

COAL AGE

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Longwall and Explosions

PERHAPS no publication on coal-dust explosions has appeared in many years having greater significance than that which the British Safety in Mines Research Board has just issued through His Majesty's Stationery Office. It has long been known that openings and enlargements in cross-section have a marked effect on the violence of explosions of dust, but it remained for H. P. Greenwald and R. V. Wheeler to give quantitative figures on the effect of the former. There will no doubt be an immediate desire on the part of the public to obtain this brief report, which explains in large part the restriction of mine explosions in British mines before the rock-dusting era. So much of the British mining consists of longwall workings that such explosions as occurred in mines even when not naturally rock-dusted were placed in a position peculiarly favorable for their extinction. That method of operation gave opportunity for the air to expand beside and in front of the point of ignition.

In these experiments the passage or passages by which the air entered, though choked down, were extremely short. Who can say definitely if mine passages of area equal to that of the main gallery would give equal expansive opportunity with that of a free entry of air arriving through an opening one-eighth, one-quarter or 64 per cent of the full entry as in the experiments? It is to be hoped that U. S. Experimental Mine at Bruceston will solve that problem by experiments with blown-out shots with openings in front and behind the point of ignition. In the British experiments no coal dust was placed behind the ignition point, whereas in actual practice not only the area in the rear but the intersecting passages have coal dust spread over their roof, ribs and floor.

But enough is unveiled in this report to show to the public, as the experimenters declare, that openings whether in front or behind, and especially behind, the ignition point are effective in reducing the ultimate violence of explosions. Is it to be assumed that an opening covered by a temporary stopping which an explosion will blow out readily is almost as great a deterrent to violence as if the stopping did not exist at all? It seems almost as if it would be found that this is true. If it is by all means let there be temporary stoppings near the advance workings, even at the risk of a little leakage. Perhaps also it will be well in advancing longwall to have an entry driven through the coal to some other roadway in advance of the longwall face as has been done at Sublet, Wyo., for other reasons.

One explosion initiated immediately behind an opening 64 per cent as large as the gallery in which the explosion occurred developed a negligible pressure and actually died out after a travel of 70 ft. with plenty of dust on the floor in front of it. On the other hand with the same initiating conditions and the same rock-

dusting the explosion traveled to the end of the gallery 500 ft. and developed a pressure of 73 lb. per square inch and a mean speed of 2,600 ft. per second, tearing the steel gallery apart.

A sad reflection is that the need to quench explosions is greatest near the face; and less in the main haulage-ways where a network of crossing roadways helps to extinguish the explosion; yet at the face where the coal is obtained is just where it is difficult to rock-dust without covering the coal with a deposit that will make it unmarketable. This again is an argument for longwall, that gives a less dangerous condition than room-and-pillar workings. However, longwall gives concentrated mining and a general dustiness that may give an explosive content as great per cubic foot as in a narrow place with equal or more distressing consequences. A test made by the British with both of the ends of the tube wide open might have thrown some light on this if the dust had been strewn in equal measure at both ends of the gallery.

Coal Laws of Pennsylvania

TWO ECONOMIC factors in the coal situation, which are not being commonly discussed these days, recently were referred to in Congress by Representative Treadway, a Republican. He said that Pennsylvania should repeal its export tax on anthracite, which cost the users \$7,000,000 to \$9,000,000 every year. He observed that "every ton of coal going into interstate commerce is paying a direct subsidy into the treasury of Pennsylvania and therefore adding to the cost of fuel to the consumer. If that is not profiteering at the expense of other citizens of the Commonwealth of Pennsylvania, then I do not know what is."

He added that there is another law in Pennsylvania which is important to the coal consumer. "I refer to the miners' license law. That law provides that nine men who are themselves members of the union must pass on the qualifications of every man going to be a licensed miner. Can you think of anything more ridiculous than a law that places in the hands of nine men that power? In other words, this board composed of the union says to every miner that wants to do anything in the mines of Pennsylvania: 'You must belong to our union or you cannot mine coal.'"

The miners' license law was enacted before the organization of the mine workers' union and in the interests of safety, a cause which demands the maximum support. Still, it is true that the union has captured the operation of the law, and thereby made it impossible for anyone who is not a member of the union to obtain a miner's license, thereby diverting the effect of the law from enforcing safety to enforcing unionism. The enforcing of an individual to ally himself with any one group, or to take a certain political or public course, regardless of his views and inclinations, is un-American and should not be tolerated. Should the

union obtain that other much-desired whip over the individual miner—the check-off—his pocketbook would no longer be his own any more than his views, and the infringement of his rights and options as a citizen would be complete.

The Value of Technical Staffs

THE METAL mining industry has learned to value highly the abilities of its managerial and technical staffs; it is disposed to claim a real financial value for an assemblage of engineering and directing talent, and to believe that the men it has discovered and developed are as much a part of its real assets as the ore which it has uncovered after years of effort and expense.

Instances are not lacking of coal properties which failed to produce a profit because of a low order of the skill in their operation; such properties, put in skilled hands, have proved that all they needed was the application of proper methods of mining and marketing, to make them profitable. Readiness to pay sufficient salaries to procure the best men, and recognition of the importance of a high-grade mine staff will produce in the coal industry the same rapid advances that the metal-mining industry has experienced through the same means.

One of the economies that shows least imagination and foresight is the buying of technical talent in the lowest market with an eye solely to price. The talent that makes for success is not secured by such injudicious shopping.

The mining industry of the United States in general is conducted with great ability. Not only has it recently been discovered that we have an exportable surplus of managerial and technical talent at our metal mines, but also that we have engineers in the coal industry capable of increasing the output and decreasing the operating cost of the mines of Germany and Russia; and recent visitors from Great Britain have found that we have some practices and equipment that are needed for economic operation in the mines of that country.

The Danger Hour

AN OLD PLAINSMAN and Indian fighter once remarked, "Injuns is most dangerous between the fust o' May an' the fust o' December. That's when they're on the move. But when a feller is in the Injun's country, if 'e values 'is hair he'll keep 'is eyes peeled *all the time!*"

He who works underground in a coal mine—or above, for that matter—is figuratively speaking, just as truly in the Indian's country as he who in former days pioneered beyond the Western frontier of civilization. Accidents are liable to occur at any time and he who would avoid them must keep constantly on the alert. But strange as it may seem, they are most liable to occur at certain well-defined hours of the day, when everything else is moving most rapidly.

The exact hour of maximum danger changes from mine to mine. A period of the day that may be extremely dangerous at one operation may be comparatively safe at another. Not infrequently, two distinct danger peaks during a shift may be encountered. These may be either close together or widely separated. Records kept at one large group of sizable mines in West Virginia year after year have shown that the hour of greatest danger is at 9 a.m. with a secondary danger

peak between 4 and 5 p.m. Similar records kept at another group of mines in Kentucky show that the time of greatest peril is not attained until between 2 and 3 o'clock in the afternoon. Here also a secondary danger peak is reached between the hours of 4 and 5 p.m.

A variety of theories have been advanced to account for these periods of greatest danger. In general they appear to coincide with the hours of greatest hurry—the times when the coal is moving the fastest. Thus the major peaks occur at the hours when those at the face are working the hardest to load out their coal. The minor peaks in both instances coincide with the time when all hands are finishing up the day's work—hustling to get places cleaned up, to get the last trip out, or what not.

Regardless of what may be the actual cause of these periods of maximum danger, they unquestionably exist, and the lesson to be drawn from them is that at these times not only should the foremen and assistant foremen, but all mine workers as well, observe if possible extra precautions and practice if possible extra vigilance. In doing so, however, the mine worker should bear in mind that these are hours of extra hazard only—that real danger exists at all times.

And so, while extra care to avoid accident may logically be taken during certain definite periods of the day, the exact time of which can be determined only from careful records, the miner who would preserve his skin whole may well follow the advice of the old plainsman and "keep his eyes peeled all the time."

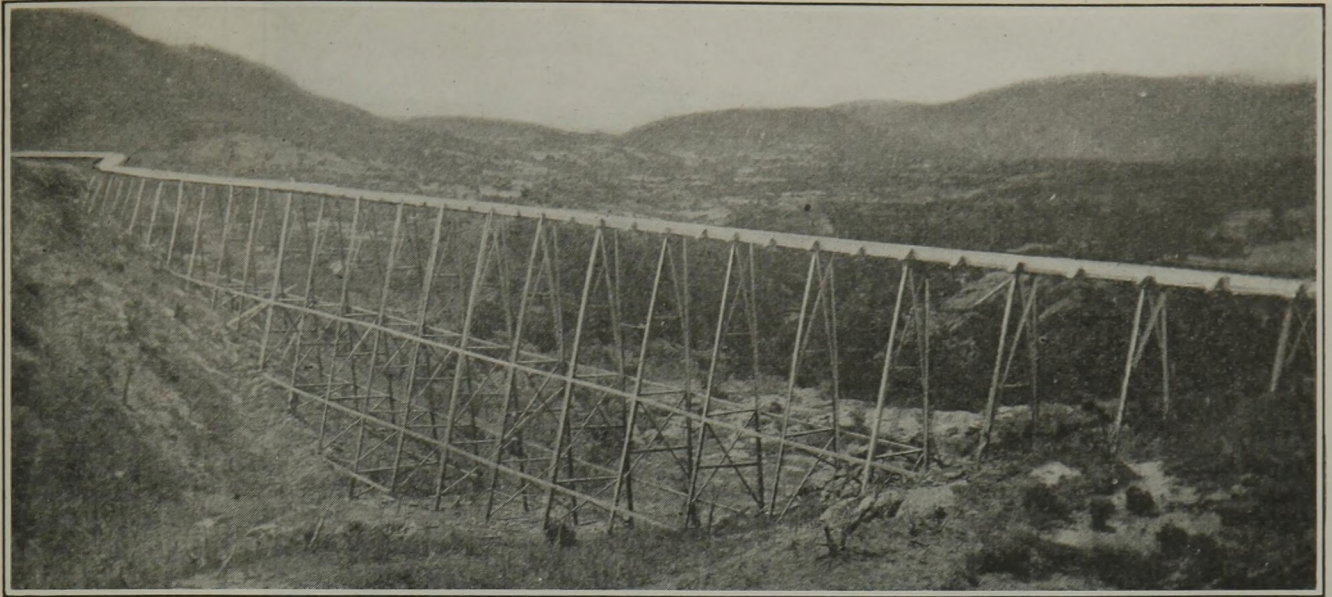
Let There Be More Light

ONE ADVANTAGE of concentrated mining is that it makes better illumination possible, yet the opportunity is being neglected in many instances. Electrically-operated loading machines are, as a rule, equipped with headlights which provide a fair degree of illumination at the face. But much of the concentrated mining is being done with scrapers or by hand loading into face conveyors; and headlights are not logical equipment items of the machinery designed for these systems.

Adequate illumination is perhaps more important with scrapers and face conveyors than with true loading machines, because the coal at the face usually can be cleaned when the former methods are used but must be abandoned when loading by a machine. It is often the necessity of cleaning the coal at the face that decides which method should be adopted.

That better light results in increased production, decreased accidents, and a higher quality of product was proved, long ago, to industry in general. Coal mines have been backward in the "better light" movement because of the scattered nature of the work. Now with the advent of more concentrated mining better illumination has become practicable.

With portable flood lights a face that is being worked rapidly can be illuminated at a reasonable expense for the power cost will be less than half a cent per lineal foot of face in an 8-hr. shift. The floodlights should be of the type having an extra large reflector and a diffusing lens. This will reduce the intrinsic brilliancy and so prevent unnecessary glare. Units of from 300- to 500-watt capacity lend themselves well to face illumination. However, no doubt conditions exist where 1,000-watt units would be desirable and within reason.



Long Flume Transports Coal in Hilly Region

New Zealand Company Flows About 150 Tons per Hour by Trough $5\frac{3}{4}$ Miles to Screening and Loading Plant with Water Impounded in Conservation Scheme

By G. Townsend*

Westport, New Zealand

A SYSTEM of transporting the output of a New Zealand coal mine more than five miles by flume to a screening plant and railroad loading point has been installed by the Westport Stockton Coal Co., Ltd., at Ngakawau near Westport, N. Z. The system was built to reduce the cost of bringing this coal in fine sizes down from the mine in the hills. It is the largest coal flume in the world.

The water is obtained from natural sources, a dam having been built for conservation purposes. The installation is new and no accurate measurements of the quantity of water used have yet been taken but probably about 1,000 gal. per minute is required to move the approximate 150 tons of coal per hour that can move in the flume. The speed is between 8 and 10 m.p.h. This speed, of course, varies slightly with the volume of water and coal in the trough at any given time. It has also been found that heavy rain has an appreciable effect upon the flow of the water as the flume presents a large catchment area.

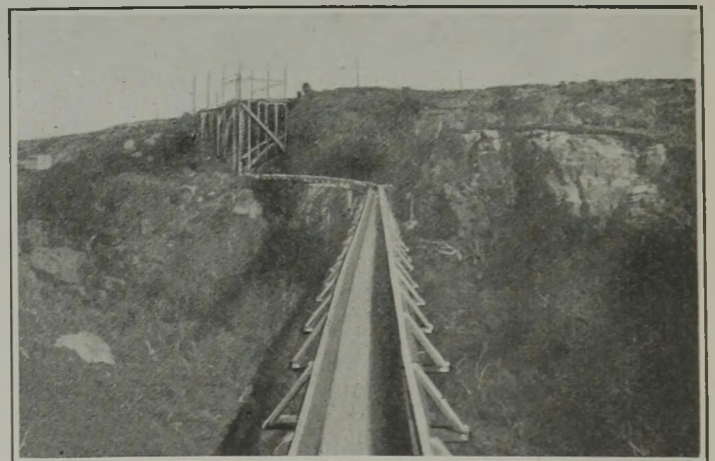
FLUME SUPPLANTS TRACK HAULAGE

Within the coal industry of New Zealand the principal method of transport from mines to railway is one of rope haulage of gravitation, although in some instances other methods are adopted such as aërials, electric trains, and winding appliances. At Ngakawau, the Westport Stockton company has been using both rope and haulage and electric locomotive. At this mine the coal had been conveyed some five miles from the mine to the head of the inclines by electric trains thence

to the storage bins situated alongside the railways by rope haulage down steep inclines.

After many years of indifferent results from this system, a new scheme of operations was adopted. This fluming method of transport is not altogether new in New Zealand, as small flumes have been operated successfully in the Reefton district and at Seddonville, the seat of co-operative mining. But a flume of such length never before has been operated in the Dominion.

The coal won by the miner at the face is conveyed by electric haulage to new storage bins situated outside the mine. These bins have an approximate capacity of 600 tons and are built of the best of New Zealand timbers, procured from the sawmillers of the district. Here the coal is weighed, classified, and then stored within the bins. After dumping their loads the cars



Where the Coal Starts Its Ride

This picture, taken during the construction of the flume, shows the 600-ton storage and loading bin in the background where the coal is dumped near the mine and fed into the flume. When the photograph was made the flume box had been constructed but the iron lining had not been installed.

In the headpiece is shown a length of the Westport-Stockton Coal Co.'s flume running across ravines and curling its way through the hilly country bearing coal in a swiftly flowing current of water from the mine to Ngakawau, near the town of Westport, N. Z.

*General manager of the Westport Stockton Coal Co., Ltd., Westport, N. Z.



High Trestle

The country through which the Westport - Stockton Coal Co.'s flume runs is far from level. It is so hilly that the flume itself is 5½ mi. long though the airline distance from mine to discharge point is but 3½ mi. At some places it crosses gullies on trestlework as high as 90 ft. There are a few hairpin turns and three tunnels in the course, but the coal negotiates the route successfully at a rate varying from 8 to 10 m.p.h.

continue their journey and by a circuitous route return to storage sidings and thence to the mine again. Thus on each journey from the mine and back the cars are not reversed.

The coal gravitates into the flume by means of doors, the size is regulated by several grids through which it passes.

The flume proper is 5½ mi. long from the new bins to Ngakawau though the distance between these two points is only 3½ miles in a direct line. Many difficulties were experienced by the survey to find a suitable gradient.

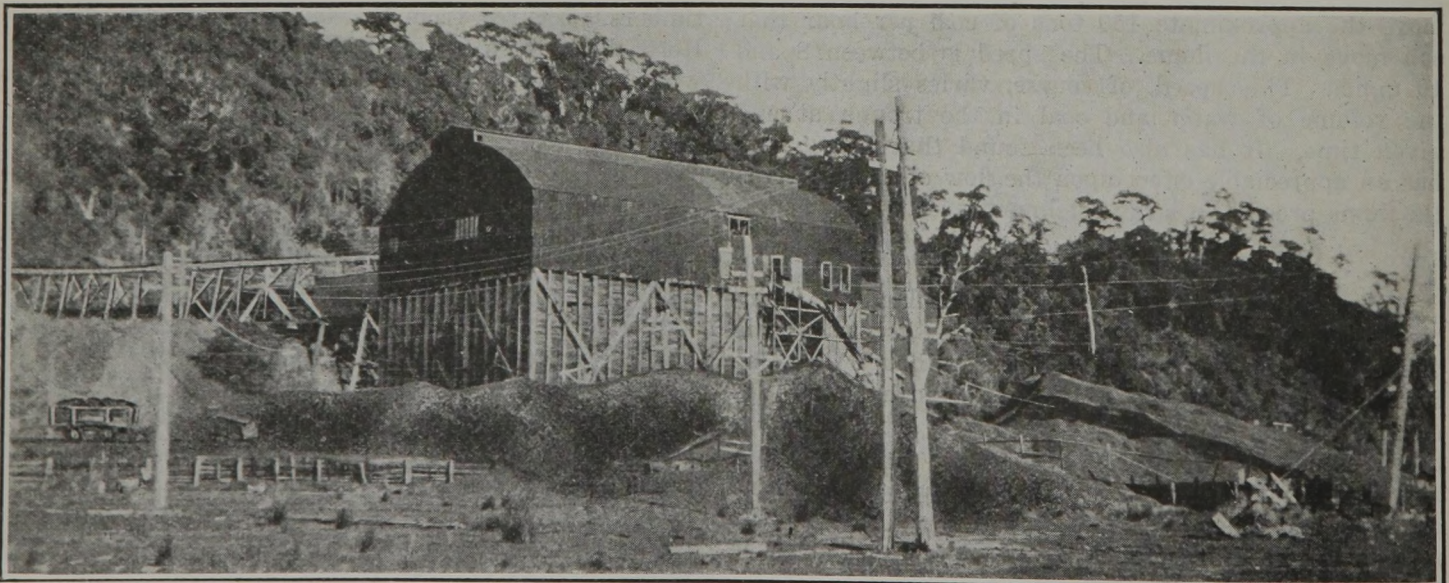
After leaving the storage bins the flume passes over Mangatina Creek at a height of 90 ft. and continuing from there enters a tunnel about 275 ft. long. Emerging from there it negotiates several high places and sharp bends, passing through the mining township of Stockton, thence to Mine Creek, over which it passes and enters the virgin bush, and wends its way round the natural line of the hill, passing through two more tunnels and finally approaching Ngakawau from a northeasterly direction.

The dimensions of the flume are 17 in. across the bottom and 12 in. high. This box is placed on trestle legs. The inside is sheathed with special high grade, galvanized iron ¼ in. thick. This iron was imported from England in flat sheets and in order to conform to the shape of the flume it was necessary to have the sheets bent.

For this purpose a special machine was designed and constructed by the company's staff and two men with the aid of this machine completed about 200 sheets per shift.

These plates are joined together with galvanized bolts and the plates at the joints are separated by felt lining. In difficult traverses the flume is protected by works to guard against possible land slips which are prevalent in some parts.

A screening and loading plant is installed at the mouth of the flume for the handling of the coal on its arrival. Passing from the flume the coal and water traverse a two-level screen. The top plates have ¾-in. perforations to screen out the household coal for which Stockton is famed. This coal will pass immediately to



This Is the End of the Line Where the Flume Discharges Its Coal and Water

The water, drawn from a reservoir high in the hills near the mine, bears its load of about 150 tons of small coal per hour to this preparation plant at Ngakawau, near

Westport, N. Z., where, having been separated from the coal by several sets of screens, it flows into the Ngakawau River, its natural destination. Four or five sizes

of coal ranging downward from "household" size, which is caught on ¾-in. grids, are screened out and loaded into railroad cars. The yard is used for storage.

the railway cars by a retarding belt, the water and the balance of coal meanwhile passing to the second screen of a $\frac{3}{8}$ -in. mesh to catch the Stockton nuts, which in turn are conveyed to the storage spaces by a scraper conveyor.

The water and coal of under $\frac{3}{8}$ -in. measurement then enters a gigantic revolving screen which rotates at 120 r.p.m. It is 27 ft. long composed of two sleeves, the first having a diameter of 4 ft. 6 in. and the second 5 ft. This machine separates the peas from the water and slack.

Two identical sets of this machinery will deal with different classes of coal which will be run in the flume by arrangement. In addition to this, auxiliary machinery has been provided in case of breakdowns, for once the coal is placed in the flume at the top it must come right to the bottom and cannot be sidetracked halfway.

The water subsequently passes through a minute mesh to separate the dust and finally reaches the

Ngakawau River where, if it had been untrammelled by man it would naturally have gone, finally being lost in the Pacific Ocean.

The whole scheme from start to finish has received minute attention and scrutiny and nothing of an emergency nature has been left unprovided for. When the topography of the country is known, one can easily realize the colossal undertaking, and the almost insurmountable difficulties experienced by the builders.

At a trial run of the flume 65 tons of coal were conveyed the $5\frac{1}{2}$ miles from the head receiving bins to the bins at Ngakawau in 36 min. without any appreciable damage to the product. Some specimens were rounded by the wash of the water, but when the flow increased in volume, the coal slid along easily and freely and arrived at its destination at the seaboard without breakage. The flume system is regarded by many as the best future method of transport of coal from the high country to sea level.

How Long Will Anthracite Region Produce Coal?

Pennsylvania Survey Gives Eastern Middle Field 35 Years and Southern District 110 Years of Active Life—Extraction Improves

THERE IS anthracite coal still in the ground that will last for thirty-five years, in the Eastern Middle district of Pennsylvania, while the life of the reclaimable coal in the Southern field of the state is estimated at 110 years according to the Pennsylvania Geological Survey. A recent bulletin, prepared by Dr. George H. Ashley, state geologist, shows that there is 16,354,676,000 tons of anthracite in the ground, of which 8,979,474,000 tons are recoverable. It further points out that the anthracite industry has increased its percentage of recovery of coal in the ground about 16 per cent since the middle nineties.

About 30 yr. ago a state commission studied the mining of anthracite with reference to its recovery and the waste of coal. The report showed that recovery then averaged 41.5 per cent of the coal in the ground; or, omitting certain collieries in the Southern field one of which reached a recovery of 51.5 per cent, the average of the rest was only 38.5 per cent of the coal originally below the surface.

This new publication of the Geological Survey indicates that the recovery in the anthracite fields in 1921 averaged 61.1 per cent with a total loss of 38.9 per cent, of which 4.3 per cent was in preparation. This indicates clearly that mining and preparation methods in the anthracite regions are improving rapidly.

In the olden days, particularly in the early years of the anthracite industry, only lump coal was shipped. All the smaller sizes were either left in the mine or carted to dump piles, which are now known as culm. The coal was separated inside by means of a long-toothed hand rake. After more efficient means of burning the anthracite was invented, sizes down to pea coal were used, and only the smaller sizes, such as buckwheat, rice, and barley, were discarded.

In the last few years by means of patent grates and forced draft the various industries have been using these finer sizes with much success. In the last five years efficiency has gone even further, and the fine silt, most of which will pass through a $\frac{1}{8}$ -in. round

screen, is being reclaimed and burned under boilers by forced draft. The anthracite operators and consumers are utilizing practically all of the coal mined.

Some coal losses are unavoidable, says the Survey report. The anthracite regions are thickly populated and mining is carried on beneath cities. Large quantities of coal must be left to support the surface. In the anthracite fields there are from 12 to 26 coal beds one above another, many of them lying close together. In order to mine all of these beds it is necessary to leave large pillars for supporting the coals above. Some of the coal in these pillars eventually can be removed but much of it inevitably is lost. Bad roof and floor mean the loss of valuable coal which must be left in these positions. Areas of thin coal, which can not be mined profitably, must be left behind and, in most mines, is lost forever. Coal under streams and rivers must be left in place to prevent the seepage of water into the mines and eventual flooding.

In the Northern anthracite field the mines have drifted into an old buried stream channel of glacial origin. The gravels in this channel are water-bearing and large barriers of coal must be left around these gravels in order to prevent the flooding of the mines and the loss of life. Other forms of pillars which are necessary to mining cannot be wholly recovered.

BIG LOSS CAUSED BY FIRES

Disastrous mine fires have also resulted in the loss of large areas of coal. These fires in most instances have been entirely extinguished and the coal in their immediate vicinity may be loaded out eventually; in fact, some coal companies are reburning coal which has been burned underground. Mining hazards, such as squeezes, flooding, and creeping, also cause temporary loss.

The entire anthracite field raises an average of 10.9 tons of water per ton of coal mined. In areas where the water is in too great a volume to permit mining the coal at a profit, this coal must be left behind as lost. There are many other causes of loss in mining anthracite, such as reservations under railroads, water lines, and other public utilities.

In the production of coal there is always a loss in preparation and transportation. In the bituminous fields of Pennsylvania this loss is not large because 90 per cent of the coal is shipped as it comes from the mine. Anthracite is prepared in elaborate breakers,

some of which cost as much as \$2,000,000. Public demand for sized coal means that there is a loss in breaking the coal. Coal is lost off of cars in transportation. These losses are unavoidable.

In answer to a question often asked in these days, this bulletin states that there are 16,354,676,000 tons of anthracite remaining in the ground. Of this quantity 8,979,474,000 tons are recoverable. The accompanying table gives the distribution of these tonnages.

Field	Total Remaining (in Billions)	Per Cent Recoverable	Recoverable Tonnage (in Billions)
Northern.....	3,276,763	67	2,195,431
Eastern Middle....	248,628	69.4	172,548
Western Middle....	3,573,025	58.1	2,075,928
Southern.....	9,256,260	49	4,535,567
Total.....	16,354,676		8,979,474

This report estimates the original content of the fields to have been more than 20 billion long tons, which is a somewhat larger estimate than that of the Pennsylvania Second Geological Survey. Of the total 9 billion odd tons less than 4 billion tons are thought to be recoverable within the next 40 years, leaving more than 5 billion tons to be recovered after that period. The Northern field is estimated to have a life of 50 years, the Eastern Middle 35 years, the Western Middle field 100 years, and the Southern field 110 years.

Bureau Tells How to Build Life-Saving Barricades

"The fortunate rescue of 21 coal miners from No. 8 mine of the Jamison Coal & Coke Co. at Farmington, W. Va., after their having been entombed Jan. 15 for a period of 18 hr., affords a striking example of the great possibilities of underground barricades as a means of saving human life following mine fires and explosions" said Scott Turner, director of the Bureau of Mines, when he heard the news of the disaster. "Press dispatches report that these 21 survivors of a disaster that snuffed out 19 lives preserved their lives by bratticing themselves in a room, thereby protecting themselves from the deadly fumes and gases that permeated the wrecked mine.

"The Bureau of Mines has records of the saving of approximately 300 lives in coal mines through the erection of barricades of cloth, board, coal or rock following explosions. The Bureau believes that many lives may be saved in the future by disseminating among the miners the knowledge of how to erect such barricades."

The following practical recommendations for the guidance of miners entrapped at mine disasters are made by the Bureau in Miners Circular No. 25:

When entrapped by gases from fires or explosions, and forced back into workings in which there is comparatively good air, men should keep uppermost the thought of building a bulkhead or stopping, and collect on the way tools, timber, canvas, water, dinner buckets, and anything else that might be useful.

If there is no compressed air, the best thing for miners behind a barricade to do is either to lie down or sit on the floor in the hope that the rescue-crew will find them before they are overcome. In this relaxed position they will breathe much less air than if they exert themselves.

As soon as a place is chosen for a barricade, its erection should begin, for the gases often travel quickly.

The movement of gases by air currents should be checked as soon as possible by the opening of doors outside the barricade and the hanging of brattice cloth or by the moving of a door to a new place across an entry. The permanent barricade should be started 50 to 75 ft. from the outer barricade. As much of an entry, room, or drift, as possible should be barricaded off so as to provide a maximum quantity of air. Before constructing a bulkhead men should make sure that there is no connection with other workings through which gases could come. At some place outside of the first stopping, if more than one stopping is built, a sign should be placed to show that men are behind it.

If a barricade be made of lumps of coal, slate, or other debris, two walls 2 to 3 ft. apart ought to be built and the space between filled with fine material or mud. The stopping must be air-tight. Board stoppings are not as easily made gas-tight as those built of dirt or rock and dirt. All chinks and holes in the barricade should be stopped with clay, rags, clothes, and similar material.

If a piece of pipe is available, it should be placed through the stopping and plugged at the inner end, in order that tests of the air outside the barricade can be made by removing the plug.

After the barricade has been built, in order to conserve the oxygen of the air, the men should keep as quiet as possible. However, occasionally somebody should walk around so as to mix the air. All the men should not congregate in one place.

The first barricade recorded in the reports of the Bureau of Mines was built by entombed miners during the fire at the Cherry mine in Illinois, in 1909. Six days after the outbreak of fire in this mine a rescue crew met a party of eight men who had barricaded themselves with twelve others, saved later, but had come out when the air improved and were making toward the shaft. They had walked over half a mile, past cars and dead mules, in the dark, and in an atmosphere (afterdamp) that would not support a flame light. These men were in comparatively good condition when found.

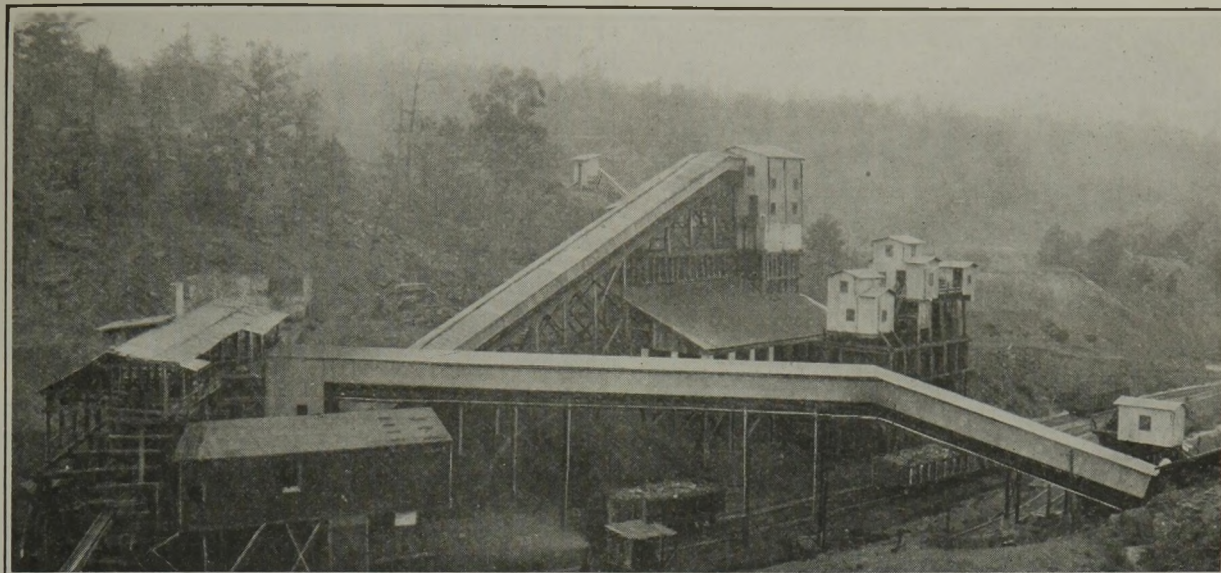
BARRICADES SAVE MANY LIVES

By bratticing themselves in an emergency shelter, by closing the "creep-hole," a sliding door in a stopping above a compressed-air pump, and then breathing the exhaust from the pump, thirteen men saved their lives in the No. 2 mine of the San Bois Coal Co., at McCurtain, Okla., in March, 1912.

At the time of the explosion in No. 5 mine of the New River Collieries Co., at Eccles, W. Va., seventy-four men were in No. 6 mine above it; of these eight were overcome at afterdamp, thirty-one were rescued, and thirty-five saved themselves by retreating from the hot afterdamp to a sump room, where they bratticed themselves off by means of canvas. Here they remained for four hours, until rescued.

There were 153 men in No. 7 mine of the West Kentucky Coal Co., at Clay, Ky., when an explosion on Aug. 4, 1917, killed sixty-two miners; forty-three of the others saved their lives by bratticing off an area not affected by the explosion where they were rescued three and a half hours later.

On March 2, 1915, an explosion at No. 3 mine of the New River and Pocahontas Consolidated Coal Corp., at Layland, W. Va., killed 115 of the 169 men in the mine. Of the fifty-four that escaped, forty-seven saved their lives by erecting bulkheads at two different points.



Ingenuity and \$125,000 Rejuvenate Old Mine

By J. H. Edwards

Associate Editor, *Coal Age*,
Huntington, W. Va.

A NUMBER of unusual features were introduced in the rehabilitation program carried out since 1924 at the Empire mine of the DeBardeleben Coal Corp. in Alabama. With an eye for the future the company spent more than \$125,000 equipping the property to better prepare its 1,000-ton daily output and effecting changes underground to make operations in the 28-in. coal continue profitable in spite of growing competition. The old mine has been rejuvenated by improvements to the tipple, a complete new washery, the construction of a new mine yard, the addition of more haulage locomotives and the installation of a slate disposal larry. The chief interest, however, centers in the alterations to the top works where novel devices were required because of the wide variety of cars used.

In order to speed up the handling of cars at the tipple the use of a modified rotary dump located on the mine track level was decided upon. This necessitated the installation of a 42-in. belt conveyor, 238 ft. long, to handle the coal from the dump house to the shaker screens of the old tipple.

In the construction of the rotary dump and the car feeder special features of design were incorporated. Variations in width, height, shape, size of wheels and other details of the cars precluded the use of a standard dump. A two-car equipment was designed and built especially for the case by the Charles T. Steward Machine Co., of Birmingham.

When the dump is upright, two sets of arms actuated through a cam on the driving mechanism are forced to

a position releasing the sides of the cars. There then is no possible interference with the free movement of the cars. But when the dump starts to revolve the cam causes the arms to close in over the top edges of the car bodies. Heavy springs interposed between the actuating arms and the holding tips provide the flexibility made necessary by the varying shapes of cars and by large lumps of coal that may be in the path of the arms.

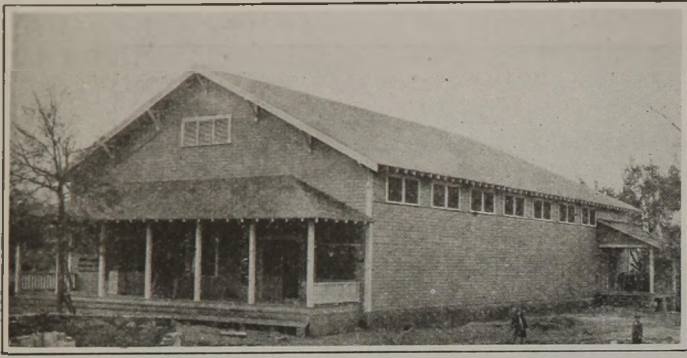
The dump is turned by a 5-hp. squirrel-cage motor. Control and reversal of the motor are by means of an inclosed double-throw line switch. A spring-set brake, which is released automatically by the switch lever, holds the dump in any position, when the power is cut off. The dump has handled 225 cars in one hour.

The installation of a trip feeder, also was complicated by the dissimilarity of mine cars. However a design was worked out which required no changes or additions to the cars. The channel which forms the runway or guide of the upper strand of the feeder chain, is built in 4-ft. hinged sections and held up above the track by coil springs. This brings the chain high enough so that the dogs will catch the car bumpers if no engagement with any lower part is made, yet allows the chain to be depressed by the axle or any low projection on the cars.

The speed of the car feeder is timed so that a trip cannot be moved forward faster than the cars can be handled through the dump. This speed is always within the limit of the tipple capacity.

Preparation at the tipple consists of separating the coal into three sizes and picking the lump and egg sizes. A horizontal reciprocating screen is used. First the coal passes over a plate having 1½-in. round holes. Everything going through is conveyed to the washery. Next the coal goes over a plate having 2½-in. holes, separating the egg and lump. The lump is picked as

A general view of the Empire tipple and washery is shown in the headpiece. The conveyor in the foreground is that from the dump house up to the shaker screens in the old tipple. All of the equipment seen in the picture is new except a part of the old tipple, which is still in use. The small building at the extreme right houses the drive of a bucket conveyor which deposits slate and rock from the dump house into a bin, for disposal with a motor-driven larry. Back on top of the hill is the discharge end of the washery refuse conveyor.



The New Commissary Nearing Completion

A portion of the ruins of the old two-story building which formerly housed the commissary and office can be seen in the foreground. It burned last summer.

it passes over a blank plate of the screen, and the egg picked on the loading boom.

In the new washery a 50-ton-per-hour jig, and four 7½-ton-per-hour tables make up the principal equipment. A 30-in. belt conveyor 209 ft. long brings the 1½-in. screenings from the tipple to the headhouse of the washery.

The order of preparation in the washery is as follows: First the coal is fed to a rotary screen having 1-in. holes. All of that which goes over passes directly to the jig while that which goes through is next screened on a vibrating equipment of ¾-in. mesh. Everything through the latter screen passes directly to the tables and that which goes over is mixed with the large size from the rotary on its way to the jig.

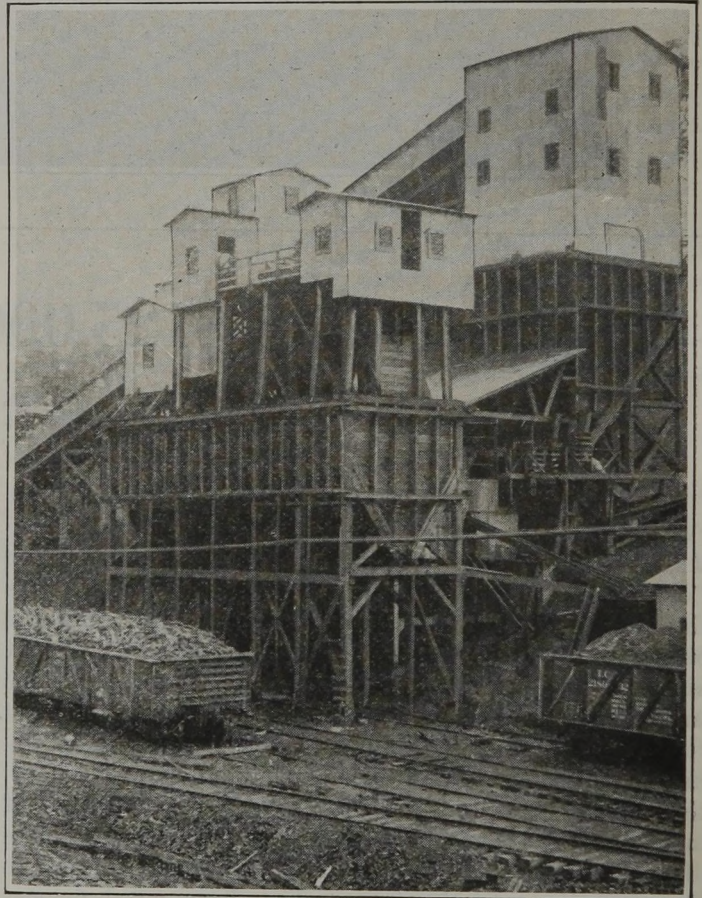
Washed coal from the jig and from the tables passes into separate settling tanks. That from the jig is then elevated in perforated dewatering buckets to a rotary screen of 1-in. mesh located above the loading track bin. Here it is separated into nut which goes over and chestnut which passes through the screen. The fine coal from the settling tank of the tables is dewatered in the same way and is either shipped as ¼-in. smithing or mixed with the nut or chestnut to make steam coal.

An analysis selected at random from a number of the regular runs, showed ash contents of the washed coal as follows: nut 2.05 per cent, pea and slack 4.10 per cent, blacksmith 2.16 per cent. The superintendent explained to a visitor that this report happened to be somewhat better than the average, and stated that percentages of 2.25, 4.5 and 2.75, respectively, came nearer being representative.

When the new washery was put into use it was found that considerable breakage resulted from the dropping of the washed nut from the rotary screen into the loading bin below. After considerable planning and experimenting a spiral chute was installed which has proved entirely satisfactory in lowering the coal without breakage.

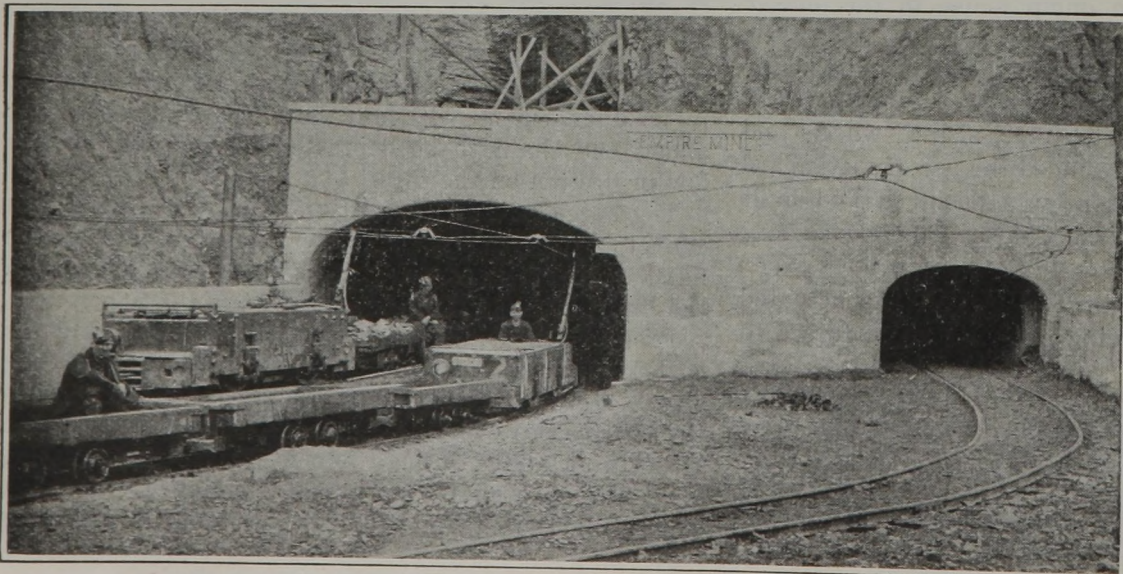
This chute has a vertical height of 18 ft., and extends down into the bin about 10 ft. It is composed of 10-in. sections of ½-in. curved steel plates electrically welded and supported by ¾-in. rods on a center column of 3-in. pipe.

Refuse from the washery is carried on an 18-in. belt conveyor, about 200 ft. long, to the top of a low hill



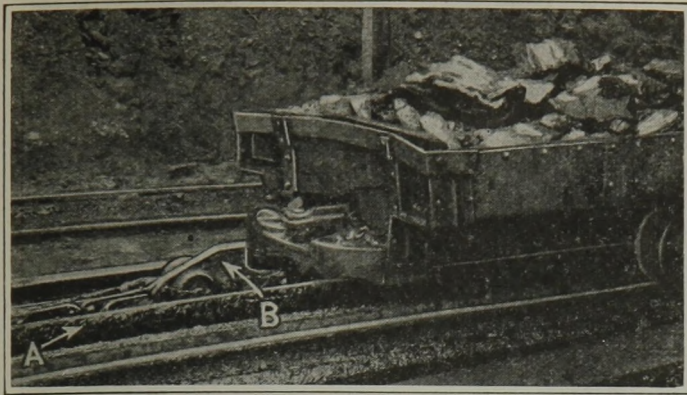
The New Washery at Empire

This was put into use early in 1925, and represents part of the \$125,000 recently spent at the mine for improvements. A plunger type jig and four tables make up the washing equipment. Two primary sizes are turned out by the washery, however, by later separation and combination, five sizes are made available for shipment.



New Portal

This concrete entrance was finished last October. The locomotive bringing out a trip of loads, is a new 10-tonner. Most of the mine cars are rather old and are not of uniform design, but all are necessarily of a very low type. The coal per car averages about 1,500 lb.



Car Haul

The channel which acts as a runway for the upper strand of the chain is made up of hinged sections supported by coil springs. This provides flexibility and brings the dogs high enough to catch some part of the car, regardless of its design. No special angles were added to the car bottoms. "A" is the runway and "B" the dog.

nearby. To the same point the used water from jig and tables is pumped. This water discharges on the refuse falling from the conveyor flushes it away thus eliminating the necessity of frequent extensions to the conveyor. The water, freed of solids by filtering through the refuse pile is reclaimed at a pumping station located beside a dam which has been constructed at a point several hundred yards down the hollow.

The Empire mine is in the Black Creek seam of the Warrior basin. The coal lies practically level, contains no parting, and is of a grade which finds a ready market for domestic and steam purposes. Generally speaking, the mine top, a hard sandy shale, is fairly good.

THIRTEEN MACHINES CUT COAL

Room-and-pillar methods are followed, the rooms being driven 25 ft. wide on 45-ft. centers. The coal is undercut with electric machines having 7½-ft. cutter-bars. About 12 in. of top is brushed from above the track in the center of the rooms mainly to give sufficient height for unloading the mining machines. The added clearance also has the advantage of making it possible to load larger lumps over the sides of the cars. The cutting equipment is made up of thirteen machines.

Practically all of the coal is loaded by contract at approximately 65c. per ton, this including, drilling by hand and shooting, pushing cars to and from the entry, laying track in rooms, and timbering where necessary, setting the posts on 4-ft. centers. Yardage is paid for

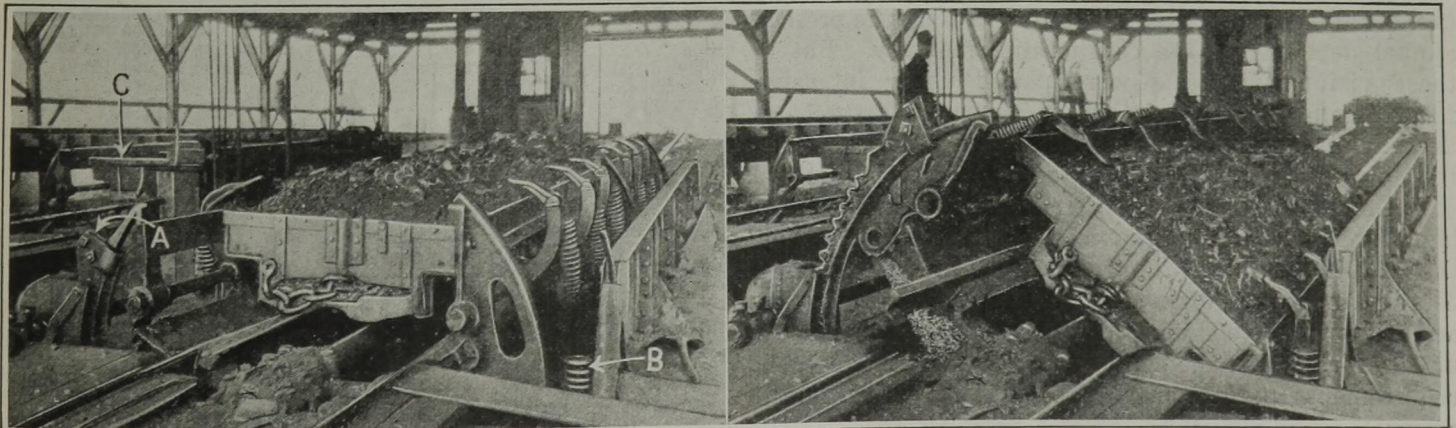
separately at varying rates on butt and face headings and for brushing in rooms.

Haulage is one of the big problems at Empire. The coal per car averages only 1,500 lb., the mean length of haul is 2½ miles, the longest haul 3½ miles, and there are 23 miles of main haulway in use, some of it running through hills and across hollows, winding about like a scenic railway. Locomotives of the storage battery, combination, and trolley types gather the loads from the entries or room necks and assemble them for main haulage by 10-ton trolley locomotives. The company uses a haulage boss whose rank corresponds to that of assistant superintendent.



Spiral Chute

Before this chute was installed to lower nut into the loading bin the coal had to be dropped about 20 ft. when the bin was empty and about 9 ft. when the bin was full. When the photograph was made the bin was nearly full, thus backing coal up in the lower end of the chute. The pitch of the chute is such that it unloads itself as fast as the level in the bin lowers.



Empire's Rotary Dump Had to Be Built to Handle Various Shapes and Sizes of Cars

The cars not being of uniform design, it was difficult to find a dump suitable to the condition. With this special arrangement designed for the purpose, there can be no binding or sticking of the cars. In the level position, shown in one photograph, the

back from the top edges of the car by a cam-operated mechanism. "A" is the bumper, "B" a bumper spring, "C" is a car in the rock dump nearby.

In the picture showing the dump in action the holding arms have closed in, over the tops of the cars. The dump makes

about one-half a revolution and returns. It is driven by a 5-hp. squirrel-cage motor, controlled by an inclosed double-throw line switch. A brake, released from the controller handle and set by springs, holds the dump in a fixed position, wherever it may be stopped.

Coal Industry Can Raise Its Own Timber And Cut Big Cost Item

Idle Forest Lands Near Mines Can Yield More Than 2½ Million Cords Used Annually—Preservation Pays

By H. S. Newins*
State College, Pa.



Photos Courtesy of U. S. Forest Service

WOOD is required in enormous quantities to maintain the coal industry. Uses are so numerous and so large in the aggregate as to total 0.7 cu.ft. for each ton of anthracite produced from the mines and 0.33 cu.ft. for each ton of bituminous coal. No complicated calculation is required to reveal the tremendous drain necessitated by this industry upon our forests. Forest resources have been lavishly wasted but the cut-over and idle forest lands in the vicinity of all our coal-producing mines are more than capable, when placed under management, of supplying the industry's requirements indefinitely.

Statistics compiled by the United States Forest Service, Department of Agriculture show that for the year 1905 the coal industry absorbed for underground use 134,985,700 cu.ft. of round timber and 242,000,000 board feet of sawed timber. (Table I.) These exactions have continued and today the Department of Commerce announces that according to data collected in co-operation with the Departments of Agriculture and Interior 152,342,217 cu.ft. of round timber and 296,641,000 board feet of sawed timber were used underground in 1923 by 5,205 coal mining establishments. This amount when converted by the factor of six board feet per cubic foot constitutes a grand total of 201,702,383 cu.ft. or reduced to cords by the equivalent of 80 cu.ft. per cord (solid wood), a total of 2,522,279 cords.

Based upon conservative figures of growth our unmanaged forests in the vicinity of coal mines should be capable of producing an average yearly growth of one half a cord of wood per acre. At this rate 5,044,558 acres of forest land, provided they were protected from fire, could be employed indefinitely to satisfy the present annual demands of the coal mining industry. But if these visionary forests were placed under intensive forest management it is not too much to expect an average production in growth of one cord per acre, thereby reducing the area by one-half.

Each of our large mining regions has ample forest land within the immediate vicinity to more than supply the requirements of the industry. The 156 mining establishments reporting from the anthracite region actually own 500,000 acres of land and this alone placed under forest management would almost fulfill their requirements permanently. Yet this region is forced

In the headpiece is shown an area of forest land maintained by the Philadelphia & Reading Coal & Iron Co. A forest lane which adds some protection against brush fires is to be seen in this illustration.

*Professor of wood utilization at Pennsylvania State College.

This article contains material read by Prof. Newins at the meeting of Coal Mining Institute of America in Pittsburgh, Pa., Dec. 10, 1925.

by the lack of sufficient local timber to import the bulk of the required stock, drawing these supplies chiefly from the loblolly pine districts of Virginia and Maryland, and even from Oregon via the Panama Canal and the Port of Philadelphia, and paying a price more than four times as great as that paid when the mine timbers were available locally. The average cost of mine timbers in 1905 was 6.6 per cubic foot. Today the average cost is 27.5c. per cubic foot of round timber delivered, of which amount more than 57 per cent is for freight alone.

In the bituminous regions of central and western Pennsylvania the supply of sawed timber is almost exhausted and the mines are now importing from the South. In fact, the Pittsburgh district uses alone more lumber annually than is produced each year in the entire state of Pennsylvania. Round timbers chiefly for props are available in sufficient quantities within the state but in many cases must be hauled 200 or 300 mi. and this material is fast disappearing. In the earlier days of coal mining this region was so well furnished with available timber that the valuable white pine was used. After the supply of this species was exhausted white oak, hemlock and chestnut were taken each in turn until today the industry must depend upon the second growth hardwoods for all temporary uses.

Table I—Quantity of Mine Timber Used Underground, by Classes of Mines: 1923 and 1905¹

	Number of Establishments ²		Round Timber (Cubic Feet)		Sawed Timber (Board Feet)	
	1923	1905	1923	1905	1923	1905
Total.....	6,384	5,163	174,389,004	165,535,900	507,359,000	435,944,000
Bituminous.....	5,149	2,940	110,983,610	91,309,700	227,340,000	140,790,000
Anthracite.....	156	216	41,358,607	43,676,000	69,301,000	101,210,000
Iron.....	165	143	13,123,228	13,484,000	16,685,000	13,929,000
Other metal....	879	1,718	8,780,092	15,282,500	193,333,000	164,950,000
Fireclay.....	35	.....	143,467	.....	700,000	.....
Miscellaneous... ..	146	.....	.....	1,783,700	.....	15,059,000

Table II—Quantity of Mine Timber Used Underground, by States: 1923 and 1905¹

	Number of Establishments ²		Round Timber (Cubic Feet)		Sawed Timber (Board Feet)	
	1923	1905	1923	1905	1923	1905
United States... ..	6,384	5,163	174,389,004	165,535,900	507,359,000	435,944,000
Pennsylvania... ..	1,923	754	76,008,347	47,606,500	145,528,000	157,324,000
West Virginia... ..	965	325	17,430,303	8,716,000	49,519,000	19,645,000
Illinois.....	344	400	14,964,030	10,342,300	15,045,000	7,025,000
Montana.....	126	153	4,416,894	4,008,400	61,817,000	62,852,000
Arizona.....	115	139	1,085,844	1,045,500	61,858,000	40,498,000
Ohio.....	530	(3)	6,045,014	(3)	23,341,000	(3)
Kentucky.....	410	(3)	6,534,541	(3)	20,989,000	(3)
Michigan.....	81	60	6,550,501	12,602,600	10,108,000	11,487,000
Minnesota.....	57	(3)	6,356,415	(3)	10,256,000	(31)
Colorado.....	227	487	5,404,933	4,340,900	6,743,000	13,518,000
All other states..	1,606	2,845	29,612,182	78,873,700	102,155,000	123,595,000

(1) Statistics for 1905 compiled by the Forest Service, Department of Agriculture.

(2) Reported as number of mines for 1905 and number of mining establishments for 1923. An establishment in some cases comprises a group of mines.

(3) Included in "All other States."

Pine and hardwoods from the South are used for the more permanent type of construction as in entries, haulage ways, and main openings. However, 75 per cent of all the wood products used in these mines is of round timber rather than sawed timber. Since these timbers are employed in the smaller dimensions as well as in the larger sizes it is possible to utilize a great quantity of products from local forests for which there is no competition except in some cases where there may be a demand for post material. This region has sufficient forest land within its boundaries to supply easily the requirements of the mining industry. If these forest lands were placed under management a longer rotation would be necessary for sawed timber but the round timber of much smaller size could be produced meanwhile in abundance and the cutting of the round timber largely as thinnings would benefit the forest.

West Virginia uses approximately 25,000,000 cu.ft. of timber per year in the coal mines of the state. Until recently West Virginia ranked first in the total production of hardwoods in the United States, but now these valuable stands of hardwoods as well as those of pine and spruce are being rapidly exhausted by commercial exploitations, and already the mines of this woodland state are required to use an inferior grade of second growth timber.

Illinois, according to the Second Report on a Forest Survey of Illinois by Herbert H. Chapman and Robert B. Miller, ranks third in the consumption of wood for coal mining and used during 1921 an estimated total of 21,552,260 cu.ft. as follows:

Props, 13,375,989 cu.ft.
 Mine ties, 2,691,399 cu.ft.
 Caps, 1,902,220 cu.ft.
 Legs and bars, 2,537,970 cu.ft.
 Riprap, or lagging, 202,422 cu.ft.
 Mine cars, 1,329,800 cu.ft.
 Construction, 512,460 cu.ft.

The more recent estimate for 1923 by the United States Department of Commerce shows a consumption of 17,471,530 cu.ft. for underground use instead of 19,710,000 cu.ft. as in 1921. On the basis of the year 1921 a total of 246,375 cords of wood is required to mine all the coal produced in Illinois.

Exactly 91.24 per cent of all this wood is in the form of round or hewn products of which but 7.12 per cent are legs and bars of sizes large enough to yield lumber. Thus 84.12 per cent of all the wood used in these coal

mines consists of relatively small props, mine ties, and lagging which utilize trees down to 3 to 4 in. in diameter breast high.

The average price paid at the mines for all classes of timber reduced to cubic feet was in 1921, 18.3c. per cubic foot. The larger sizes such as for legs and bars cost 26.7c. or an amount 46 per cent greater than the average, while mine props cost 16.2c. per cubic foot or 11.5 per cent lower. Therefore the larger sizes command a price per cubic foot 64.3 per cent greater than the smaller. It has been computed that an area of less than 500,000 acres of forest land will furnish a perpetual supply of mining timbers for Illinois. The mining companies own 799,000 acres, or 60 per cent more than they require to produce their own needs.

Although known as the prairie state, Illinois continues to draw more than 60 per cent of the mine timber used from within its own boundaries. Most of the introduced woods come from the Ozark region of Missouri and are chiefly white and post oaks of small dimensions.

The Clinton district of Indiana uses mostly local timber of small sizes and these are of second growth and of inferior quality.

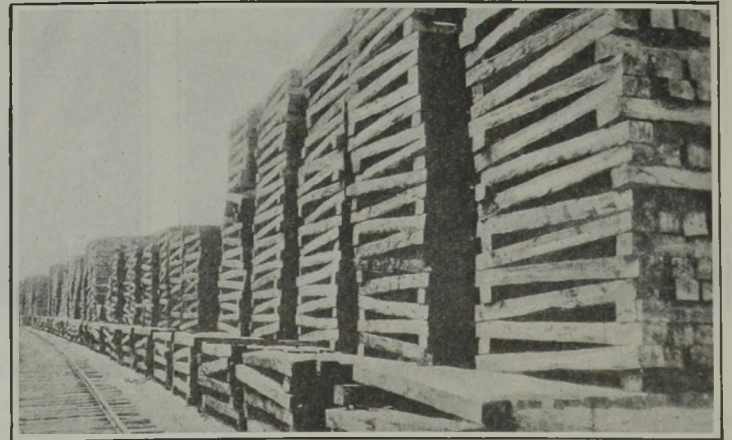
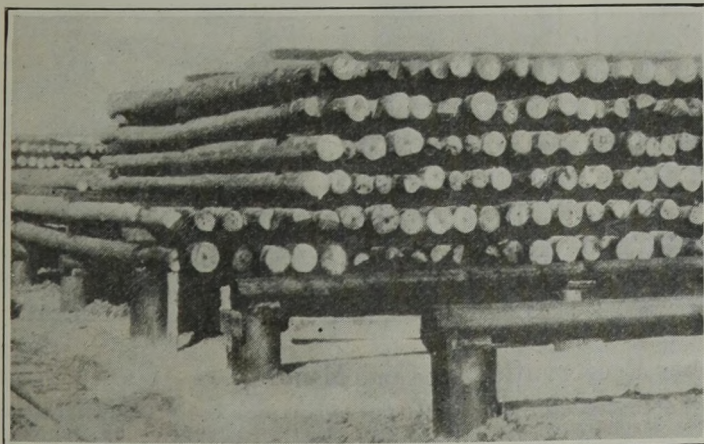
KENTUCKY AND TENNESSEE WELL SUPPLIED

Kentucky produced in 1924 about 45,000,000 tons and Tennessee about 5,000,000 tons of coal. On the estimated basis of 0.33 cu.ft. per ton these states must consume jointly a total of nearly 17,000,000 cu.ft. of timber. These states, like West Virginia and Virginia, are well supplied with valuable forest land and have already been large factors in supplying timbers to the coal mines of Pennsylvania. Hardwoods, chiefly oak and chestnut, constitute the principal species, although spruce and pine were at one time abundant.

Virginia produces about 9,500,000 tons of coal annually and probably uses more than 3,000,000 cu.ft. of timber.

Alabama now produces about 20,000,000 tons of coal per year, and it is safe to assume that the annual requirement for timbers is almost 7,000,000 cu.ft. for these coal mines alone. The Alabama forests have been cut over pretty generally but continue to yield longleaf, shortleaf, and loblolly pines, white oak, red oak, cypress, and red cedar among numerous other species not used in the mines.

The problem of timber shortage which confronts the



Proper Handling of Timber in a Mine Yard Saves Money

At the left is shown a stock of peeled timber properly piled. When handled this way, the wood is little subject to decay and will season quickly. The other picture illustrates an excellent

way to pile untreated ties and other short, sawed timber for seasoning or storage. In this arrangement a minimum area of wood surface is touching.

coal mining industry may be solved in just two ways: Greater production of timber and more careful use and preservation of wood in mines. In scientific timber production, on cut-over and idle lands within the commercial vicinity of the mines, federal and state aid can well be expected, but, as a matter of sound economy, the coal operators themselves should note the handwriting on the wall and take heed by focusing their foresight some thirty years in advance and organizing now their forestry departments and employing forest experts to supervise, manage, and properly protect from fire the large holdings of timber land which they control.

Encouraging progress along this line has been made in some sections. The Pennsylvania coal companies which have taken the initiative in practising forestry upon their holdings include at least the following:

Clearfield Bituminous Coal Corp., Lehigh Coal and Navigation Co., Berwind-White Coal Mining Co., Philadelphia & Reading Coal & Iron Co., Bethlehem Mines Corp., Rock Hill Coal & Coking Co., Rochester & Pittsburgh Coal & Iron Co., Cambria Mining & Manufacturing Co., Eastern Bituminous Coal Mining Co., Homer City Coal Co., Vinton Colliery Co., Arrow Coal Mining Co., Pittsburgh Coal Co., and Graceton Coal Co.

Other companies are practising forestry in a small way and it is hoped their influence may spread to the larger number of operators who have taken no action in this regard.

WHAT 40c. PER ACRE WOULD DO

The Philadelphia & Reading Coal & Iron Co. of the anthracite region is now spending 30c. per acre annually for the protection and development of the forest land which it controls. It has been estimated by A. C. Silvius, the forester of this company, that if 40c. per acre were expended each year by each of the anthracite establishments it would take 33 years to expend for this purpose the equivalent of the present annual freight bill on wood timbers imported to this region. Mr. Silvius suggests that if the 500,000 acres of land controlled by these operators were divided into units

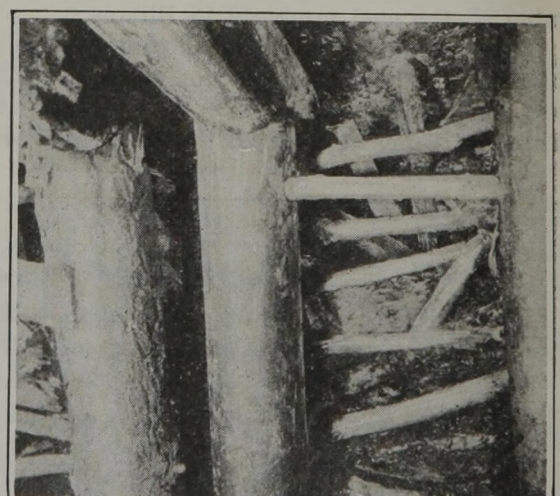
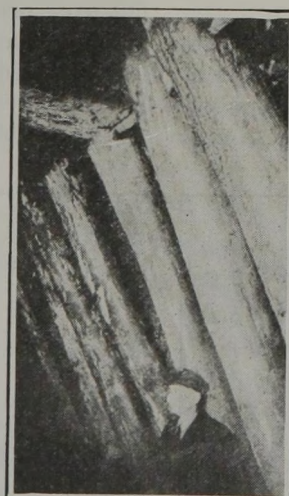
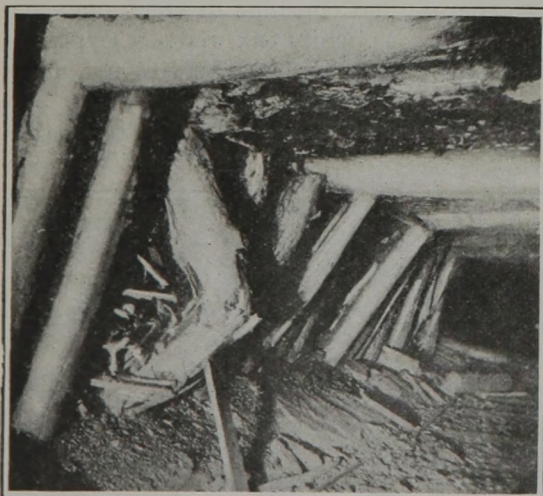
of 5,000 acres or more, the expenditure of 40c. per acre might well be made as follows:

For roads, trails and fire lanes.....	15c.
For surveys and maps.....	2c.
For forest planting	4c.
For fire prevention	4c.
For fire extinction	2c.
For tools and supplies.....	1c.
For supervision	5c.
For miscellaneous expenses	2c.
For slash disposal	5c.
Total.....	40c.

The Clearfield Bituminous Coal Corp. offers an excellent illustration of what may be achieved in the bituminous regions when the responsible parties are thoroughly aroused to the forestry situation. The forestry branch of this company was first organized in the spring of 1920. The company's holdings comprise 150,000 acres, of which 24,000 acres are owned in fee and are available for reforestation. A survey of this land indicates that 2,000 acres are covered with a good stand of timber, 16,000 acres contain natural reproduction, 4,000 acres are barren, 1,000 acres are semi-barren near the mines and 1,000 acres are of farm land.

Since 1920 rapid strides have been made in the proper care of this forest land. The natural reproduction has been encouraged in its growth, fire lanes have been cut, roads opened, and a fire tower connecting by telephone with the state system has been erected. But the biggest development has been this company's forest tree nursery. The nursery site was established in September, 1923, near the town of Clymer, Indiana County, Pa., and the first seed sown in March, 1924.

An inventory taken in August, 1925, showed for this nursery about 2,215,000 two-year-old coniferous seedlings and 2,140,000 one-year-old coniferous seedlings. In addition the nursery contains about 16,000 hardwood seedlings and 170,000 transplants. This nursery is the largest and most successfully operated of any forest tree nursery controlled privately in Pennsylvania. This company is contemplating the planting of 1,000,000 trees each year.



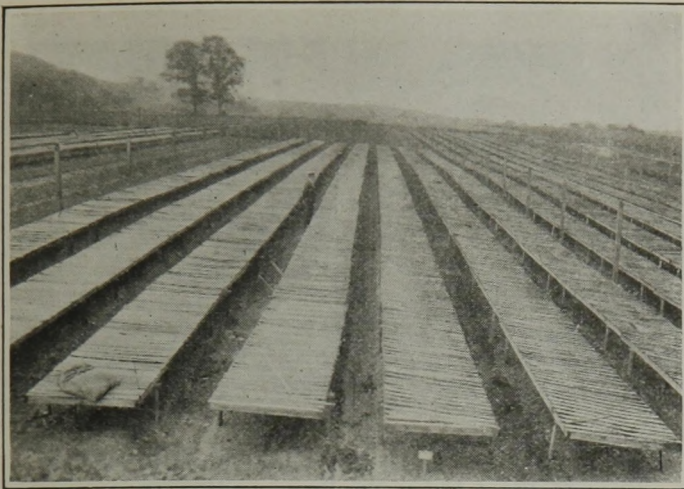
This Is Why It Pays to Practice Timber Preservation in Coal Mines

In the picture at the left the broken part above was weakened by decay to the point of failure after one year's service in the mine. It was sound when installed but was not treated with a preservative. The post next to it which was treated with a preservative and placed at the same time remains sound and uninfected by decay. Two other untreated timbers in the foreground show fungus attack.

In the center picture, the timber at the left of the man—being the second upright shown in the foreground of this haulageway illustration—was set after treatment with lime chloride in 1908 and is still sound after 17 years' of service. The untreated timber immediately at his right is decayed and due for early replacement. The timber was installed only four years ago to replace a treated timber which had been in

service for 14 years. The original treated cap of this set seen supported by the decayed timber is sound in its 18th year of service.

The other photograph shows—left to right—an untreated timber, a zinc chloride treated timber, and one treated with creosote after all three had been in service in a coal mine for 18 months. The two treated timbers are still free from decay.



Some Coal Companies Have Nurseries Like This

Seedlings are under the protection shown here during a part of the year before they are ready for transplantation to the open acreage the company maintains.



Seedlings with Protective Covers Removed

At the end of each season these tiny trees in a coal company's nursery are "given the air." Usually in the third season the trees are ready to be set out for their larger growth.

The planting of forest trees upon idle land not only increases the value of the property but also reduces the tax bill of the property owner appreciably. The state of Pennsylvania provides for placing such improved forest lands in a class called the auxiliary forest reserve and assesses each acre at a sum not to exceed one dollar until the time when the protected timber is ready to cut and then the state claims one-tenth of the stumpage value of the products. This affords one of the best arguments in favor of forestry on coal lands and is really too good a business proposition to pass unaccepted.

UTILIZE EVERY TIMBER IN MINE

Besides increasing timber production, the other solution of the mine timber problem is that of the closest utilization of every piece which enters the mine. Wood is essential because it is cheaper than substitutes, such as masonry and steel; it is easily worked and fitted to place and involves no great difficulty in handling.

To insure the greatest strength values in mine timbers the strongest pieces should be selected for the most important places, and especially is this true today when there is but little choice between good and bad local timber. Density is an important factor in this regard and is an indication of the quantity of wood substance present, and considering two pieces of wood of equal moisture content the denser piece will have the greater strength.

Defects such as decay, knots, shakes, splits, checks, and cross grain seriously depreciate the strength values in wood, and where possible woods containing these defects should be avoided. Wherever possible timbers should be carefully seasoned before use. Timbers free from bark and properly air seasoned have greater strength and durability than those which are green and may harbor disease, insects and moisture beneath the bark.

Decay in wood is caused by a disease we term "fungus." The fungus feeds upon food substances stored within the sap-wood cells. It obtains this food by the penetration of small threads called mycelium. Wood which is apparently sound may contain these tiny threads and will eventually succumb to decay. This fungus will thrive in the presence of air, moisture, and warmth, all of which are required. Since light is no factor it may readily be understood why this disease

develops to such an extent underground where it often presents itself to the miner in many grotesque forms adhering as fruiting bodies to the decaying wood.

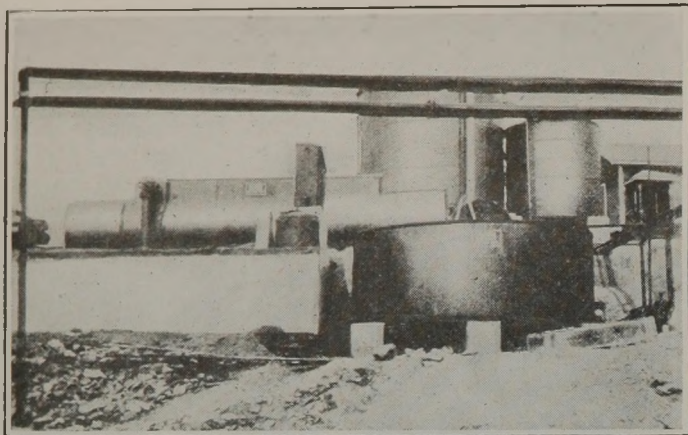
If the moisture content of wood can be reduced to a point lower than 20 per cent (based on dry weight) these fungi cannot endure—hence the value of seasoning wood products to remove the fungus and thereby increase the durability of the wood. But, of course, seasoned wood placed in most mines will absorb moisture. Therefore, in these cases and where durability is required it is necessary to impregnate the wood with preservatives which are toxic against decay. The creosotes are more generally used for this purpose than the zinc chloride because the latter, being soluble in water, is subject to leaching.

Mine timbers are destroyed by decay, insects, fire, and mechanical abrasion and of these, decay is by far the most destructive. Where the natural durability of the wood extends beyond the period of temporary use it is not necessary to use preservative treatments. However, it is safe to presume that of all the timbers used underground for coal mining fully 15 per cent or 30,267,357 cu.ft. are employed for the more permanent uses, such as in main entries, shafts, and haulage ways.

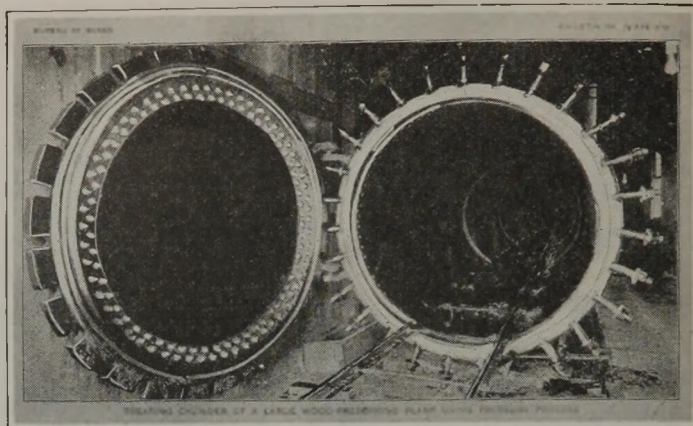
TIMBER PRESERVATION ESSENTIAL

These timbers if untreated will, in some cases, barely endure one year of service, but assuming three years to be the average life there will then be required in the average mine shaft, drift, and gangway three renewals during a twelve-year operating period and, perhaps, as many as five to ten. On the basis of the minimum number of renewals, there is used in our coal mines during a twelve-year period for these more permanent purposes a total of 121,069,428 cu.ft. of timber, of which 90,802,071 cu.ft. could have been saved by preservative treatment. At the average cost of 25c. per cubic foot this amounts in value to \$22,700,516.

Wood preservation has passed far beyond the experimental stage and is now a recognized necessity in the nation's scheme of closer utilization of wood products. Fortunately, some of our large mine operators have taken the initiative and are already setting the pace for others to follow. There is really nothing objectionable in the use of creosoted products in coal mines. Some miners have complained that the odor is objectionable, and they have expressed a fear of so-called



A Non-Pressure Plant in Pennsylvania for Treating Mine Timbers



The Treating Cylinder of a Large Wood Preserving Plant Using the Pressure Process

explosive gases coming from the timber preservatives. This objection has no foundation of fact.

Proper ventilation of mines is an important factor in the life of timber as well as it is a factor in the more important consideration of the life of the operating miner. A perfectly dry, well ventilated mine gives the longest life to timber, while a poorly ventilated mine which is alternately wet and dry gives the shortest life and a mine which is wet all the time but well ventilated rates between the two. Ample ventilation is essential to the prolonged life of mine timbers whether they be treated or untreated.

We hear much of the fire hazard. Under any circumstances where the fire hazard is great, as in timbered downcast shafts and shaft stations, the timbers, whether treated or untreated, should be protected by a fireproof coating preferably of gunite, plaster, cement, concrete slabs, or other non-inflammable substances.

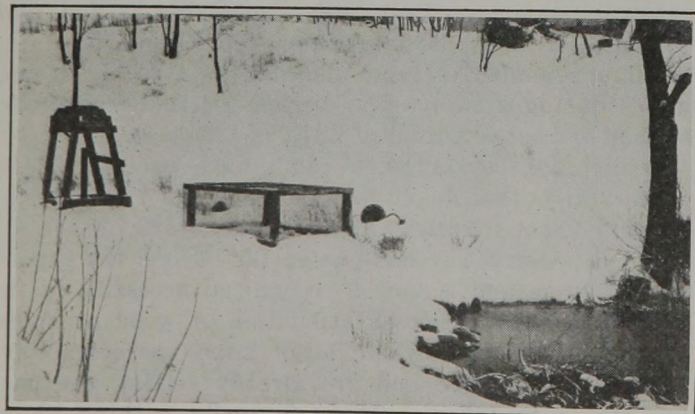
The reclaiming of mine timbers or their salvage after temporary use would be an important utilization fac-

tor were it not for the hazard and cost involved in drawing the mine timbers from these working places. A post puller is on the market which partially eliminates this danger to the operator but on account of the cost the practice is not general.

The present indications are such that in all probability steel and concrete will substitute wood in the more permanent locations in additional quantities as time goes on. In coal mines where the waters are strongly acid, corrosive action tends to destroy these steel supports, but otherwise the conditions in these mines favor the use of substitutes as the cost of the large wood timbers advances. Brick and stone are sometimes used in constructing bulkheads or stoppings, but no satisfactory substitute for the wooden temporary roof support has as yet been found and since the aggregate of these temporary uses totals 85 per cent of the wood consumed underground it is important that conservation measures be undertaken to provide indefinitely these necessary timbers.

Borehole Enables Mine to Drain Itself Without Pumps

Approximately 1,600 gal. per minute is the natural flow into the stream at the right from the 176-ft. borehole, the top of which is protected by the fence in the center of the accompanying illustration. This 12-in. borehole into the abandoned mine No. 39 of the Pennsylvania Coal & Coke Corp., at Patton, Pa., drains the No. 28 mine without the aid of pumps. The two mines are in a bed which in this locality has a general pitch



Gallons per Minute Cut No Ice Here

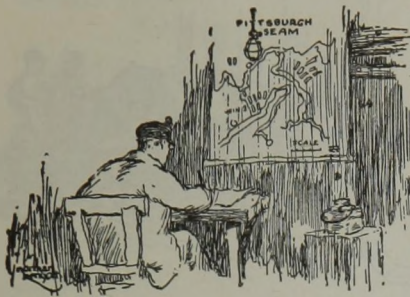
The borehole in the center of the picture once served a mine long ago abandoned. Now it is merely an outlet through the abandoned operation for water flowing down from a higher-level mine.

of 6 to 7 per cent. Mine No. 39 was abandoned in 1924 but pumping was continued in order to get rid of the water from mine No. 28.

A careful check of the levels indicated the top of the borehole to be 3 ft. above the lowest point in No. 28 mine. On the strength of these measurements the pump in No. 39 was removed and the abandoned mine allowed to fill. In order to increase the differential head, the top of the borehole casing was cut off about 14 in. below the surface and two large pipes run from here to a discharge point about 15 ft. away.

Light Needed, Not Glare

Bare lamps in mines are all too prevalent, and are an especial hazard because such brilliant light sources directly in the field of vision will cause pupillary contraction and partial blindness, with the result of risk of injury. Glare under mine conditions, where surroundings are black is more detrimental to the eyesight; it is almost a criminal negligence. Light that does not fall directly upon surfaces to be illuminated is absorbed by the black surfaces, as there is no diffusion of light in a coal mine, and hence light is wasted if not directed exactly to the proper place. For this purpose porcelain-enameled steel reflectors should be used which not only direct the stray light to the proper area, but shield the light source from the eyes of the miners.



Problems In Underground Management



Bottom Layout Increases Efficiency Of "Wireless" Mine

The Consolidation Coal Co.'s new mine at Caretta, W. Va., has a bottom unique in several respects but interest centers for the moment in the charging station for locomotives and portable power units. Inasmuch as this is a "wireless" mine, all gathering, haulage and cutting being done by means of storage batteries, the charging facilities must be ample or operation is liable to be seriously hampered.

In the accompanying illustration, as may be seen, each charging stall is double, that is, it contains two charging racks. One of these will always carry a battery either in the process of charging or fully charged.

Suppose that a locomotive or portable power unit, the battery of which has been discharged in operation, comes to the station. The battery compartment of these machines is a separate component part readily attached to or detached from the

chassis. The exhausted locomotive accordingly enters a stall where one charging rack is empty depositing its battery. Then the chassis, running on power from a cable, backs out and runs under a rack on which is a charged battery. Drawing this down from the rack in the customary way the locomotive returns to service.

Facilities are provided on this bottom for 28 gathering and 12 haulage locomotives or power trucks. Either charging station may be readily extended whenever necessity may require.

In gaseous regions the "wireless" mine possesses many advantages over the trolley-equipped operation. Heretofore one of the chief objections to haulage and other equipment operated on storage batteries has been the time required to charge the accumulators or the difficulty involved in changing battery boxes. Such bottoms as the one at Caretta, and

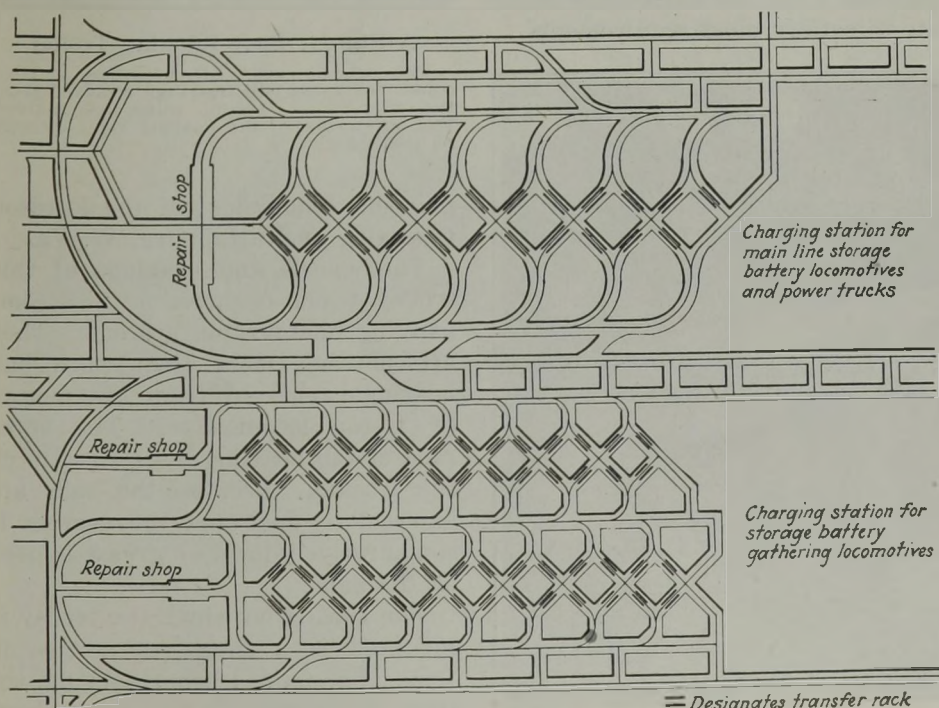
locomotives and power units from which the batteries can be removed and replaced as easily as those there employed, will doubtless do much to overcome this difficulty and permit the wireless mine to operate on far more nearly equal terms with its trolley-equipped competitor.

Blowing Out Old Grease Saves Bearings

Many automobile owners nowadays prefer renewal of their crankcase oil at definite intervals or after a certain mileage has been covered to periodic replenishment of this lubricant. The idea back of this practice is that oil deteriorates with use, losing a certain amount of its lubricating quality. It is therefore believed to be cheaper and more satisfactory in the long run to throw the old oil away and substitute new than to replenish the supply already in the crankcase.

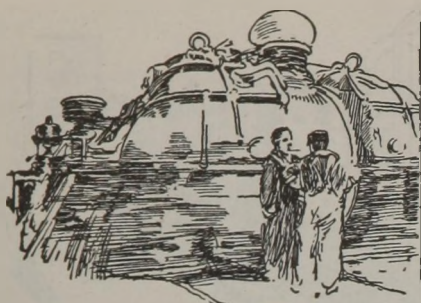
A somewhat similar idea is followed by certain coal companies who make it a practice to blow the grease out of their roller-bearing car wheels at definite intervals and then to re-pack the bearings. Compressed air at 100 lb. pressure is used to blow out the old grease and the new lubricant may be shot in by the same means. Much of the old grease may be melted, strained, filtered or otherwise purified and reused if desired.

At first glance this might appear to be an expensive practice as it would seem to entail the consumption of an excessive quantity of grease. What is lost in lubricant, however, seems to be saved in bearings. Last year one large company following this practice and using 1,840 mine cars or 7,360 bearings consumed about 20 tons of grease. It makes a practice of packing its car bearings four times per year. But in the past five years this operator has been compelled to purchase only 125 cages of rollers for renewal purposes, making a renewal rate of approximately 0.34 per cent annually—a cost so small as to be negligible.

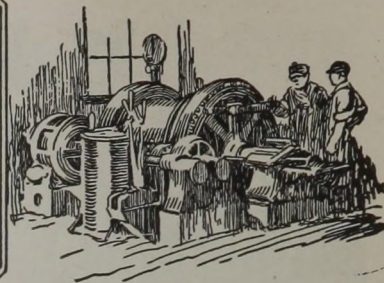


Caretta Bottom Has Large Carrying Capacity

The charging station for locomotives and power units is practically double, one-half being for the accommodation of main line or haulage locomotives and the other half for gathering locomotives. By providing each machine with two batteries one can be kept on charge while the other is furnishing current for mining operations. It requires only about 5 min. to change batteries.



Practical Pointers For Electrical And Mechanical Men



Improvised Plane Table Facilitates Work In Mine Shop

In the performance of many shop operations the work is greatly facilitated by the use of a true and even surface. This is especially the case in certain layout and assembly jobs where a solid, even foundation for the work in hand is essential. The supporting surface may then be taken as a sort of "origin of coordinates" and measurements and heights taken from it.

Unfortunately what is known in the shop as a machinist's plane table, (and this must not be confounded with the surveyor's instrument of the same name) is quite an expensive piece of equipment; so expensive, in fact, that few mine shops are provided with them. Sometimes it is possible to salvage some part of an old or broken machine and make it perform the function of a regular plane table.

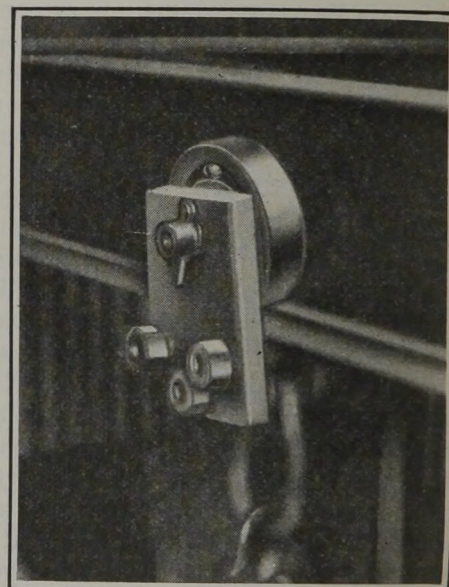
Such an instance of salvage and application to a useful purpose is shown in the accompanying illustration. The shop where this photo-

graph was taken once employed a bulldozer, but this machine was too small for the work in hand, gave trouble and finally broke down completely. A new and larger machine of the same kind accordingly was ordered. The guides of the broken machine were 10 in. or more in width on top and, of course, were planed to an even finished surface. The possibility of using one of them as a plane table was at once recognized by the management and in the accompanying photograph it is being employed in this capacity.

Although the height of this old guide is perhaps a little less than that of an ordinary plane table it is not particularly inconvenient on this account. If this were the case it would be an easy matter to raise the guide to the desired height upon either a temporary or a permanent foundation. Upon the other hand, this guide is amply big and heavy and has a surface sufficiently accurate to satisfy most requirements.

Old Ball Bearings Make Good I-Beam Trolleys

High-grade I-beam trolleys of commercial types usually are equipped with anti-friction bearings. Because of the wheel and bearing difficulties, not many home-made trolleys are in use. One of this type and of unique construction forms part of the re-



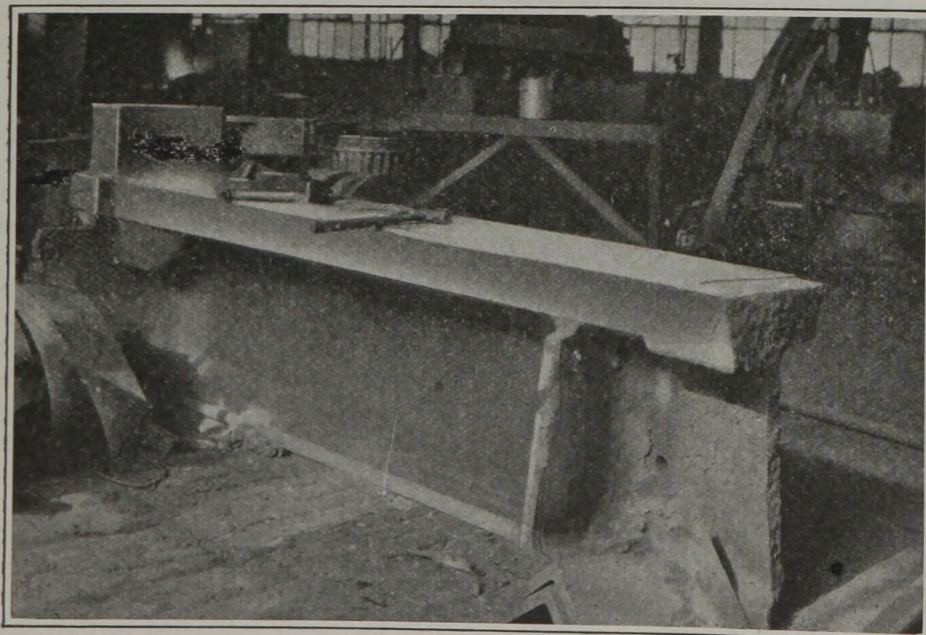
A Sturdy, Easy-Running Trolley

The wheels are "all bearings." They consist of worn ball bearings removed from the motors of 10-ton mine locomotives. The outer race of the bearing rides directly on the beam.

pair-shop equipment of the Fordson Coal Co., at Nuttallburg, W. Va.

The wheels and bearings of this trolley, which is shown in the accompanying photograph, are one. They are nothing more than worn ball bearings removed from the motors of 10-ton locomotives. The outer race of the bearing rides directly on the I-beam. Because the balls are exposed to dust and the service is comparatively light no grease is used on the balls.

The I-beam on which the trolley is mounted is a short one extending from the main I-beam serving the track and motor pit, to a point above the shop lathe. Even with a load the trolley operates so easily that with but a slight start it will coast the length of the beam.



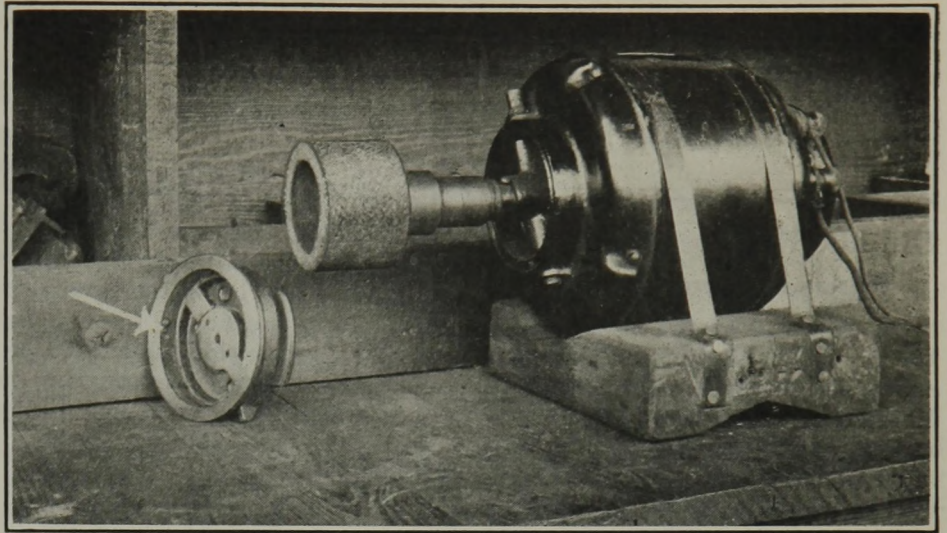
Bulldozer Guide Used as a Plane Table

When the bulldozer after giving much trouble finally broke down completely the shop management was quick to recognize that one of the old guides possessed more than its mere scrap value. By means of the acetylene torch it was cut to proper length and is now used in the shop as a small plane table upon which fine work can be done with satisfactory accuracy.

Small Grinder Reclaims Old Switch Covers

When G. L. Birch went to Balkan, Ky., as chief electrician of that operation of the Southern Mining Co., he found in the scrap many reverse-switch covers of CE-6 mining machines. In practically every case the covers had been thrown away because of a small burr or roughness on the inside, caused by an arc. This roughness prevented removal of the insulator for repair or renewal.

Arc deposits on cast iron are, as a rule, too hard to file or machine. Grinding is then the only method which can be used for smoothing a surface thus affected. But to grind the inside of a reverse cover requires a special wheel of small diameter. For this purpose Mr. Birch purchased a 3-in. cup-shaped wheel and attached it to a $\frac{1}{2}$ -hp., single-phase 110-volt, 3,400-r.p.m. motor. This grinder removes the burrs and smooths the surface in a few



Arc-Damaged Cover, and the Grinder

The arrow indicates the arc burrs or blisters which were the reason for junking many mining-machine reverse-switch covers. The grinder was made by attaching a 3-in. diameter, cup-shaped wheel to a $\frac{1}{2}$ -hp. alternating-current motor. This grinder in a few seconds removes the burrs which could not be "touched" with a file.

seconds. The insulator can then be taken out and the cover is again ready for use.

For several years it has not been necessary to buy new reverse covers

at Balkan. Those damaged by arcs are repaired, and the ones lost or broken are replaced by covers reclaimed from the scrap and made servicable with the grinder.

Discarded Tires Put to A Second Use

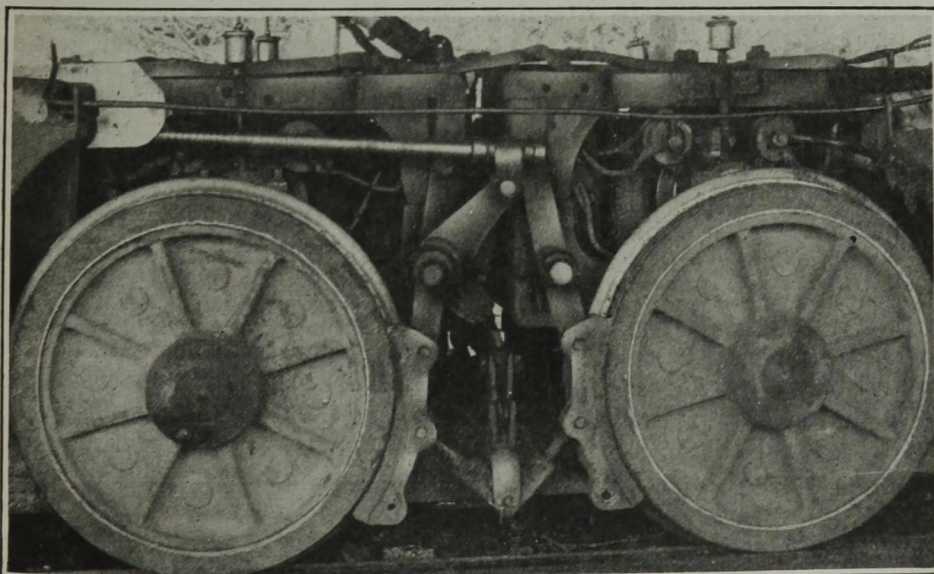
In the motor barn of the New Caryville Coal Co., Caryville, Tenn., is an 8-ton veteran locomotive which after many years of active service has been retired to the reserve. It is still maintained in good condition ready for use when a breakdown of the regular equipment occurs. One reason why it was taken out of service was because of the small track clearance. In all the years of its service, the worn tires were never

turned and used again, but instead new ones were put on in order to maintain proper height.

In 1917 when J. E. Gider came to the mine as chief electrician he wondered what use could be made of the large pile of slightly worn tires which had been removed from the "veteran."

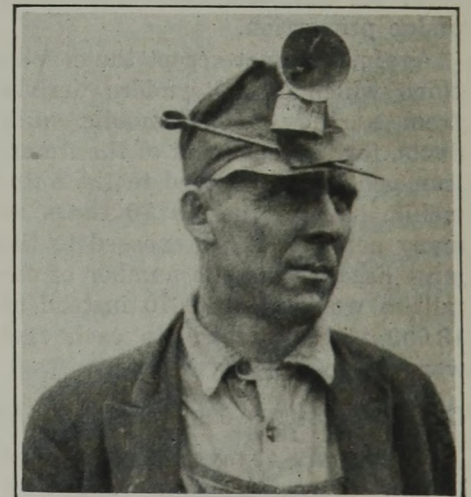
Measurements showed the inside diameter of these tires to be 1 in. greater than that of those used on a 5-ton locomotive of more recent design. The next time that this locomotive needed new tires, the worn

ones were left on, and were turned flat to a $\frac{1}{2}$ -in. thickness. Over these were applied turned tires from the old locomotive. Since that date in 1917, no new tires have been purchased for the 5-tonners. Eight sets (32 tires) from the old locomotive have been used on the newer machine.



Locomotive from Which the Tires Were Removed

During the many years that this locomotive operated at the New Caryville mine, tires of but one wearing were removed and piled in the scrap. Since 1917 this pile of tires has been the base of supply for all renewals on another type of locomotive. The old tires are turned and then applied over a $\frac{1}{2}$ -in. remnant of the original tires.



"Lamp Pick" Has New Uses

Now-a-days a lamp pick for pulling up a wick is a curiosity, and more so when carried by a man wearing a carbide lamp. This snap shot of C. C. McGraw, mine foreman of the Roden Coal Co., Marvel, Ala., shows him carrying a lamp pick, in the regular place on his cap, to use as a "signal rapper." The principal use of this tool is to signal the hoist operator by making a connection between the bare signal wires which parallel the tracks where rope haulage is used. The "boys" in the blacksmith shop state jokingly that Mr. McGraw wears out one of these rappers every week, and he admits that he uses it "for almost everything"—testing timbers, ties, brattices, and so on.

Viewpoints of Our Readers

Did Mr. Reynders Prove Coal Mines Reasonably Safe?

On page 818 of the issue of Dec. 10, J. V. W. Reynders, president, American Institute of Mining & Metallurgical Engineers is quoted as saying that the dangers of coal mining had been greatly overestimated by the public, adding that out of 86,000 fatalities in the United States less than 2,400 occur at coal mines.

This may appear a small proportion but I view it otherwise. There are over a hundred million people in the United States, and less than a million are mine workers, or under 1 per cent of the whole. These work less than 200 days a year for eight hours only, yet with 2,381 fatalities in 1914 the proportion of fatalities in the mines to all those incurred is 2.77 per cent, so the mine workers' death rate is 2.77 and more times the average.

FIGURES SHOW UNDUE PROPORTION

Using S. D. Keller's statement that 25 per cent of all accidents occurred in industry, the total number must have been 21,500 and those that occurred at the mines must have been 11.07 per cent of these, certainly an undue proportion.

Again, I cannot accept the conclusions which Mr. Reynders derives from a study of automobile accidents, for if 70 per cent of the American people are exposed to the automobile hazard, that is 70 times as many persons as are exposed to the mine hazard, and the number of fatalities would be 166,670 instead of 18,000 if the hazards in each case were of the same severity.

GREAT BRITAIN CORRECTING ERRORS

Writers are always comparing the United States accident rate with that of Great Britain. I believe Great Britain is learning her mistakes and correcting them, but I fail to note that the United States is doing so. From 1887 until 1891 inclusive 13 per cent of all fatal accidents in Great Britain were caused by explosions. In 1924 only 35 men died from this cause in Great Britain. In the United States in 1923 the fatalities from explosions were 15 per cent of all fatalities

and in 1924 there were 536 lives lost from this cause in the United States or 22.5 per cent of all the fatal accidents, 75 per cent of these being caused by gas explosions and 60 per cent of these fatalities occurring in mines where open or mixed lights were used.

ROBERT EMERY.

Neffs, Ohio.

Break the Roof on the Bias And Avoid Trouble

I conclude from your recent articles in *Coal Age* on the use of face conveyors that such aids to coal loading are yet in the experimental stage in the coal fields of this country. The different methods of working that appear, from your articles, to be the most successful happen to be identical with those I have seen used in the British coal fields—namely, modifications of the straight longwall face. The only difference noticeable is the shortness of the wall. I believe better results will be obtained by lengthening these faces, especially under roofs that will bend. This will enable the roof to settle down in the waste.

DISAGREES ON METHOD

There is one point Mr. Hall mentioned in the Oct. 8 issue which does not fit in with my experience in the working of conveyors with longwall mining. In the article he said, "another helpful factor in attaining complete and safe extraction would be afforded if the face of the working was arranged to parallel the natural break lines or steps of the roof." That is a state of affairs which should be avoided and not encouraged. When it has developed it has many a time had to be corrected by cutting lightly on one end of the wall so as to bring the face at an angle of about 45 deg. to these natural break lines or slips.

By the method of working advocated by Mr. Hall the slips will be exposed from end to end of the wall thereby deliberately inviting trouble and giving the coal a good opportunity to sit down on the machine when cutting, provided one of these breaks should be coincident with the back of the cut. Also, should the face start working and one of these

slips be in line with the last cut then the wall will close from end to end. This unhappy result will be avoided if the face is so aligned with the slips that the latter run into the coal instead of parallel with the face.

With this method systematic timbering of the face is needed in order to aid in the control of the roof.

ARTHUR JOHNSON.

West Virginia.

Grate Scheme Saves This Coal Consumer's Money

When the coal strike was announced I had no coal to speak of in the cellar and to tell the truth I was a bit worried. However, I have fared pretty well, in fact, much better than if there had been no strike. The city eased up on the ruling in regard to the use of soft coal and I bought a few tons of pea coal and soft coal mixed. The first week I tried to burn it I built a fire every morning and then came home at night and rebuilt it. The fire simply would not maintain itself in the firepot but persistently went out on me no matter how carefully I prepared it before leaving the house.

WIRED GRATES TOGETHER

I knew there must be some way of burning it as others were using it with satisfactory results. I finally hit on a scheme to keep the fire in the proper place. I wired the grates together on the outside of the furnace making them absolutely stationary so that they could not be moved. I started the fire and it has not been out since.

It is not necessary to shake the grates as the fire can easily be cleaned by running a small poker up between the grates. I am getting just as much heat as formerly though perhaps with a little more attention than with the other coal which I had been using.

ATTRACTIVE SAVING MADE

The thing that strikes me most is the saving to my pocketbook. Hard coal even if bought in the summer time costs about \$14 a ton in the city and now I understand it is better than \$25 a ton. The mixture cost me about \$10 a ton, a saving of \$4 at a conservative estimate. On the winter's supply it means at least \$20 saved, which is not to be sneezed at in these times of high prices. Consequently you can easily see why I, as an individual am not worrying about the strike.

Brooklyn, N. Y. KEN BLAINE.

Book Reviews

How to Start a Coal Mine From the Grass Roots

All coal publications receive frequent inquiries as to the procedure that should be adopted in opening a coal mine, frequently from those who have little knowledge of the art of coal mining. To such the answer has had to be that no American book was available. Many British books have been written on the practices of the mining fraternity in starting a mine and operating it, but there was an entire dearth of books giving the practices which American conditions make necessary.

A book of 419 pages, measuring 5½x8½ in., has been prepared by Frank H. Kneeland, one of the editors of *Coal Age*, for the Mc-Graw-Hill Book Co., 370 Seventh Ave., New York City. Its major title "Practical Coal Production" is evidently one that two or more books will bear in turn. The subtitle is more explanatory, "Preliminaries of Coal Mining: Prospecting, Explosives, Development, Drainage, Ventilation." Modestly it is said by the author to be merely a compilation but in truth is no mere collection of other men's writings but a well-balanced study of the whole subject in which due use has been made of the best practice of the mining profession with much material derived from the author's own experience.

Mr. Kneeland has a mechanical bent which shows itself in a careful study of details such as only a man who likes to spend his time in actual manual construction work would develop, a man who enjoys the mechanical work of prospecting and who is never so happy as when in a workshop. The best feature of the book is its eminent practicability. It is not a collection of generalizations but a careful study of each operation from the point of view of one who has to perform the work. Those details which some engineers would leave entirely with a false confidence to their subordinate mechanics are carefully treated so that the reader knows exactly how the various tasks should be performed.

Mr. Kneeland has not the flair for geology so common among engineers. The geological phases of prospecting

on which some would spend page after page he dismisses briefly. After all, each section has its own problems, its peculiar geological conditions and if any should attempt to give the geologist all he wants he would easily fill a book like this and never succeed in satisfying each and every engineer in some one or other of the regions into which the country is divided geologically.

PROSPECTOR'S EQUIPMENT AND METHODS

There is enough, however, in the book to lay the basis for such studies, and the reports of the U. S. Geological Survey for any particular area will provide in detail all that is known if not all that is desired. Here are described, however, in detail the equipment of the prospector, the methods of prospecting by inspection, by earth augers, by churn and diamond drills and test pits with something on determining the thickness and quantity of coal in the area prospected with information as to faults, wants, rolls and folding.

Explosives are also treated exhaustively and with due attention to the needs of the man who must make them do their work economically and effectively. Here also will be found a chapter on drifting, tunneling and shaft sinking and one on planning, projection and development. Mine layout is left presumably for later treatment. Drainage is given careful consideration and ventilation also, not, however, to such a degree as to enter into the vexed question of fan design.

Electrical Measurements

When mines everywhere are either equipping themselves for complete electric operation throughout or are modernizing their equipment in order to secure greater efficiency, thus reducing unit costs, the little volume just issued by the Weston Electrical Instrument Corporation, Newark, N. J., is of particular interest. Although this book is dedicated to the advancement of the electrical laboratory of the public utility it, nevertheless, contains much that is of interest to the coal mine manager and electrical engineer. Time was when a mine official was a coal producer

exclusively; today in order to be successful he must understand at least the principles governing the control of the form of energy upon which the operation of his plant depends.

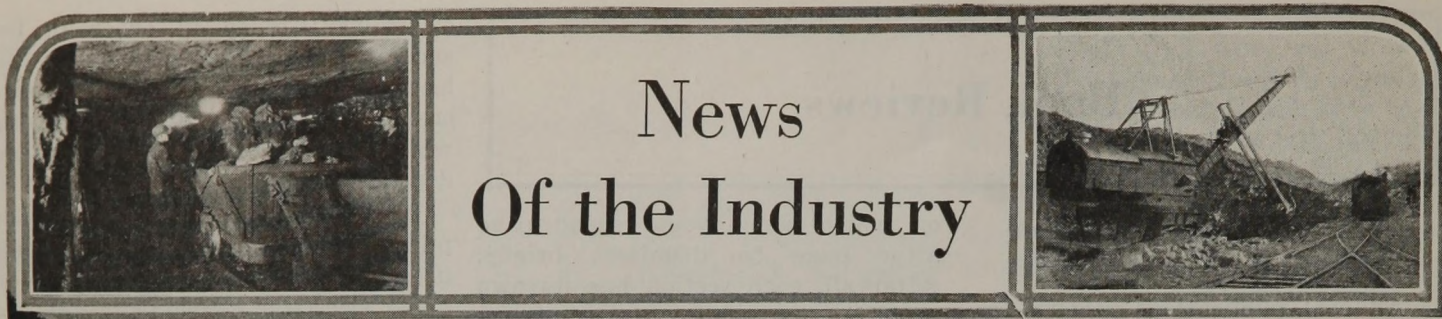
Electrical engineers as well as mine executives will find this book useful because of its descriptions of many electrical instruments and instructions for their proper use. Some of the chapter headings are as follows:—Designing and equipping a laboratory; high voltage laboratory; accessory fittings; facilities for field work; portable electric measuring instruments; proper selection of portable measuring instruments; instrument connections; electrical measurements; instrument standardization; explanation of a few electrical terms; conducting tests in the field; number system for instruments, meters and transformers; systematizing, testing and standardizing work; inspection of meter equipment; inspection of power plant equipment; testing of electrical appliances; the testing of industrial plant equipment; a few suggestions on the case of measuring instruments; protection against personal injury; appendix and tabulation sheets.

ILLUSTRATIONS ARE HELPFUL

Illustrations, both halftones and line drawings, have been profusely employed throughout this volume. The latter comprise both working drawings and diagrams. Many of them are particularly useful to the man who is not an electrical engineer because they show the proper arrangement of instruments and connections for making tests.

Many explanations and definitions of electrical terms, the meanings of which are usually more or less nebulous and hazy in the mind of the ordinary coal mine official, are also included. Thus the meaning and significance of "power factor," with which every electrified mine must reckon whether current is purchased or not, is explained at some length. Load factor, maximum demand and regulation are similarly treated.

The book contains 155 pages 6x9 in., 113 figures together with several tables and form sheets. It is available to all responsible interested parties. And, although as has been stated it is intended primarily for the use of those interested in central stations and public utilities, it doubtless will become a valued reference in many coal-mine offices.



Hard-Coal Peace Conference Breaks Up Again; Negotiations Split on Arbitration

Anthracite wage negotiations again have been broken off.

The third wage conference, meeting at the Bellevue-Stratford, Philadelphia, Pa., adjourned *sine die* on Tuesday night in another hopeless split over the question of arbitration. Arbitration was also the rock upon which the two preceding conferences were wrecked.

Neither side would yield the slightest on this main question. When the conference broke up, the president of the union characterized the position of the operators as a lockout of the workers for the purpose of starving the latter into submission. The operators retorted that the break was attributable to the blind determination of the union chief to impose his will upon the industry and upon the country regardless of cost. The producers further announced that they would carry the fight to the region and seek the approval of the idle workers for the proposals rejected by the union scale committee.

The break had been clearly foreshadowed by the developments of the meetings last week. From Jan. 26 to Jan. 30 plan after plan had been discussed only to be cast aside. Proposals embodying arbitration were rejected by the miners. Counter-proposals making no provision for avoiding deadlocks were turned down by the operator members of the conference.

Lynett Plan Scrapped

The Lynett plan fell by the wayside the first day the conference was reconvened (Jan. 26). A proposal for a flat two-year contract at the old rates put forward by the United Mine Workers as a modification of the Lynett plan was voted down by the operators after a bitter debate with Mr. Lewis. In presenting that modified plan, the president of the union argued that the first Inglis letter to Mr. Lynett had raised no objection to the provisions of the plan for the continuance of the old rates until 1928. Therefore, declared Mr. Lewis, the operators anticipated no crisis in the industry within that period and they might well let the future take care of itself.

To this Major Inglis replied that "the fundamentals of any workable contract were a long period of duration and a means of adjusting wages, if necessary, without strikes and suspensions." A five-year contract was the minimum to be considered. On no other basis could the industry function in competition with other fuels.

"Substitute fuels," continued the spokesman for the operators, "encroach on markets where anthracite is the natural market for two reasons—high prices and frequent interruption of supply. Many former customers have changed to other fuels. To maintain anthracite sales, assure work for the men and prosperity for the region, these customers must be regained, further defections prevented, or new customers secured by the natural growth of population in the anthracite-consuming territory.

"When a new house or building is erected, consideration must be given to the type of heating apparatus to be installed. Once installed, changes are infrequent. If we should sign a two-year agreement only, we venture to assert that few buildings erected during that period would be equipped with apparatus designed to burn anthracite, owing to the uncertainty of supply.

"In making our proposal, which included agreement to pay the old wage scale until Aug. 31, 1926, the industry felt that it would further reduce the margin of profit, which during the operations of 1924-25 was below a fair return. The operators believe that this condition can be mitigated by closer co-operation from our employees. They further believe that this co-operation could be made so effective—assuming that the market will absorb full production—that there would be no necessity for a wage reduction."

Lewis and Inglis Debate

Mr. Lewis retorted by inquiring why the operators had refused an extension of the old contract when that offer was made in March, 1924. Major Inglis replied that the anthracite producers were too fearful of the effects of the Jacksonville agreement upon the bituminous operators signing that pact to obligate the anthracite industry in the same manner.

Mr. Lewis charged the anthracite operators with keeping the miners in idleness because the hard-coal producers were concerned with the problems of the bituminous industry. Major Inglis answered that had the union accepted the suggestion made at Atlantic City last summer there would have been no suspension.

Later in the same session, Mr. Lewis offered a resolution that the negotiating committee be increased by the addition of S. D. Warriner, chairman of the Anthracite Operators' Conference;

W. J. Richards, president of the Philadelphia & Reading Coal & Iron Corporation, and two representatives of the mine workers "acceptable to the operators." George B. Hadesty, general manager of the Reading company, assured the conference that the present committee of operators had full power to act and that an increase in its membership would not increase the possibility of making an agreement. The motion was lost.

The Anthracite Operators' Conference, at a meeting held at the Ritz-Carlton Hotel, Philadelphia, on Jan. 29, took cognizance of Mr. Lewis' demand by unanimously adopting the following resolution:

WHEREAS, The negotiating committee, duly authorized by the operators with full power to negotiate a working agreement, has reported to the conference the action and policy it has pursued,

Resolved, That the committee's action and policy is unanimously approved and has the support of the entire industry. The vote of confidence in previous meetings is hereby reaffirmed.

Discuss "Final" Plans

For the next three days the principal topic of debate was the two "final" plans of miners and operators. The operators' plan read as follows:

(1) A five-year contract ending Aug. 31, 1930.

(2) The wages in effect under the last contract to be paid until Aug. 31, 1926, as a consideration for an immediate resumption of work, and to continue thereafter, subject to revision when and as economic conditions may require, in the manner outlined herein.

(3) Either party may on June 1, in any year, make request of the Board of Conciliation for a reconsideration of the wages paid.

(4) The board shall meet forthwith, consider the facts presented and render a decision within thirty days.

(5) If the board deadlocks, the questions at issue shall be referred to three persons to be appointed by the Hon. Charles Evans Hughes or, in the event of his inability to act, by some person of similar standing to be mutually agreed upon.

(6) The personnel of the appointees to consist of one man representative of labor, but not affiliated with the United Mine Workers, one man representative of industry, but not affiliated with the anthracite industry, and one man of eminent reputation and attainments.

(7) The three men thus appointed shall sit with the Board of Conciliation, hear the arguments, ask for and obtain any additional data they may consider essential and render a decision on the points in dispute before Sept. 1.

(8) The decision thus rendered shall be final and binding on both parties for the remaining term of the contract unless reopened as provided in paragraph 3.

(9) No change in the wage rates paid shall be made except in case of economic necessity.

The miners' plan read as follows:

(1) The agreement to continue for five

years, except as it may be changed as hereinafter provided.

(2) The wages and conditions in effect under the last contract to be continued until Aug. 31, 1928, subject to the revisions as may be later determined by the agencies hereinafter provided.

(3) Either party may on June 1, 1928, make request of the Board of Conciliation for revision of the agreement. If this request is made, a fact-finding commission shall be appointed, consisting of the Hon. Charles Evans Hughes, the Hon. James J. Davis and the Hon. Gifford Pinchot, or, in the event of their inability to act, some persons of similar standing to be mutually agreed upon.

This commission thus constituted shall exercise the authority to make complete investigation of all the facts relating to the operation of the anthracite industry and shall make recommendation to the Board of Conciliation, exclusive of the umpire, affecting wages and profits.

(4) In furtherance of this constructive work three reputable and expert public accountants shall be employed, one representative of the public, one the operators and one the mine workers, the expenses to be borne as the expenses of the Board of Conciliation are now fixed.

The Board of Conciliation, exclusive of the umpire, upon receipt of the report of the fact-finding commission, shall proceed to dispose of the matter as promptly as possible.

(5) The Board of Conciliation, exclusive of the umpire, shall also investigate and recommend practical methods for increasing efficiency and reducing the operating costs of mines and recommend the most practical manner for avoiding suspension of mining, and for assuring the public of an uninterrupted supply of coal.

(6) It is further agreed that in each district there shall be established a joint commission of one miner and one operator working with the conciliators from each district, the latter who shall also be members of such commission in each district. This commission shall endeavor in every practical way to strive for greater co-operation, harmony and efficiency in the industry, and in this work it shall have the support and co-operation of the operators, the district organizations and the international union of the mine workers.

(7) In consideration of this co-operation it is agreed that the operators shall also co-operate in a business way by recognizing voluntary, individual, written requests of any mine worker to assign a portion of his wages or earnings for the purpose of conducting the administrative affairs of the mine workers' organization and paying the pro-rata share of the mine workers to the commission set up in this agreement, and for the further purpose of carrying out the provisions of this agreement in general, said amount to be assigned and deducted not to exceed the sum of \$14 per annum.

(8) The Board of Conciliation shall proceed to equalize wages as per the agreement of 1923 and they are also empowered to handle matters with relation to conditions, etc.

Collapse of Parley Foreseen

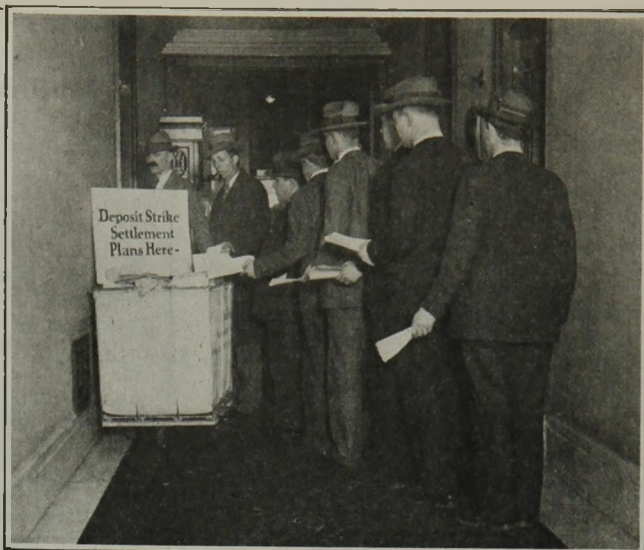
These two propositions came to a vote on Jan. 30. Many impartial observers predicted that a speedy collapse of the conference was imminent. Nevertheless the negotiators hung on. With every plan out of the way, it was suggested that a recess be taken until Tuesday of this week in order to give the conferees a chance to juggle the many planks which had been discussed into a platform upon which both sides could stand.

"I move," said E. H. Suender, manager of anthracite operations for the Madeira-Hill interests, "that we adjourn until next Tuesday [Feb. 2] in order that at least one more sincere and conscientious effort may be made to bring about a settlement of this controversy."

"In rising to second Mr. Suender's motion," declared Major Inglis, address the miners, "I would like to suggest to you before we adjourn this afternoon that you, as well as ourselves, consider a plan or plans that would embody the workable provisions contained in the

Fiction Mocks Stern Fact

Over 500 plans for ending the anthracite strike have been submitted to the joint wage conference — and new proposals still flow in. The newspaper men covering the parleys, banded together as the Union League Club Anthracite Conference Correspondents' Association, set up an unofficial oblique in the Bellevue-Stratford last week for the reception of hare-brained schemes to end the strike.



various plans we have considered and received and see if a plan cannot be framed that would, on due consideration, be acceptable to both parties."

Operators Submit Revised Plan

When the conference reconvened this week, the operators submitted a revision of their proposals which provided:

- (1) A five-year agreement.
- (2) Wages and working conditions of the last agreement to continue to a date to be mutually agreed upon.
- (3) Either party to have the right to request once each year a wage revision by the anthracite board of conciliation. If such request was made, the board should ask Charles Evans Hughes to appoint a commission of three to investigate the facts and make recommendations to the board affecting the matters in controversy.
- (4) Said commission would be empowered to employ certified public accountants to aid in the assembling of the facts.
- (5) Upon receipt of commission's report, the board would write a contract incorporating the findings of the commission with such modifications as might be mutually agreed to.
- (6) In case of disagreement as to any of the commission's recommendations, either party could appeal to Mr. Hughes, who thereupon would make a finding which would be binding upon both parties.
- (7) The board to investigate and recommend practical means for increasing efficiency and avoiding suspensions.
- (8) The board to equalize wages in accordance with the agreement of 1923.

This proposal was rejected by a tie vote.

The operators then proposed an immediate resumption of work at the old rates until March 31, 1927, subject to the further agreement that the Anthracite Board of Conciliation, functioning as it normally does (that is, including the umpire to break deadlocks when the board members are unable to agree), shall take under consideration and decide the terms of a contract extending until Aug. 31, 1930. Under the terms of the proposal the board's contract would cover wages and methods of wage revision, if revision were necessary from time to time.

The miners moved to amend this by continuing the initial wage term until March 31, 1928, by eliminating the umpire and by granting the check-off. This amendment the operators declined to accept because it made no provisions against suspensions, would bind the industry to the old rates for another year and included the check-off, still anathema to the operators.

The miners then asked that the full joint scale committee be called. This

the operators rejected as unnecessary.

Andrew M. Fine, vice-president, Hudson Coal Co., then moved the adjournment, "in view of the conditions as they now are and the apparent impossibility of coming to an agreement," he said, "I move we adjourn *sine die* to meet at the call of the chair on his own initiative or at the request of either side."

Major Inglis seconded the motion, the question was put and the conference was at an end.

Future Clouded in Doubt

What the next move will be and when it will be made nobody knows. Last week, belated knowledge of the presence of Secretary of Labor Davis in Philadelphia gave rise to rumors that Federal pressure was being exerted to end the tie-up. Spokesmen for the operators denied that the Secretary had conferred with them; Mr. Lewis declined to make any comment. The next day the admission came from Washington that Mr. Davis had conferred with his conciliators while in Philadelphia and, following the Cabinet meeting that day, it was stated that the national administration was hopeful that an agreement would come out of the present conference. On Feb. 1 objection by Senator Reed of Pennsylvania blocked consideration of the Copeland resolutions for mine seizure.

The death of State Senator Harris at Harrisburg led to a postponement of the scheduled consideration of the Pinchot coal bills until this week. In the meantime, Representative B. F. Evans introduced a resolution naming Senators Pepper and Reed and ex-Governor Stuart as a conciliation commission to represent the public in attempting to effect a settlement of the strike. This resolution is not considered seriously by those in touch with state politics.

The House Committee on Mines and Mining, after a lengthy hearing, in which the Senate committee participated, voted on Feb. 2 to report negatively the bill to declare anthracite a public utility and the proposal to authorize the Governor to enter into an interstate compact with other states to control prices and distribution. The Senate also held a public hearing on the Woodward bill amending the state mine certificate law.

Operators' Association Of Northeast Kentucky Holds Annual "Powwow"

Coal-tax legislation, past-sales reports, freight rates and publicity were the chief subjects of discussion at the eighth annual meeting of the Northeast Kentucky Coal Association, held at Ashland, Ky., Jan. 29. Production records compiled by F. E. Durham, statistician of the association, showed that the Big Sandy field mined 10,822,260 tons during the past year, a gain of 27 per cent over 1924 and 90 per cent over 1920.

Among the coal bills reported as having been introduced in the Kentucky Legislature that providing for a state tax of 2 per cent on the sale value of all mineral as extracted, with provision for an additional 1 per cent at the option of the county for school and road purposes, attracted the most attention. The legislative committee of the association reported, however, that the open-faced publicity campaign which is being carried on has caused many former proponents of the bill to see and acknowledge the unfairness of the proposed tax.

Geo. Bauswine, Jr., secretary of the Williamson (W. Va.) Operators' Association, and T. H. Huddy, manager of the Bailey Fuel Co., of the same locality, explained to the Kentucky operators the working of the past-sales reporting system which was inaugurated last May by the Williamson association.

Mr. Bauswine announced that the Kanawha (W. Va.) operators have voted to start a statistical program in conjunction with that of the Williamson association. An office is being established in Huntington, W. Va., to serve both fields. The northeast Kentucky operators were invited to join the other two associations in the use of the Huntington office. A committee was instructed to investigate the proposition.

Harry Gandy, executive secretary of the National Coal Association, urged the reporting of past sales. He stated that at present 20 per cent of the whole tonnage of the country, or 33 per cent of the commercial tonnage, is being reported to the various bureaus.

At the close of the meeting, and before the banquet of the evening, the following new officers were elected: President, Henry Laviers, manager North East Coal Co., Paintsville, Ky.; first vice-president, Lew Roach, manager Elkhorn Piney Coal Mining Co., Powellton, W. Va.; second vice-president, T. T. Rogers, manager Rogers Elkhorn Coal Co., Virgie, Ky.; treasurer, N. M. White, manager Colonial Coal & Coke Co., Prestonsburg, Ky. C. J. Neekamp continues as secretary.

27 Saved as Coal Ship Sinks

Captain Carl Graalfs of the Hamburg-American Liner Westphalia rescued the captain and crew of the freighter Alkaid on Feb. 1 about 1,800 miles from New York, when the Dutch freighter caught fire in a heavy storm. The Alkaid, which weighed 3,028 tons net, was on her way to New York with a cargo of briquets consigned to the Shipping & Coal Co., 17 Battery Place.

Suggests Polar Bear as Emblem of G. O. P.

Commenting on the administration's policy of non-interference in the hard-coal strike, Senator Copeland, Democrat, of New York, told the Senate on Jan. 30 that the Republican Party should change its emblem. Expressing the hope that something could be done to bring the suspension to an end, he said:

"During the campaign there was one promise which the Republicans made which they have kept. They are keeping cool with Coolidge. That is all very well in August, but in January, with present prices of coal, that slogan is not so popular, and I am wondering why the Republican Party does not give up its emblem of the elephant and take the polar bear instead."

Senator Copeland said that if the President would invite the operators and miners to the White House and point out to them the necessity of ending this situation, the strike "would be settled in two hours."

Senators Approve Proposal To Enlarge I. C. C.

The bill of Senator Smith, Democrat, South Carolina, providing for regional appointment of members of the Interstate Commerce Commission and for increasing the membership of the commission to twelve was unanimously approved Jan. 27 by a Senate Interstate Commerce sub-committee.

The sub-committee amended the bill to increase the number of regions to six instead of four and to change the representation of each region from three to two.

Bell Jailed and Fined

John A. Bell, of Pittsburgh, Pa., formerly head of the defunct Carnegie Trust Co., the Carnegie Coal Co. and other enterprises, was sentenced on Feb. 1 to six and one-half years in the Allegheny County Jail and fined \$19,000. Bell was convicted of misappropriating \$643,743 of the funds of the trust company when the coal companies which he controlled got into difficulties.

Open-Shop Miners Keep Wolf from Door

Government income tax returns by the Bethlehem Mines Corporation, which operates the Barrackville and Dakota mines, near Fairmont, W. Va., on the 1917 scale, strikingly refute the oft-repeated charge that open-shop miners labor for starvation wages. Tables compiled by the company reveal that in 1925 one loader earned over \$5,400, 8 over \$4,200, 26 over \$3,000, and 74 over \$2,400. One day man earned more than \$5,000, 10 over \$3,000, and 52 over \$2,000.

Eastern Roads Move Ample Anthracite Substitutes

Forty industries of the Eastern Atlantic States expect an average increase of 10 per cent in business for the first quarter this year over the corresponding period last year, according to the trade survey submitted at the second annual conference of the Atlantic States Shippers Advisory Board, held in New York City, Jan. 14. Approximately 400 shippers and railroad representatives—the buyers and sellers of transportation in the Eastern territory—were in attendance.

Coal dealers in the territory of the Atlantic States Shippers Advisory Board—which includes New York, eastern Pennsylvania, New Jersey, Delaware, Maryland and the Virginia peninsula—reported through the coal committee that their trade was being handled successfully by the use of substitutes; that they had no difficulty in getting all the substitutes necessary for the comfort of their trade and that they proposed to keep on hand during the balance of the anthracite strike a sufficient supply of substitutes to take care of all customers' requirements.

The coal committee stated that normally the Eastern territory would use in the first quarter this year 7,469,800 tons of prepared-size anthracite and 2,935,900 tons of steam-size anthracite. Dealers will take care of the bulk of this tonnage through the use of substitutes. At the present time half of the dealers are carrying less than 50 per cent of their usual stocks. The other half of the dealers are carrying the same amount of substitutes as when they were handling anthracite. Practically all dealers reported that they were getting unusually prompt delivery of coal and coal substitutes by the carriers.

Wakenva Coal Co. Issues Bonds to Finance Merger

An issue of \$1,000,000 Wakenva Coal Co., Inc., 7 per cent first mortgage (closed) sinking fund bonds is being offered by a syndicate composed of Robert Garrett & Sons, Baltimore; Spencer Trask & Co., New York City; Caldwell & Co., Nashville, and the Geo. C. Riley Co., Cincinnati. This is part of the plan to finance the consolidation of fourteen coal properties located in southwestern Virginia, eastern Kentucky and adjacent fields in West Virginia (see Dec. 24 issue of *Coal Age*, page 897), with C. Bascom Slemple as chairman of the board of directors.

Jamison Inquest Deferred

The inquest into the cause of the explosion at mine No. 8 of the Jamison Coal & Coke Co., Farmington, W. Va., has been postponed from Jan. 29 to Feb. 5 in Fairmont. The safety conference that was to have been held in Fairmont last week between Safety Service Director Read of the U. S. Bureau of Mines, and Robert M. Lambie, chief of the West Virginia Department of Mines, also was postponed. Mr. Lambie was unable to go to Fairmont last week, because of a mine fire in the southern part of the state.

Washington Dealers Fail to Put Blame For High Prices on Operators

By Paul Wooton

Washington Correspondent of *Coal Age*

The investigation of coal prices before the District of Columbia Committee of the Senate impresses some members of Congress as being an interesting controversy between the pot and the kettle as to their respective colors. Out of the jumble of figures which have been presented as to costs and margins the average legislator seems to have reached the conclusion that the anthracite strike has given a scarcity value to prepare sizes of soft coal which has made for price increases in which both producer and middleman have shared. The usual assumption is that the extra profit is more or less equally divided.

Members such as Senator Copeland, of New York, and Representative Treadway, of Massachusetts, are trying to establish that the acceptance of this unusual profit constitutes some sort of crime. Other members see in this action only the natural course followed by the producers of other commodities, who sell at the highest available price regardless of the circumstances responsible for having run up the price.

The retailers have not been entirely successful in the effort to lay at the door of the operators the major responsibility for a \$14 price for prepared sizes of smokeless coal. There were general statements as to high prices paid at the mines but when actual invoices and receipted bills were requested by way of substantiation they were refused on the ground that legitimate business secrets would be revealed. This led Senator Neely, of West Virginia, to remark that only the operators would be hurt were invoices presented showing high mine prices. A few invoices were presented, but they covered isolated shipments. What the committee wants to know is the price paid by the dealers to the operators with whom they have their principal relationships.

Enough was brought out at the hearing, however, to indicate that any established dealer who paid more than \$5 at the mine had demonstrated his inefficiency as a trader.

Say \$12 Price Is Justified

The testimony on behalf of the retailers, however, made it quite apparent that a \$12 price, at least, could be justified. The additional \$2 apparently was not explained to the committee's satisfaction, but the Senators were impressed with the extra risk which the retailer is running when there can be no certainty as to the duration of the strike.

The favorable impression made on the committee by E. J. McVann, counsel for the Smokeless Coal Operators' Association of West Virginia, gave the operators' side of the question an advantage at the beginning of the hearings. Mr. McVann had precise information on many of the points in which the committee was particularly interested. His figures covering New Eng-

land, north Atlantic and District of Columbia sales for the week ended Jan. 16 showed prices ranging from \$3.50 to \$5 for lump; \$3.75 to \$6 for egg and \$2.75 to \$5 for nut.

George S. Pope, in charge of the Government Fuel Yard, showed delivered costs at government departments which tended to weaken some of the claims made by the retailers.

Representative Treadway urged the committee to recommend the setting up of a fuel administration for the District of Columbia as an example to the states. This, or a fuel administrator for the whole country, was opposed by Edgar Wallace, representing the American Federation of Labor, on the ground that government control means that high-cost mines fix the prices.

One of the very significant results of these hearings is the effect they are having on producers generally. They already have revived talk of co-operative selling by the operators. The success which has attended the retail operations of the Consolidation Coal Co., the Peabody interests and others has led other large companies to consider opening their own retail yards.

Talk of Co-operative Selling

It is recognized that only the very large operators can afford to break into the retail business. The small producer of coal, it has been proven repeatedly, cannot afford to undertake his own wholesaling. The bituminous operators seem to feel, however, that the retailer cannot be relied upon to follow up the advantage gained in increased use of soft coal by the domestic consumer. This has led to serious discussion of co-operation looking to the opening of retail yards in the North Atlantic region. The suggestion is made that a distributing corporation be formed to handle prepared sizes only which would buy at the mine and sell at wholesale and retail in the anthracite-using states. There would be no interference with the established procedure in the handling of industrial, railroad and public-utility business.

Senator Howell, of Nebraska, one of the public ownership group in the upper house of Congress, on Monday introduced a resolution authorizing the Government Fuel Yard to sell coal to householders at cost. At the request of members of the committee conducting the informal hearing into district coal prices, Senator Howell withdrew temporarily his request for immediate consideration.

The District of Columbia committee authorized its chairman, Senator Capper, to take such steps as may be necessary to obtain an audit of the books of Washington retailers. The audit is not intended to be a thorough one. The idea simply is, it is explained, to ascertain what coal is costing the retailers and to establish an approximate idea of the cost of handling the business.

Industry Has Coal Stocks For 54 Days

Stocks of anthracite and bituminous coal in the hands of industrial consumers on Jan. 1, according to the National Association of Purchasing Agents, totaled 68,399,000 tons, or sufficient to last 54 days at the December rate of consumption. This compares with 50,458,000 tons on hand at the corresponding date a year ago.

In December, last, industries consumed about 36,925,000 tons of anthracite and bituminous coal, compared with 37,464,000 tons in the preceding month and 41,900,000 tons in the corresponding month of 1924. Thus, while consumption fell off about 1,461,000 tons in December production increased to 55,049,000 tons of soft coal and 232,000 tons of anthracite, against 50,780,000 and 152,000 tons, respectively, in November.

British Coal Industry Awaits Commission Findings

The report of the findings of the commission which has been inquiring into the future of the British coal industry, expected about the end of February, is awaited with deep interest since the operators and miners submitted their proposals, three weeks ago. The operators urged a return to the eight-hour day, district instead of national wage agreements, freedom from political interference and removal of the subsidy at the earliest opportunity. The miners strongly opposed this plan, offering instead an elaborate scheme of nationalization not only of the coal industry but of power production.

According to a forecast by the *Westminster Gazette* of the Coal Commission's report, which the Associated Press released this week, the recommendations will include the grouping of mines somewhat after the manner already done with the railways, and the closing down of unprofitable pits. Such grouping is said to be essential for the satisfactory reorganization of the industry.

Another recommendation, it is believed, will relate to internal migration—the moving of unemployed miners to other districts where they could be employed in more active mines. It is further advised that wages and conditions shall be the immediate concern of the local organizations and that district wage boards shall be retained.

While longer hours and lower wages are not advocated, the commission considers that lower wages may be possible, which in the long run would give the men equal pay with their present earnings.

The commission, it is predicted, will recommend that the Mining Association, representing the owners, and the Miners' Federation should concentrate on national matters such as safety of the mines, Parliamentary business and for liaison between the Mines Department and these two organizations.

Rock Dust Prevents Heavy Loss of Life In Orient Mine Blast

Five men were instantly killed in an explosion in the New Orient No. 2 mine, owned by the Chicago, Wilmington & Franklin Coal Co., at Orient, near West Frankfort, Ill., at 7:40 a.m. Jan. 29. Officials of the company, investigating the cause of the blast, believe it may have been started by a cigarette found in the hand of one of the dead miners. This mine is on a closed-light basis.

That there were only five fatalities with 1,235 men at work is attributed to the use of rock dust, which limited the effects of the blast to a small area.

The mine, which is the greatest in the world, having hung up a record output of 12,823 tons in one day a few weeks ago, was carefully planned throughout—workings, shafts and surface structures—before the first breaking of ground. Into the plans went the newest safety measures.

At strategic points throughout the workings, rock dust is stored in platforms easily tilted by the slightest rush of air from an explosion. It was that which filled the air with stone particles and confined the effects to the immediate vicinity of the explosion. Rock dust also is scattered on the floors of the entries, keeping coal dust from getting into the air.

The panel system is used in the mine, dimensions permitting rooms to be worked out in the coal with one set of workers protected from the others or accidents by barrier pillars with comparatively small openings.

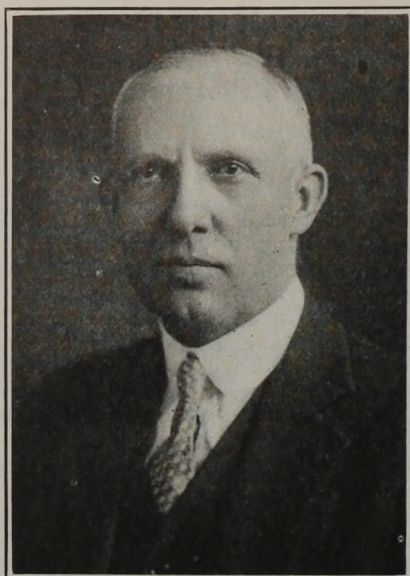
The workings are all on one level, 500 ft. underground, and the coal averages 9½ ft. in thickness.

Wilburton Blast Blamed On Disobedience to Law

No exact cause of the ignition of gas that started the explosion Jan. 13 killing 95 men in the Wilburton (Okla.) mine of the Eastern Coal & Mining Co. was assigned in the official report filed Jan. 26 by Ed Boyle, state chief mine inspector, and Robert H. Brown, district inspector. The report, however, points out that the explosion could not have occurred had the state mining law governing crosscuts been obeyed. Mr. Boyle, at the time of the blast, condemned the company. In reply it was pointed out that he had refused to permit the use of closed electric cap lamps in Oklahoma.

The official investigation indicated that gas was ignited in the 16th west entry between rooms 9 and 17 and that it had moved from rooms 17 or 18 or the adjoining heading. The report says: "As the fireboss was one of the victims . . . we will never be able to determine the reason this gas was not moved before the men were permitted to go down into the mine."

The report reads: "This investigation further shows that the mining laws were not being complied with in regard to crosscuts which carry the ventilating current through the working places, as the law provides that they shall be made not to exceed 30 ft. apart in each



Frank H. Hemelright

pillar of coal on each side of the working place, which ventilating current should be conducted around the working places 200 cu.ft. per minute. If this law had been complied with the disaster would not have occurred. The law further provides that all dust must be sprinkled or sprayed or removed from the mine. This investigation shows that this was not being complied with."

3 Dead in Colorado Blast

An explosion in Mine No. 3 of the Bear Canon Coal Co., at Vallorso, 25 miles northwest of Trinidad, Cal., on Jan. 29, caused the death of three men, but thirty-three miners escaped. All of the survivors, however, were burned and seared, five seriously. A gas pocket is believed to have caused the explosion.

Panic in Gassy Mine When Worker Puffs Cigar

Sixty-five employees of the Yukon mine of the Imperial Coal Co., at Lowesville, near Morgantown, W. Va., fled in a panic from the mine Jan. 28, when George Orovitz, a coal loader, appeared in the working place smoking a cigar. One man was knocked down and trampled in the mad dash of the men for the outside. The mine contains a large amount of gas, officials of the company said.

State police officers placed the man under arrest before any violence occurred. He was fined \$50 and costs by a magistrate after he had entered a plea of guilty to smoking in a gaseous mine.

Officials of coal companies in the Lowesville district whose plants contain gas asked Magistrate Moore to apply the maximum penalty upon persons convicted of smoking in gaseous mines in the future. The maximum penalty is 90 days in jail and \$500 fine. The magistrate told officials he would carry out their request in future cases.

Hemelright Quits Presidency Of Temple Company

Frank H. Hemelright, for the past nine years president and for forty years an employee of the (now) Temple Anthracite Coal Mining Co., of Scranton, Pa., has resigned his executive position. Upon his return from a three months' vacation in the South Seas he probably will engage in marketing mining securities, stocks and bonds.

Forty-five years ago, as a door tender in the Haddock Coal Co. operation at Luzerne he received 40c. a day. He advanced himself through practically every branch of mining, laborer, miner, mine foreman, outside foreman, superintendent, district superintendent, general manager, vice-president and president.

Mr. Hemelright will continue as a director of the Temple company and as a director of the Glen Alden Coal Co., a post he has held for several years. He is president of the Peckville National bank and is interested in other businesses, enterprises and industries.

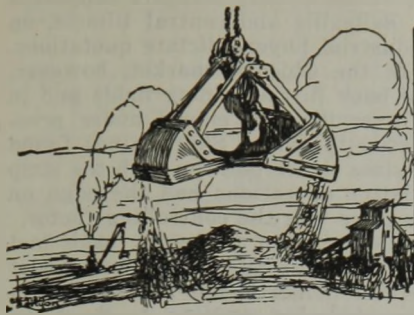
Explosion in Alabama Mine Takes 27 Lives

An explosion in the Mossboro Mine of the Premier Coal Co., near Helena, Shelby County, Ala., at about 4 p.m. (shooting time), Jan. 29, entombed about forty-six miners and company employees, twenty-seven of whom were killed by the force of the explosion itself and the afterdamp which followed in its wake. Eleven of the dead were white men and sixteen negroes. Nineteen of the men in the mine at the time of the accident made their way to safety uninjured.

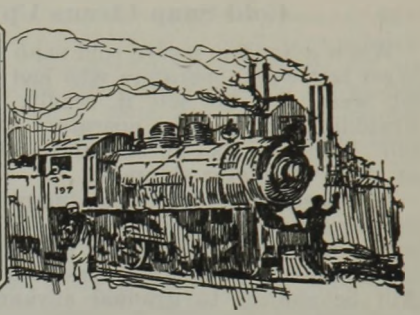
Unofficial reports state that the catastrophe was caused by a "windy shot" which ignited gas and dust in the sixth entry of the mine, where ten of the workers met instant death. The force of the explosion is said to have damaged the inside workings and equipment heavily. The mine is a slope opening on the Black Shale seam. The coal is pick-mined and delivered to the main slope, where it is brought to the surface by an electric hoist.

The property is leased from the Tennessee Coal, Iron & Railroad Co., and has been operated by the Premier Coal Co. for several years. G. W. Postell, well known in industrial circles and a mining man of long experience and recognized ability, is president of the company. Rescue teams from neighboring operations and from mines of the Woodward Iron Co., Alabama By-Products Corp. and from the Bureau of Mines rescue station at Birmingham were rushed to the scene by special train, and under the direction of Charles H. Nesbitt, chief mine inspector, and Bureau of Mines officials were promptly organized and went into the mine and by the early morning of the 30th all of the dead had been removed from the workings.

An official investigation will be instituted to determine the exact cause of the blast.



Production And the Market



Coal Market Develops Unusual Features Due to Anthracite Strike; Screenings Sag

The upsets created by the anthracite strike alone differentiate the bituminous coal market at the present time from the usual run of season-end trading. Dutch boulets in Philadelphia, German coal in Brooklyn and Alabama coke in Chicago give some indications of the way in which coal consumers and distributors have accommodated themselves to the situation arising from the prolonged suspension of hard-coal production. Aside from these changes, the domestic market is a weather proposition pure and simple and no different in its reactions to the mercury than in years gone by.

The effect of the anthracite strike, now in its sixth month, is not, however, limited to the extraordinary movements mentioned above. Its impress is to be found as well in the clamor for certain sizes of West Virginia low-volatile and, to a lesser degree, in the good market now enjoyed by some of the high-volatiles prepared for domestic consumption. And these developments have been reflected, in turn, in the movement of mine-run and slack from the same mines and in the expansion of tonnage from operations in the Middle Western fields.

Production Geared Up Too High?

Cautious trade observers are beginning to fear that the producers have overshot the mark in their recent tonnage records. The figures for the week ended Jan. 23, as reported by the Bureau of Mines, show a sharp drop in the rate of output and no pronounced recovery was promised for last week or for early February. The weather demands and the calls for coal to make up the anthracite deficit intensify the situation as they threaten to force the production of the smaller sizes of coal at a faster rate than the industrial consumer can

or will absorb. Many steam buyers are now playing a waiting game, ready to pick up distress tonnage if the price is low enough.

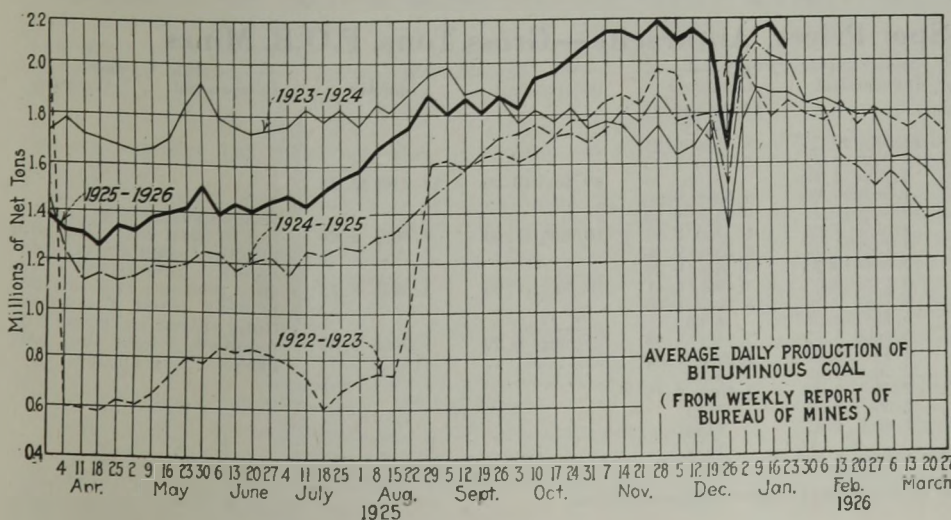
In most sections of the country screenings have given way to the pressure of an increasing accumulation of unsold coal. Gas slack at Pittsburgh is noticeably weaker, high-volatile fine coal prices have declined in the Columbus and Cincinnati markets, some coal selling down to 50c.; Hocking screenings have wobbled; Indiana screenings are off 10 to 25c. and some southern Illinois coal is offered under circular. Quotations on low-volatile, on the other hand, have been somewhat steadier, but not because of increased demand. Mine-run prices, too, show a tendency toward greater firmness and lump was up in some markets, counterbalancing the loss in screenings.

Index Figure Unchanged

Coal Age Index of spot prices of bituminous coal on Feb. 1 stood at 178, the corresponding price being \$2.16, the same as on Jan. 25. As previously stated, advances offset price declines in other directions.

Dumpings at Hampton Roads shot up to 440,522 net tons the week ended Jan. 28. The total the preceding week was 407,625 tons. The month-end clean-up to avoid demurrage, more than increased demand, explains the heavier movement over the piers.

For the time being, at least, the high-dollar coke shippers seem impervious to criticism. The tonnage moving at top quotations, however, probably represents only a small percentage of the total coke now going into the domestic trade. Nevertheless, it is enough to give an unfavorable tinge to the whole business.



Estimates of Production

(Net Tons)		
BITUMINOUS		
	1925	1926
Jan. 9.....	12,590,000	13,031,000
Jan. 16 (a).....	12,044,000	13,069,000
Jan. 23 (b).....	11,588,000	12,367,000
Daily average.....	1,931,000	2,061,000
Coal yr. to date..... (c)	383,446,000	435,389,000
Daily av. to date.....	1,536,000	1,739,000
ANTHRACITE		
Jan. 9.....	1,785,000	47,000
Jan. 16 (a).....	1,803,000	37,000
Jan. 23 (b).....	1,740,000	47,000
Coal yr. to date..... (c)	70,226,000	40,620,000
BEEHIVE COKE		
Jan. 16 (a).....	262,000	311,000
Jan. 23 (b).....	265,000	344,000
Cal. yr. to date..... (c)	877,000	1,042,000

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

Cold Snap Cleans Up "No-Bills"

When a sudden severe cold snap descended on the Middle West last week, operators who had coal on track or in transit were able to sell it readily at full circular prices.

The base price of \$3.50 on lump for Franklin County coal will continue throughout the month, according to the present set-up of the trade, and may hold until well into March.

Anthracite substitutes are still very scarce in the Chicago market. Coke and smokeless egg and nut are particularly tight. Even when an order is accepted, there is no guaranty of early shipment and car numbers are at a premium.

The steam coal market is still sluggish. Indiana screenings dropped 10 to 25c. last week and some of the Illinois coals weakened.

prices and some of the big Saline County shippers supported the neighboring district. Belleville and central Illinois, on the other hand, let the industrial buyers dictate quotations.

The domestic activity in the Chicago market, however, was only slightly reflected back in the mining fields and in the St. Louis market. Carterville egg moved under pressure and nut coal was distinctly slow.

Mines in the Duquoin field were on a five-day basis last week, but that rate of operation was maintained only under high sales pressure as neither domestic nor industrial consumers displayed any overwhelming anxiety to flood the district with orders.

The St. Louis local domestic market reacted favorably to the falling mercury. Demand favors the higher grade coals, but the scant supplies available and the prices quoted hold down the movement.

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

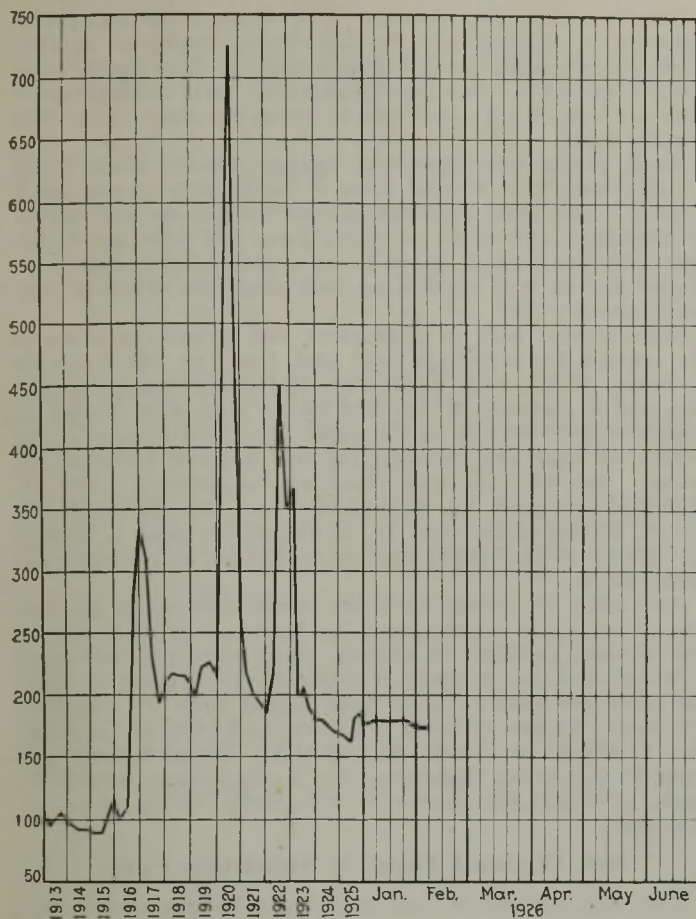
Table with multiple columns: Market Quoted, Feb. 2 1925, Jan. 18 1926, Jan. 25 1926, Feb. 1 1926†. Rows include Low-Volatile, Eastern (Smokeless lump, Pool 1, etc.), High-Volatile, Eastern (Pool 54-64, Pittsburgh, Kanawha, etc.), Midwest (Franklin, Ill. lump, etc.), and South and Southwest (Big Seam, S. E. Ky. block, etc.).

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

Table with columns: Market Quoted, Freight Rates, Independent, Feb. 2, 1925, Company, Jan. 25, 1926, Independent, Feb. 1, 1926†, Company. Rows include Broken, Egg, Stove, Chestnut, Pea, Buckwheat, Rice, Barley, Birdseye.

Due to suspension of mining in hard-coal fields and practical stoppage of shipments, quotations are only nominal and are not printed. Coal Age quotations on anthracite will be resumed when the new prices are available.

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



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

	1926		1925	
	Feb. 1	Jan. 25	Jan. 18	Feb. 2
Index	178	178	181	169
Weighted average price...	\$2.16	\$2.16	\$2.19	\$2.05

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

smokeless, too, is scarce. Standard district coal benefits only in a small way. Wagon steam trade has been active and carload business just enough under offerings to keep prices unchanged.

The country demand is fair for the medium grades of coal. Western Kentucky coals are gaining ground west of the Mississippi River and shipments from eastern Kentucky east of that stream. There also has been a fairly active country demand for chestnut-sized coke. Steam trade is quiet.

Buyers Wait for Breaks in Kentucky Prices

Purchasers in the Louisville market have been holding back on orders in anticipation of breaks in prices during February. The majority of the industrial consumers and retail yards buying in that market are said to be carrying stocks which will cover their requirements for a month or more. As a result, they wait for the sellers to appeal to them for orders and then take full advantage of the situation created.

A low thermometer brought a stronger demand for fuel from the householder over the week-end, but retailers bought very sparingly for replenishment of slowing depleting yard stocks. Although some eastern Kentucky block was held above \$3 f.o.b. mines, there was little sold for Louisville delivery over \$3 and more at quotations ranging down to \$2.50. Two-inch lump was offered at \$2.25@\$2.50; egg, \$2@\$2.25. Western Kentucky block was held at \$1.85@\$2; lump and egg, \$1.75@\$2; nut, \$1.35@\$1.50.

Public utility demand has been backward since the middle of January. Railroad buying, all things considered, may be characterized as fair. Notwithstanding the absence of a heavy run of industrial orders, the volume is seasonable.

Only operations very fortunately situated from a sales standpoint are doing better than three or four days a week; many are working less. Transportation conditions are excellent. Eastern Kentucky mine-run is quoted at \$1.40@\$1.75; screenings, 90c.@\$1.10. Mine-run from the western part of the state is held at \$1.25@\$1.50; screenings bring 65c.@\$1.

Dock Trade Takes on New Life

Movement of coal from the Duluth-Superior docks to points in Minnesota, northern Wisconsin and North Dakota has been on a larger scale the past ten days because of colder weather. Hand-to-mouth buying by retailers and large industrial consumers left them with such small reserve stocks that the drop in temperatures forced them into the market with a rush and docks have been working close to capacity since Jan. 25.

January car loadings probably will exceed the December total of 25,735 cars. The outlook for the rest of the winter is regarded as satisfactory. Because railroad service continues unimpaired, the late January rush was handled without putting improvident buyers to inconvenience or distress.

Steady improvement marks the industrial situation in the Northwest. Coal consumption is mounting, but the shipments, with few exceptions, are upon contracts entered into last fall. Local demand also has been good. Steel Corporation operations on the Minnesota ranges are using more coal; independent shippers, however, show an inclination to go slow until the future of iron prices has been determined, but considerable stripping and development work is being carried on.

Only two docks at the Head of the Lakes have any anthracite left and the supply is limited to small quantities of egg, nut and buckwheat. If these docks would accept orders offered, it is said that they would be cleaned up in two or three days. The disappearance of anthracite reserves has increased the movement of West Virginia low-volatile coal and briquets. Notwithstanding that fact, there is so much Pocahontas held in storage that prices on lump, egg and nut have been cut 50c. Mine-run, on the other hand, is up a quarter. Screenings are quoted at \$4.25.

It is estimated that the stocks of all bituminous coals on the docks Feb. 1 approximated 4,550,000 tons.

The fuel situation in Milwaukee and communities drawing their supplies from local docks is becoming more tense with the advent of real winter weather. There is some all-rail movement of Pocahontas, but shipments are held down. Demand for coke is strong and prices are firm. Range size was advanced \$1 the past week. Retail prices are \$16 on range, \$15 on nut and \$13 on pea coke.

Little Change in Southwest

Conditions in the Southwest show no material change. The market has settled down to a weather proposition, fluctuating with the rise and fall of the thermometer. Fill-in orders from the householder are reflected in an improved buying of Arkansas semi-anthracite.

The past week saw a slight improvement in demand for domestic coal from Colorado mines, which are operating on an 85 per cent basis. The weather was responsible for the improvement. There is still a surplus of "no bills" on track, however, which demand has not been able to absorb. Transportation and labor conditions are satisfactory. No changes in prices are in contemplation at the present time.

The domestic coal trade in Utah continues to improve, thanks to the prevalence of wintry weather, but as dealers are depending largely on yard stocks, not much of the increase has been passed on to the operators. Dealers expect to have their stocks cleaned up about March 1. Demand from the Pacific Coast, which had been rather good, is slowing up, due to milder temperature. Some mines are working full time, others four days a week, but a number are producing only two, and a few even one day a week. The average for the state as a whole, however, exceeds half time. The slack situation is a little better and the shortage is light. Prices continue steady, car supply is ample and the labor situation is good.

Cincinnati Fears Overproduction

That overproduction may swamp the market is the fear which besets the Cincinnati trade. In spite of the cold wave which swept the country last week, prices still sag. Mine-run and slack are the weakest members of the price list.

One large southeastern Kentucky operator has openly quoted 50c. on screenings and buyers had no difficulty in filling their wants at 60@70c. Extra choice grades moved slowly at prices up to \$1.10.

There was plenty of West Virginia mine-run seeking a market last week at \$1.25. The same figure ruled on some of the Kentucky coals. From that figure quotations ranged up to \$1.40@\$1.50 for choice steam and \$1.75 for special gas and byproduct coals. High-volatile egg for western delivery also suffered; some quotations dipped to \$1.75.

February circular prices on low-volatile coal are: Lump, \$4.25; egg, stove and nut, \$5 for westbound movement and \$5.50@\$6 for eastern deliveries; mine-run, \$2.50. Spot prices late last week were on a level with circular quotations, although some New River coal and some Pocahontas from smaller operators could be had at a 25-cent reduction.

The situation on smokeless slack is the fly in an otherwise delightful ointment. Sales at \$1.25 are common and orders at \$1.50 cause rejoicing. The byproduct ovens are bearing the market, and retaliation is threatened by some coal operators who say they will fire their own coke ovens if prices work lower.

Retail prices are unchanged.

Railroad movement through the Cincinnati gateway last week showed an interchange of 12,702 cars of coal—52.1 per cent of the total interchange. This was an increase of 376 cars over the preceding week but 217 cars less than for the corresponding week last year. Compared with the preceding week, L. & N. interchange increased 496 cars and Norfolk & Western, 18 cars. Chesapeake & Ohio coal interchange dropped 119 cars and the Southern Ry., 19 cars.

Ohio Responds Feebly to Weather Stimulus

Aside from a slight gain in domestic movement, central Ohio did not respond to the weather stimulus of the past week. Retail buying was light because the average dealer is still comfortably supplied with coal and the householder has purchased only when necessity impelled. Most of the latter buying in the Columbus market has been in small lots so that retail facilities have been kept busy. Retail prices are firm at levels maintained for some time past.

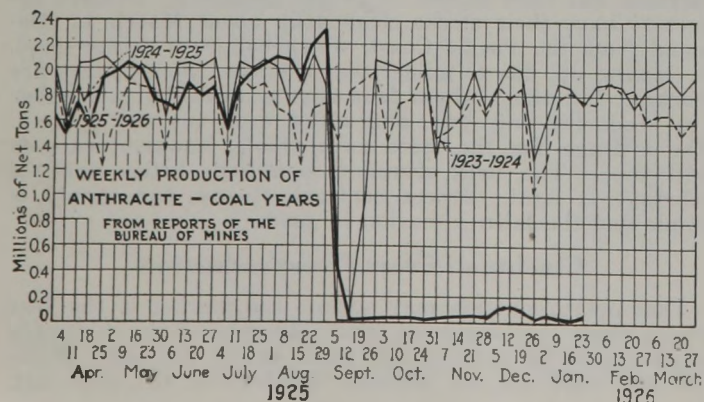
Steam business continues dull and irregular, and little hope is held out of any substantial betterment in the near future. Public utilities, the railroads and the steel plants take the greater part of the steam tonnage moving. Many of the general industrial establishments are working on part time or with reduced forces. Prices are weak. Screenings are a drug on the market and some sales have been made as low as 50c. Attempts to make up the losses on fine coal by boosting prices on prepared sizes have met with scant success.

Southern Ohio production hangs around 25 per cent of capacity. Railroad buying saves the Hocking district. Most of the commercial business gravitates to the Pomeroy Bend field.

Retail demand has picked up in Cleveland territory with the advent of colder weather. Operators, too, are more optimistic despite a decline in the price of No. 8 screenings. Eastern Ohio mines produced approximately 276,000 tons during the week ended Jan. 23, or about 40 per cent of capacity. Compared with the corresponding week a year ago, production was off about 11,000 tons.

Pittsburgh Market Loses Ground

The spot market on Pittsburgh coals suffered badly the past week. The only bright spot was a slightly greater demand for egg and nut coals for shipment to eastern



anthracite-consuming states. This demand forced quotations up to \$2.75@\$3.25 for the better coals, as against \$2.50 the preceding week. Production of those sizes, however, is limited. Some small operators have endeavored to grab a share of this business by breaking down lump into egg by hand.

Slack prices have tumbled again. Steam slack is in plentiful supply at \$1 and there is no scarcity of gas slack at \$1.25. The usual explanation that the decline was caused by increased shipments of lump does not hold good this time. Rather does it seem to be a case where slack consumers are so well stocked up that they can afford to stay out of the market.

Improvement both in production and prices continues in the central Pennsylvania field and few "no bills" are in evidence. In the week ended Jan. 23 loadings totaled 21,103 cars and in January to the 23d 65,570 cars were loaded as compared with 66,103 to the same date in December. All grades of coal are affected by the upward tendency in prices. Run of mine quotations are as follows: Pool 18, \$1.85@\$1.90; pool 11, \$2@\$2.10; pool 10, \$2.25@\$2.35; pool 9, \$2.40@\$2.55; pool 71, \$2.60@\$2.75; pool 1, \$2.80@\$3. Lump is \$4.75@\$5; egg, \$5.25@\$5.50; nut, \$5@\$5.25; slack, \$2.10.

Practically no change from the recent attitude of indifference of industrial consumers in the Buffalo market is observable except, perhaps in degree, slack showing increasing dullness—and that in spite of extra efforts to move it. More contracts are said to have been closed than at this time last year. Fairmont lump is quoted at \$1.60@\$1.75; mine-run, \$1.40@\$1.50; slack, \$1.25@\$1.40; Youghioghny gas lump, \$2.25@\$2.50; Pittsburgh No. 8 steam lump, \$2@\$2.25; slack, \$1.25@\$1.40; short-rate Allegheny Valley mine-run, \$1.75@\$2.

New England Turns to Substitute Fuels

New England retail coal merchants have about decided that they will be compelled to finish out the season with substitute fuels—but the preference is not for bituminous coal. Welsh anthracite, ovoids, dry steam and coke have the call over the product of West Virginia and Pennsylvania. In spite of the unfavorable experiences with foreign fuels at the beginning of the anthracite strike, a strong spot demand has since developed and there is now renewed inquiry for late February shipment.

The only indication of strength in the smokeless market is a reasonably steady request for screened sizes. Yet even here operators are obliged, in many cases, to use egg, stove and nut to move the lump. Prices on prepared coal range \$5.50@\$6.50. Unless the demand stiffens, however, it is expected that these levels will be reduced as desirable central Pennsylvania coal can be laid down in New England at a lower price.

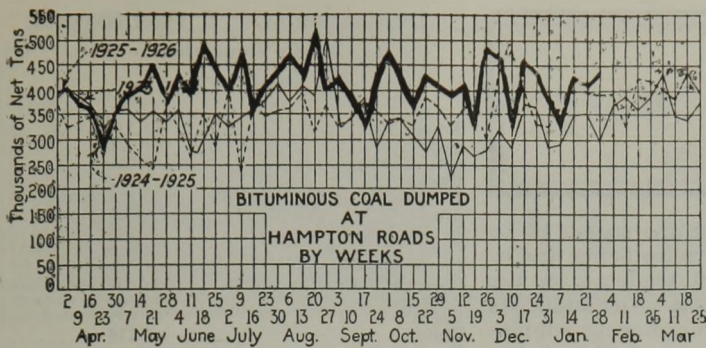
Hampton Roads conditions are unchanged. There is still coal at the piers far in excess of current demand. Spot prices wobble between \$4.70 and \$5 per gross ton, f.o.b. vessel. Pool 1 coal on cars at Boston and Providence is offered at \$6.50 for inland delivery.

Bituminous Active in New York Market

The New York bituminous market continues fairly active. Mine-run is moving readily. Demand for prepared sizes has broadened, and prices have been marked up. Bar-screened egg and nut were quoted at \$2.50@\$2.75 late last week; shaker-screened egg commanded \$2.75@\$3 and nut and stove \$3.25@\$3.75. High-volatile West Virginia and Pennsylvania coals were quoted at about \$3.50. Prepared sizes of Pocahontas and New River were held at \$7@\$7.50. There was an active demand for those coals on Long Island.

Mine-run from the Broad Top field was held at \$3@\$3.75; screened coals, \$6.50@\$7.50. Other low-volatile Pennsylvania coals were 75c. less, with occasional offerings under \$5.75. High-volatile slack was weak at \$1.25. The scarcity of free coke rounded to the benefit of the shippers of prepared coals.

Philadelphia was another market at which the demand for prepared sizes of bituminous was strong. Calls from former users of anthracite steam sizes strengthened the price list on mine-run and slack. There is little free tonnage of low-volatile Pennsylvania coal available and West Virginia smokeless shipments are increasing in volume. Kentucky also is making a bid for a share of the business normally held by anthracite.



The only weakness is in high-volatile slack, which is suffering from the swing to screening to take care of the attractive market for prepared sizes. To make this situation worse, the cement mills have reduced consumption while the seasonal overhauling of plants is going on.

An additional fillip has been given to the market by consumer interest in contracts for the new coal year. For the most part, larger producers are convinced that the present boom in the spot market will be short-lived. Therefore, they are not overlooking any opportunities to close worthwhile contracts.

Developments in the Baltimore bituminous trade the last week in January were devoid of novelty. The tonnage running has been ample to meet all demands. There has been some increase in the number of short-term contracts placed, but little interest shown in signing up for 1926-27.

Slight Improvement at Birmingham

There has been a slight change for the better in inquiries and in the buying of medium and lower grades of steam coal in the Birmingham market the past week. Mines have added enough spot business to contract commitments to take up current output without material delay. The better grades of washed coal are eagerly sought after for industrial consumption and coking. There also has been some increase in the calls for bunker fuel.

The domestic market is well sold up on the higher grade offerings and there will be little spot tonnage available for several weeks. Some of this demand has spread over into the medium grades, but mines producing those coals must still push for orders. Cahaba lump is quoted at \$4.25@ \$5.50; Black Creek, \$5@ \$5.50; Montevallo, \$5.75@ \$6.25.

Coke is moving over a wide area. Michigan and Chicago territory have been drawing upon the Alabama ovens and some shipments have been made as far north as Canada. Egg and nut are held at \$6@ \$6.50. Foundry grades are active at \$6.50@ \$7 and demand absorbs all the gas-house tonnage offered at \$7.

Coke also is the first choice of domestic consumers in the New York market, but, as related in a preceding paragraph, the scarcity of spot lots has been throwing more orders to sized bituminous coal. Run of oven output was quoted at \$9.50@ \$10, f.o.b. ovens, last week; egg, \$11.75@ \$12.25;

Car Loadings, Surpluses and Shortages

	Cars Loaded		Surplus Cars		Car Shortages	
	All Cars	Coal Cars	All Cars	Coal Cars	All Cars	Coal Cars
Week ended Jan. 16, 1926.....	936,655	192,820				
Preceding week.....	907,119	193,294				
Week ended Jan. 17, 1925.....	932,150	208,013				
Jan. 15, 1926.....	309,956	117,032				
Jan. 7, 1926.....	310,155	115,502				
Jan. 14, 1925.....	255,967	92,829				

stove \$12.50@ \$13. Toward the end of the week there were a few boats offered at \$18@ \$20 alongside.

Several vessels carrying foreign coal were expected late in the week, but the heavy storms at sea delayed their arrival. One cargo of 7,000 tons was reported lost.

Washery anthracite nut was quoted at \$14@ \$15, f.o.b. washery.

A cold wave seriously taxed the ability of Philadelphia retailers to take care of the domestic trade, but no suffering ensued. The high prices asked for coke is militating against the popularity of that fuel as a substitute for anthracite and has helped the sale of low-volatile bituminous. The price differential in favor of mine-run is persuading many consumers to try that size, with satisfactory results. There also is a growing consumption of boulets, which are retailing at \$15@ \$18. The supply of domestic fuel has been augmented by shipments of Holland boulets.

Prepared sizes of bituminous coal have the call in the Baltimore domestic market despite the fact that they retail at \$2.50@ \$3.50 more than mine-run. A movement is under way to start the delivery of soft coal in ton-lots in paper bags.

Though Buffalo consumers accept the dearth of anthracite with a reasonable degree of resignation, the actions of the coke producers are not doing much to promote good humor. Coke sells all the way from \$9.50 to \$18 at the curb, and higher prices are not unlikely, as some dealers are unable to obtain supplies for a week at a time.

Rise in Connellsville Prices Unchecked

The unchecked advance in spot prices on Connellsville coke gives the market an appearance of strength which underlying factors do not warrant. Run of oven coke last week was sold at \$9@ \$10; yard-crushed coke at \$12@ \$13, with occasional sales higher. Demand itself is more insistent than heavy. Spot or prompt shipment coke alone will be considered by the eastern buyers who have created the present market.

The blast furnaces are out of the picture. Contracts for the quarter average about \$4 and there is no shortage of pig iron production to induce the furnaces to bid up the market.

The Connellsville *Courier* reports coke output in the Connellsville and Lower Connellsville regions for the week ended Jan. 23 at 110,600 tons from the furnace ovens and 124,270 tons from the merchant ovens. Furnace oven production declined 1,500 tons; merchant output increased 3,170 tons.

Coal Produced in Indiana in 1924

(Exclusive of product of wagon mines)

County	Loaded at Mines for Shipment	Net Tons		Total Quantity	Value		Number of Employees a				Average Number of Days Worked a	Average Tons per Man per Day
		Sold to Local Trade and Used By Employees	Used at Mines for Steam and Heat		Total	Average per Ton	Underground--		Surface			
							Miners b	All Others	Surface	Total		
Clay	646,317	74,863	9,437	730,617	\$1,378,000	1.89	381	105	258	744	157	6.23
Daviess	80,784	13,668	1,970	96,422	192,000	1.99	105	44	23	172	133	4.22
Dubois and Perry		10,241		10,241	35,000	3.42	9	3	2	14	180	4.05
Fountain and Warren		2,083		2,083	7,000	3.36	10			10	72	2.89
Gibson	808,333	17,754	20,275	846,362	1,692,000	2.00	799	301	95	1,195	130	5.46
Greene	1,807,093	48,638	17,964	1,873,695	3,713,000	1.98	1,321	402	392	2,115	123	7.22
Knox	2,249,015	81,872	33,128	2,364,015	5,001,000	2.12	2,275	759	268	3,302	116	6.17
Owen	103,190	1,781	2,700	107,671	224,000	2.08	13	2	87	102	139	7.59
Parke	70,519	10,015	4,000	84,534	232,000	2.74	91	35	11	137	157	3.94
Fike	1,958,808	13,729	27,710	2,000,247	4,563,000	2.28	740	362	555	1,657	170	7.11
Spencer	7,079	2,854		9,933	17,000	1.71	14	4	3	21	119	3.96
Sullivan	4,803,464	50,550	65,183	4,919,197	10,626,000	2.16	3,347	1,468	622	5,437	157	5.77
Vanderburg	99,307	178,491	9,605	287,403	630,000	2.19	327	89	29	445	152	4.24
Vermilion	2,111,562	39,164	57,567	2,208,293	4,875,000	2.21	2,097	651	246	2,994	151	4.89
Vigo	4,784,799	152,138	142,755	5,079,692	11,694,000	2.30	5,527	1,768	625	7,920	119	5.37
Warrick	808,146	27,720	23,942	859,808	1,574,000	1.83	661	217	415	1,293	123	5.42
Total	20,338,416	725,561	416,236	21,480,213	\$46,453,000	2.16	17,717	6,210	3,631	27,558	136	5.75

a Note that figures of men employed and days worked do not include mines that operated in 1923 but were idle the entire year 1924; they do include many mines operated for a short time only in 1924. The number of active mines of commercial size in Indiana was 301 in 1923 and 248 in 1924.

b Includes also loaders and shotfirers.

Statistics compiled by U. S. Bureau of Mines.

Foreign Market And Export News

Steady Improvement Brightens Outlook in British Coal Market

In the British coal market a steady improvement in business is noted. Stability has been re-established on a freer arrival of shipping, and with few exceptions collieries are well placed for prompt orders. Export inquiries are encouraging, and though big business is lacking, there is quiet confidence in the immediate outlook. Steady revival continues in inland demand, particularly on the part of the metal trades. Excepting dry-coal collieries, which are experiencing a slack time, the pits are working better, and there has been a steady reduction in unemployment.

A strong tone now dominates the coal market in Newcastle. Inquiry for all classes of fuel is good, not only for this month but for delivery throughout the year, and prospects would be quite good were it not for the uncertainty of the outlook when the government subvention ends and a new agreement comes to be made with the miners. For this reason there is still difficulty in negotiating contracts for delivery after the end of March. Meantime current trade is brisk and most classes of coal are so heavily booked as to be scarce for immediate shipment, with the result that prices are firm and on the upgrade.

Output by British collieries during the week ended Jan. 16, according to a special cable to *Coal Age*, totaled 5,460,000 gross tons, compared with 5,060,000 tons in the preceding week.

Steady Demand for All Grades In French Market

French collieries report a generally steady demand for both industrial and domestic coals. Transportation difficulties continue, empty cars being in insufficient supply at times and movement by water being seriously impeded by floods. Freight rates are firm at 30 fr., Bethune-Paris.

The new prices for Nord and Pas de Calais coals, issued on Jan. 12, show an increase of 5 to 6 fr. on industrial and domestic grades, except in the case of a few specialties, which are raised 10 fr. Coke also has been advanced 5 fr.

Patent fuel has been increased 14 to 15 fr., the greater advance being due to the continued upward tendency in the price of binder material. The additions are quite moderate considering supplemental fiscal charges and the rising course of general expenses.

Further advances are certain if the miners are successful in their quest for higher wages. Quotations on Belgian coals sold in France also are expected to be increased as a result of the raises in the Nord and Pas de Calais. Three to 6 fr. has been tacked on the charge for coal imported from the Sarre, a result of higher wages and heavier fiscal charges.

The O. R. C. A. received from the Ruhr 100,189 tons of coke from Jan. 1 to 11. The price of indemnity coke has not been changed, but an advance of 7 to 8 fr. per ton is expected.

Belgian Market at Standstill As Strike Threat Fades

Since the passing of the strike threat the Belgian market has been at a standstill. Consumption of industrial coal is moderate, but an improvement in demand is expected, due to the resumption of work in the Charleroi metallurgical district. The domestic coal situation is still satisfactory in spite of milder weather.

Imports of British, Dutch and French coals show an appreciable falling off and increased prices in the Nord and Pas de Calais will tend to moderate French competition.

Shipments have been impeded or completely stopped by floods, some collieries in the Charleroi district having been obliged to cease production.

Mine prices for January are practically unchanged from the December circular and the same is true of indemnity coal prices.

Ruhr indemnity fuel deliveries to Belgium in 1925 totaled 2,902,908 tons, as against 4,381,786 tons in 1924.

U. S. Fuel Imports in December (In Gross Tons)

	1924	1925
Anthracite.....	17,156	186,480
Bituminous.....	33,313	60,444
From:		
United Kingdom.....	5,975	19,309
Canada.....	18,253	39,002
Japan.....		5
Australia.....	9,085	
Other countries.....		2,128

Destination of U. S. Fuel Exports In December (In Gross Tons)

	1924	1925
France.....	12,313	580
Italy.....	97,370	17,916
Other Europe.....	3,009	
Canada.....	727,142	1,135,507
Panama.....	19,276	22,857
Mexico.....	7,027	14,085
Br. W. Indies.....	14,928	10,764
Cuba.....	71,858	67,514
Fr. W. Indies.....	19,374	13,902
Other W. Indies.....	12,559	23,484
Argentina.....	15,665	18,063
Brazil.....	49,005	27,190
Chile.....	3,778	
Uruguay.....		6,019
Egypt.....	11,156	
French Africa.....	9,897	8,053
Other countries.....	16,129	18,759

Export Clearances, Week Ended Jan. 30, 1926

FROM HAMPTON ROADS		Tons
For Cuba:		
Br. Str. Berwindmoor, for Havana..		9,823
For French West Indies:		
Br. Str. Trafalgar, for Fort de France.		6,743
For Italy:		
Ital. Str. San Giuseppe, for Bagnoli..		7,231
Ital. Str. Oceania, for Genoa.....		5,612
Ital. Str. Aster, for Porto Ferrajo..		9,600
For Corsica:		
Ital. Str. Enrichetta, for Porto Vecchio.....		7,064
For Bahamas:		
Amer. Schr. W. T. Bell, for Nassau..		283
For Canal Zone:		
Amer. Str. Steeple, for Cristobal...		8,979
For Argentina:		
Grk. Str. Anastasia, for Puerto La Plata.....		6,661
For Virgin Islands:		
Br. Str. Omega, for St. Thomas.....		4,295
For Brazil:		
Dan. Str. Ellen Jensen, for Rio de Janeiro.....		4,426
For Dutch Guiana:		
Swed. Str. Bifrost, for Paramaribo...		2,458

Hampton Roads Coal Dumpings*

	(In Gross Tons)	
	Jan. 21	Jan. 28
N. & W. Piers, Lamberts Pt.:		
Tons dumped for week.....	163,256	181,832
Virginian Piers, Sewalls Pt.:		
Tons dumped for week.....	94,822	70,730
C. & O. Piers, Newport News:		
Tons dumped for week.....	105,873	140,761

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

Pier and Bunker Prices, Gross Tons

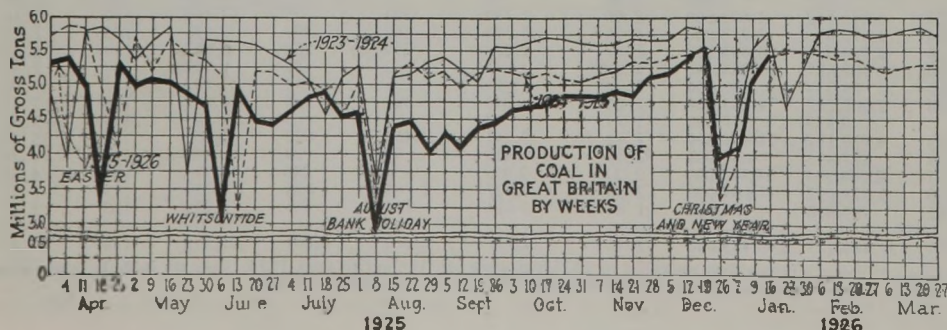
	PIERS	
	Jan. 23	Jan. 30†
Pool 1, New York....	\$6.00@6.35	\$6.00@6.53
Pool 9, New York....	5.50@5.75	5.50@5.75
Pool 10, New York....	5.25@5.50	5.20@5.40
Pool 11, New York....	4.85@5.25	4.85@5.25
Pool 9, Philadelphia..	5.30@5.40	5.30@5.40
Pool 10, Philadelphia..	5.05@5.25	5.05@5.25
Pool 11, Philadelphia..	4.80@5.00	4.80@5.00
Pool 1, Hamp. Roads.	4.65@4.75	4.90@5.00
Pool 2, Hamp. Roads.	4.20@4.30	4.65@4.75
Pools 5-6-7, Hamp. Rds.	4.00@4.15	4.25@4.35

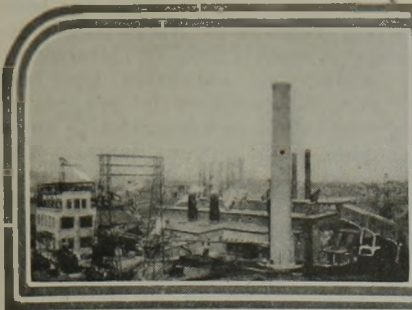
	BUNKERS	
	Jan. 23	Jan. 30†
Pool 1, New York....	\$6.25@6.60	\$6.25@6.60
Pool 9, New York....	5.75@6.00	5.75@6.00
Pool 10, New York....	5.50@5.75	5.45@5.65
Pool 11, New York....	5.10@5.50	5.10@5.50
Pool 9, Philadelphia..	5.55@5.70	5.55@5.70
Pool 10, Philadelphia..	5.25@5.50	5.25@5.50
Pool 11, Philadelphia..	5.10@5.25	5.10@5.25
Pool 1, Hamp. Roads.	4.75	5.00
Pool 2, Hamp. Roads.	4.30	4.75
Pools 5-6-7, Hamp. Rds.	4.15	4.35

Current Quotations, British Coal, f.o.b. Port, Gross Tons

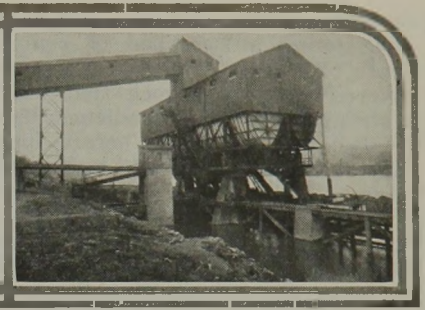
Quotations by Cable to <i>Coal Age</i>		
	Jan. 23	Jan. 30†
Cardiff:		
Admiralty, large....	22s.9d.@23s.3d.	23s.@23s.6d.
Steam smalls.....	14s.	14s.6d.
Newcastle:		
Best steams.....	16s.9d.@18s.	16s.9d.@18s.
Best gas.....	16s.@18s.	17s.
Best bunkers.....	16s.6d.	16s.6d.

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





News Items From Field and Trade



ALABAMA

At the annual meeting of the Birmingham Coal & Iron Co., of which I. E. Boyette is president, announcement was made of plans for extensive developments during the year. Coal production is to be increased so that the output of mines in the Oneonta section, Blount County, on the Louisville & Nashville R.R., will be around 1,000 tons daily. Additions to the board of directors include Joseph A. Disso, New Orleans; George E. Elrich, Baton Rouge; Christian Captville and E. A. Martines, New Orleans; Judge John R. Kelly, Hattiesburg, Miss., and A. A. Fendley of Oneonta. The company owns considerable lands and development will be started at once.

J. E. Ross, Jasper coal operator, is opening a new coal mine on lands which he owns near Jasper, Ala.

The Pratt Fuel Corp., controlled by the Walter Moore interests, of Birmingham, has purchased from the Alabama By-Products Corporation, of which Morris Bush, of Birmingham, is president, 13,000 acres of coal lands near Dora, in Walker County, for \$1,500,000. The property contains six coal-mining operations, besides 300 houses for employees, equipment for mining and livestock. Acquisition of this property gives the Pratt corporation approximately 40,000 acres of land underlaid with Big Seam and Black Creek coal, and nineteen miles of frontage on the Black Warrior River. Annual output of the Pratt corporation is 1,500,000 tons, which can be increased if necessary from 500,000 to 750,000 annually, according to Walter Moore.

ARKANSAS

A hospital association for coal miners was the object of a conference of 80 miners who met in Fort Smith recently. The association is intended to succeed the Union Hospital Association, formed by miners of District No. 21, but which went into the hands of a receiver several weeks ago. Miners from McAlester, Henryetta and other Oklahoma and Arkansas fields attended the meeting.

CALIFORNIA

With the installation of a 600-hp. substation, development work at the Siskiyou Coal Mines Co., near Ager, has been speeded up. R. D. Clark, president, said that within 90 days he had hopes of a large proven tonnage, drilling in the last four months having been very satisfactory. "The power

will be used," said he, "in unwatering the old tunnel and clearing the debris from the old works. It is possible that new work also will be undertaken."

COLORADO

A man and a boy were killed, another miner seriously injured and a fourth trapped in the shaft as the result of an explosion of undetermined origin which wrecked the Harvey Gap coal mine, sixteen miles north of Rifle, on Jan. 23. Investigation has been started into the explosion in the mine, which is operated by the Colorado Fuel & Iron Co.

An unusual record for the shipment of coal by the Colorado Fuel & Iron Co. was made in 1925, when 40,416 cars of coal were shipped through Pueblo. The coal was mined at the company's mines in southern Colorado. It was practically all handled by the Denver & Rio Grande Western R.R. and established a new record for coal shipment over that road from any part of the state. The year's record was boosted in the last four months of the year, when there was an unusual demand for coal from points east of Colorado, affected to some extent by the anthracite strike.

ILLINOIS

The Illinois Miners' Examining Board has scheduled examinations this month as follows: Belleville, Feb. 8; Harrisburg, 9th; Herrin, 10th; West Frankfort, 11th; Duquoin, 12th; Centralia, 13th; Staunton, 15th; Springfield, 16th; Taylorville, 17th; Danville, 18th; LaSalle, 19th and Peoria, 20th.

The Nason mine of the Illinois Coal Corporation, at Nason, Jefferson County, is reported to have failed to meet its semi-monthly payrolls on Jan. 28. This is the second occurrence of this kind in recent months and the company is supposed to have gone into the hands of a receiver soon after its first failure to pay off. The mine is classed as one of the largest and best equipped in the southern Illinois field. The company also controls the Jefferson & Southwestern R.R., running from Mt. Vernon to Nason.

The Chicago & Eastern Illinois R.R. has taken over the switching operations of the two Orient mines of the Chicago, Wilmington & Franklin Coal Co. at Orient, near West Frankfort. The work has been handled in the past by the Chicago, Burlington & Quincy lines. The C. & E. I. added five additional train crews to handle the work,

which was considered sufficient. The new Orient mine, which recently again exceeded its own world's record, is served by four roads: the Illinois Central; Chicago, Burlington & Quincy; Chicago & Eastern Illinois and the Missouri Pacific line.

Indications are that the prospective merger of practically all mines in the Fifth and Ninth districts with the exception of one company is likely to be put over. A number of prominent financial houses are back of the present move and auditors are working on the statement to be furnished them.

INDIANA

The Indiana Coke & Gas Co., Terre Haute, plans the addition of a new battery of coke ovens and auxiliary equipment to cost about \$400,000. A byproduct plant also will be erected for the production of sulphate of ammonia, estimated to cost about \$100,000 with machinery.

John Bull mine, between Chandler and Boonville, has reopened following the signing of a contract between union officials and Lon Shaw, lessee of the mine. T. D. Scales, of Boonville, owns the pit, which employs about 100 men. Various local unions of District 11 voted an assessment of \$1 per month per member at a meeting at Princeton on Jan. 13. This money will be used for emergency relief for men out on strike in the southern Indiana field.

Fires which destroyed the home of a mine foreman of the Bosse Coal Co. mine near Boonville and damaged a washhouse at Yankeetown mine were declared of accidental origin following an investigation conducted by the Indiana state fire marshal's office. Investigation of the cause of the fires, which occurred while an organizing movement was being conducted in the southern Indiana field by the United Mine Workers, was asked by the mine union officials. Operators of the mines co-operated in the investigation.

KANSAS

Neil A. Phillips, trustee, paid \$5,000 late in January for coal deposits under the 160-acre farm of E. H. David, one mile west of Valeda, in the Coffeyville field. Mr. Phillips, who is said to be acting for the Missouri-Kansas-Texas R.R., now controls more than 3,000 acres of coal rights lying to the east of Coffeyville, extending over the Labette County line into Montgomery County. Core drillers have been at work for

several months and are reported to have found a 9-ft. bed of coal at a depth of 800 ft. The coal is said to be covered with thick rock that provides a strong roof. It is predicted that the "Katy" will be ready before long to take over the acreage and begin sinking mines.

A strike was called during the week ending Jan. 23 at the Domestic Fuel Co. mine No. 3, near Croweburg. The mine is being operated by the McGrath Coal Co. William Brady, district board member of District 14, stated that the strike was the result of a dispute over wages. He said the operators had signified their intention to operate open-shop, and declared several non-union men had been employed in pursuance of this decision.

Two miners were killed and another was seriously injured, Jan. 26, by a rock fall in Cockerill mine No. 9, near Franklin, operated by the Ryan-Ready Coal Co., of Franklin. The accident occurred in a parting entry in a new section of the mine that was being opened up. The men were digging out a skip for a double track when the fall occurred. Robert Bertino and Pete Medos were killed and Amel Prommier was injured.

An engine has been received by the Lighting Creek Coal Co. at its mine near Cherokee. The company was organized recently in Cherokee and is opening a shaft on land leased a year ago by the company. The shaft is expected to be in operation before next fall.

Application for a charter to operate in Kansas has been made by the Brown Coal Co., of Pittsburg. The application was signed by Louis M. Brown, Homer Brown, I. N. Brown, Miss Mabel Brown and Mrs. L. A. Kooney. The Browns propose to continue operation as a corporation of a mine they have been operating near Pittsburg under a partnership agreement.

KENTUCKY

In 1925 the Elkhorn Piney Coal Mining Co. established a new record in producing 1,119,331 tons of coal at the Weeksbury, Powellton and Stanaford properties. According to Lew Roach, manager, the company hopes to produce 2,000,000 tons this year. A new steel tiple having a capacity of 2,000 tons daily is being erected at Stanaford to handle the output of the No. 3 mine which is now being rapidly developed. The company also contemplates the expenditure of \$100,000 for miners' houses at the new development.

The residence of James Rogers, of the Rogers Coal Co., Bevier, was destroyed by fire about the middle of January, with a loss of about \$20,000.

The Detroit Coal Co., of Columbus, Ohio, a subsidiary of the Essex Coal Co., has started loading at its new operation on the Little Coal River branch

of the Chesapeake & Ohio Ry. in Boone County. The company has 3,200 acres of coal land in the Dorothy seam and modern equipment has been installed. The equipment consists of cutting machines and conveyors, shaker screens, loading booms and picking tables. The initial output is 150 tons daily which will be increased rapidly as only two main entries and two butt entries have been started. The product is sold through the Essex Coal Co., of Columbus.

C. J. Neekamp, secretary of the Northeast Kentucky Coal Association, is urging the construction of railroad terminals on the Ohio River at Ashland, where coal might be transhipped by barge on an all-water route to ports on the Great Lakes or the Atlantic seaboard. He proposes that the old Ohio canal, which starts at Portsmouth, be reopened and improved so as to make Port Clinton, on Lake Erie, its northern terminus.

From Pikeville it is reported that the Chesapeake & Ohio R.R. is building 28 miles of road up Levisa Fork and that the Norfolk & Western is coming in by another route, both lines working toward the coal properties of the Kentland Coal Co., and going through much fine coal acreage with the extensions.

A new \$43,000 school has been erected at Elkhorn City, on an eight-acre site donated by the Consolidation Coal Co., of Jenkins. The Pike County Board of Education accepted the building recently.

The Kentucky River Mining Institute recently was organized at Hazard by over 100 mining men from all parts of Perry and Letcher counties. The announced objects of the new organization are the more efficient production of coal and the promotion of safety in the mines. Meetings are to be held monthly at Hazard for the discussion of such mine problems as haulage, drainage, upkeep of mines and machinery. The following officers were elected: George Fitz, of Hazard, president; D. T. Mitchell, vice-president for Perry County; Henry Pfening, Jr., Seco, vice-president for Letcher County, and Mr. Samuels, of Sergent, secretary.

MINNESOTA

The Zenith Furnace Co., at Duluth, sustained a fire loss on Jan. 17 estimated at \$75,000 through the destruction of its coal-crushing plant and a section of its coke ovens. The fire was attributed to spontaneous combustion originating in a pile of screenings. The company's trade in domestic coke has been dislocated for the time being. Contracts for rebuilding of the damaged section of the plant were let on the day following the fire, and it is hoped that it will be operating at full capacity again within a short time.

Coal dock operators at Duluth-Superior were interested in a recent statement by an official of the Minnesota Power & Light Co. to the effect that with the completion of the pro-

gram now under way the limit has been practically reached in water-power developments over northern Minnesota. The presence of extensive peat deposits over the territory he regards as a deterrent factor in economically operating additional power dams. The power company is known to have in contemplation the building of a large auxiliary steam power plant at Duluth to take care of any contingency that may arise through insufficient water to fill its dams. A plant of the nature contemplated would entail the consumption of a substantial tonnage of coal.

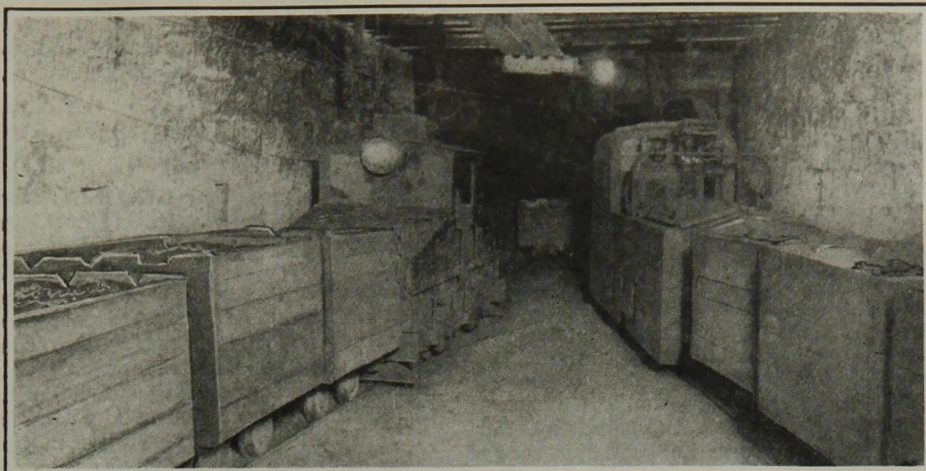
The Ford Motor Co. advertised in the Twin Cities last week that consumers could obtain surplus coal in all desired sizes from the Ford mines in eastern Kentucky in a continuous supply at a fair price. The explanation is made that the coal is shipped to Duluth as a return cargo for the Ford boats which are used to transport lumber and ore from northern Minnesota and Michigan to the Ford factories at Detroit.

MISSOURI

James T. O'Hara, of Bowie County, Texas, is leasing land north of Kirksville with the purpose of developing a coal field. He already has obtained 1,000 acres on option and will acquire more before starting operations. Tests have revealed a 4-ft. seam of coal at a depth of 150 ft. with a sound roof over it. The plans include a start on the shaft on March 15 and the operation of the mine by Aug. 1. The mine will have ample railroad facilities for shipping coal to the market. O'Hara is reported to have all the necessary financial backing to put the deal through.

NEW MEXICO

Warren Bracewell, state inspector of coal mines, in his annual report to the Governor, suggests appointment of a commission of mining men from various sections of the state who shall act with the Bureau of Mines to draft a new mining code that will insure greater safety to the workers. The death toll from mining operations in New Mexico the past year was one man for every 124,412 tons of coal mined, says the report. A total of 2,616,855 tons of coal was mined during the year ended Oct. 31 in the eight coal counties of the state. This is a decrease of 160,800 tons from 1924. Of the total tonnage, 1,714,059 were pick mined and the balance, 902,796 tons were cut by machine. The Phelps Dodge Corporation at Dawson during the past year produced 77,842 tons of coke, valued at \$622,736. The daily average employment of men in New Mexico mines during the year was 3,115 in the mines and 718 outside the mines, says the report. New Mexico mines, according to the report, have generally adopted provisions for safety of workers, as follows: use of permissible explosives, rock dusting and dust barriers, sprinkling, elimination of coal dust and use of closed lights.



Underground Haulage Equipment at Lota, Chile

Long haulages make electric traction necessary at this mine. M. R. Michado declared in 1913 that the mine had four square miles of available sea-covered territory and that the works extended $2\frac{1}{2}$ miles beneath the water.

NEW YORK

The Agnew-Smith Fuel Co., special distributor of Maryland anthracite at Buffalo, has given up turning it over to retailers throughout the city and opened an office in its own name on William Strete near the live-stock yards, with R. H. Allen in charge.

NORTH DAKOTA

Production of lignite by North Dakota mines exceeded 1,000,000 tons for the second consecutive year in 1925. Records compiled by the state Railroad Board show that the total shipped in 1925 was 1,028,218 tons as compared with 1,001,691 tons in 1924. Intrastate shipments totaled 915,718 tons and interstate shipments were 112,500 tons.

OHIO

Bids opened Jan. 27 by H. C. Cain, secretary of the Columbus Board of Purchase, for coal were as follows: 12,500 tons of Ohio nut, pea and slack for the municipal light plant, W. S. Harman Coal Co., Columbus, Ohio, \$1.24; Jay Miller Coal Co., Columbus, \$1.25. The same companies submitted the same bids on 7,000 tons for the Scioto River water works pumping station and 2,500 tons for the garbage disposal plant. For 500 tons of West Virginia nut, pea and slack for the coal pulverizer at the garbage disposal plant the Jay Miller Coal Co. bid \$1.05 and the W. S. Harman Coal Co., \$1.10.

Guy R. French, vice-president, and for the past sixteen years connected with the Producers Coal Co., of Cincinnati, miners and shippers in Logan County and southern West Virginia, has disposed of his interest in the organization and resigned as of Feb. 1.

The taking over of five mining properties by the Kentucky Fuel Co. of Cincinnati has caused a change in the ownership of this selling company. John Hoffman and Louis H. Koring have split. Hoffman taking over the business with new partners, Major E. S. Helburn, identified with the Log Moun-

tain Coal Co. and road commissioner for Kentucky; J. D. Evans, operator, of Middlesboro, Ky., and W. C. Welborn, mine owner, of Evansville, Ind. Koring is organizing a new selling corporation to be called the East Kentucky Coal Co. and operated under an Ohio charter. The mining companies to be taken in will be Clay County Coal Co.'s No. 1 and No. 2, the Willis Harlan Coal Co., the Turner Jellico Coal Co., all in working condition in Clay County, Kentucky, and the Coaldale Products Co. of Ohio.

Business of the Man o' War Fuels Co., located in the Dixie Terminal Bldg., Cincinnati, will be conducted through the branch office of the Indian Run Coal Co., Charleston, W. Va., recently opened in Cincinnati in the First National Bank Bldg., James C. Layne has been appointed its manager; Ed. Holyoke, formerly of the Wyoming Coal Sales Co. and the Cory-Mann-George Co. is office man, and Joseph L. Rebert goes on the road.

PENNSYLVANIA

Representative Philip Sterling, Philadelphia, introduced in the House at Harrisburg on Jan. 26 the state administration bill embodying the Delaware River compact. This has been accepted by the Legislature of New York and is before the New Jersey Legislature. The Pennsylvania Legislature rejected it in 1925. The compact provides for the regularization of the flow of the Delaware and the conservation of the water. Mining companies and representatives of various industries from the eastern part of Pennsylvania opposed the compact at a recent hearing at Harrisburg. The compact was introduced after Mayor J. Freeland Kendrick of Philadelphia had written to Governor Pinchot favoring a compact that would assure Pennsylvania the absolute right to develop a considerable part of the watershed of the Delaware River drainage basin without any interference from the neighboring states.

Frank S. Knox, Jr., of Columbus, Ohio, who has been connected with the Pittsburgh Coal Co. for a score of

years, has been promoted to the position of assistant general manager of mines with headquarters in Pittsburgh. He will be directly under Arthur Neale, general manager of mines and head of the operating department. Mr. Knox has been manager in charge of the company's mines in Ohio and has been instrumental in operating a number of mines in the Pomeroy Bend field under the 1917 wage scale.

The Coleraine Colliery Co. has awarded a contract to the Penn Electrical Engineering Co. for the electrification of its new breaker and mines at Coleraine, near Hazleton. The equipment will consist of breaker motors, substation apparatus, compressors and mine pumps. The mine pumps will be equipped with automatic control to eliminate pump runners.

W. M. Wilshire and C. C. McGregor, receivers of the Carnegie Coal Co., asked the U. S. court at Pittsburgh that the properties and assets of the company be appraised. The court appointed John M. Rayburn and James Donaldson to appraise the assets.

W. J. Rainey Co., Inc., has ordered the Paul plant in the Connellsville district to ship only furnace coke for an indefinite period. No foundry coke will be produced. The mine ships five cars of coke and two cars of coal daily.

Equity proceedings instituted by the Maryland Coal Co. against the Stine-man Coal & Coke Co. to force the latter company to maintain a barrier pillar of at least 200 ft. between the two contiguous operations of the companies in the South Fork region were indefinitely continued on Jan. 25 by agreement of both parties. The action had been on in the Cambria County Court before Judge John H. McCann for a week. A vast amount of evidence is being taken and the hearings are not likely to be resumed before April 1.

Output of the Pittsburgh Coal Co. in the 1917 wage scale mines in western Pennsylvania reached a new high record in the week ended Jan. 23, when a total of 29,463 tons was loaded at seven mines. This brought the total for the first three weeks of January to 83,190 tons. On Saturday, Jan. 23, the company distributed a two-weeks' pay amounting to \$91,178.85, also a new record. This was distributed among 244 men at Library, who received \$16,864.93; 158 men at Warden mine, \$10,461.53; 310 men at Midland, \$20,690.94; 47 men at Mansfield, \$3,545.87; 74 men at Dickson, \$4,082.42; 257 men at Banning No. 2, \$19,026.71, and 240 men at Banning No. 1, \$16,506.45.

Strong opposition to the seven giant power bills sponsored by Governor Pinchot in the special legislative session was raised at a public hearing held in the Senate chamber at Harrisburg Jan. 26. These measures replace the twenty-two defeated during the regular 1925 session. Advocates of the bills said the pooling of electric energy, regulation of its distribution and prices, the submission of securities of companies for examination and other features would stabilize the electric in-

dustry. Opponents characterized the bills as impracticable and said they would do nothing that is not already being done by the electrical industry in Pennsylvania.

TENNESSEE

The Marion Coal Mining Co., Tennessee Power Bldg., Chattanooga, has leased 3,000 acres of coal land between Whiteside and Shellmound, and will develop it. H. L. Cory is president of the company.

UTAH

G. Vern Sears, well known Salt Lake City coal salesman and connected with the Western Fuel Co. for the past four years, has gone to the Chesterfield Coal Co., a mining company with headquarters in Salt Lake City and a mine at Segoe, in Grand County.

Coke made by the Columbia Steel Co. is being distributed in Salt Lake City by the Wasatch Coal Co., retail agency of the Carbon Fuel Co., and it is stated that 50,000 tons or more will be available annually. Agencies are being opened up also in other parts of the state.

John H. Wootton, prominent in mutual coal company circles and a former member of the Utah State Senate, is lying seriously ill at Salt Lake City Hospital, following an automobile accident. Mr. Wootton is 60 years of age. He is an attorney by profession.

A prominent Salt Lake City oil refiner is quoted as saying that the local coal industry will lose out to oil, now that oil has been struck in Utah, unless the coal men get busy and produce a smokeless coal in commercial quantities.

WASHINGTON

The Bellingham Coal Mines output in 1925 was 297,000 tons, valued at more than \$1,000,000. The company employs more than 200 men.

WEST VIRGINIA

Mine No. 1 of the Gilbert-Davis Coal Co., in Scott's Run, operating under union conditions, recently loaded what is believed to be the largest tonnage ever dumped over one tippie in West Virginia in a single day of eight hours. This record was made Jan. 23, when 5,250 tons of coal was loaded. The Gilbert-Davis mine is the largest union operated mine in West Virginia, and it is working every day.

A short-circuit in the air course in Chesapeake mine of the Fairmont-Chicago Coal Co. on Jan. 27 caused a pocket of gas to be ignited from the flame of an open lamp. Two miners were slightly burned. The local gas explosion was light and little damage was done to the interior of the mine.

The Clarksburg District Mining Institute elected the following officers at the annual meeting held Jan. 23 in the Traction Building, in Clarksburg:

President, Charles F. Bashore; Vice-President, Harry W. Brown; Secretary and Treasurer, R. P. McOlvin. Mr. Bashore, who was a member of the first-aid team that penetrated Jamison No. 8 mine after the explosion, spoke on lessons that may be drawn from the explosion.

The Bear Pen Coal Co. was sold at trustee's sale at Summersville, in Nicholas County, on Jan. 18 and was bid in by one of the creditors of the company. Several hundred acres of coal land were involved in the sale.

The third Young Men's Christian Association to be established by the Island Creek Coal Co. will be ready for use in March, at Mud Fork. The others conducted by the company are at Monaville and at Whitman. General Manager A. R. Beisel is much interested in the Y. M. C. A. work.

Mr. and Mrs. Harry E. Sands, of Pittsburgh recently transferred to Fred O. Blue, of Charleston, five-thirty-firsts of an undivided interest in 1,797.93 acres of coal and mining rights in the Elk district of Harrison County and the same fractional interest in 826.88 acres on Elk Creek, in Barbour County. Mr. and Mrs. Sands also have conveyed to Arthur S. Dayton, of Charleston, a similar interest in these lands.

Thirty 1,000-ton steel barges recently have been put into service by the West Virginia Coal & Coke Co., according to an announcement made by Brooks S. Hutchinson of Fairmont, vice-president of the company. The barges will ply on the Ohio River chiefly between Huntington and Cincinnati and also on the Kanawha River. The company has ordered a steamboat which will be delivered in either March or April.

From the Oakwood mine of the New River Co. prepared coal has been put up in 25-lb. paper bags and two carloads were shipped to Boston during the first week of the month. There is said to be a good demand for the small bags of coal in the cities where it is retailed for cooking stoves. Other shipments of coal by the same method are soon to be made. Ordinarily the company ships its prepared coal in bulk.

The Mill Creek Coal & Coke Co. has acquired the property of the Mill Creek & Elkhorn Coal & Coke Co. and will operate. A new tippie will be rebuilt to accommodate the entire output of the mines.

WISCONSIN

A. P. King, of Cleveland, vice-president of the United Coal & Dock Co., was elected president of the organization to succeed Adam Gross, retired, at the annual meeting at Milwaukee, Jan. 20. Alex Uhrig, former president of the Milwaukee Western Fuel Co., was chosen chairman of the board of directors; John I. Mayer was re-elected vice-president and J. W. Gross, secretary was chosen secretary-treasurer. The United company is affiliated with the North American Coal Corp., Cleveland, successor to the Cleveland &

Western Coal Co. It handles about 500,000 tons of coal annually and its docks have a storage capacity of 200,000 tons.

CANADA

The Canadian National Rys. have arranged to ship 25,000 additional tons of Alberta coal to Ontario at the special freight rate of \$7 a ton, Charles McCrea, Minister of Mines for Ontario, was informed Jan. 25 by a representative of Sir Henry Thornton, president of the National lines. It is expected that some of the 25,000 tons will be moving to Ontario within a week. If the hard-coal strike is not settled soon and the 25,000 tons proves insufficient, it is understood that consideration will be given by the C.N.R. to additional shipments.

Mining in the Minto Coal Co.'s mines in New Brunswick was resumed on Jan. 18, when the 325 miners who had been on strike returned to work under an agreement, pending an investigation of working conditions by a government commission. The miners return under the same conditions as obtained before the strike.

Output of coke in Canada during December totaled 152,173 tons, being slightly below the November output of 156,182 tons. The total production for the year 1925 was 1,471,116 tons as compared with 1,370,599 tons in 1924. Imports of coke in December were 131,276 tons and exports of Canadian coke 4,401 tons. During December 91,863 tons of Canadian coal and 139,496 tons of imported coal were used in coke making.

It is officially stated that the Canadian National Rys. has given a contract to the British Empire Steel Corp. for 600,000 tons of coal for use this year, including 120,000 tons of banked coal.

Traffic

Complains of Tennessee Rates

The Roach Creek Coal Co., of Roach Creek, Tenn., complains of unjust and unreasonable rates on coal between Roach Creek and points in the Glen Mary and Coal Creek groups by reason of the failure and refusal of carriers to perform or to pay for the cost of performing that part of the service between Roach Creek and Roach Creek Junction. The coal company asks for the establishment of just and reasonable rates and the performance of the service or the making of an allowance for it. Reparation to the extent of \$4.05 per car shipped since June 12, 1925, also is demanded.

Obituary

Silas Reece, aged 76 years, a pioneer in the Clearfield bituminous coal region and well known as a coal prospector, was burned to death when his home in Decatur Township, Pa., caught fire on Jan. 23. He knew all about the coal for many miles around and his knowledge and advice were much in demand among coal operators. He was a teacher in his early life, later following the coal business as member of an operating firm.

Coming Meetings

American Institute of Electrical Engineers. Annual convention, Feb. 8-12, 1926, at Engineering Societies Bldg., New York City. Secretary, F. L. Hutchinson, 29 West 39th St., New York City.

Pittsburgh Vein Operators' Association. Annual meeting, Feb. 15, Cleveland, Ohio. Secretary, D. F. Hurd, Marion Bldg., Cleveland, Ohio.

American Institute of Mining and Metallurgical Engineers. Annual meeting, Feb. 15-17, 1926, at Engineering Societies' Building, New York City. Secretary, Dr. H. Foster Bain, 29 West 39th St., New York.

The Rocky Mountain Mining Institute. Winter meeting, Feb. 23-25, 1926, at Albany Hotel, Denver, Colo. Secretary, Benedict Shubart, Boston Building, Denver, Colo.

Canadian Institute of Mining and Metallurgy. Twenty-eighth annual and general meeting, March 3-5, at the Windsor Hotel, Montreal, Quebec, Canada. Secretary, G. C. Mackenzie, 603 Drummond Bldg., Montreal, Que., Canada.

New England Coal Dealers' Association. Annual meeting at the State Armory, Worcester, Mass, April 7 and 8. Secretary, E. I. Clark, 141 Milk St., Boston, Mass.

The American Mining Congress. Annual Exposition of Coal Mining Equipment, May 24-28, at Cincinnati, Ohio, in conjunction with the annual meeting of practical operating officials. Assistant secretary, E. R. Coombes, Washington, D. C.

International Geological Congress. The fourteenth congress will be held in Madrid, Spain, commencing May 24, 1926. From May 5 to 22 excursions of interest to the visiting delegates will be arranged. Information concerning the congress can be obtained from the secretary of the organizing committee, Enrique Dupuy de Lome, Plaza de los Mostenses, 2, Madrid, Spain.

New Companies

The Wilson Nolan Coal Co., with a capital of \$15,000, has been incorporated at Russellville, Ark. The incorporators are Albert L. Wilson and J. L. Nolan.

The Superfuel Coal Co. was incorporated in Paris, Ark., the first week of January, with a capital of \$15,000, by F. J. Mashaw, W. W. Bailey and others.

The Barbour Coal Co. was incorporated in Denver, Colo., with a capital stock of \$1,300,000, the first part of January, by Harry Carlson, Clarence B. Frink and others.

The High Grade Coal Co., Shawnee, Ohio, has been incorporated with a capital of \$10,000 to mine and sell coal. Incorporators are Richard Phillips, Sheldon Kinsel, Fred J. Phillips, G. C. Davis and W. P. Nutter.

The Niagara Coke Co. has been incorporated at Niagara Falls, N. Y., with Paul Schoellkopf, leading capitalist, in the list of incorporators. A site has been selected for a plant and work will begin in the near future.

Recent Patents

Roof Support for Mines; 1,559,560. Walter H. Doughty, Martins Ferry, Ohio. Nov. 3, 1925. Filed Feb. 11, 1924; serial No. 691,866.

Coal Cutter; 1,559,742. Kenneth Davis, St. Benedict, Pa., assignor to Rembrandt Peale, New York City. Nov. 3, 1925. Filed Sept. 11, 1917; serial No. 190,731.

Method of Feeding Dry Pulverized Coal; 1,559,810. Walter E. Trent, Washington, D. C., assignor to Trent Process Corp., Wilmington, Del. Nov. 3, 1925. Filed Oct. 22, 1919; serial No. 332,548.

Treatment of Finely Divided Coal; 1,560,116. Walter W. Stenning and Walter H. Beasley, London, England, assignors to Minerals Separation North American Corp., New York City. Nov. 3, 1925. Filed Feb. 15, 1922; serial No. 536,810.

Skip-Hoist Equipment; 1,560,230. William E. Hale, Fort Washington, Pa., assignor to R. H. Beaumont Co., Philadelphia, Pa. Nov. 3, 1925. Filed Jan. 23, 1924; serial No. 687,907.

New Equipment

Heavy Duty Truck Facilitates Rapid Delivery

Good roads are so common about the mines today that much of the material formerly handled by means of teams and wagons is now shipped by truck. In order to meet changing conditions in this respect the White Co., of Cleveland, Ohio, recently has brought out the heavy duty dump truck shown in the accompanying illustration and known as its Model 52-D.

This new model has an auxiliary transmission affording the equivalent of five separate speeds giving extra low gear pulling power for hill climbing or for getting out of holes or mire; a new dumping mechanism and dump; tapered body; also an improved patented oil system, and a double reduction gear drive. Other improvements embodied in this new model include a large tubular type radiator, spring-cribbles on the frame, a wide, heavy, pressed steel bumper, heavier steering gear, an air temperature regulator that saves fuel and adds to engine efficiency in all seasons, heavy springs, reinforced frame of alloy steel and brakes with drums of a special metal that insures quick, certain stopping and long brake life.

The auxiliary transmission gives great flexibility of power. It enables the driver to gear down to the hardest pull when this is needed and allows the main transmission of work at a higher top speed on the level road. Power is transmitted in a straight line from starting crank to the rear axle when operating under load. This assures maximum life for all drive units.

The mechanism which operates the dumping hoist is placed in the same case with the auxiliary transmission. The tapered dump body is raised on

sturdy arms and links by means of a positive gear drive to an angle exceeding 50 deg. This is sufficient to dump any load completely, yet the body is under positive control at all times and may be held at any desired angle. It is lowered by the same mechanism that raises it, but can be brought back to horizontal position on the truck while this machine is in motion.

The actual dumping point is so far behind the rear axle that the load slides neatly over the edge of a soft fill without danger of miring the truck, or piles up in the clear on flat ground. A double-acting tail gate facilitates dumping and the low body sides make loading from the ground unusually easy. The dumping mechanism is set down within the frame in a dirt-proof and weather-proof housing, the gears being operated in oil. The wheel base on the new model is 156 in. Solid tires are used, the forward tires being 36 x 6 in., and the rear ones 40 x 12 in.

Regulator Valve Eliminates Pressure Variations

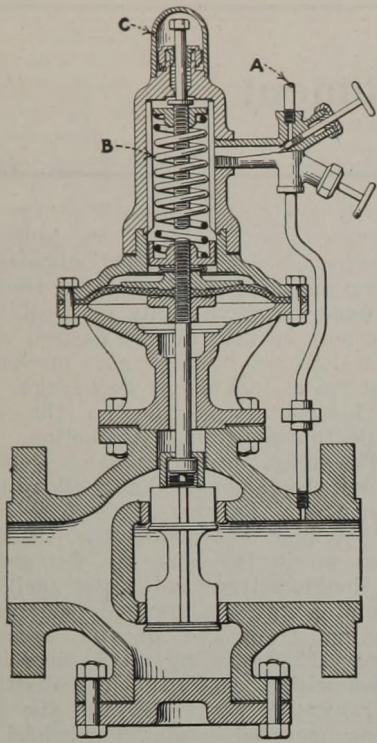
In order to eliminate the variations in the pressure on the feed line encountered where several boilers are supplied with feed-water from one pump, the excess pressure tending to vary with the rate of feeding, the S. C. Regulator Co., of Fostoria, Ohio, has perfected a new valve. This control valve is designed especially for installation in the line just ahead of each feed-water regulating valve. Its general construction is explained by the accompanying illustration.

The opening through the valve is controlled by means of a diaphragm with steam pressure on one side and feed-line pressure on the other. The steam pressure connection is made to the valve at the point A and adjustment of the

No Time Lost in Dumping

This view of the new White dump truck shows the exceptionally high dumping angle, exceeding 50 deg., which permits the load to be dumped completely. The hoist mechanism, which also lowers the body, can be operated to bring the body back to horizontal position while the truck is in motion.





This Valve Controls Pressure On Boiler Feed Lines

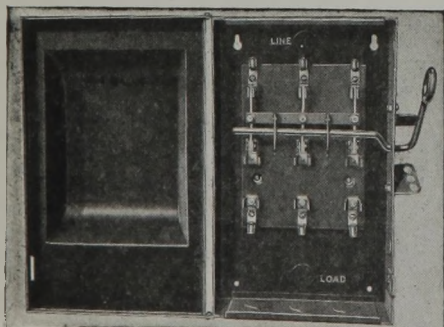
excess pressure desired is obtained by varying the tension on the spring *B*.

In addition to being used to control the excess pressure ahead of the individual feed-water regulating valve, this new device can be employed in the discharge of electrically driven boiler-feed pumps to maintain a constant excess pressure on the feed line.

Industrial Safety Switch Has Quick-Break Mechanism

A new quick-break safety inclosed switch recently has been brought out by the Westinghouse Electric & Manufacturing Co. This switch, known as the Type WK-62, is externally operated, totally inclosed, and has a simply constructed, quick-break mechanism. It is for industrial and other applications where a disconnect switch is desired.

The stops that limit the travel of the switch arm and the blades are placed on the outside of the box. This simplifies the construction and affords ample room for wiring. Clean-cut and easily removed knockouts are provided



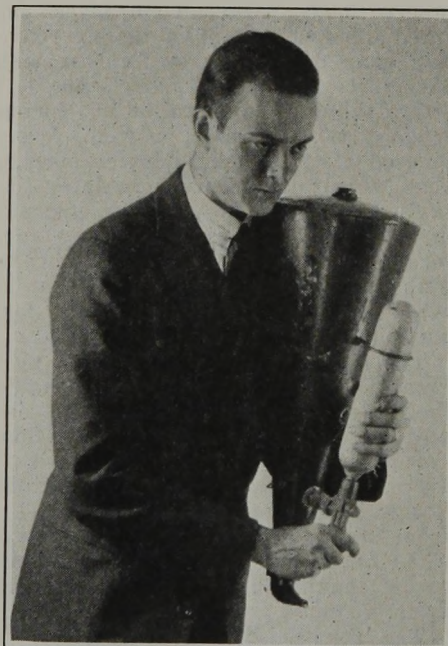
New Quick-Break Switch

Construction of this switch is simplified by placing the stops limiting the travel of the arm and blades outside the switch box. This also affords ample room within the case for the wiring.

in the back, sides and the top and bottom ends for any desired arrangement of the conduit. A diamond-point jaw and an extended type blade are used in the switch so that any burning occurring when the switch is opened does not foul the current carrying area of the blades. This new switch is supplied in capacities from 30 to 200 amp. and is rated at 250 volts d.c. and 250-500 volts a.c. in both the fusible and non-fusible types.

Simple Chemical Extinguisher Quickly Kills Fire

In order to quickly cope with fires of any origin, but which are normally difficult to suppress, the Bastian-Blessing Co., 240 E. Ontario St., Chicago, Ill., recently has placed upon the market the fire extinguisher shown in the accompanying illustration. This machine is extremely simple both in construction and operation. It consists of two elements, a cone, filled with chemi-



Extinguisher in Operation

To use this device it is merely necessary to turn it to the position here shown and open the valve. A stream of powder is thus projected onto the fire that quickly quenches it.

cal salts which, upon heating, evolve carbon dioxide and water, and a cylinder of liquified carbon dioxide gas. The cone and cylinder are connected by means of a suitable valve so arranged that when the valve is opened a stream of the powder is blown onto the fire.

To operate this extinguisher it is merely necessary to turn it upside down and release or open the valve. By this means a stream of the powder and carbonic acid gas may be projected 20 ft. or more from the nozzle. Inasmuch as fire depends upon oxygen, and since the carbon dioxide evolved from this powder will blanket any fire, it will extinguish it almost immediately. The powder is not injurious to the most delicate machinery or fabric, with the result that it may be used successfully for extinguishing electrical fires as well as others. After the fire is out the powder may be brushed off and the ma-

chine restarted. The extinguisher may be used repeatedly or until either the powder or the carbon dioxide are entirely exhausted when either container may be refilled. The device is claimed to be extremely rapid and effective in action.

Industrial Notes

A. H. Tischer recently joined the engineering force of the **Foots Bros. Gear & Machine Co.**, of Chicago, as designing engineer. He has been engaged in the design of a new line of herringbone speed reducers.

The Griscom-Russell Co. announces the removal of its general offices to the new **Murray Hill Building**, 285 Madison Avenue, New York City.

The Power Equipment Co., 315 Third Ave. North, Minneapolis, is now representing **Foots Bros. Gear & Machine Co.**, of Chicago, on industrial gears, spur, worm and herringbone speed reducers.

The A. M. Byers Co. has brought out a new four-reel film entitled "The Little Red Ball." It embodies a diagrammatic and scenic presentation of the manufacture of wrought iron pipe from ore to finished product. Hand puddling of wrought iron, including diagrammatic views of the interior of a puddling furnace, the drawing of the "little red ball," squeezing, rolling of muck bar, cutting, piling, reheating and rolling are shown. The methods of forming and welding flat strips of "skelp" into pipe are especially well explained by animated drawings. Engineering, trade and business clubs and organizations generally may secure free showings of this film by communicating with the **A. M. Byers Co.**, Pittsburgh, Pa.

The Kuhlman Electric Co., of Bay City, Mich., has awarded a contract to the **Henry G. Webber Construction Co.** for an addition to the Kuhlman factory. This addition will measure approximately 75 x 250 ft. In this new building the Kuhlman company is preparing to build the larger sizes of transformers.

Dr. R. B. Moore, formerly chief chemist of the U. S. Bureau of Mines and now general manager of the **Dorr Co.**, who was largely responsible for the development of helium production during the war, received the **Perkin Medal** for 1925 at the **Chemists' Club**, New York City, on Jan. 15. The medal is given by the **American Society for Chemical Industry**, and the selection is made by a committee from that organization, the **American Chemical Society**, the **American Institute of Chemical Engineers** and the **American section of the Société de Chimie Industrielle**.

The Foxboro Co., Inc., of Foxboro, Mass., makers of indicating, recording and controlling instruments, has moved its Pittsburgh office from the **Park Bldg.** to what will now be known as the **Foxboro Bldg.**, at the corner of Sixth Avenue and Grant Street. **H. S. Gray** continues in charge of the company's Pittsburgh branch.

Trade Literature

Electric Heat in Industry. General Electric Co., Schenectady, N. Y. GEA-261. Pp. 32; 8 x 10½ in.; illustrated. Deals with the advantages of electric heat for various industrial applications.

The C. F. Pease Co., Chicago, Ill., has issued **Catalog G** containing **Everything for Blue Printing and Everything for the Drafting Room.** The book is indexed for handy reference, contains 362 pp. and is well illustrated.

The General Electric Co., Schenectady, N. Y., has issued **Catalog 6001B** covering its entire line of manufactures. Reference to the different subjects is easily found as the book is thumb-indexed for ready reference. It contains 1104 pp., measures 8 x 10½ in. and is well illustrated.

Curtis Steam Turbine Generators. General Electric Co., Schenectady, N. Y. GEA-54. Supersedes **Bulletin 42,206**. Pp. 44; 8 x 10½ in.; illustrated. A collection of photos showing these generators installed in different plants throughout the country.