a favorable influence upon the Belgian coal trade. As long, however, as Ruhr stocks are so large there can be no great boom. Nevertheless inroads are being made upon supplies in the Borinage and stocks of lean bituminous and 8x20mm. beans have been exhausted. Coking smalls are commanding 90@90.50 fr. Lime duffs are 70@74 fr. Coke, too, is firmer; the range is 130@135 fr., but up to 137.50@140 fr. have been offered.

April Foreign Coal Trade Below March Levels

Exports of coal from the United States last month did not come up to the March levels. Bituminous shipments declined approximately 80,000 tons and there was a slight drop in anthracite. The totals, however, were greater than in February.

April exports by countries were as follows:

To:	Anthracite Gross Tons	Bituminous Gross Tons	Coke Gross Tons
France	.....	1,224	.....
Italy	.....	80,110	.....
United Kingdom	.....	6,590	.....
Canada	289,679	686,797	53,228
British Honduras	.....	5	.....
Costa Rica	.....	1,005	.....
Guatemala	.....	29	15
Honduras	.....	30	5
Nicaragua	.....	533	.....
Panama	111	68,917	.....
Salvador	.....	52	.....
Mexico	89	14,881	153
Miquelon & St. Pierre Islands	.....	1,594	.....
Newfoundland and Labrador	.....	1,347	.....
Bermuda	.....	763	.....
Barbados	.....	6,500	.....
Jamaica	.....	12,185	.....
Trinidad & Tobago	.....	2,500	.....
Other British West Indies	.....	10,388	.....
Cuba	4,291	43,822	412
Dominican Republic	627	510	.....
Dutch West Indies	.....	5,673	.....
French West Indies	.....	6,975	.....
Haitian Republic	.....	21	.....
Virgin Islands	.....	7,822	.....
Argentina	.....	17,543	.....
Brazil	.....	111,123	228
Colombia	.....	40	27
Ecuador	.....	.....	41
British Guiana	.....	779	.....
Venezuela	5	2	803
Egypt	.....	4,487	.....
Totals	294,802	1,094,247	54,912

Bituminous imports in April amounted to 43,000 tons which was slightly less than in March. Anthracite received from abroad reached 59,000 tons as compared with five times this amount during the month preceding, while the amount of coke arriving fell from 85,500 tons in March to 20,000 tons in April.

Bunker coal supplied to vessels engaged in foreign trade in April totaled 400,638 gross tons, as compared with 353,149 tons in April, 1925.

Brazilian Imports Up in 1925

Coal imports during 1925 at Rio de Janeiro, which receives most of the foreign coal for Brazilian consumption, totaled 1,117,000 metric tons, which exceeded those of the two preceding years. The United States supplied 502,783 tons and Great Britain furnished 614,033 tons of the total coal imports. In 1924 the United States supplied 561,292 tons and Great Britain 403,947 tons.

Prices in 1925 averaged approximately 36 to 37s. for British coal and $9 for American.

Export Clearances, Week Ended May 20

FROM HAMPTON ROADS

	Tons
For Jamaica:	
Nor. Str. Marie Nielsen, for Kingston	1,496
Nor. Str. Askeladden, for Kingston	3,700
Nor. Str. Haralshaug, for Kingston	2,683
For Newfoundland:	
Nor. Str. Facto, for St. John	2,101
For Danish East Indies:	
Br. Str. Euryades, for Sabang	1,716
For Cuba:	
Br. Str. Baron Garioch, for Manati	2,998
Nor. Str. Sagsland, for Havana	3,914
For Canada:	
Br. Str. Clintonia, for Port Alfred	4,676
Br. Str. Vera Kathleen, for Gaspe	2,830
For Canary Islands:	
Br. Str. New Mexico, for Teneriffe	8,446
Nor. Str. Samnanger, for Las Palmas	6,437
Br. Str. Penolver, for Las Palmas	5,570
For Portugal:	
Dan. Str. Hanmershus, for Leixoes	5,892
For France:	
Br. Str. Essex Envoy, for Marseilles	5,620
For Brazil:	
Br. Str. Navarino, for Rio de Janeiro	6,549
Br. Str. Tideway, for Rio de Janeiro	7,000

FROM BALTIMORE

For Canada:	
Nor. Str. Modig, for Montreal	6,391
For Jamaica:	
Nor. Str. Fort Gaines, for Port Maria	50

Hampton Roads Coal Dumpings*

(In Gross Tons)

	May 13	May 20
N. & W. Piers, Lamberts Pt.:		
Tons dumped for week	161,743	173,349
Virginian Piers, Sewalls Pt.:		
Tons dumped for week	66,191	90,355
C. & O. Piers, Newport News:		
Tons dumped for week	141,904	156,752

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

Pier and Bunker Prices, Gross Tons

PIERS

	May 15	May 22†
Pool 1, New York	$5.50@$5.75	$5.50@$5.75
Pool 9, New York	4.90@ 5.20	4.90@ 5.20
Pool 10, New York	4.70@ 4.90	4.70@ 4.90
Pool 11, New York	4.40@ 4.65	4.40@ 4.65
Pool 9, Philadelphia	5.10@ 5.40	*4.95@ 5.30*
Pool 10, Philadelphia	4.80@ 5.15	*4.70@ 5.00*
Pool 11, Philadelphia	4.25@ 4.50	**4.35@ 4.65**
Pool 1, Hamp. Roads	4.50@ 4.60	*4.50*
Pool 2, Hamp. Roads	4.30@ 4.35	*4.30*
Pool 3, Hamp. Roads	4.00@ 4.10	*4.00@ 4.10*
Pools 5-6-7, Hamp. Rds.	4.15	*4.00*

BUNKERS

Pool 1, New York	$5.75@$6.00	$5.75@$6.00
Pool 9, New York	5.15@ 5.45	5.15@ 5.45
Pool 10, New York	4.95@ 5.15	4.95@ 5.15
Pool 11, New York	4.65@ 4.90	4.65@ 4.90
Pool 9, Philadelphia	5.35@ 5.65	*5.20@ 5.55*
Pool 10, Philadelphia	5.05@ 5.40	*4.95@ 5.25*
Pool 11, Philadelphia	4.50@ 4.75	**4.60@ 4.90**
Pool 1, Hamp. Roads	4.60	4.60
Pool 2, Hamp. Roads	4.35	**4.40**
Pools 5-6-7, Hamp. Rds.	4.15	*4.10*

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

Coming Meetings

West Virginia Coal Mining Institute. Annual meeting, June 1-2, Bluefield, W. Va. Secretary, R. E. Sherwood, Charleston, W. Va.

American Wholesale Coal Association. Annual meeting at Toledo, Ohio, June 7-9. Treasurer, R. B. Starek, Union Fuel Bldg., Chicago, Ill.

Association of Iron & Steel Electrical Engineers. Exposition and convention at Hotel Sherman, Chicago, Ill., June 7-10. Secretary, J. F. Kelly, 1007 Empire Bldg., Pittsburgh, Pa.

Coal Operators' Association of 5th and 9th Districts of Illinois. Annual meeting, St. Louis, Mo., June 8. Secretary, O. L. Lumaghi, St. Louis, Mo.

Southwestern Interstate Coal Operator's Association. Annual meeting, Kansas City, Mo., June 8. Assistant Secretary, George Manuel, Kansas City, Mo.

National Coal Association, June 9-11, at Drake Hotel, Chicago, Ill. Executive secretary, Harry L. Gandy, Southern Bldg., Washington, D. C.

The National Association of Purchasing Agents. Annual convention at Los Angeles, Calif., June 9-12. Secretary, W. L. Chandler, Cleveland, Ohio.

American Society for Testing Materials. Convention at Haddon Hall, Atlantic City, N. J., June 21-25. Secretary, C. L. Warwick, 1315 Spruce St., Philadelphia, Pa.

American Institute of Electrical Engineers. Annual convention, White Sulphur Springs, W. Va., June 21-25. Secretary, F. L. Hutchinson, 29 West 39th St., New York City.

Illinois Mining Institute. Annual summer meeting on steamer "Cape Girardeau," leaving St. Louis, Mo., June 24 and returning June 26. Secretary, Frank F. Tirre, Central National Bank Bldg., St. Louis, Mo.

American Society of Mechanical Engineers. Spring convention at San Francisco, Calif., June 28-30. Secretary, Calvin W. Rice, 29 West 39th St., New York City.

Illinois and Wisconsin Retail Coal Dealers' Association. Thirty-first annual convention, Highland Hotel, Lake Delavan, Wis., June 28-30. Managing Director, N. H. Kendall, Great Northern Hotel, Chicago, Ill.

Fifth International First-Aid and Mine-Rescue Contest, San Francisco, Calif., during the first week of September, 1926, under the auspices of the Bureau of Mines, Department of Commerce.

Coal Mining Institute of America. Annual meeting, Chamber of Commerce, Pittsburgh, Pa., Dec. 8, 9 and 10. Secretary, H. D. Mason, Jr., Box 604, Ebensburg, Pa.

New Publications

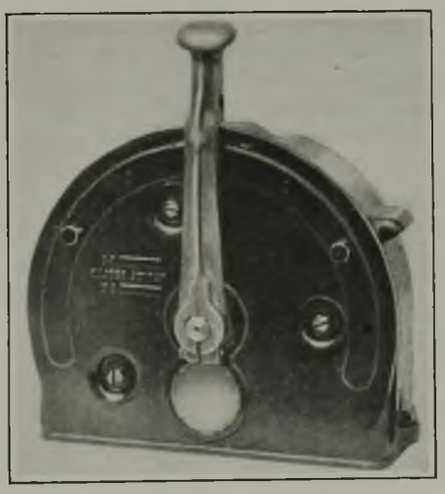
American Blower Co., Detroit, Mich., has issued Bulletin No. 1608, superseding No. 8, Series 6, illustrating and describing its Type P "A B C" **Pressure Blowers and Exhausters.**

New Equipment

Lever-Thrown Master Switch

A lever-operated master switch for installation where exceptional strength and durability are important factors has recently been announced by the General Electric Co., of Schenectady, N. Y. The new switch is particularly suitable for grouping and for operation by one man.

This master switch is flat and semicircular in general shape consisting of a cast-iron frame and cover totally inclosing the contact mechanism. This design readily permits convenient grouping within easy reach of one operator. The handle is of the vertical type, operating through a radius of 40 deg. on a one-point switch and through a 100-deg. total radius on switches of the three-point type. This handle is mushroom-shaped so that it may be grasped easily and quickly. Operation from one position to another is quite free, there being no gears or other friction surfaces other than the bearings and contact fingers. The handle is held in the "off" position by a spring roller device.

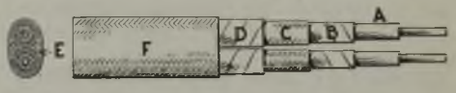


Switch Affords Safety from Shock

This switch is devoid of all friction surfaces except the bearing and the contact fingers. It is fitted with a mushroom top lever and is especially adapted to grouping.

Approval Accorded to Cable With Non-Metallic Sheath

The non-metallic sheathed electric cable, known as RomeX and manufactured by the Rome Wire Co., of Rome, N. Y., which has been a subject of much debate in the electrical industry during the last four years, has finally been approved by the National Fire Protective Association. This action will permit the Rome Wire Co. to begin production of this product and place it on the market in competition with other insulated wiring now used on all types of circuits under 300-volt potential. The accompanying sketch shows the construction of this wiring. The core or beginning of RomeX cable is a standard rubber-covered code wire, marked *A* in the sketch. *B* is a close wrap of fibrous tape formed from six thicknesses of long-fiber kraft paper. The cotton braid *C* is then applied and carefully saturated with fire-resistant compound. Another wrap *D* of the long fiber kraft tape is next applied and two or more of the conductors are thus sheathed together with filler cords *E* under a heavy braided outer jacket *F*. The materials marked *D*, *E* and *F* are treated to make them fireproof and moisture-proof.



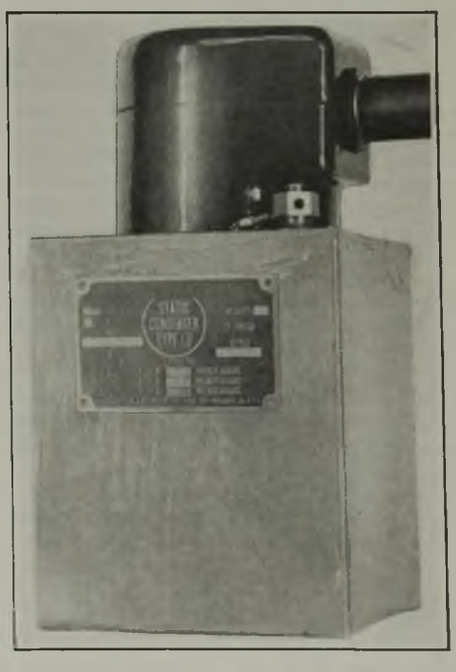
For All Circuits Under 300 Volts

Paper and cotton braid the only coverings. The various coats are treated so as to make them both fire- and moisture-proof.

Static Condenser Designed for Individual Motors

Development of a line of static condensers for application to 220-, 440-, and 550-volts two- and three-phase individual motor circuits has been announced by the Westinghouse Electric & Mfg. Co., of East Pittsburgh, Pa. The new condenser consists of insulation inclosed in a sheet-metal container and a porcelain terminal housing arranged for conduit connections.

By the corrective effect at the motor that these condensers afford many advantages are said to be obtained: The losses are less than ½ per cent regardless of the kilovolt-ampere rating; the power factor is corrected immediately; because of the reduction of the line current the voltage regulation at the motor



Corrects Power Factor

This static condenser may be installed beside the motor it serves. When additional motors are needed more condensers may be purchased or those already in use may be shifted. At present it is available in capacities up to 5 kva.

or on the feeders is improved; the power-factor correction is flexible and applied where needed. There are other advantages but these are the most outstanding.

Better Furnaces

Furnishes Air to Gases for Complete Combustion

Heretofore, the principle of the bunsen burner has been applied to gaseous, liquid or powdered fuels only. What is termed the CO_2 Combustion Tube, adapting this principle in practically its entirety to the burning of solid fuel on grates in domestic furnaces, recently was developed and patented by James C. Law, of Scranton, Pa.

In the past, aside from natural draft, two means have been employed for supplying air to the fire in the ordinary house furnace. These were pressure blowers delivering air to the ashpit under the grates and various forms of diaphragmed inlets admitting air to the combustion space above the fuel bed. Most of these latter devices are attached to the inner surface of the firing door, drawing their air supply through a rotary damper therein.

Ordinarily, but especially when burning a smoky coal, air for the combustion of the gases distilled from the fuel must be supplied above the fire. Hence the sliding or rotary damper in the firing door. If the combustion of these gases is not completed, smoke is evolved, and as much as 15 per cent or even more of the heat derivable from the fuel is lost up the stack.

Approaching Perfect Conditions

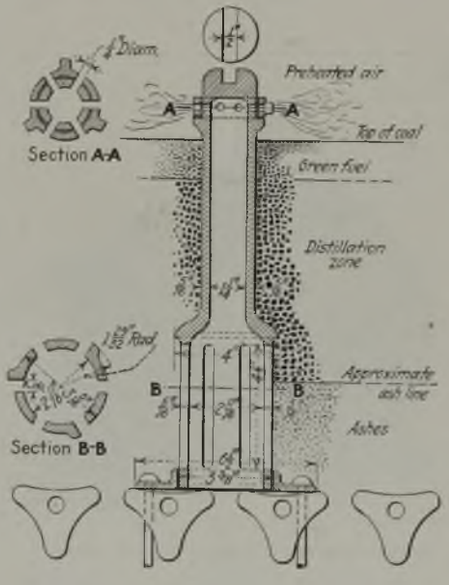
When a sufficient quantity of air from the ashpit is conveyed through the fire bed, preheated during its passage, and then released at or near the upper surface of the fuel, the conditions necessary for complete combustion are closely approximated. This is the function that the CO_2 Combustion Tube seeks to perform. It may be used with either natural draft or an inexpensive volume blower. A forced-draft or pressure blower with this device is unnecessary; furthermore, should one be used it would tend to form excess clinker and to consume fuel too rapidly.

As may be seen in the accompanying illustration, this device consists of a tube extending upward through the fuel bed from the regular grate of a furnace and terminating just above the upper surface of the bed. The lower portion of this tube is made larger than the upper part and is provided with slots through which air is delivered to the distillation and combustion zones of the fire. Above this slotted portion the diameter of the tube is restricted and remains uniform to the top. Here several small holes, provided with an adjustable shutter ring, spray the air, which has become highly heated in its passage through the tube, into the combustion space above the fuel bed. This hot air then mixes thoroughly with the combustible gases released from the fire, thus furnishing oxygen in a regulated volume for their consumption. A slot or depression is provided in the apex of the tube, thus furnishing a means of rotating it on its base by the insertion of a bar or poker through the firing door. Such a movement of the tube breaks up any clinker that may have formed around its slotted portion and allows a free passage for air directly to the distillation zone of the fire bed.

Application of this tube to a furnace is extremely simple. It is provided with a base of limited diameter but sufficient to span two grate bars. Holes in the flange of this base allow two ordinary rivets to be inserted. These extend downward through opposite interstices of the grate bars. The tube is thus held centrally positioned even though the grate bars upon which it rests may be rocked in the ordinary way to remove ashes and light clinker. The grate bars, however, must not be completely turned over.

Utilizes Small Sizes

This tube is intended to assist in the utilization in domestic furnaces, of the small sizes of anthracite such as No. 1 buckwheat or mixtures of pea and buckwheat, as well as domestic grades of bituminous coal. It is stated that when used with fuels of the latter type, regardless of percentage of volatile matter, the volume of smoke issuing from the chimney is reduced 40 to 50 per cent; also that the flashing or "puffing" of the gases and the possibility of destructive gas explosions is precluded regardless of the firing method employed. Furthermore, this tube, by its slotted section, provides the equivalent of a 10 per cent increase in the grate area in the furnace to which it is applied, and affords a general increase in combustion effectiveness of 15 per cent or more. No change in furnace structure is required, and as the device is extremely simple no tools are necessary for its installation.



Supplies Heated Air for Gas Combustion

This tube is built to withstand high temperatures. It rests upon the grate bars which may be rocked in the ordinary way and it supplies heated air to both the combustion zone of the fire and for burning the gases above the fuel bed.

Industrial Notes

J. L. Latture Equipment Co., 354 Belmont Street, Portland, Ore., has been appointed sales representative in Oregon, Washington and Idaho of the Climax Engineering Co., Clinton, Iowa, manufacturers of engines and power units.

The Electric Service Supplies Co., Philadelphia, Pa., removed its Pittsburgh office from Room 829, Oliver Building, to Room 1123, Bessemer Building, on April 1.

Maurice R. Hart, who has been with the Morse Chain Co. for several years in the production department and the last two years in the sales department, has been appointed manager of the Buffalo district, with an office in the Ellicott Square Building.

Harlan A. Pratt has been appointed manager of the oil- and gas-engine department of the Ingersoll-Rand Co., 11 Broadway, New York City. Mr. Pratt was connected for many years with the sales department of the Westinghouse Electric & Mfg. Co., later becoming sales manager of the Atlantic Elevator Co., exclusive agents in the East for Westinghouse gearless traction elevators. For the past three years he has been sales manager of the Elevator Supplies Co., of Hoboken, N. J.

The Stoker Corporation, Dover, Del., manufacturing coal stokers, W. W. Murphy, president, chartered under Delaware laws, has filed a certificate in the office of the Secretary of State of New York to allow it to do business in New York State with $525,000 capital. The New York office is 150 Broadway, New York City.

The Hyatt Roller Bearing Co., Newark, N. J., announces these recent changes in its mine car division organization: T. V. Picraux has been placed in charge of Western territory with headquarters in St. Louis, succeeding Leo Shea, recently transferred to the tractor and implement division, Chicago. Alex Hunt assumes charge of the Huntington (W. Va.) office, relieving Charles Perry, who has left the company.

Samuel B. Belden, has resigned as vice-president of the Jeffrey Manufacturing Co., manufacturers of coal-mining machinery, Columbus, Ohio.

David F. Reid has organized the **Pocahontas Mining Co., Inc.**, of which he is president, with headquarters in McDowell County, W. Va., on the Norfolk & Western Ry., where it has opened a mine in the Douglas or Red Jacket seam of coal and is opening the seam above it. The plant is electrically equipped, power being purchased from the Appalachian Power Co.

The Duff Manufacturing Co., Pittsburgh, Pa., manufacturers of jacks, announce the appointment of Albert Roberts as district manager of the Southern territory, with offices in the Candler Building, Atlanta, Ga. Mr. Roberts was formerly associated with the Grip Nut Co., of Chicago.