

COAL AGE

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Pleasing the Public

CONSIDERATION for the public has been the watchword of the anthracite producer, wholesaler and retailer, since the quarrel between the operators and miners started.

From the very first the operators desired to forestall trouble. They asked for arbitration. They desired to continue working at the old scale till the matter was arbitrated. They sought a contract so long, yet so subject to reasonable modification, as would assure the public of a continuous supply of coal.

Denied these three they went into conference with the miners and listened patiently day by day to their arguments for more wages and allowances. All in vain; the miners broke up the conference and called a strike.

Then when anthracite began to get scarce, the retailers agreed to buy bituminous coal in place of anthracite, and the hard-coal producers volunteered their services, established to encourage the sale of anthracite, to sell the rival fuel. The retailers also put coal on one side to take care of the small consumer.

Nothing more could have been done. Mr. Lewis realizes that the readiness of the hard coalers to help the consumer has won the hearts of the public, and he is making much capital out of an alleged identity of anthracite and bituminous operators. The fact that the president of one anthracite company, which he manages and does not own, has a son who is in a position of authority in some West Virginia soft coal properties means nothing even if true. The statement that the Glen Alden Coal Co., an anthracite corporation, has a bituminous subsidiary is incorrect. It is true, however, that the Lehigh Valley Coal Co. has a 1,000-ton mine in the bituminous regions. Some of the leading independents like Madeira-Hill, Whitney & Kemmerer, the M. A. Hanna Co. and the Dodsons have bituminous mines, but only one of these companies produces low-volatile coal. Moreover these are smaller concerns, and what are they among so many?

The anthracite companies are in no way profiting from the strike. It is to them a most unfortunate event. They do not like to see soft coal replacing hard but they wish the public to keep warm, they seek the goodwill of the people and do not want a surrender made to those who are creating trouble for operators and public alike.

Is the Miner a Man Or a Ward?

WHY IS THE PUBLIC so interested in whether the miner is well paid? The ditch digger's family has to live just like the miner's. Why not be as much anxious to see him get a square deal? The difference is that the miner has by good advertising and the threat that he will cut off the public's coal supply made the man on the street take an interest in something that really is not any more a matter of concern to him than

whether his iceman, the girl behind the counter at the store or the telegraph boy is getting a sustenance wage. These people shift for themselves and it seems that the public might leave the miner equally free to do the same.

If he is not paid a wage as good as the wage of other men, he can look for other jobs. There are plenty of them. Why worry the public? The cure is in his own hands. Calvin Coolidge hasn't said so but he seems to take the point of view that the miner is just one among many and not entitled to the paternalistic interest of the Government. Is the miner a man or is he a ward? When the federal authorities interest themselves in wages the activity should be general not specific and should be devoted to those industries where the pay is lowest.

As an Engineer Thinks

NEED for the engineer to take part in the direction of national affairs is being expressed wherever any of the profession meet. This sentiment has been advanced by Herbert Hoover and more recently by Governor Dern, of Utah, at a meeting of the American Institute of Mining and Metallurgical Engineers. In point of fact has not this estimation of the engineer as the real thinker of thinkers been somewhat overdone?

The engineer truly thinks concretely and, as he is, or should be, college bred, he has a degree of idealism which seems to come to most of those who set themselves off from the world for three or more years to study and reflect. But as the rest of mankind does not think quite so concretely, does not analyze, arrange and argue on the basis of statistics and has a lesser degree of idealism it is easy for the engineer to get into a wrong psychologic attitude and to fail accordingly in his leadership. He may draw his conclusions from masses of figures; he may exercise his judgment with due idealism but when he comes to make his suggestions he must speak in the terms of his hearer's psychology. To think in one formula and argue on the basis of another requires a finesse that few engineers acquire.

The engineer is loath to cast overboard all the elaborate figures he has done so much to accumulate. He is prone to endeavor to preach a turgid idealism that the public is slow to accept unless an emotional appeal is added to the argument. He gives pro and con for every statement forgetting that to the public the sum of many pluses and minuses is always zero regardless of which has the greater value. The man who leads is he who lets the public infer that success has only one sign.

As an engineer thinks so is he? Only rarely do we find men who like study and reflection delighting also in the hurly-burly of political life. We seldom discover men who find pleasure in long columns of figures and tabulations who are also gifted in the art of moving

the passions of mankind. There are such men, patient in detail and yet capable of forensic effort, but on the whole one class of men is prone to think and the other to talk and the talkers will never be thinkers nor the thinkers talkers, more's the pity.

What Will Britain Do in May?

AT THE DINNER of the Academy of Political Science in New York last week Lord Thompson, a British brigadier-general and former Secretary of State for Air, received all the honors that Americans usually give to foreigners who come preaching a gospel of beneficence. He prefaced his remarks with a statement that if profits and a living wage are mutually exclusive so that if there is a living wage there can be no profits and if there are profits there can be no living wage, then the profits may have to be foreborne.

But it must be remembered that the mine workers of Great Britain are working only seven hours a day and really have little right, therefore, to be discussing the living wage. Furthermore, they have repeatedly and deliberately restricted output as has been shown by actual tests and by the output of miners in mines run on the co-operative basis.

At one mine having a 4-ft. 6-in. seam of coal with a good roof it was decided by the local union that four gross tons a day was all a man could be expected to get with the aid of a compressed-air "radial drill." The company demurred at setting the daily stint so low. "Accordingly the mining manager," we are told, "described as a man of 50, rather large, in company with an underground manager of 60, who also was very large showed the officials [of the union] what they could do. These two men averaged 15 tons 7 cwt. [17.19 net tons] each for a seven-hour day. After this demonstration the union officials put the figure no higher than eight tons for a day's work."

The big talk about inefficiency in British mining is largely for the consumption of the public. The miners are opposed to efficiency. They think it will lay off British workmen. Nowhere is this idea less justified. In Great Britain, the export trade is important. The British mines are being thrust out of that trade by high prices and if efficient methods of production were adopted it would be foreigners who would be laid idle and not Englishmen, Welshmen or Scotchmen.

Then again, if coal were cheaper, more coal would be bought within the confines of the island. The cost of steel, for instance, would be greatly reduced if coal were cheaper. Yet again, the house fires of Great Britain are used with amazing frugality. It is true they waste coal and heat, but the British householder goes without a fire in as many places as he can. The high price is making him more frugal than ever. In America so well are the houses heated that it would be difficult to increase the sale of domestic coal, at least in normal years. This year there will be some real frugality, it is true, but usually there is no great opportunity to expand domestic demand. But in Great Britain that should not be so.

Another significant fact is that the tonnage per man has been decreasing for years in the British Isles, from 332 tons annually in 1883 to 220 tons annually in 1924 despite the introduction of machinery. There is evidence that the British workman wants a living wage but is none too anxious to earn it. It might be well also to suggest that the lowest living wage is not

the basis for calculation. Some of the mining areas which pay low minimum wages really should not be working at all.

What will Great Britain do in May when the subsidy ends? Will she give way to coercion and renew the subsidy? Let us think awhile. The wages cannot be so much lower in mining than in other industries, or the miners would desert the mines. That is what happens in other industries in Great Britain when wages get too low. Why should the miner and railroad man be protected more carefully than any other workman? Why indeed? Solely because they are organized and paralyze the public of Great Britain when they strike. Here, as in England, it is not the wrongs of the worker but the threat of idle factories and cold houses that makes the public act. His Lordship did indeed work a wonderful spell on the Political Scientists of the United States at their annual powwow, that they doffed their thinking caps in his honor.

Keep Right With the Community

NO COMPANY is justified in ignoring the interests and goodwill of the community in which its plant is located. Friction perhaps cannot always be avoided. The new company officials are interlopers in an old order long established; the superintendent is a newcomer among the first families of the village. Even the county school superintendent, the sheriff, and the distinguished representatives of the bar may be eclipsed temporarily by the new coal company representative.

So it is well to go easily, creating goodwill as one goes. There are assessments to be levied, taxes to be paid, safety laws to be enforced, roads to be maintained, and it is well to have the community favorable to the company success. The miners, too, react to an atmosphere of favor or of criticism. They get some of their ideas from local opinion, and when a newspaper reporter comes into the town he is led or misled as the case may be according to the prevailing sentiment.

No operator seems to care about the local editor who sends press notices to the city and to whom the city reporter directs himself when he comes to town for a story. Knights of the pen working for yellow papers are usually bent on getting just the kind of material they have been sent for rather than the truth, but their work is eased and the result made more certain if the village is well sprinkled with those who wish the company ill.

If the industry would thrive it must have friends at home. It must cultivate the goodwill not only of the miners but of the community. Those industries have been most successful that have looked beyond their employees to the employees' families and beyond the families to people of the immediate vicinity—the merchants, the farmers and others forming the community bordering on the mine. No company will succeed that believes itself to be operating in a vacuum.

MANY ENCOURAGING TRENDS toward greater prosperity are to be observed in the business currents of the country. The Atlantic States Shippers Advisory Board has just completed a survey showing, for instance, that distribution of goods at wholesale and retail in the Eastern Atlantic states for the last quarter of this year will show an increase of from 10 to 15 per cent over the last quarter of 1924. This fact means something to the basic industries of the country.

Reconditioning Cuts Valier Mine Costs

Labor and Power Saved and Safety Increased
By Program of Changes that Already Has Made
Total Reductions Estimated at 20c. a Ton

By Frank H. Kneeland

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New York City

VOLUME OF OUTPUT from a coal mine usually exerts a potent influence upon the expense of producing coal but it is not always the controlling factor. A determined effort on the part of the operator to cut down his mine costs may be even more potent. This has proven true at the Valier mine of the Valier Coal Co. in southern Illinois. Although this mine for a brief period last year held the world's record for tonnage brought through a single opening during a single shift, thus establishing its claim to greatness, its output for the year dropped 21 per cent which would, in the natural course of events, increase the cost per ton. But the total production cost during 1924 actually was reduced 20c. a ton. And this reduction is still going on. The company hopes for even lower costs through better equipment and management.

During the past few months a whole series of improvements in various details of operation have been made at this mine, all of which have as their primary object either a reduction in the labor force or a decrease in the expenditure of power. Such changes and alterations cannot fail to make their influence felt on the cost sheets and increase the financial efficiency of the operation, which, in the last analysis is the kind of efficiency in which the stockholder feels the keenest and most lasting interest. On the other hand, some of the improvements made at this mine have aimed at safety and safety alone. It is well recognized, however, that greater safety pays.

The changes made and contemplated at this mine naturally divide themselves into four main divisions, namely: Economic changes below ground, economic changes on the surface, safety measures below ground and similar measures on the surface.

Although the original plan of the bottom permitted the handling of a large volume of coal, it possessed certain clearly defined drawbacks. In the accompanying drawing the original layout is shown in light lines and the improvements made during the past summer are shown heavier. The main haulage headings extend east and west. By the original arrangement when trips came from either side the haulage locomotive uncoupled from them and had to wait until the bottom motor pushed the cars into the bottom before it could couple to the

waiting empties and move them back into the mine.

By slightly separating the loaded tracks and laying a motor track between them, switching at the shaft bottom has been minimized. Suppose a trip comes from the west side of the mine. The haulage motor proceeds onto the left-hand loaded track leading to the dump as far as the slant passage or "shoofly" leading to the left-hand or west-side empty track. Here it uncouples from the trip, travels through the shoofly, couples onto the empties there waiting and returns immediately back into the mine.

The forward end of the loaded trip is left in such a position that it may be engaged readily by the shifting ram that works back and forth across the top of the bottom locomotive. By means of this ram or push bar, which is moved by means of a rack on its lower side engaging with a pinion on a shaft actuated by a handwheel from the driver's seat, a trip of cars upon either track may be pushed forward to the dump. Trips coming from the east side are treated in exactly the same manner. Thus there

is no waiting of one motor for another on the main bottom.

A trip from either side must, however, be fed practically through the dump before another loaded trip from the same side may proceed into the bottom. This condition is indicated by a signal light at the entrance to the bottom, the position of which is shown on the drawing. A green light indicates that the sidetrack is clear and that a loaded trip from that side may proceed. A red light signals that loaded cars still block the shoofly to the empty track and the loaded trip accordingly waits on the main haulage road until the light changes.

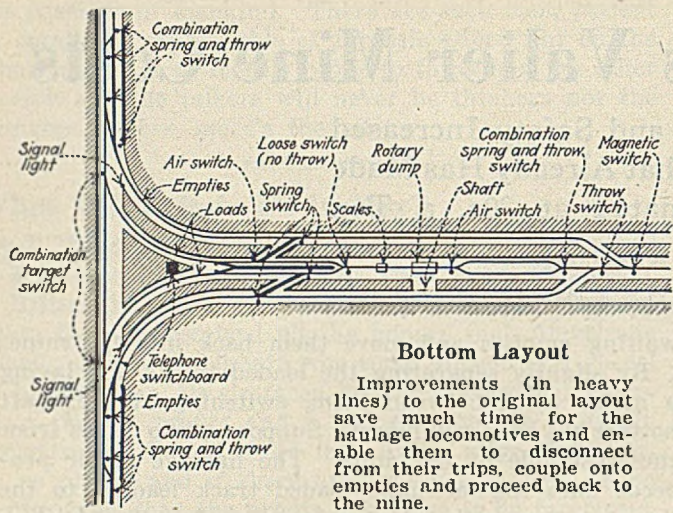
MANY TYPES OF SWITCHES USED

This bottom is decidedly interesting also because of the various types of switches employed in its layout. Thus, there are spring switches, air switches, throw switches and magnetic or solenoid switches as well as combinations of spring and throw types. Several of the switch stands both here and elsewhere throughout the mine are provided with targets similar to those used on railroads. These are lighted electrically thus obviating all danger of igniting either gas or dust from

IT CAN BE DONE

IF AN operator determined to reduce his mine costs 50c. a ton just where would he begin?

This article tells where the Valier Coal Co. began—and shows it got somewhere. Since the early part of 1924 a program of cost reduction has been in progress at Valier. During that year changes in equipment and method were made involving the expenditure of \$48,100. They are resulting in annual economies estimated at \$76,380. Even though the mine worked only 158 days in 1924 as compared with 231 days in 1923 and produced less than a million tons instead of equaling the 1923 output of 1,226,447 tons, the operating expense was reduced 10c. a ton and total production cost was lowered 20c. a ton. More improvements have been added this year.



an open flange. Annual savings in 1924 alone are estimated at \$9,182.

During the past summer the dump at the shaft bottom, which is of the rotary or revolving type discharging two cars at a time was raised $1\frac{1}{2}$ ft. and the door or valve that controls the flow of coal to the bins below it so arranged that it can be thrown by compressed air. This saved the services of one man and rendered operation of the door quick and positive. At this mine the skips are unusually large, holding three mine car loads of coal or about 13.2 tons each. When this mine broke the world's record on Nov. 25, 1924, by hoisting 8,664 tons of coal in a single shift the hoisting cycle averaged 44 to 45 sec. so that quick, positive manipulation of this valve is essential.

ROLLS MAKE HEAVY GRADES

Although the No. 6 coal bed of Illinois is a highly persistent measure and fairly uniform in thickness, it is so subject to rolls and minor faults in this locality that it is the exception rather than the rule that any plan of projection can be strictly adhered to. When, however, a definite plan is followed, as must be the case with the haulage roads if a large output is to be obtained, the grades are liable to be heavy both with and against the loads.

This was the case at Valier and in order to minimize the evil effects of such grades both on the rolling stock and the power consumption much of the main haulage roads have been regraded, bottom being lifted in some localities and top brushed in others. In one place a cut 13 ft. deep has been made. While such work is expensive it means savings in power, decreased wear

and tear on both track and rolling stock and increased safety and reliability in operation.

All the main haulage tracks in this mine have been overhauled and all bonds put in proper shape. In this work copper terminal bonds have been electrically welded to the rail flanges. These bonds are located on the inside of the rail and span the fish plates, or splice bars thus assuring a good return for the power circuit.

Automatic reclosing circuit breakers have been installed below ground tying all sections of the mine together electrically. This will obviate delays arising from the overloading of any one section as well as doing away with the services of two men. An investment of \$7,500 results in a saving of \$3,372 a year.

CHANGE MOTOR-GENERATOR STATION

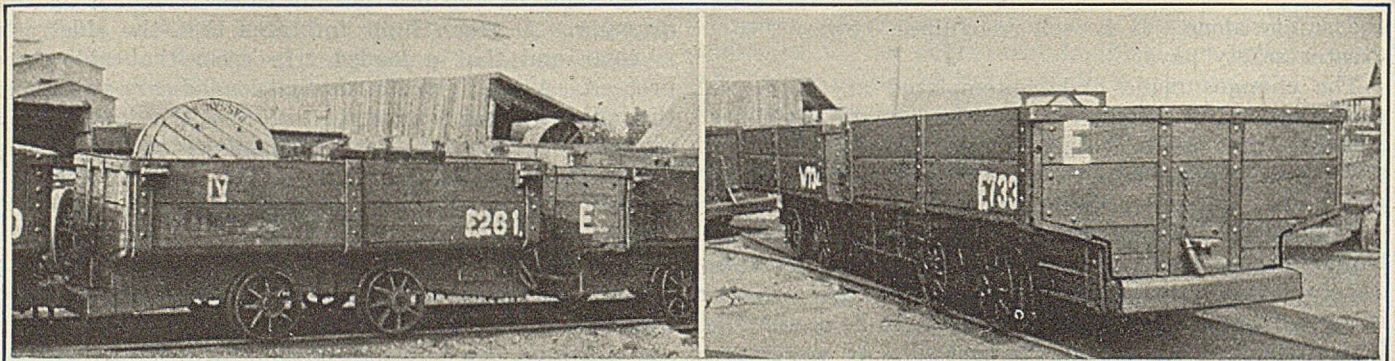
The underground motor-generator station has been relocated. Thus it has been brought more nearly to the center of the underground load which it serves, resulting in better voltage regulation. The capacity of feeder lines has also been increased so as to obtain adequate power for haulage and other purposes throughout the entire mine.

A change has also been made in the lubricant employed for the mine cars and in the means of applying it. Grease was first substituted for oil as a mine car lubricant and then an electrically operated grease gun replaced the hand methods employed in grease application. The saving made by installing the electric gun was \$2,000 last year and the total reduction in lubrication cost was \$12,000 more.

Nor has improvement to the car been confined to means and methods of lubrication, even though these accomplish much in the way of lessened expense, increased reliability and decreased wear and tear. The design of the mine car has been improved so as to increase its longitudinal stiffness and its resistance to drooping at the bumpers. The cars originally used at this mine in common with many others employed in this and other coal fields are of wood construction strapped and reinforced with steel. Inasmuch as the wheel base is only about $\frac{1}{3}$ the inside length of the car the body tends to bend in the middle over the truck as a fulcrum.

CARS DO NOT "HUMP UP BACKS"

In order to resist and overcome this tendency for the car to bend downward at the ends a steel plate bent to a modified Z-shape has been substituted for the inner vertical side and the flare boards. This construction is far stiffer than the original design and cars so fitted do not "hump up their backs and jump the

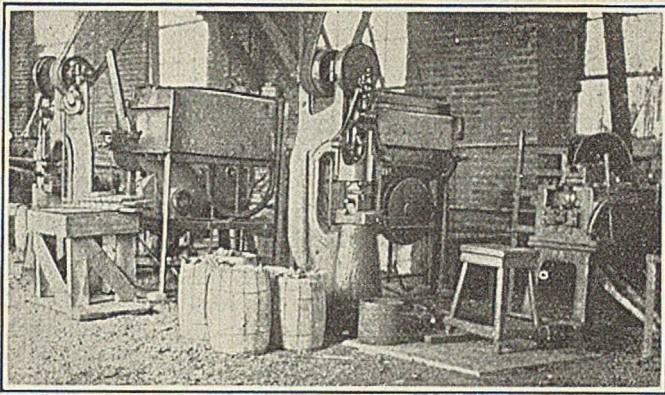


Drooping Tendency of Old Mine Cars Overcome in New Design

On the left is an old car of all-wood construction. The tendency toward drooping at the bumpers and humping in the center over the truck is plainly discernible. On

the right appears a car of the new design in which is embodied a plate bent to the form of a modified Z affording great longitudinal stiffness. Each car is numbered

and those for the east half of the mine are stenciled E and those for the west half W. Thus the cars are kept separate, even though passed through a common dump.



Where 6,000 Bits Are Sharpened Daily

Two men, two oil furnaces and two bit sharpening machines do work that probably would require from 12 to 16 men if equipped only with ordinary forge and anvil. Bit sharpening is practically a manufacturing process and manufacturing methods may be followed in its performance.

track" as the old ones sometimes had a way of doing. The difference in the appearance of the old and new cars is readily apparent from the accompanying illustrations.

In order to improve the "nervous system" of the mine and render inter-communication between its various members quick and sure a complete telephone system has been installed. This is fitted with a central exchange the location of which is shown in the drawing. It is similar to that employed in large office buildings and small towns. Where noise is liable to interfere with the use of outlying phones these are installed within a suitable booth provided with a door. The coal mine thus borrows a leaf from the metropolitan telephone system's notebook.

For a long time, probably ever since this mine had been started, men had been employed to carry sharp bits to the machine runners. This was obviously extravagant in man power yet followed precedent established long ago when "nipper boys" carried the pick points of the old pneumatic punchers. Bits for the undercutters are now handled through a regular bit station. Sharp bits are shipped to this point in bulk. Each machine runner has a bit bucket or container and sharp bits to a number equal to that of the dull ones turned in at the close of the previous cutting shift are issued to him at the beginning of the night's run. This one change, which was instituted at practically no cost, is responsible for aggregate savings estimated at well over \$5,000 per year.

SAVINGS MADE ABOVE GROUND

But changes and savings effected at this mine have by no means been confined to the underground. The original railway track grades were such that handling of cars in the mine yard and at the tippie was difficult and expensive. It was often necessary to resort to pinching in order to move the cars before, during and after loading. These tracks have now been regraded so as to obviate all pinching and car retarders have been installed under the tippie.

Control of all cars while loading has been centralized in the hands of one man stationed in a booth suspended between the lump and egg tracks. This man can easily oversee all loading operations and move the cars as necessity may require. It is estimated that savings in labor costs alone aggregating at least \$4,000 per year will result from this method of car control.

Refuse from the picking tables as well as slate and

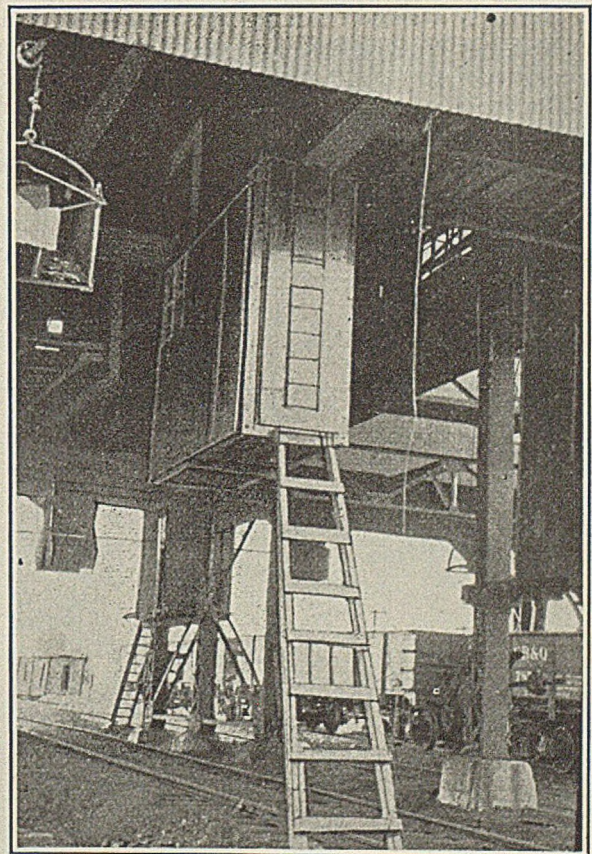
rock were formerly dumped into a bin together. From here this mixed material was shoveled into wagons or carts and hauled away to be used in making fills. Today the pickings and the mine rock are segregated, the rock being discharged into flat cars from which it is unloaded by means of a locomotive crane fitted with a clamshell bucket. Instead of wasting the pickings from the tables this material is now utilized as fuel.

For years materials and supplies intended for use at the mine—ties, props, sand, cement, machinery and what not—were unloaded from cars on the track above the tippie and hauled to storage by teams or trucks. Last summer a "material track" was installed rendering it possible to unload timber direct to the timber yard and other supplies to the appropriate warehouse or storage shed beside the track. The savings in time and man power thus rendered possible are obvious.

MOTOR TRUCK DOES HAULING

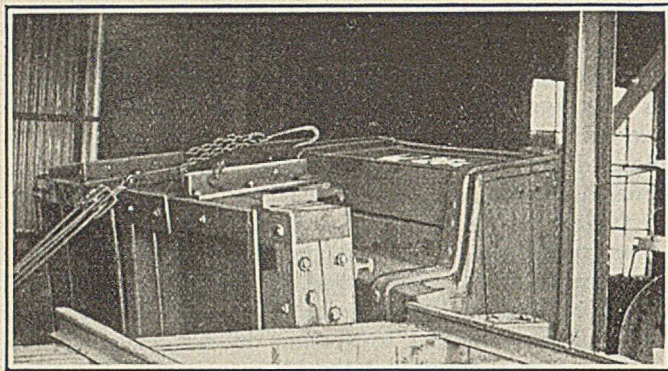
For performing the general hauling and trucking about this mine a motor truck has been substituted for horses and wagons. One truck of this kind, largely because of its greater speed of travel, has been able to supplant two teams. The services of one driver and, upon occasion, those of at least one helper have simultaneously been dispensed with.

Steam is generated to heat water for the bath house. Fuel for this purpose was formerly delivered to the steam plant in mine cars from which it was shoveled by hand to the floor space in front of the furnace doors. A rotary, or what might more correctly be termed a tip-over dump has now been installed to discharge these cars of fuel. The track on the platform of this dump turns sidewise on trunnions or a shaft below it so that



Car Control Underneath the Tippie

All of these tracks have been so regraded as to avoid all necessity for using pinch bars. Control of the movement of all cars under the tippie is centered in the hands of one man stationed in the narrow booth in the upper foreground at the top of the ladder.



One Way of Reducing Fuel Cost

This simple device that overturns by gravity but is righted by an electric motor saves shoveling fuel coal from the mine car to the boiler room floor in front of the furnace. It thus greatly simplifies and cheapens the problem of fuel supply.

the car is nearly overturned and completely discharged by gravity. It is righted by means of a small electric motor arranged to wind a cable onto a spool. This cable passes through a set of tackle blocks one of which is attached to the side of the car. This same motor is employed to pull the loaded cars up the grade leading into the fuel shed of the heating plant. The cost of this installation was \$1,800 but the saving is expected to be \$1,372 a year.

HAS 37 MILES OF ENTRY DUSTED

Until about a year ago inert dust for treating the various roads and headings in this mine was purchased. A pulverizing plant has now been erected, however, at which roof rock is ground for rock dusting purposes. Approximately 37 miles of entry have already been dusted in this mine and several miles more yet remain to be similarly treated. All of these passages will be redusted every six months or as much oftener as may be necessary. The plant last year reduced dust costs \$7,184 or nearly enough to pay the whole first cost of \$7,500.

As originally constructed, the man and material shaft at this mine contained a car cage traveling in one compartment and a counterweight in another. Coal is hoisted at this shaft for docking and boiler fuel purposes only. Cars were pushed off the cage, dumped and recaged by hand. A pneumatic de- and re-cager has been installed in this tippel that does the work

formerly performed by two to three men. This device works promptly and consumes a comparatively small quantity of air.

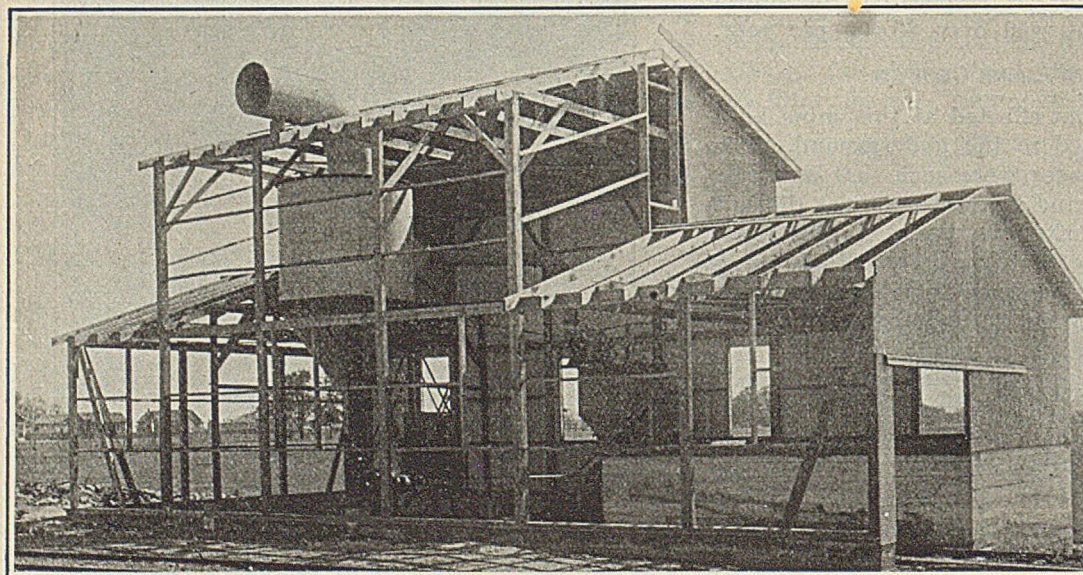
This machine is simple in construction and is easily operated. It consists of a cylinder made of steel pipe provided with a piston, piston rod, crosshead or ram sliding in guides, and the necessary valves, admission and exhaust pipes and the like. The front of the crosshead or ram is provided with both a buffer and a chain fitted with a hook. When a car comes up on the cage the ram is pushed forward and the chain hooked to it. Air admitted to the cylinder forces the piston back, retracting the ram and pulling the car off the cage and onto the dump. After the car has been discharged and righted the ram is thrust forward pushing the car onto the cage. The general appearance of the ram is plainly seen in one of the accompanying illustrations. The whole device is controlled by a 3-way cock, conveniently located.

SAVES \$2,744 A YEAR ON BITS

In coal of the consistency here mined it requires nearly one sharp cutter bit for each ton of daily production. Oil fired bit heating furnaces and bit sharpening machines have been installed in the shops at this mine which enable two men to sharpen about 6,000 bits per day. Each bit can be sharpened or resharpened from 15 to 20 times before it is worn out and must be discarded. But sharpening now costs annually \$2,744 less, thanks to an investment of \$1,100.

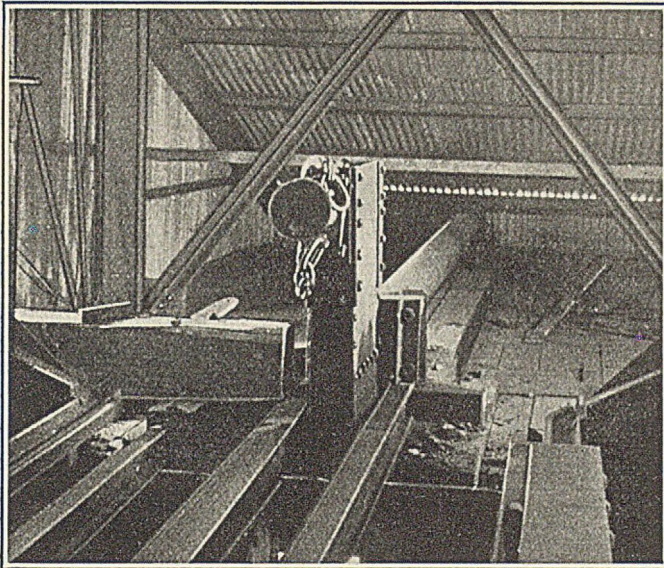
Several of the changes and improvements recently made at this mine have been intended primarily to attain safety. Their economic value is thus indirect and intangible although by no means negligible. First and foremost of these comes the practice of rock dusting. As has been stated a dust grinding plant has been built at this mine and many miles of underground passageways have already been treated to a coating of inert dust. This process will be continued until all headings have been similarly treated. These passages will be redusted twice each year or as much oftener as is necessary to maintain the inert content of the mine dust at the inexplusive point.

In addition to rock dusting the mine uses water sprays to reduce coal dust danger. These have been installed over the rotary dump at the foot of the main shaft and in the two runarounds which the empties



Saved \$7,000 Last Year

This shows the dust grinding plant which last year reduced dust costs, \$7,184, while under process of construction. It has long since been completed and placed in operation. Nearly 40 miles of heading in this mine have been treated with inert dust and several more miles remain to be similarly treated. Periodic analyses of the mine dust are made from time to time.



Pneumatic Ram Does Three Men's Work

This de- and re-caging device performs the work formerly done by two to three men and does it promptly. Its consumption of air is low and its upkeep practically negligible. It was built in the local shops.

traverse before they return to the active workings to be reloaded. The sprays lay the dust that may be present either in the coal or clinging to the cars themselves.

A partition wall has been built in the air shaft. This is of concrete and separates the intake air compartment from the cage and counterweight compartments. Originally this shaft contained a car cage and a counterbalance. The counterbalance has been replaced by a double-decked man cage onto the lower deck of which a weighted car may be run when coal is to be hoisted. When men are to be raised or lowered this car may be run off the cage and men accommodated on both decks. Double-decked landings have been provided at both the top and bottom of this shaft, and explosion doors also have been placed at the top.

Underground, the oil switches controlling the current to this mine have been inclosed in a fireproof structure. By this means fire originating from any cause within this switch station cannot be communicated to the outside and similarly fire from the outside cannot enter.

BOTTOM CAN BE ISOLATED

Steel doors sliding on overhead tracks and moving back into narrow slits or kerfs cut into the ribs have been installed upon either side of the air shaft foot. By this means this bottom can be completely isolated in case of emergency.

The mine air and dust are analyzed regularly. Analyses of mine air are made once each week with a portable Burrel apparatus with an Orsat apparatus as a check. Samples of the dust along the headings, haulage roads and like passages are also taken and analyzed at regular intervals. In addition to a safety engineer two other safety men are employed who devote their entire time and effort to the cause of safety. It should be mentioned also that closed lights only (electric cap lamps) are used in this mine.

Some further changes are contemplated but have not yet been made. These, like those already enumerated, have as their objects either increased safety

of operation or savings in the expense of coal production. Among them might be mentioned:

(a) The installation of car stops at the foot of the air shaft to facilitate the movement of cars at this point and render running of cars into the sump an impossibility.

(b) Rounding off the shoulder at the foot of the air shaft. As this shaft is at present constructed the heading at its foot leads off at an abrupt right angle. The air coming down the shaft is thus compelled to make an abrupt turn of 90 deg. at this point. This wastes power, and since the ventilation must be maintained continuously even small savings in power expenditure represent appreciable economies at the end of a year's time.

(c) Deepening the sump at the foot of the main hoist shaft and installation of an elevator and cross conveyor so that this sump may be cleaned mechanically. Naturally there is more or less spillage into any shaft sump. This, probably, is in greater volume where skip hoisting is practiced than where the cars are brought to the surface for discharge. At this mine with present arrangements the sump must be cleaned by hand. This expense, which is now appreciable, could be materially lessened by the installation of a mechanical cleaning device, the operation of which would entail only the cost of power and the wear and tear on the machinery.

Most machines require tuning up and adjustment after installation; most large mines must undergo a process that is exactly analogous. The changes made and to be made at Valier and here briefly enumerated partake of this nature. They have already reduced operating and total production costs. Their completion will unquestionably reduce these costs further—possibly even attaining the 50c.-a-ton reduction which is the goal.



Air Shaft Has Double-Deck Landing

This shaft contains two hoisting compartments. In one of these travels an ordinary car cage; in the other moves a counterweight cage, upon which a counterweight car can be run or removed at will. This cage is double decked and double landings are provided at both top and bottom of the shaft. Thus the counterweight cage even though far narrower will accommodate approximately as many men as the car cage.

Don't Be a John Hardy—Prevent Explosions

By S. L. Morrow
Birmingham, Ala.

THE MOST ESSENTIAL and the most important thing for a miner to do in the event of a mine explosion is to help prevent that explosion. Accidents of all kinds, including explosions, are constantly wandering around looking for a place to happen; and in ninety-nine cases out of a hundred they cannot happen without the help of some human being. Let every miner take this home to himself and think of it daily.

Is there a coal mining man who wants to form a partnership with a mine explosion and by his help cause it to occur? Your answer, of course, is no; in big letters. All right then, it is up to each of you to be constantly on the lookout for any dangerous condition in and around your mine and when you find one either correct the condition yourself or report it promptly to the mine foreman or safety inspector.

Keep an eye on all new men who come into the mine and see that they do not jeopardize their own lives or yours. Prevent the explosion and the remainder of this paper will be worthless.

Stupidity and carelessness are first and second lieutenants in the army of accidents. They walk constantly by the side of every miner. Today they go to the face of the Fifteenth Left with John Hardy. John has had many years' experience in the mines. He reaches his working place and through force of habit taps the roof in various places with his pick. One place sounds hollow and he starts back to the last cross-cut for a timber. Lieutenant Carelessness whispers in his ear: "Aw, what's the use? That place won't fall for a week." John hesitates and turns back and greets his new buddy who has just come in.

An hour later the "drummy" place in the roof lets go, crushing a mine car, and the new buddy narrowly misses getting caught. The wreck cleaned up, the two finish loading out their coal and move into the air-course to shoot down the coal for the next shift.

There is a little pool of water at the face next to the right-hand rib and rather than get his feet wet John points his auger too far to the right, boring his hole well back in the solid. After the hole is up, John looks at it and scratches his head a moment and starts to bore another hole, when Lieutenant Carelessness whispers: "Aw, let 'er go, she's not much on the solid."

John sends his buddy across to the heading to gather up the tools while he loads the holes. He places powder in all his holes properly fused. He hesitates at the right rib hole. Caution tells him to bore another, but Carelessness wins and he places his powder in the

improperly drilled hole in preparation for shooting it.

John now goes to his clay box and finds it nearly empty. He picks up the box and starts back to the side track for more clay when Carelessness says: "Gee, that's a long walk, why take it?" Lieutenant Stupidity now chips in with: "Go on and use coal dust. You used it twice last week and nothing happened. Besides you are using permissible powder and it is safe."

John hesitates and is lost; he turns back to the face and tamps up his holes using what clay he has, finishing out with coal dust. The two lieutenants stand by and watch him complete the job and then, Lieutenant Stupidity says to Lieutenant Carelessness: "We've done a good job. Let's beat it to a safe place."

John gathers up his tamping stick, tools and surplus fuse and puts them into his tool box. As he starts back to the face he notices quite a quantity of dust on the bottom and makes a mental note to tell

the mine foreman to send the sprinkling crew in the next day.

John lights his shots and then walks rapidly back to the second cross-cut and sits down to wait till they go off. In a few seconds come the dull boom of three or four properly placed shots, a short interval and then a sharp crack like a cannon, a bright flare of flame and a gust of wind.

A few seconds later smoke and flame are seen belching out the mouth of the slope accompanied by a sharp, roaring, cracking sound. It is as though Hell itself has broken loose.

DEATH STRIKES FIERCE BLOW

A death-like lull follows for a moment. Then sharp cries of agony break the stillness. They come from two men blown off the tibble who lie on the ground broken and bleeding.

Men with horror stricken faces rush from the shops, the other plant buildings and the superintendent's office. Soon the level heads bring order out of chaos. Doctors and ambulances are summoned. Rescue apparatus is brought out and rescue parties are organized.

In the camp mothers and daughters stop short at the sound of the explosion and with blanched faces exclaim: "My God, Number 2 Slope has gone up."

At the schoolhouse, children crowd to the windows and gaze toward the mine in wide-eyed terror, each with a prayer in his heart—"God save my daddy."

Now come back with me into the mine.

John Hardy's place was in the Fifteenth Left off the

WHY THIS WAS WRITTEN

DOWN in Alabama they are pushing safety. The Joseph A. Holmes Safety Association with 27 chapters in that state is backed by the Alabama Mining Institute, the U. S. Bureau of Mines, the state mines department, insurance companies and mining men of all degree. Monthly chapter meetings in some of the mining towns draw 800 or 900 people. This fall a series of papers has been prepared to be read as a part of the program at each chapter meeting. This story is one. It is printed here in the hope that it may be helpful to Holmes chapters everywhere.

main haulage. Three thousand feet out by the Fifteenth Left and about 600 ft. from the bottom of the slope the first right and left cross-entries turned at right angles to the main haulage, each on a separate air split. The right cross was only driven a few hundred feet.

The left cross was in about 4,800 ft. driven as a main entry with the First North turned to the right at 2,200 ft. and the Second North at 4,400 ft.

When the explosion occurred, Assistant Mine Foreman Billings was just coming out of the First North into the left cross. The force of the explosion blew out his carbide lamp and nearly blew him off his feet. He quickly recovered himself and relighted his lamp. In a few minutes panic stricken men began to pour out of the First North and a brattice crew and a track crew came rushing down the cross-entry from the direction of the Second North. All were making for the main haulage and the slope. It was with great difficulty that Billings got them to halt long enough to explain that it was certain death to try to get out and that their only hope was to go back up the First North and barricade themselves in. All were convinced, except two men who persisted in going out. Their bodies were found by the rescue party some 12 hr. later several hundred feet from the slope.

"Well, boys," said Billings, "We must get busy." He turned to the boss trackman: "Jack, will you take Henry and go back to the Second North and get all the men together and barricade yourselves in, while I go with the rest up the First North?" Both Jack and Henry agreed and started on their way.

LEAVES MESSAGE FOR RESCUERS

Before starting Billings picked up a cap board and with the flame from his carbide lamp wrote: "Men in First and Second North, follow arrows." He laid the board in the middle of the track. "All right, boys,, I have just counted noses and find that there are 22 of us. Come on. Every man bring his dinner bucket and his water and pick up any thing you see that will help build a barricade. It's a good thing we are on short turn today or there would have been more of us in here."

Every 200 or 300 ft. Billings marked an arrow on the roof with his lamp.

The First North was in about 1,200 ft. with three room entries turned to the left. These all had ventilat-

ing doors. As they passed these entries Billings ordered each of the doors propped open to short circuit the air.

Arriving at the Third Left, Billings decided to build his barricade across the First North, just in by the Third Left. The barricade would have to be 12 ft. wide by 5 ft. high. It would be necessary to build a second wall across the last cross-cut in the First North.

Billings at once began issuing orders. He sent two men to the face of the Third Left to get a car and all the shovels they could find. He sent five men under the boss bratticeman to the last cross-cut in the First North with instructions to start building a barricade, consisting of two rock walls about 2 ft. apart with a well-tamped filling of dirt, cautioning them to make it air-tight.

CONSTRUCTING THE BARRICADE

Billings opened a water valve in the sprinkling line and found that there was water, but at low pressure, meaning that the pipe was broken somewhere up the slope.

The two men from the Third Right returned soon with a car and several shovels and Billings sent four men with the car back to the Second Left sidetrack for a car of tamping clay which he had seen as he passed.

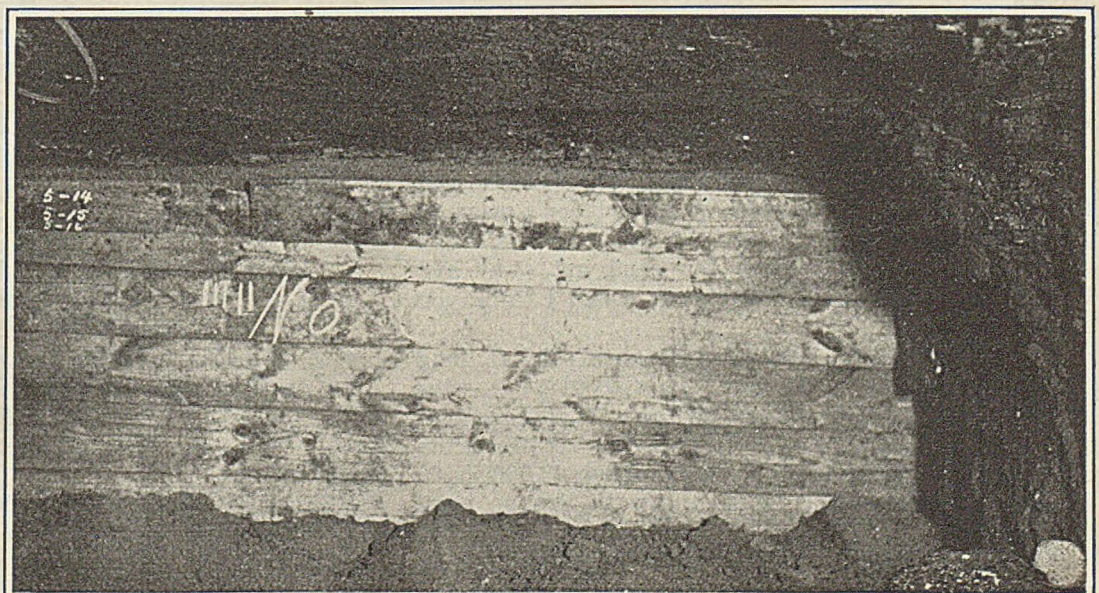
Thirteen men were left including himself. Eleven of these Billings put to collecting rock from the gob wall and piling it near where they would build the barricade. He then took one man with him to the face of the First North. He stopped at the last cross-cut and gave the crew some instructions. This cross-cut had an air-course track in it and the crew had brought out a car and a number of shovels from the face of the air-course.

Billings, with his one man, went on to the face and found a car loaded with bugdust; they found two shovels and a bucket of drinking water in the heading tool box. They loaded these on the car of dust and proceeded to push it back in the entry to the site of the main barricade. In the meantime the crew had collected a pile of rock for the walls.

The four men who had been sent for clay arrived soon and Billings ordered it unloaded just in by the barricade. He had the car of bugdust unloaded and then sent six men with the two cars up the entry with instructions to load them with dirt from the bottom.

Fire Stop

Had lumber been handy this type of fire-stop might have been erected by "Billings" and his men trapped by the explosion. As a matter of fact this particular one was built in the King mine at Princeton, Ind., and helped seal off a bad fire last summer. It contains an 18-in. wall of clay with ends hitched into the ribs and the top luted with clay to seal it tight.



He selected a place for the barricade where the entry had been driven "tight" in order to turn the Third Left. With the remainder of the crew he started two rock walls across the entry with about 2 ft. of space between them. When these walls were about a foot high, the space between them was filled with dirt and coal dust well tamped. This was repeated for each foot of wall until within a foot and a half of the roof. The outby wall was then built up to the roof, and the connection with the roof carefully plastered with mortar made of clay and water from the sprinkling line. All the dirt possible was then thrown up against the outby wall. The inby wall was then finished to within a few inches of the roof, and all the dirt possible packed in. A few minutes work and the inby wall was completed to the roof and well plastered with clay all along the roof and for a foot down.

Billings then examined the wall all over and decided to chink up the ends of each rib with clay. This done, he ordered all hands to the face to help the crew on the other wall. Some clay was left and this was loaded in a car and taken along. They found the wall nearly done. They were short of clay so they plastered the connections between the outer wall and the roof, and when the inner wall was completed, they rolled a sufficient number of jumpers and stuffed these tightly between the top of the wall and the roof.

COMPLETED IN LESS THAN TWO HOURS

Billings carefully examined the wall and pronounced it as good as it could be made. He looked at his watch and remarked that it had been just an hour and three quarters since the explosion had occurred.

"Now," said Billings, "Let's all go back to the other barricade." On arriving, he asked: "How many dinner buckets in the crowd?" Checking revealed 14, with 2½ or 3 gal. of water but little food left over from lunch.

"Use this bucket I found in the heading to drink out of, and when it is empty fill it from your dinner buckets. Go easy on drinking so as to make the water last as long as possible," continued Billings.

"I want to compliment all you boys on the way you have kept your heads and worked for the last two hours.

"Now everybody scatter out about 40 or 50 ft. and sit down. Now put all your lights out. My light will be enough to see by and we will save both carbide and oxygen."

When these orders were carried out Billings started to walk up and down from one end of the crowd to the other, talking to them in order to keep up their morale as much as anything else.

"Boys," he said, "I have seen some of you at our Joseph A. Holmes Safety meetings and some of you I haven't. Some of you who do attend don't seem to pay any more attention than the law requires. I've got you all here now where you can't get away and I am going to tell you a few things which I think you ought to know.

"In the first place, this entry is about 350 ft. long from the barricade to the face. It is about 12 ft. wide and 5 ft. high. It, therefore, contains 21,000 cu.ft. of air. Add to this about 2,000 ft. in the six cross-cuts out to the stoppings, and we have about 23,000 cu.ft. or somewhere near 850 cu.ft. of air to live on until rescued.

"One cubic yard of normal air will sustain a man for an hour if he is at rest and breathing quietly.

Lights consume oxygen and that is the reason I ordered lights out.

"Normal air contains 21 per cent oxygen, I learned by studying the subject carefully. A safety lamp or open torch will go out when the oxygen is reduced to 17 per cent. A carbide lamp just burns in air containing 13 per cent of oxygen and goes out when the percentage is less.

"Every breath we take we consume a certain quantity of oxygen and give off about an equal quantity of carbon-dioxide.

"We have about 850 cu.yd. of air in here and there are 22 of us, therefore, at a cubic yard per hour per man, we have enough air to last us—let's see, now—about 39 hr.

"A man moving about consumes twice as much air as one perfectly quiet. I am moving slowly so as to keep the air mixed. I had you scatter out to keep the carbon-dioxide which we exhale from our lungs from collecting in one place.

LEARNED PROGRAM AT SAFETY MEETINGS

"I am going to tell you the most important things to do if you find yourself entrapped in a mine by an explosion or mine fire. I got this all down by heart because I took an interest in safety at the association meetings:

"Keep your head. Weigh your chances of getting out through some opening away from the direction of the explosion.

"If you are sure you are cut off from any escape-way, quickly head for the deep workings with the idea of building a barricade before the poisonous gases reach you.

"Leave marks behind to assist the rescue party in locating you.

"Take everything possible with you that will help build a barricade, such as tools, boards, brattice cloth, etc. Don't forget your dinner bucket, water and carbide.

"Barricades such as we have built today are easier to make air-tight than if built of boards or brattice cloth.

"As you go back, short circuit the air in every possible way to prevent the gases from following too rapidly.

"If there is compressed air in the mine try to locate your barricade so that you will have an air valve in your space behind it. If there is no valve, break the pipe. The compressed air will add to the available supply back of the barricade.

"Always include as much space back of the barricade as possible regardless of the number of men in the party.

ALWAYS CONSERVE AIR

"After the barricade is built, sit down and remain quiet, to conserve all air possible. Lights out.

"Do not barricade yourself in a place known to give off methane, as the gas may be ignited and cause the death of the entire party.

"If you'll think back over the things we have just done, you'll see we've followed out these directions pretty closely."

Billings sat down midway the crowd and continued:

"I have been reading one of the Bureau of Mines circulars about the number of men who have been saved by building barricades after explosions and fires.

How's the Gas?

When men are on rescue work, such as was done by the team hunting for "Billings" and his trapped crew, they make haste slowly, testing carefully as they go. Here, they are looking for the telltale blue cap that indicates the presence of inflammable gas. The second man from the right in his right hand carries a small wooden cage in which is a canary. These birds are particularly susceptible to the influence of poisonous carbon monoxide. When the little bird falls from its perch it is time for men to watch their step carefully, for they are in the same deadly atmosphere.



The record shows that in 16 disasters 431 men built 25 barricades and 324 lives were saved out of the 431. Men have been rescued from behind barricades after having been imprisoned as long as seven days. In the Dolomite No. 3 explosion in our own district 50 men were rescued from behind a barricade after about 5 hr. So you see that it pays to keep your head and barricade yourself in.

"I feel confident that we are safe and that it is a question of only a few hours until we will be reached."

Slowly the hours dragged along. Some of the men tried to sleep. Others tried to carry on a subdued conversation. A few broke down and cried, murmuring brokenly: "I wish to God I could send word to my wife and babies."

Finally, at 4:30 a.m. 13 hr. after the explosion, there came a sound of knocking on the outside of the barricade, and a muffled voice saying: "Hello, anybody back of the wall?" As one man the crew sprang up, shouting: "Yes, yes." All lamps were quickly lighted and two or three men grabbed picks and started to attack the barricade. "Hold on," shouted Billings, "Let's find out if the air is all right outside." He shouted through the wall: "Is it safe to come out?" "Yes," came the reply, "The air is all right."

Some of the men attacked the wall with picks, others clawing feverishly with their bare hands helped break a hole through. In a few minutes they were all through the wall and greeting five helmet men with helmets off, their test canary as chipper as a lark in its cage.

Questions and answers were hurled back and forth. One man dropped to his knees and thanked God for his life. The rescuers explained that they had put the fan back in service 5 hr. after the explosion and that they had replaced blownout stoppings with brattice cloth, and after reaching the entry they were in they had closed each door as they came to it and waited awhile until the air cleared ahead before proceeding.

Then started the three-quarter mile walk to the outside. Reaction had set in. Some of the men could scarcely walk, and had to be assisted by the stronger ones.

They saw many evidences of the explosion in the cross-entry before they reached the slope, but the slope itself was a wreck. Cross-sets were blown out, there were falls from roof, a trip of cars half way up the slope when the explosion happened was wrecked and cars were hurled in every direction. Timbers were charred and covered with coke, and above all, that dank, sour odor of afterdamp.

They reached the surface just as the sun was creeping over the trees. Women and children with sunken eyes and drawn faces were huddled around little fires, waiting and praying that husbands and fathers would come out alive. When the men appeared at the mouth of the slope there was a rush from the women, each with a prayer that her man was among them. Those who didn't find their mates turned away silently weeping.

Doctors examined the men. Some were sent to the hospital in ambulances, others were sent to their homes.

Rescuers found 24 men in charge of the boss trackman in the pump room in the Second North, behind brattice cloth barriers. The pump was driven by compressed air, supplied by a pipe coming from the surface through a borehole. The men started the pump and were kept alive by the exhaust. All the men working in the room entries off the main haulage were killed by the force of the explosion.

John Hardy's body, burned to a crisp, was brought to the surface 24 hr. after the explosion.

It is true John Hardy paid the price, but what of the dozens of widows and scores of orphans who paid and will continue to pay through no fault of theirs?

My story is ended and the moral is, *don't let the explosion happen.*

Many Refinements Render New Tipple Extremely Flexible*

Rotary Dump, Balanced Shakers, Degradation Screens, Spiral Pickers and Swinging Booms Form an Unusual but Efficient Combination

THE TIPPLE recently constructed by the Spring Canyon Coal Co., Spring Canyon, Utah, differs from the ordinary structure of its kind, in numerous refinements for grading and otherwise preparing the mine product. Coal from the mines is delivered to it over a surface tramroad. Two tracks capable of holding about 40 cars, are provided for the loads and one track which will hold about the same number of mine wagons for the empties. The loads are fed to the dump by gravity from both tracks and are controlled by two squeeze blocks. These are of the type first designed by W. J. Elwood, but unlike the original blocks which were of wood operated by hand levers, they are built of steel and are actuated by compressed air at 100-lb. pressure. They are capable of holding securely 24 three-ton cars on a 2.5 per cent grade.

Loads are discharged by a full-revolving dump having a capacity of 5 cars per minute. After being dumped the empty cars go to the usual kick-back and gravitate onto the empty track. The hopper under the dump has a capacity of approximately 15 tons, and from it the coal is delivered to the shakers by a reciprocating feeder.

SHAKER TYPE SCREENS USED

The screens are of the usual shaker type. They are 8 ft. wide and 72 ft. long built in two balanced sections. The pitch is 12 deg. 30 min., and the travel 6 in., the eccentric shaft making 100 r.p.m. The upper section of this shaker is shorter but heavier than the lower section. It contains the slack and nut screens, consisting of plates with $1\frac{3}{8}$ and 3-in. circular perforations,

*Abstract of a paper entitled "A Brief Description of the New Steel Tipple Recently Built by the Spring Canyon Coal Co., Spring Canyon, Utah," prepared by George A. Murphy, general manager of the Company, for the Rocky Mountain Coal Mining Institute meeting at Price, Utah, but not formally presented before that body.

respectively. The lower section contains plates with $4\frac{1}{2}$, 6 and 8-in. circular openings extending from top to bottom of the screen in the order named. The shaker is so arranged that nearly all changes necessary for producing the different sizes of coal desired may be made merely by shifting levers. The most complicated of these alterations has been made in $2\frac{1}{2}$ min.; most of the other changes can be made in less than one minute and some without even stopping the machine.

FINE MATERIAL REMOVED

One of the refinements embodied in this machine is what is called a degradation screen. Just before the coal leaves the shaker it goes over a plate with $1\frac{3}{8}$ -in. circular perforations. This removes the fine material made while the coal is passing over the other screen openings. This fine coal goes into hoppers and thence onto the degradation conveyor which delivers it to the slack chute.

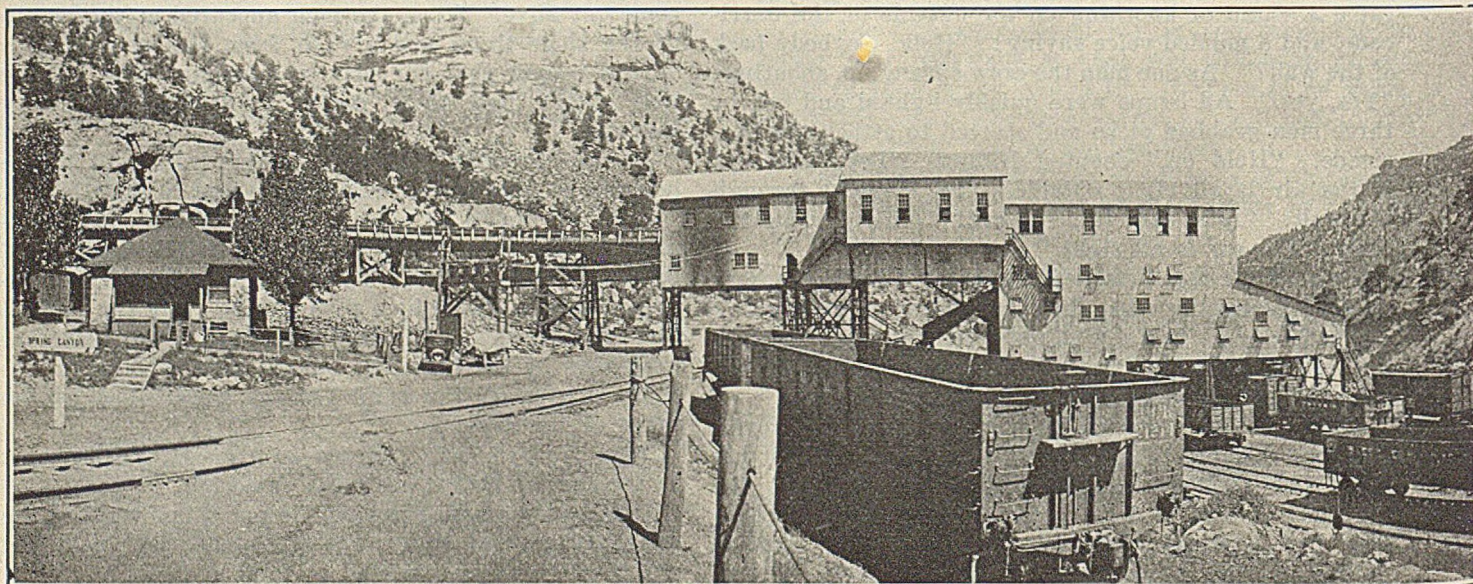
The different sizes of coal, excepting the slack, are delivered by the shaker onto three picking tables. These are horizontal for 24 ft. where they are hinged to form loading booms. Each picking table thus forms one unit of continuous conveyor.

Centrally located under the picking tables and below the floor, is the refuse conveyor extending at right angles to the tables. The impurities picked from the coal are dropped through openings in the floor and onto this conveyor, which discharges them into a bin of 100 tons capacity. From this bin the refuse is loaded into railroad cars through a gate.

Slack may be loaded directly into railroad cars through a chute from the hopper under the shaker, or it may be conveyed to the rescreener. Gates are provided by which all or any part of this material may be sent over either of these routes.

CONSTRUCTION OF RESCREENER

The rescreener is a shaker 4 ft. wide and 16 ft. long provided with $\frac{3}{4}$ -in. circular openings. The framework is of wood and the pitch is 5 deg. It is driven by eccentrics having a $5\frac{1}{2}$ -in. throw and running at 143 r.p.m. This shaker is hung on 1x10-in. ash boards rigidly fixed at both the support and shaker ends, so that the spring of the boards permits the necessary



One of Utah's Newest and Most Complete Coal Preparation

screen movement. The eccentric rods are also of ash, rigidly attached to the shaker. Movement of the eccentrics is likewise permitted by their resiliency.

Dust going through this shaker drops into a bin of 80 tons capacity from which it is loaded into railroad cars through a gate. A car may thus be loaded from this bin in two minutes.

DISTRIBUTING SHAKER IN FOUR SECTIONS

Screened slack, or pea coal, from this rescreener is delivered to a distributing shaker driven from the same eccentric shaft that operates the screen, through eccentrics of the same throw, the two being balanced. The distributing shaker is divided into four sections, each occupying one quarter of its width. Each of these sections discharges its coal through a chute to a spiral. As the coal runs down on these spirals, the impurities or heavier materials move close to the center or axis, while the coal is thrown off the outer edge. The impurities are discharged into a conveyor and taken to the refuse bin, while the coal goes onto a boom and is conveyed to railroad cars.

Mention has been made of the refuse conveyor which runs under the picking tables. At a point near where this conveyor discharges into the refuse bin, pickers are stationed to remove lumps of coal that contain but little refuse matter. These are dropped into a crusher that discharges into an elevator-conveyor which delivers the coal to the main shaker in the form of slack and nut. The impurities are then taken out of the slack by the spirals, and are hand-picked from the nut on the picking table.

HOW LOADING TRACKS ARE INSTALLED

Six loading tracks are installed as follows: No. 1 for loading lump coal into box cars; No. 2 for loading lump into open cars; No. 3 for loading egg and stove into either open or box cars; No. 4 for loading nut coal into open or box cars; No. 5 for loading mine run, straight slack, dust and pea coal into open cars, and No. 6 for loading dust and refuse into open cars. Still another track passes under the tippie, and is used for unloading sand and other material.

The combined picking table and loading boom on No. 2 track is fixed except that the boom end may be raised

and lowered. It is so arranged that all or any part of the coal going over it, after passing the pickers, may be diverted to the box car loader boom serving No. 1 track. The Nos. 3 and 4 booms are of a modified swinging type. They are located on one side of the tracks, and when loading box cars are in a position parallel to them. When loading open-top cars, however, they are swung to positions such that they discharge directly over the center of the tracks.

All booms, five in number, are raised and lowered by electric hoists with pushbutton controls. Booms Nos. 3 and 4 are swung sidewise by means of trolleys on which the hoists are mounted. When loading box cars the Nos. 3 and 4 booms discharge into transverse conveyors that deliver the coal to the loaders. These conveyors are mounted on shafts near the ground. They are pushed into the car and removed from it by electric power.

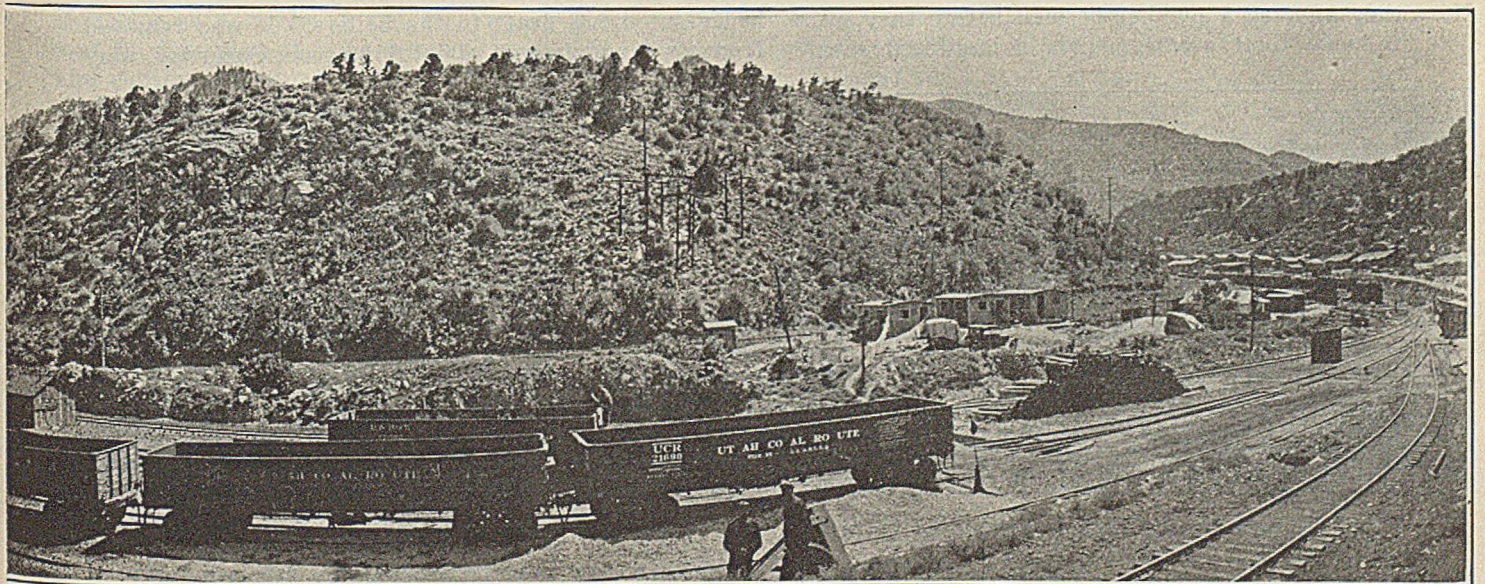
Two extension-conveyor type box car loaders have been installed on tracks Nos. 1 and 3. The transverse conveyor and the foundation have already been built for the installation of a similar loader on track No. 4, but the machine itself has not yet been put in place.

FIVE PUSHBUTTONS CONTROL MOTORS

All tippie motors are fitted with remote pushbutton controls, these latter being located in a central station in the weigh-room. Here five buttons control all of the motors. These buttons are so located that when operated successively from left to right, the several units of the tippie are started in the proper order.

There are a dozen or more pushbuttons located at various points about the tippie and used in stopping the machinery when necessary for shifting cars, changing the screens or any other reason. These buttons are so connected that when pushed they automatically stop all of the machinery that it is necessary to shut down in order to accomplish the work in hand and sound a gong in the central station. When this gong is rung twice from any of the pushbuttons, the weighman starts the several units in the proper order.

The capacity of the tippie is, 3,500 tons in 8 hr. and its cost, together with approaches, box car loaders, re-arrangement of railroad tracks, etc., was approximately \$260,000.



Plants Is This One at the Big Mine of the Spring Canyon Coal Co.

Prompt, Efficient Action Saves Men and Mine from Fire

Flames Are Attacked First with Hand Extinguishers and Men Are Withdrawn—Modern Equipment Is Great Aid—No Casualties

WITH THE POSSIBLE exception of an explosion the underground fire is probably the most spectacular of all mine disasters. Many fires, however, are "nipped in the bud" and extinguished before they can gain formidable headway. Such treatment necessitates prompt, careful and efficient action on the part of the mining organization, if serious property damage or even loss of life is to be averted. Such action saved the workings and the employees of the Kingston Coal Co., of Kingston, Pa., recently when a fire developed over night in one of its operations.

This fire broke out sometime during the night of Friday, May 15, 1925, in the Red Ash Bed, of the old Slope-Mountain Tunnel district which is tributary to No. 2 colliery. At this point a gang had been timbering on Friday afternoon. At the close of work in accordance with the usual custom the regular roundsman made his daily examination, finding nothing wrong. In fact, this roundsman was the foreman in charge of this particular job of timbering, so that in making his examination he inspected his own work.

On the following morning, Saturday, May 16, at about 7 o'clock, this roundsman found the timber set up the day before to be on fire. A nearby cog or crib was also burning. Notification was promptly given to the superintendent and foremen who immediately attacked the fire, the location of which is shown at *M* on the accompanying drawing, with hand extinguishers.

By this time, however, the volume of the smoke and gases had so increased that some of the men were overcome and had to be carried to a place of safety at *D* in the Eleven Foot Bed near the head of the rock slope to which point the foul gases had backed. This district is connected with No. 3 shaft and the fumes from the fire worked their way through other openings such as *L* and *N* and the caved area back of the fire thus gaining access to the No. 3 workings. Here they affected a number of men before they were able to make their escape. This necessitated rescue

work at No. 3 shaft as well as in the immediate vicinity of the fire.

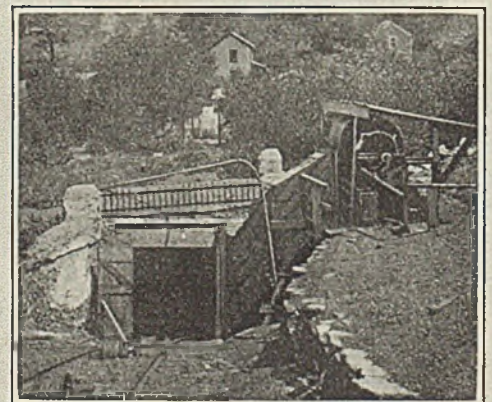
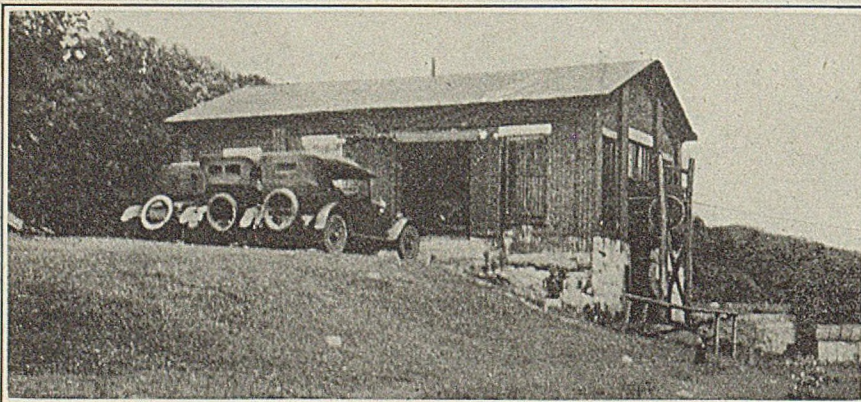
As soon as the nature of the fire was determined word was sent to No. 3 for the withdrawal of all men from the mine. It required some time to conduct a canvass of the total number of hands there employed and make sure that everybody was safe. In all about 40 men were more or less affected by noxious gases (chiefly carbon monoxide, CO) and smoke. Medical aid was given wherever necessary and no casualties were sustained.

Plans and preparations were immediately made to combat the fire. All men were withdrawn from the workings of No. 4 colliery which connected with the No. 2 workings and the production of coal was stopped in all mines of the company. The door at *N* was opened and the ventilating current from the Nos. 4 and 3 fans short circuited to pull direct through the caved district and away from the fire in the gangway. The chief object sought was to prevent the fire from spreading up the pitch into the outcrop.

With this change in the ventilation current the air moved down the rock slope from *D* to *R*. Next, by the use of brattice from *R* to *F*, it was possible to reach the door at *G*, which was kept closed. Good air was coming out the gangway at *H*, from the east side in the Red Ash Bed. A stopping (*H*) was accordingly erected at this point which cut off this air current.

The fire was fought between the points *G*, *O* and *N* by men wearing oxygen-tank helmets. A relay station where the helmets were equipped with new tanks was established at *R*. On Saturday night an emergency blowing fan was installed at the mouth of the old slope, and the openings at *B*, *C* and *D* in this slope, the Bennett and the Eleven Foot beds were closed with stoppings. The brattices and other air current-control equipment between the points *R*, *F* and *G* were also tightened up so that the fire-fighting crew was ready for almost any emergency. Fortunately, however, no emergency demanding the use of this fan arose, and it was never necessary to place it in operation.

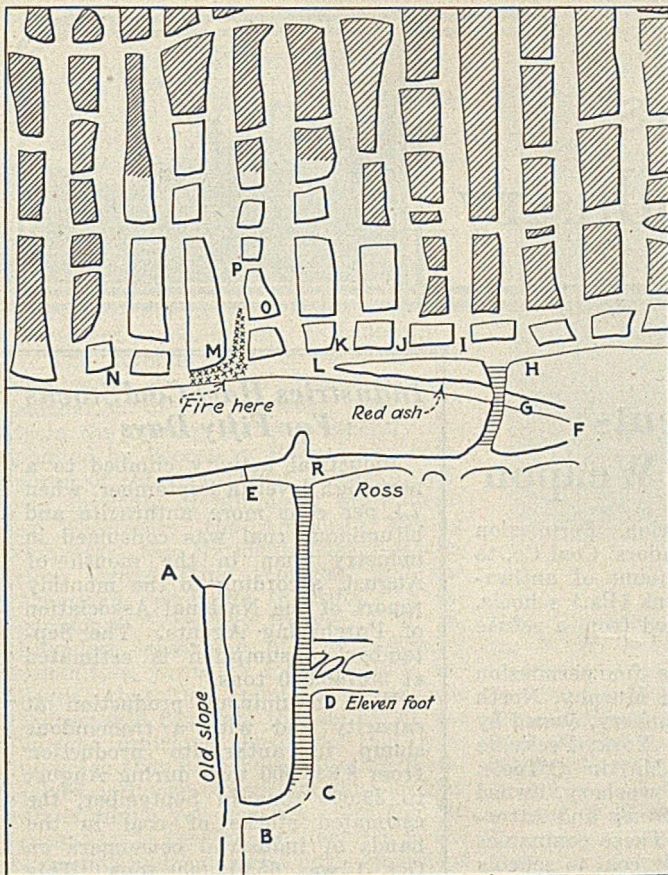
This emergency fan installed at the slope collar was direct connected to a steam turbine. It had a capacity of about 45,000 cu.ft. per minute. When the fire started, this machine was employed in the No. 2 power house supplying draft to the boilers. It was removed from its foundation at about 6:30 p.m., Saturday, May



Hoist House Which Served as Cafeteria and Slope Mouth with Emergency Fan

This building originally housed a steam hoist. When this was supplanted with the electric machine now used it left the rear of the building vacant. This made an excellent place for the cafeteria where food, fruit and coffee were served free to those fighting the fire which broke out almost directly below this building.

This fan was set up hurriedly to be ready to supply air in case of an emergency. When the fire was discovered it was supplying draft to the power plant boilers. It was removed from its foundation, transported about a mile, reset on mud sills and connected to a source of steam supply 2,000 ft. away.



Plan of Workings Where Fire Occurred

Only a portion of the Old Slope is here shown. This connects by somewhat circuitous passages driven through the rock with the measures in which the fire occurred. In fact the fire was almost directly under the hoist house serving the slope.

16, was transported over a distance of approximately one mile, was set up on a foundation of mud sills at the slope mouth, connected to a steam supply by about 2,000 ft. of 2-in. pipe and was ready for operation at 4:30 a.m., May 17. This is remarkably quick work considering the difficulties involved and the care that must necessarily be exercised in the setting and alignment of every high-speed machine.

Tests were constantly made on the composition of the air coming down the chutes at H, I, J and K. This gave a good check on the condition of the air and gases at the fire, the main object being to blanket the blaze as much as possible at the rear or at the points N, and O. The plan of campaign was confined to a steady and continuous effort to prevent the fire from getting up into the caved and robbed area between its point of origin and the outcrop.

Water for fighting the fire was obtained through hose of the Edwardsville fire department, connected to the Spring Brook water main in the Borough of Courtdale. Several lines of this hose were laid over the surface and carried down the slope A. This means of obtaining water for direct application to the fire was augmented by a 2-in. pipe line. By 10 a.m., Monday, the fire was extinguished and on Tuesday work was resumed at all the collieries of the company.

Throughout the entire fight against this fire the company officials enjoyed the fullest co-operation from the state mining department, the U. S. Bureau of Mines, the mine rescue crews of neighboring coal operations and people of the vicinity. Thus, rescue crews came from the Glen Alden Coal Co., and also from the Lehigh & Wilkes Barre Coal Co. These men held themselves in reserve ready for any emergency that might

arise, while their chiefs took council with those of the Kingston company who were actively engaged in fighting the fire.

Two and a half hours after the fire started, three women living in Courtdale nearby, arrived at the mouth of the slope, each carrying a big pot of hot coffee. This supply lasted until a cafeteria was put in operation in the rear of the hoist house. Sandwiches were furnished in large number by a local lunch room until they could be prepared by the operating force of the coal company. Fruits such as apples, oranges and bananas were also dispensed to the workers as well as pickles, olives and the like.

From start to finish this fire was fought in a scientific manner by the aid of modern equipment. Thus, gas testing machines, CO detectors, helmets and gas masks were freely employed. The loss of coal sustained was practically nil, the fire being confined almost entirely to the timbers and the gob. Much credit is due to the skill and hard work of the superintendents, foremen and assistant foremen as well as to the rank and file of the men, who exhibited marked loyalty and tenacity in fighting the fire.

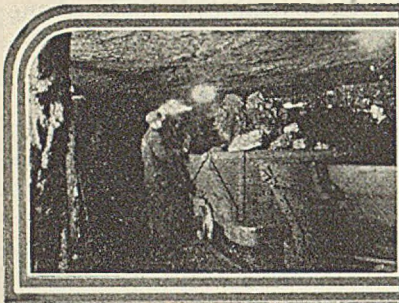
NO CONFUSION OR DISORDER

One noticeable detail of this work was the perfect order which prevailed by common consent, also the excellent co-operation that existed between all parties. Throughout the entire progress of the fight there was no confusion, no loud shouting or obvious excitement. As upon many another similar occasion, however, some of the men became overzealous. Thus, at one period all the mine foremen were underground at the same time. This, however, was shortly after the fire was discovered and the foremen went in to warn and bring out the underground employees.

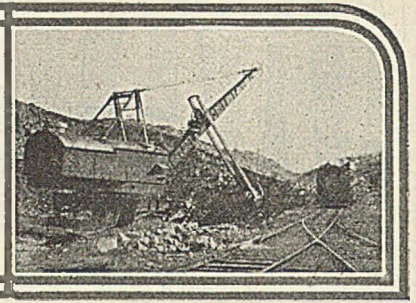
Of the 600 men employed in the slope and the No. 3 mine about 40 were overcome by gas and smoke and were brought out on stretchers. The remainder came out unaided by helmet men but in many cases assisted more or less by their fellows. In all about 12 helmets and 16 gas masks were employed. After the fire had been brought partially under control the masks were used far more than the helmets, and it became a task to provide canisters for them. These were procured from practically every source available in northeastern Pennsylvania. Some were purchased from nearby coal companies, some were borrowed and 50 were shipped in by express from Pittsburgh.

It looked for a time on Saturday morning as if this fire might prove decidedly serious from every standpoint. Fortunately, no human fatalities or even permanent injuries are to be recorded. Two mules, however, which at the time the fire started were in the higher workings of No. 3 mine succumbed to the action of the poisonous carbon monoxide. Several hundred rats did likewise. The mules appeared to have died peacefully in their stalls. The rats all left their holes and when found were lying flat on their bellies with all four legs extended as if they had simply given way under them.

The origin of this fire could not be determined definitely. The timber gang that worked on Friday used carbide lamps, and it is believed that the flame from one of them may have come in contact momentarily with some of the old timber being repaired. If this started the fire it doubtless grew from a smouldering spark in the evening to its formidable dimensions when discovered on the following morning.



News Of the Industry



Anthracite Miners and Operators Sit Back Awaiting Developments; Lewis Clings to Strike Weapon

Anthracite operators and miners settled back again this week and assumed the rôle of spectators in the hard-coal controversy after emphatically denying that peace proposals had been made by either side.

Without exception, operators interviewed during the week declared themselves in sympathy with the expressed policy of the negotiating committee to continue along the present lines in demanding that a new wage agreement carry with it provision for the avoidance of future suspensions of hard-coal mining.

An address delivered by John L. Lewis, international president of the United Mine Workers, in Shamokin Oct. 29 at a John Mitchell Day celebration brought little if any reaction throughout the region. The miners' spokesman declared in the course of his talk that the miners would not now or at any future time voluntarily relinquish the strike weapon. Philip Murray and Thomas Kennedy, vice-president and secretary-treasurer respectively of the international organization, also spoke at the meeting.

Lewis Charges Gouging

Declaring that many anthracite companies also owned soft-coal mines, John L. Lewis charged that the hard-coal operators were trying to persuade people to use soft coal as a substitute for hard coal in order to gouge the public with both hands. The charge was made in a letter Oct. 28 to Major General Charles W. Berry, chairman of the New York State Coal Commission.

Samuel D. Warriner, chairman of the Anthracite Operators' Conference and the president of the Lehigh Coal & Navigation Co., refused at the company's New York office to reply to the Lewis statement. Only a few anthracite producers owned soft coal mines, Mr. Warriner said. Their total production from these holdings he estimated at not more than 1,000,000 tons a year. Inasmuch as little, if any, of the soft coal produced by anthracite operators came into the New York market he said, Mr. Lewis's statement was too "ridiculous" to warrant a denial.

The week brought with it several requests from washery operators to the Scranton district headquarters of the union for permission to operate their plants in order to supply coal to schools

and churches in the region. Permission was granted to the Traders' Coal Co. to furnish a specified amount of anthracite for use in the Plains (Pa.) schools. The coal is to be washed from a refuse dump.

The other applicants for permission to operate are Reap & Murphy, North Scranton; Plymouth washery, owned by William Cook, of New York; Peckville washery, owned by Martin O'Toole, Scranton, and No. 14 washery, owned by Judge George W. Maxey and Attorney Frank Benjamin. These companies seek authority to supply coal to schools and churches in Plymouth, Plains, Hanover and Wilkes-Barre, all anthracite region cities. The applications will be acted upon soon by the executive board of District 1, United Mine Workers.

The Scranton union headquarters announced that circular letters are being mailed to local unions throughout the district forbidding the distribution of union funds in the local treasuries. It was reported that locals were dividing their funds among the needy members. This, according to President Rinaldo Cappellini, is a direct violation of the constitution of the union.

Reports from the lower field are to the effect that dredgers of river coal in the Schuylkill River are reaping a financial harvest as a result of the strike and demand created by local scarcity fears. In several places the coal is being loaded directly from scraper lines out of the river bed into trucks for delivery to consumers, without being screened.

Activities of mediators or peace bodies in the anthracite field, if any, are veiled with secrecy. Since the Rev. J. J. Curran's reported proposal to the miners, no others have been heard.

Father Curran Calls on Governor

Father Curran spent several hours with Governor Pinchot at Harrisburg on Oct. 26 discussing the strike situation. Neither the Governor nor the clergyman, however, would later comment upon their meeting. Father Curran participated in the settlement of the 1902 strike and two years ago called upon the Governor just prior to his calling the conference of operators and miners to Harrisburg.

Statements attributed to a former New York fuel distributor telling of an alleged plan by Secretary Hoover for composing the anthracite strike have

Industries Have Coal Stocks For Fifty Days

Industrial activity climbed to a new high level in September, when 7.1 per cent more anthracite and bituminous coal was consumed in industry than in the month of August, according to the monthly report of the National Association of Purchasing Agents. The September consumption is estimated at 38,746,000 tons.

With bituminous production at capacity and with a tremendous slump in anthracite production from 8,845,000 tons during August to 39,000 tons in September, the estimated stocks of coal in the hands of industrial consumers on Oct. 1 was 65,012,000 tons. This is enough to last 50 days, based on the September rate of consumption.

been denied vigorously by Mr. Hoover. He declared that he has made no such suggestion to anyone.

Directors of the Hazleton Chamber of Commerce last week discussed a suggested plan to bring about a resumption of negotiations between the striking anthracite miners and the operators, with chambers of commerce from other parts of the hard coal field participating. The matter was referred to a committee.

The efforts of the Hazleton Chamber of Commerce is in line with that of Scranton, which has been making efforts to have the wage negotiations resumed and the mine workers in the meantime return to work.

Independent operators at Pottsville have suggested to the striking miners that the coal strike may be considerably shortened if delegates to the convention which will pass upon the terms of settlement are elected in advance. It is estimated that the strike can be shortened nearly ten days by such action. After the committee of union leaders negotiates terms with the operators, it is necessary to refer the terms to a tridistrict convention. The election of delegates to such convention, heretofore, has been the cause of delay.

Miners stated they will comply with the suggestion if it does not conflict with any of their regulations. But they pointed out that nearly all locals will want to pass upon the merits of any suggestion to settle the strike and the sentiment can be expressed by instructions to delegates.

Operators said they merely made the suggestion to cut out some red tape when a final agreement shall be reached.

Scott Turner Named As New Director of Bureau of Mines

Scott Turner, of Lansing, Mich., has been selected as the new director of the Bureau of Mines. As Congress is not in session he has been given a recess appointment by President Coolidge. He is expected to assume his new duties Dec. 1. The White House statement announcing the appointment reads, in part, as follows:

"The appointment of Mr. Turner was made on the unanimous recommendation of the advisory committee from the mining industry recently appointed by Secretary Hoover and composed of representatives of the American Institute of Mining & Metallurgical Engineers, the American Mining Congress, the National Coal Association, United Mine Workers, and the American Petroleum Institute. In reporting to Secretary Hoover, J. V. W. Reynders, chairman of the advisory committee, wrote as follows: 'It is believed that the appointment of Mr. Turner will conserve the ability of the various divisional heads in the tasks to which they have been devoting themselves and promote the forward-looking plans which you have in mind for the extension of the Bureau's service in the economic and industrial development of the country.'"

Called a Happy Selection

The committee's selection is generally regarded as a happy one. It is believed that Mr. Turner will bring to the Bureau a relationship with industry that could not have been secured otherwise. At the same time it has been made plain that the committee did not go outside of the Bureau for a director because of any lack of capable men on the staff. The President in announcing Mr. Turner's appointment did an unusual thing in bringing out this very point.

Mr. Turner when in Washington two weeks ago to confer with Secretary Hoover expected to be able to arrange his business affairs so as to take up his new duties Dec. 1. His confirmation by the Senate practically is assured, as the Michigan Senators are known to be well pleased with the appointment.

Mr. Turner was born in Lansing, July 31, 1880. He was graduated from the University of Michigan in 1902 and from the Michigan College of Mines in 1904. A sketch of his work as a mining engineer follows: Assistant engineer, Development Company of America, Tombstone, Ariz., 1904-05; field work, South Dakota, Montana, Oregon, California, Nevada, May-July, 1905; millman in Colorado, 1905; superintendent, San Pablo Gold Mining Co. and Pontiac-Panama Co., Province of Veraguas, Panama, 1905-06; examining engineer in Nevada for Detroit syndicate; miner Standard Mine of Federal Mining & Smelting Co., Mace, Idaho; Hecla Mining Co., Gem, Idaho, April-July, 1906; millman, Hercules Mining Company, Burke, Idaho, 1906-07; assistant editor with T. A. Rickard, *Mining and Scientific Press*, San Francisco, January-October, 1907; Superintendent Grassy Gold Mining Co., Manhattan,



Scott Turner

Nev., October-December, 1907; engineer for F. W. Bradley, of San Francisco; smelter representative, Tacoma, Wash., for Bunker Hill & Sullivan Mining & Concentrating Co., and Alaska Treadwell, February-June, 1908; in Dawson, Fairbanks, and Nome, Alaska, with T. A. Rickard, June-September, 1908; engineer, Wild Goose Mining & Trading Co., Nome, Alaska, September-October, 1908; at Tacoma Smelter for F. W. Bradley, of San Francisco, 1908-09; chief assistant to mining geologist, U. S. Smelting, Refining & Mining Co., of Boston, 1909-10; mining geologist, Mammoth Copper Mining Co., Kennett, Calif., April-December, 1910; field work, tin mines, Cornwall, England, 1911; field work, Spitzbergen, J. M. Longyear, of Boston, June-August, 1911; general manager Arctic Coal Co., of Boston, in Norway and Spitzbergen; general manager for Ayer & Longyear, of Boston, in Europe; agent Arctic Steamship Co., 1911-16.

He opened and operated for five years coal mines at 79 deg. 13 min. North Latitude on the Island of Spitzbergen (825 miles north of the Arctic Circle, on No Man's Land).

Mr. Turner started in the spring of 1916 for South America on mine-examination work for London banking interests; he spent the next two years in Peru, Chile and Bolivia, but when the United States entered the war he returned and signed on with the Navy for four years, receiving a commission as Lieutenant, senior grade. In January, 1919, he was placed on the inactive list, and at once went to Canada as chief field engineer for the Mining Corporation of Canada, Ltd., and its various subsidiaries. A few months later he was promoted to the position of consulting engineer to the corporation, which position he still holds.

Seeks Soft Coal Bids

Bids have been invited on 28,400 tons of bituminous coal for the period from Dec. 1, 1925, to June 30, 1926, by the chief engineer of the Government Fuel Yards at Washington, D. C., up to 10 a.m. Nov. 16, 1925. Bids will be considered on either run of mine, nut and slack, or slack coal.

National Coal Association Starts Research Program

How to combat the use of oil, how to help the consumer get greatest value out of his coal, how to "keep cool with coal" in the summer are the three studies which the members of the National Coal Association are going to study at once due to the activity of the association's research committee. Others will come along in due time after these have been studied.

As the result of a conference Oct. 14 at Washington, D. C., Walter Barnum, chairman of the committee, on Oct. 28 appointed sub-committees to study the three subjects which seem most to need the consideration of the research committee.

The subjects chosen are:

(1) Oil competition—methods of approach and valuable comparative data; M. B. Lanier (chairman), president, Munro-Warrior Coal & Coke Co., Birmingham, Ala.; J. B. Pauley, president, J. K. Dering Coal Co., Chicago, Ill.; E. L. Thrower, general manager, Warner Collieries Co., Cleveland, Ohio.

(2) Possibilities of servicing heating and power plants, including domestic heating plants, with report on (a) physical conditions as they exist and direct results that should be obtained; (b) indirect results likely as regards local and national good will; J. G. Bradley (chairman), president Elk River Coal & Lumber Co., Dundon, W. Va.; M. J. H. Jones, vice-president, Bertha Consumers Co., Pittsburgh, Pa.

(3) Increased summer coal consumption with special reference to artificial refrigeration and to systems for providing lower summer temperatures for office buildings, theaters, homes, etc.; Warren Blauvelt (chairman), president, Vigo Mining Co., Terre Haute, Ind.; Thomas De Venney, superintendent, Portsmouth Byproduct Coke Co., Edgarton, W. Va.

Consider Seven Subjects

The committee had nineteen problems before it and felt that it was impossible to investigate all thoroughly and therefore favored concentrating on seven, among which are the three mentioned and the four following: (1) Preparation—washing and screening; (2) pulverized coal—methods, costs and adaptability; (3) distillation, (a) high and low temperature, (b) complete gasification of coal and possibilities of steady load factor resulting from condensation of this gas into motor fuel during low summer gas consumption, (c) commercial possibilities through concentration of plants near mines, high pressure transmission of gas, and oven load factor; (4) acid mine-water stream pollution.

The research committee recommended that it assist in the collection and creation of a library which will be a library of practical progress and actual new or growing accomplishment in any way connected with the production and use of coal rather than a library of text books of future and scientific value. It also favors the appointment of a trained specialized librarian who shall act as general secretary to the research committee.

142 Die in September In Coal-Mine Accidents; Rate Continues to Fall

Accidents at coal mines in the United States in September, 1925, resulted in the loss of 142 lives, according to information furnished by state mine inspectors to the U. S. Bureau of Mines. All of the fatalities were at bituminous mines, as work at the anthracite mines was suspended during September. No major disasters were reported during the month.

As the September output of bituminous coal was 46,817,000 tons the 142 fatalities represented a death rate of 3.03 per million tons compared with 3.32 in the previous month and 3.76 in September, 1924. No fresh-mined anthracite was reported, but a small amount was obtained from dredges.

During the first nine months of the present year 1,612 men have been killed by accidents at the coal mines throughout the United States, a death rate per million tons of 3.76 as compared with 4.48 for the same period last year. Reports for bituminous mines alone showed a nine-months fatality rate of 3.35 as against 4.28 for the corresponding months last year, a reduction of 22 per cent during the present year. The reduction in the death rate was due to the smaller loss of life in major explosions during 1925 as compared with 1924. For the anthracite mining industry the accident records for the present year from January to September showed a fatality rate of 6.19 per

West Virginia Mines Please Note

The Great South Wales Railway Co. announces that although less than two years have elapsed since the campaign for high-capacity wagons was begun by its general manager it is now possible to see the 20-ton wagons in considerable numbers working regularly on the routes serving the South Wales ports.—*The Engineer, London.*

million tons as compared with 5.49 for the same months last year.

An analysis of the causes of the 1,612 fatalities in 1925 shows a reduction of 50 per cent in the per million tons death rate from explosions of gas or coal dust, including small and large explosions, the rate being 0.61 for 1925 and 1.23 for the nine-month period in 1924. Slight reductions in the fatality rate from electricity, haulage and falls of roof and coal also are shown. The rate for explosives shows an insignificant increase.

A comparison of the rates for the first nine months of the two years is shown by the following figures:

	Jan.-Sept. 1924	Jan.-Sept. 1925
All causes	4.476	3.761
Falls of roof and coal	1.841	1.794
Haulage	.632	.609
Gas or dust explosions	1.227	.611
Explosives	.174	.184
Electricity	.150	.121

Output in North of France Higher in 1924

Coal output in the French departments of the North and Pas-de-Calais totaled 25,650,000 metric tons in 1924, as against 20,897,000 in 1923. The output for 1913 was 27,389,000 metric tons. The figures have been just reported by Consul Davis, Calais, to the Department of Commerce. Of the 1924 output 2,220 metric tons went to coke ovens and 18,952 to buyers of coal. Forty per cent of the miners are importees. Payroll personnel stood at 180,000, against 133,000 in 1913. Under the law of June 24, 1919, the workers are on an eight-hour basis.

The daily output per miner dropped from 1,333 gross kilos in 1893 to 1,058 in 1913, to 752 in 1922, and was 813 kilos in 1924. The wage cost in francs per net metric ton was 5.35 in 1893, 7.58 in 1913, 36.26 in 1922, and 41.10 in 1924, or in purchase power almost double the value of the 1893 wage and substantially higher than in 1913.

Mining and metallurgy are losing popularity as fields for technical careers whereas more men are entering the fields of civil and electrical engineering, according to the trend of enrollments just made public by Lehigh University, at Bethlehem, Pa. For years Lehigh University has been a mecca for students of mining and metallurgy, a condition that has been attributed by some educators to the proximity of the school to the anthracite field.

Coal-Mine Fatalities During September, 1925, by Causes and States

(Compiled by Bureau of Mines and Published by *Coal Age*)

State	Underground										Shaft				Surface					Total by States						
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Gas or dust explosions.	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.	Other causes.	Total.	1925	1924
Alabama	3		1	2			2					8													9	6
Alaska																									0	0
Arkansas	1			1								2													2	2
Colorado	2	1	1				2					6													6	3
Illinois	8		1	1								11	1		1		2								13	9
Indiana	2											2													2	2
Iowa	2											2													2	1
Kansas	2											2													2	0
Kentucky	3		5	2								10													10	13
Maryland	1											1													1	1
Michigan																									0	0
Missouri	3											3													3	2
Montana																									0	2
New Mexico	1		1									2													2	2
North Dakota												2													0	0
Ohio	3		1		1							5	1												6	12
Oklahoma	1											1													1	1
Pennsylvania (bituminous)	14	2	3						1		1	21			1		1								23	20
South Dakota																									0	0
Tennessee	1											1													1	3
Texas																									0	0
Utah																									0	8
Virginia	3											3													3	4
Washington	6											6													6	0
West Virginia	23	1	8	4	4	4	2					42			1		1	2	1			1	1	5	48	28
Wyoming	1											1													1	42
Total (bituminous)	80	4	21	6	5	8	3		2		2	129	2		2	1	5	3	1			4	8	142	159	
Pennsylvania (anthracite)																									0	30
Total, September, 1925	80	4	21	6	5	8	3		2		2	129	2		2	1	5	3	1			4	8	142		
Total, September, 1924	63	9	35	45	5	11	1		2		8	182	1		1	1	3	1	2			1	4		189	

Pitfalls in Path of Coke Industry Show Need of Byproduct Association

By Paul Wooton

Washington Correspondent of *Coal Age*

With coke for domestic use heading for pitfalls similar to those encountered in 1922 and 1923 it has been suggested that this is a propitious time to organize the proposed byproduct association. Some 3,000,000 tons of coke was sold during the winter of 1922 and 1923, but few permanent customers for this fuel were made. Prices reached unreasonable levels and large quantities of metallurgical coke were put into the channels of retail distribution.

It has since been shown conclusively that gouging was not practiced by the coke producers. Their average sales realization during that period were no greater than those of the year before. They simply were not able to control prices once their coke got into the channels of trade. In the same way no effective steps were taken to keep shipments of foundry coke, unsuited for domestic use, out of the hands of the householder.

The same thing is in a fair way to happen again. The prices of beehive coke are rising sharply. Considerable quantities already are being sold for domestic use. The fear is expressed that this material is no better suited for household purposes than was that sold three years ago. The byproduct industry naturally is anxious to meet this situation. Such problems have been met with success in Great Britain by the association there. It is thought the experience of the British indicates what can be done here, particularly if the manufacturers of equipment could be included in the membership of the byproduct association.

Co-operation Is Necessary

The present situation offers even a better opportunity to the coke producers than that of 1922, but it is apparent that little can be accomplished toward establishing standards of quality and their maintenance without co-operation among the byproduct producers.

Experiments conducted by the Bureau of Mines have demonstrated that coke properly prepared and mixed with fine anthracite provides a fuel with all the advantages of the larger sizes of hard coal and at a price frequently 20 per cent cheaper. Some of the coke being wished onto the domestic consumer is not suitable for household use. Ordinary metallurgical coke, even when broken down to egg, cannot be burned successfully in household equipment. Coking has been carried so far that the product is hard to ignite. When once well kindled, however, the fire is difficult to control. This resulted in such annoyance to householders three years ago that dealers in many instances were required to take back the coke they had placed in cellars.

It is believed to be entirely possible to produce a good domestic fuel in a beehive oven by the reduction of coking time. The problem of crushing beehive coke into sizes suitable for domestic use

is a comparatively simple one. It also is suggested that if the beehive producers were to establish an association they could study better the needs of the situation and take the necessary steps to meet them.

While it is improbable that beehive operators would be interested sufficiently to undertake the creation of a permanent market for a domestic coke, such a course is regarded as essential to the future of the byproduct industry.

Just at this time, it is pointed out, an association of the byproduct manufacturers would find plenty to do. It could undertake an advertising campaign setting forth the advantages of coke as a household fuel. It could send out demonstrators to show consumers how to burn coke to best advantage in furnaces not designed for its use. It could issue some form of certificate of quality. While the association would have no direct control over beehive shipments, by keeping behind the local fuel committees it could be influenced in keeping unsuitable coke off the domestic market.

It always has been argued that a byproduct association is not necessary because the business at each plant is local, but had there been an association in 1922 the coke industry might not have missed the great opportunity offered then. To have an organization that would be able to prevent runaway prices during this emergency and keep up the quality of the product, would justify its existence for a long time to come, many think. Once formed and with the services of a capable secretary, it soon would be apparent that there are various constructive activities which such an association can follow in normal times. The headquarters of the British association at Leeds has proved to be one of the most valuable of the industrial clearing houses in the United Kingdom.

Troops Withdraw from Oklahoma Coal Field

With the preparations by union officials to carry on their picketing activities with one man and three women to each squad, as allowed in the injunction issued by federal Judge R. L. Williams at Okmulgee, state troops, which have been on guard in the Henryetta district for the last several months, were reported as being withdrawn. The withdrawing of the guards came as a surprise, in that it was officially announced in Oklahoma City that only four officers and no enlisted men had been on active strike duty in the fields around Henryetta for the past several weeks.

Union miners at a mass meeting in Okmulgee last week decided to accept a loan of \$200,000 which had been offered by persons outside of the state, it was reported. The fight has not been lost yet, according to a union statement.

Predictions made by coal operators

Put Out the Fire Before It Starts

Joseph J. Walsh, Secretary of Mines, of Pennsylvania, has sent a letter to bituminous mine inspectors warning them of the approach of the winter season, "when the bituminous mines, by reason of the low atmospheric temperature, become extremely dry if not frequently moistened by watering. This gives rise to a dangerous condition. As the cold air enters the mine it slowly increases in temperature and consequently in volume, thus increasing its moisture-holding capacity. Thousands of gallons of water are each day carried in the air current from a single mine. This condition makes it necessary to use every precaution to prevent dust explosions. You are therefore instructed to be diligent in your efforts to have all the mines in your district properly and thoroughly watered or rock dusted as a preventive of coal dust explosions. Water or rock dust should be used freely in all dry mines throughout the winter. When applied as required by law, the coal dust is rendered inert to explosibility, and the propagation of flame cannot occur."

that the injunction would result in many idle miners returning to work seems to be correct, as larger working forces are reported at mines Nos. 7, 10 and 12 in this area, over near Hartshorne.

Jones & Laughlin to Have 422 Coke Ovens

The Jones & Laughlin Steel Corporation, Pittsburgh, Pa., has placed a contract for the construction of another battery of sixty coke ovens at its byproduct plant in Hazelwood, Pa. The value of the contract is close to \$1,000,000. The ovens will be installed by the Wilputte Coke Oven Corporation. The new addition will bring the total number of ovens at the Hazelwood byproduct plant to 300.

The corporation, in addition, now has under construction at its Aliquippa works 122 Becker type ovens, and with the completion of the Hazelwood addition it will have a total of 422 ovens with an estimated capacity of 1,957,000 net tons of coke per year.

To Discuss Standardization

E. A. Holbrook, chairman of the Mining Standardization Correlating Committee of the American Engineering Standards Committee, has tentatively called a meeting of the former, to be held in New York City Nov. 11. For several months routine business of the committee has been handled by correspondence, but the point has been reached where a thorough discussion by the full committee is necessary to a decision on some important subjects which will be announced later.

Two Big Union Mines in Northern West Virginia Strike Zone Close Down

One of the most serious blows that was dealt the United Mine Workers of America in its effort to retain the organization in northern West Virginia occurred over the week-end, when mines Nos. 1 and 2 of the Simpson Creek Collieries Co., at Galloway, Taylor County, 12 miles west of Grafton, among the largest mines in the Fairmont field and the biggest plants to work with organized labor, were closed down indefinitely, throwing 500 union miners out of work with the approach of winter, according to press reports. The company is officered by persons being affiliated in an official way with the Y. & O. Coal Co. of Cleveland, where the concern has its headquarters.

Incendiaries are believed to have burned down a tippie at No. 6 mine of the Gilbert-Davis Coal Co. on Scott's Run, at Randall, near Morgantown, in the early morning of Oct. 28, causing a loss of \$5,000. Either grease or oil was used to saturate the structure before the match was applied, it is believed. The mine, it is said, was operated on a co-operative basis, but union miners' officials say that the company is signed up as a union company. A new tippie will be erected.

Non-union coal production is on the increase in the region. More non-union coal was produced Oct. 28—1,792 cars—than on any day since the strike started, April 1. A new non-union coal loading record was attained on the Monongah division of the B. & O. on the same day when 961 cars were produced. In the first half of the week the non-union mines of the region produced 5,156 cars of coal compared to 4,790 cars in the corresponding period of the previous week. On the average there were 208 non-union and 17 union mines at work in the region in the first half of the week.

By the use of the distress warrant the Consolidation Coal Co. was recently awarded possession of 23 houses by Justice of the Peace W. H. Billingsley in Fairmont. The houses are located in Ida May, Carolina, Baxter and other mining towns. The company did not resort to the usual means of eviction, but took the landlord's proceedings to have tenants quit the premises. It is reported that the union will appeal the cases. Observers say that usually it requires less time to obtain the houses under a distress warrant than under the other type of procedure.

The U. S. Bureau of Mines is planning investigations into causes of accidents by falls of roof and coal, in cooperation with the mining department of West Virginia. R. M. Lambie, chief of the Department of Mines of West Virginia and the Bureau of Mines will detail investigators who will conduct tests in West Virginia mines with a view of decreasing accidents of this character. According to officials of the Bureau, strength of roof and timbering is not the only factor involved, but details of mining methods and administration enter into the situation.

Western Shippers Oppose Reconsignment Boost

E. M. Platt and H. J. Trossen, speaking for a committee of coal shippers, opposed an increase in reconsignment charges from \$2.25 to \$2.70 on coal and coke to points in Western Trunk Line territory, at a public hearing held Oct. 27 in the Western Trunk Lines committee rooms in the Union Station, Chicago. The carriers took the protest under advisement. Mr. Pratt is chairman of the traffic committee of the American Wholesale Coal Association and Mr. Trossen represented the Old Ben Coal Corporation, Chicago. The other members of the committee were: Roscoe B. Starek, president of the Chicago Wholesale Coal Shippers' Association; G. H. Merryweather, Waubun Coal Co., Chicago; Abe Mitchell, Mitchell & Dillon Coal Co., Chicago; and James Anderson, of C. M. Moderwell & Co., Chicago.

Repeal of Taxes Urged

Allan H. Willett, for the National Coal Association, on Oct. 27 urged before the House Ways and Means Committee the repeal of the capital stock tax, the stamp tax on stock certificates, and also the retroactive features of the Revenue Act of 1924 dealing with reorganization of companies.

Oil-Electric Locomotive Makes Debut

What is said to be the first oil-electric locomotive purchased in this country went into service Oct. 24 in the switching yards of the Central of New Jersey R.R. near New York City following tests which revealed that the cost of operation was about a fifth of that for the ordinary steam locomotive and that in performance the new engine was revolutionary. It weighs 60 tons. The Long Island R.R. has contracted for a 100-ton locomotive of the same type, to be put into service soon, according to George Doubleday, president of the Ingersoll-Rand Co.

Mr. Doubleday said that the sale of the two new locomotives marked the advent of a new era in railway operation, for not only is the cost of operation greatly reduced through the use of crude oil as fuel, but great speed is possible without sacrifice of load. The locomotives are being produced by Ingersoll-Rand, in conjunction with the American Locomotive Co. and the General Electric Co. A similar locomotive has been produced by the Baldwin Locomotive Works and the Westinghouse Electric & Mfg. Co.

Mr. Doubleday announced that four locomotives of the new type were in course of construction and four more are to be built. Five trunk line railroads have requested the company to submit propositions regarding the locomotives, and inquiries have come from other carriers.

Bethlehem Mines Will Join 1917 Wage Group In Pittsburgh Region

The Pittsburgh district movement to reopen mines on the 1917 wage basis grows slowly but steadily. The Bethlehem Mines Corporation is planning to open its mines at Marianna, near Bentleyville, on the low rate. It is understood that the company has already asked for property protection from the sheriff of Washington County and has erected a strong 36-ft. fence around its properties. The mines in that section, known as the Pigeon Creek Valley, has been closed for some time. The section is a union stronghold.

Union officials declare that all previous attempts to operate below the union wage in this section have met with failure. They recall that three years ago when an attempt was made to operate a mine at Cokeburg Junction with non-union workers the situation became so serious that it was necessary to have a unit of the Pennsylvania National Guard encamped nearby.

According to an unofficial report in local coal circles, the Lilley Coal & Coke Co. is working 12 men in its recently opened Lilley mine in the Monongahela Valley under the 1917 scale.

The Pittsburgh Coal Co. announces that it has more men working under the 1917 scale in the Pittsburgh district than ever before. The 198 men working at the Midland mine, near Houston, also is the highest since the pit opened three weeks ago. There as a total of 674 men on the rolls of the company in that district. In two weeks the company placed as many men at work at Midland as it required six weeks to enroll in the Youghiogheny Valley mines. Banning No. 1 has 205 men and Banning No. 2 mine, 271.

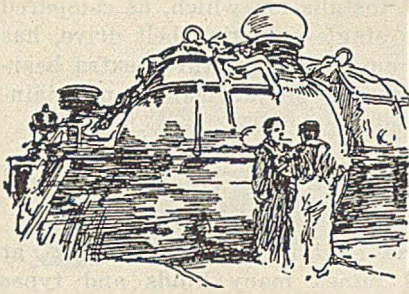
Production of coal in the Pittsburgh district for the week ended Oct. 25, as reported by the railroads, amounted to 345,552 tons, from 83 mines, compared with 341,483 tons from 82 mines in the preceding week.

Belgian Miners May Strike

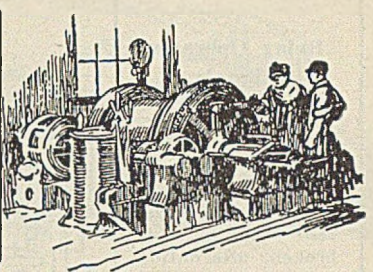
Belgian coal mine operators having refused demands for a 5-per cent increase in wages last week, the miners threatened to strike this week. The producers contended that it was already impossible for the industry to meet foreign competition. Meanwhile, the government, in hope of stimulating the market, proposes to purchase 50,000 tons of Belgian coal monthly for the railroads. This coal heretofore has been furnished from the German reparation shipments at an actual loss to the government.

Union Officials Quit

Frank Ledvinka, for six year president of Sub-district No. 5 of District No. 6, United Mine Workers, has resigned. His resignation became effective Nov. 1. His is one of the half dozen resignations of officials in that district and probably is the result of the ineffectiveness of the miners' officials' efforts to unionize the section.



Practical Pointers For Electrical And Mechanical Men



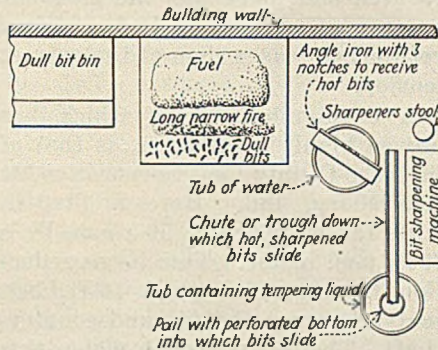
“Factory Methods” in Mine Shop Make Bit Sharpening More Scientific

With the extended use of the mining machine or undercutter has come the necessity of quickly and accurately sharpening the bits. In this operation the coal mine shop can, in large measure, emulate the example and imitate the methods followed in any factory where a long series of duplicate or at least similar operations are to be performed.

At the No. 8 mine shop of the Old Ben Coal Corporation at West Frankfort, Ill., the sharpening of undercutter bits has been reduced almost to a science. In other words, this routine work has been so planned that there is extremely little lost motion, the bits moving through the sharpening operation in practically a continuous stream, only two men being required for this work.

In this shop the bits for thirty-five undercutters are regularly sharpened. These are passed one at a time through a Sullivan bit sharpener which not only properly shapes the bit but rolls it to a point or an edge. Three shapes of bits are used in the mines of this company—the pick point, the chisel point and the fishtail. The pick point is used for hard, the chisel for medium and the fishtail for easy cutting.

Formerly, machine bits were sharpened by hand on the anvil. Later the power hammer came into use and lastly the bit sharpening machine. In the shop in question, two men now sharpen as many bits as formerly required six blacksmiths—four on the day and two on the night shift. Furthermore, the sharpener rolls each bit to shape without loss of metal, whereas the old trip-hammer method cut some steel away at each sharpening with the result that bits now last approximately twice as long as formerly. There is, therefore, a saving in labor, a saving in steel, the bits last longer, and since they are more nearly uniform in shape the stresses imposed on the undercutter



Arrangement of Bit Sharpening Equipment

The heater faces the furnace and holds his tongs in his right hand, placing the heated bits in the notches of the angle iron between the furnace and the bit sharpener. From here they are picked up as required, put through the machine and dropped into the chute or trough down which they slide into the tempering liquid.

are likewise more nearly uniform, repairs are less and the power consumption is smaller.

In the sharpening process the bits, or rather their points, are first heated. This is done in a furnace about 4 ft. square with the tuyere pipe extending from end to end about a foot from the front edge. This leaves a front and a rear hearth. On the front hearth are piled the bits to be sharpened while the rear hearth serves as a storage for fuel, which, in this case, is small sized coke. The fire is thus about 6 in. wide and 3½ ft. long. Into this fire the bits are placed point down and as fast as one is removed another is added so as to keep a supply always ready for the machine.

One man does the heating and one the sharpening. As the bits are taken from the fire each is laid in a rectangular notch in one leg of an angle iron that passes across the top of a tub of water at the right of the sharpener. They thus lie in the most convenient position possible for him to grasp with his short, curved-nose tongs. The sharpener quickly places a hot bit in the jaws of the machine, gages it as nearly as possible and starts the ram carrying the shaping

roller. As a rule one stroke of the ram is sufficient to sharpen the bit although sometimes two or even three strokes are required.

After the bit has been sharpened in this way it is removed from the machine and dropped into a trough down which it slides into a bucket with a perforated bottom. This bucket is immersed almost to its rim in a half barrel of “tempering fluid” sunk into the floor of the shop. This tempering fluid is merely water to which a strongly alkaline laundry soap has been added. About 1½ bars of this soap are used per day. This liquid is replenished from time to time as it boils away under the action of the hot bits. The arrangement of furnace, sharpener and the like is shown in the accompanying plan.

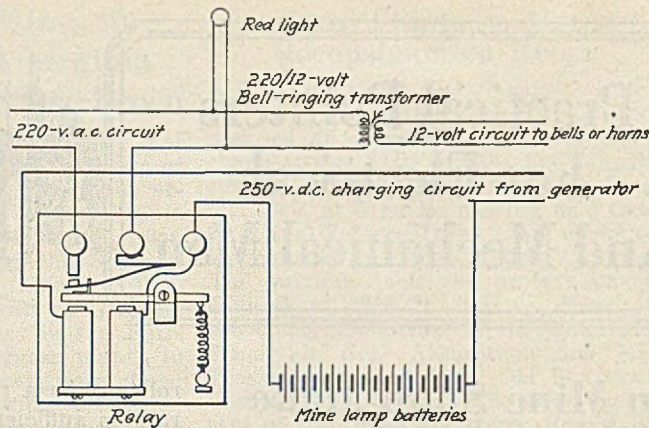
In many respects this process of bit sharpening reminds one of that of heating rivets in construction work. The bits move in a fairly steady stream from the hearth, through the fire, through the sharpener and into the compound at the rate of from 12 to 14 per minute. As a rule the heater and sharpener change off. That is, one will shovel a pail full of bits from the dull-bin, pile them on the hearth, heat and pass them to the man who operates the sharpener. When these have been run through the machine the men change places. At each change the bits in the tempering pail are drained and dumped into a barrel containing sharp bits. This process goes on until all the bits dulled during the preceding day or night have been sharpened.

Signals Tell When Charging Current Fails

When the direct current used to charge the batteries of electric cap lamps fails at the Union Pacific Coal Co.’s mines, a signal quickly carries this information to the lampman or watchman. By means of a relay, alternating current is supplied to red lights located at the power house, the lamp house and even at the lampman’s home. In some in-

Relay Operates Signals

The battery-charging current normally holds the relay contacts open. If the direct-current circuit is broken, alternating current is supplied to the signal lamp and a bell or horn.



stances these signal lamps are supplemented by a buzzer or horn.

As long as direct current is flowing through the relay its magnet coils are energized but as soon as the direct-current circuit is broken the relay closes its contacts upon a circuit which supplies alternating current to the red light signals and also to a bell-ringing transformer which furnishes low voltage to noise-making alarms.

Thus a complete charge of the miners' lamps is assured when morning comes and there is no delay or complaint regarding the number of hours that the cap lamps will remain lighted when in the mines.

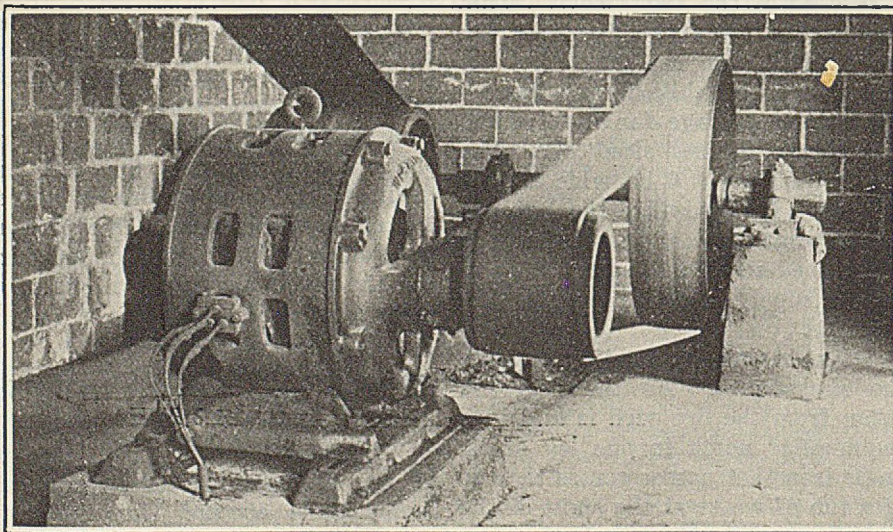
Long Take-Ups Are Used on Fan Countershaft

In certain instances countershaft belt drives have proved unsatisfactory for mine fan service. In many cases no way was provided for increasing the belt center distance in order to compensate for stretch of the main belt. A spliced belt had to

be used and there was the frequent expense of cutting and shortening, yet the belt was seldom at the correct tension.

A countershaft drive which has proven highly satisfactory is that of the Pike County Coal Corporation, at Petersburg, Ind. Here a 14x6-ft. mine fan is driven at 59 r.p.m. by a 690-r.p.m. motor. This large reduction is obtained with a 16-ft. belt center between the fan and countershaft. The feature which makes this installation successful is the use of long-movement take-ups on the bearing pedestals supporting the countershaft.

This adjustment, combined with that provided by the motor base, gives the installation a flexibility which makes it possible to use endless belts. The fan pulley is 96 in. in diameter and its mating pulley, on the countershaft, 26 in. The other countershaft pulley, 44 in. in diameter, is driven from a 14-in. motor pulley. The belt-center distance between the motor and coun-



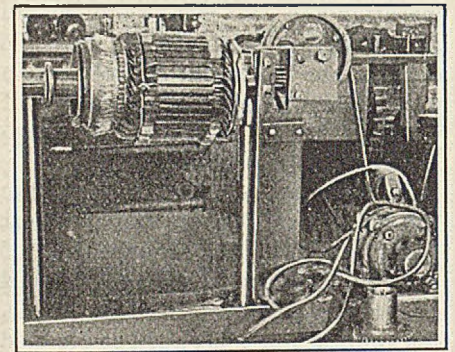
Fan Drive of the Pike County Coal Corporation

This compact countershaft drive is satisfactory because long-movement take-ups are used on the three bearings supporting the countershaft. The use of these take-ups makes it practical to employ endless belts. The motor operates at 690 r.p.m. and the fan at 59 r.p.m. The large speed reduction is obtained with but 16 ft. between the centers of the fan and countershaft.

tershaft is 9 ft. This makes a compact installation which, as compared to a single-reduction belt drive, has but one objection: three extra bearings must be lubricated and maintained.

Armature May Be Wound and Banded on Same Stand

In electrical repair shops at coal mines many kinds and types of armature stands for use in rewinding these parts have been devised. The accompanying illustration, however, shows a device of this kind by means of which an armature can not only be rewound but rebanded as well. This particular machine was designed and built by the electrical repairmen in the



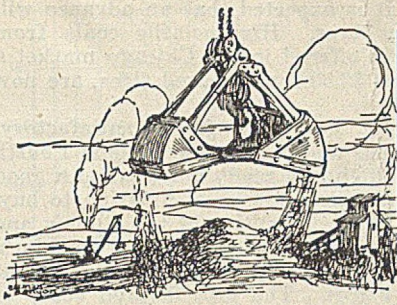
Almost Ready for Banding

When rewinding of this armature is completed the little motor near the floor may be started, the tightener pulley forced down and the armature banded without removal from the stand.

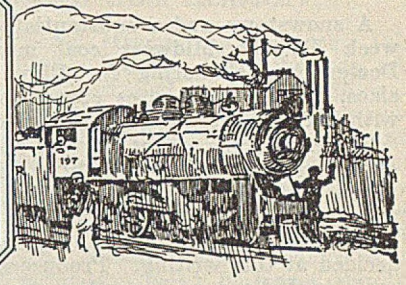
shop of the Valier mine at Valier, Ill.

It consists primarily of an armature stand not unlike those of the ordinary variety except that both standards are mounted on a common base which is extended to take a small motor. This is belted to a nest of back gears which can be connected to the armature shaft if desired. The armature may thus be power-revolved whenever such a movement is wanted. The belt from the motor ordinarily hangs loose but may be tightened by means of an idler pulley.

By means of this device, after an armature has been rewound in the ordinary manner it may be banded without removing it from the stand. This arrangement thus saves the time necessary to remove the armature from the winding stand, transfer it to a lathe and set it up ready to receive the banding wire. Furthermore, this machine relieves the lathe from the banding operation and permits it to perform the work for which it was primarily intended.



Production And the Market



Bituminous Coal Market Gains Strength As Demand for Prepared Sizes Increases

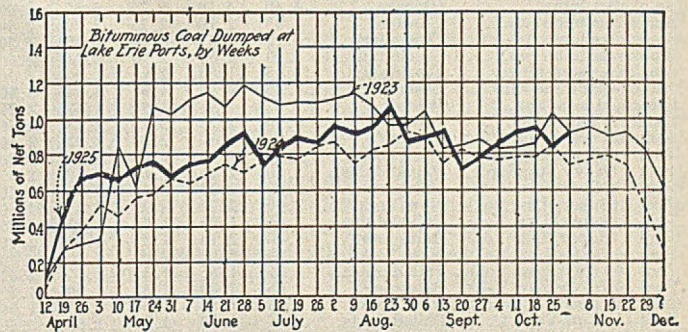
Increased strength characterizes the soft-coal market as the demand for screened coals gains momentum, domestic consumers continuing to turn to such substitutes for anthracite with the end of the strike nowhere in sight. Mine-run is beginning to pick up some in sympathy but is still comparatively quiet. Steam-coal business is showing more signs of life with most of the railroads taking full quotas on contracts and industrial consumption on the upgrade. Coal is moving through the Cincinnati gateway in record-breaking volume for this season, 15,314 cars having passed through last week, 3,124 destined for the lakes. Congestion in the latter traffic has caused a car shortage on the Louisville & Nashville R.R.

The comeback of West Virginia smokeless is a notable feature of the market, demand being so strong that there has been a scarcity in some centers, and prices, of course, show a steadily upward tendency. Noticeable firmness is in evidence even in New England, though there has been no marked improvement in demand. Unwilling to pay the high figures asked for Pocahontas, many Midwest dealers who hitherto have been specializing in smokeless are turning to high-grade southern Illinois coals. Screenings are finding a ready market. Cold weather has been bringing buyers out in force.

Central Pennsylvania low-volatile coals, especially egg and stove sizes, are in strong demand in Eastern markets, and at advancing prices. A large number of mines in this field that were closed down during the summer have resumed, but a good many are still idle. Inability to obtain prompt shipments of low-volatile in some instances has caused a marked increase in the sales of medium- and high-volatile grades. The heavy demand for prepared coals is making the disposal of slack somewhat troublesome.

Pea coal having almost reached the vanishing point and buckwheat rapidly moving into the scarce category the anthracite market is practically a thing of the past. Coke, which was the first substitute for hard coal to which consumers turned, now is a difficult article to obtain and the price shows a skyward tendency.

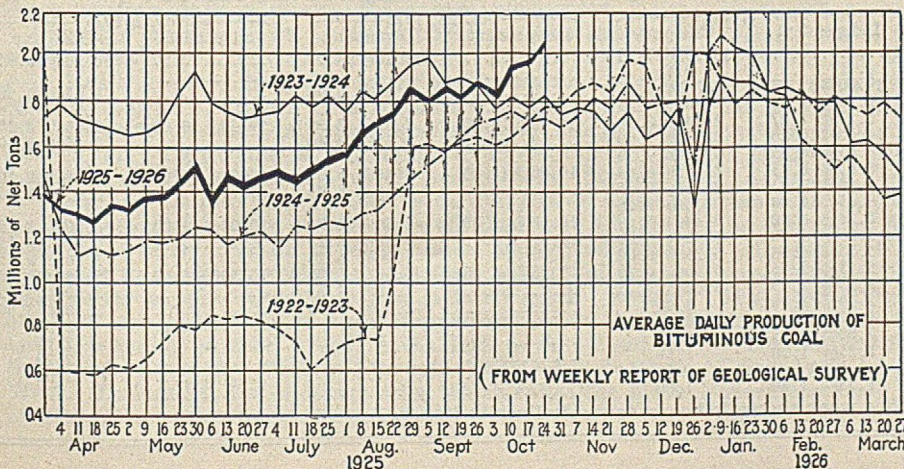
Bituminous coal output during the week ended Oct. 24 is estimated by the Bureau of Mines at 12,104,000 net tons, the first time the 12,000,000 mark has been exceeded since last January. This compares with 11,770,000 tons produced in the preceding week.



Anthracite output in the week ended Oct. 24 totaled 13,000 net tons, a decrease of 4,000 tons from the previous week.

Coal Age Index of spot prices of bituminous coal on Nov. 2 stood at 181, the corresponding price being \$2.19, compared with 178 and \$2.15 the week before.

Dumpings at Lake Erie ports during the week ended Nov. 1, according to the Ore & Coal Exchange, were: Cargo, 873,665 net tons; steamship fuel, 45,760 tons—a total of 919,425 net tons, compared with 850,696 tons in the preceding week. Hampton Roads dumpings in the week ended Oct. 29 totaled 405,873 net tons, against 437,190 tons in the previous week.



Estimates of Production (Net Tons)		
BITUMINOUS		
	1924	1925
Oct. 10.....	10,904,000	11,681,000
Oct. 17 (a).....	10,559,000	11,770,000
Oct. 24 (b).....	10,645,000	12,104,000
Daily average.....	1,774,000	2,017,000
Cal. yr. to date..... (c)	381,789,000	406,908,000
Daily av. to date.....	1,520,000	1,617,000
ANTHRACITE		
Oct. 10.....	1,737,000	13,000
Oct. 17.....	1,750,000	17,000
Oct. 24.....	1,927,000	13,000
Cal. yr. to date..... (c)	74,210,000	61,723,000
COKE		
Oct. 17 (a).....	147,000	226,000
Oct. 24 (b).....	140,000	223,000
Cal. yr. to date..... (c)	7,933,000	7,932,000

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

Midwest Trade Responds to Cool Wave

A snowstorm and a substantial drop in temperature last week did the Midwest coal market a world of good. Dealers are clamoring for Illinois and Indiana domestic sizes, and in some cases operators with coal in transit or with car numbers were able to obtain a slight premium.

There is some doubt in the minds of southern Illinois operators as to the advisability of increasing circular prices 25c. a ton Nov. 1. Some of them, it is said, will advance 6-in. lump and 6x3-in. furnace to \$3.50, while others will remain at the \$3.25 level, though nothing definite has been decided at this writing. Producers of high-grade domestic coals in Indiana and in other parts of Illinois are holding back circulars until they find out what the Franklin County operators are going to do. They will, of course, be very largely influenced by the policy of the Franklin County people.

Eastern coals, which have been cutting quite a figure in the Chicago market during the past year or so, proved to be unusually scarce last week. The West will not pay the prices for smokeless prepared coal that the East is willing to pay, and dealers who heretofore have been specializing in smokeless coals are now falling back on high grade southern Illinois fuels. The Western market is willing to go as high as \$5.50 or \$6 for Pocahontas lump and egg, but no higher. Pocahontas mine-run shows signs of strength and

moves freely at \$2.50. It is expected that an advance will take place before many days. High-volatile coals from West Virginia, which were offered in the Chicago market a little while back at around \$2.50 for prepared sizes, are now quoted at \$3.25@3.50.

The steam coal market continues fairly satisfactory. High-grade southern Illinois and high-grade Indiana Fourth Vein 2-in. screenings are finding a ready market and a good demand. The bigger industries show an inclination to buy, fearing a possibility of labor difficulties in the Illinois and Indiana fields arising out of the use of loading machines. A satisfactory volume of screenings is being sold and at reasonably satisfactory prices. The less favored coals of Indiana and Illinois are having hard work in finding a market and continue to drag.

Nobody shows any particular interest in hard coal. The public is buying coke as never before, and it is likely that when the anthracite strike is settled anthracite operators will encounter some difficulty in getting back their old trade. Outside of a few cars moving to branch offices of operating companies, practically no hard coal is in the Chicago market.

Seasonable weather continues to show an increased movement of domestic sizes in the Carterville field and also in the Harrisburg district, especially of lump and egg, but the nut sizes and steam are slow and at various points in the last week a slight car shortage developed. The movement

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

Low-Volatile, Eastern	Market Quoted	Nov. 3	Oct. 19	Oct. 26	Nov. 2	Midwest	Market Quoted	Nov. 3	Oct. 19	Oct. 26	Nov. 2
		1924	1925	1925	1925†			1924	1925	1925	1925†
Smokeless lump.....	Columbus....	\$4.35	\$4.65	\$4.85	\$4.75@5.00	Franklin, Ill. lump.....	Chicago.....	\$3.35	\$3.25	\$3.25	\$3.25
Smokeless mine run.....	Columbus....	2.25	2.55	2.50	2.95@ 2.50	Franklin, Ill. mine run.....	Chicago.....	2.35	2.35	2.35	2.25@ 2.50
Smokeless screenings.....	Columbus....	1.30	1.50	2.05	2.00@ 2.15	Franklin, Ill. screenings....	Chicago.....	1.35	1.60	1.60	1.50@ 1.75
Smokeless lump.....	Chicago.....	4.60	4.10	5.75	5.50@ 6.00	Central, Ill. lump.....	Chicago.....	2.85	2.85	2.85	2.75@ 3.00
Smokeless mine run.....	Chicago.....	1.85	2.10	2.25	2.00@ 2.50	Central, Ill. mine run.....	Chicago.....	2.20	2.10	2.20	2.15@ 2.25
Smokeless lump.....	Cincinnati..	4.10	4.75	6.00	5.00@ 7.50	Central, Ill. screenings....	Chicago.....	1.10	1.55	1.55	1.35@ 1.75
Smokeless mine run.....	Cincinnati..	2.00	2.50	2.50	2.95@ 2.50	Ind. 4th Vein lump.....	Chicago.....	3.10	3.10	3.10	3.00@ 3.25
Smokeless screenings.....	Cincinnati..	1.15	1.90	2.00	1.90@ 2.00	Ind. 4th Vein mine run.....	Chicago.....	2.35	2.35	2.35	2.25@ 2.50
*Smokeless mine run.....	Boston.....	4.45	4.60	4.60	4.85@ 5.10	Ind. 5th Vein screenings....	Chicago.....	1.30	1.60	1.60	1.50@ 1.75
Clearfield mine run.....	Boston.....	1.85	1.95	1.90	1.85@ 2.25	Ind. 5th Vein lump.....	Chicago.....	2.85	2.35	2.35	2.25@ 2.50
Cambria mine run.....	Boston.....	2.20	2.25	2.25	2.15@ 2.60	Ind. 5th Vein mine run.....	Chicago.....	2.10	1.95	1.95	1.85@ 2.10
Somerset mine run.....	Boston.....	2.05	2.10	2.00	1.95@ 2.40	Ind. 5th Vein screenings....	Chicago.....	.95	1.40	1.40	1.35@ 1.50
Pool 1 (Navy Standard)..	New York....	2.75	2.85	2.85	2.75@ 3.00	Mt. Olive lump.....	St. Louis....	3.00	2.50	2.50	2.50
Pool 1 (Navy Standard)..	Philadelphia..	2.70	2.65	2.65	2.50@ 2.85	Mt. Olive mine run.....	St. Louis....	2.35	2.00	2.00	2.00
Pool 1 (Navy Standard)..	Baltimore....	2.45	2.30	2.15	2.10@ 2.20	Mt. Olive screenings....	St. Louis....	1.10	1.75	1.75	1.75
Pool 9 (Super. Low Vol.)..	New York....	2.10	2.20	2.20	2.10@ 2.30	Standard lump.....	St. Louis....	2.75	2.25	2.25	2.25
Pool 9 (Super. Low Vol.)..	Philadelphia..	2.15	1.95	1.95	1.95@ 2.00	Standard mine run.....	St. Louis....	1.95	1.80	1.80	1.75@ 1.90
Pool 9 (Super. Low Vol.)..	Baltimore....	1.80	2.15	1.95	1.90@ 2.00	Standard screenings.....	St. Louis....	.60	1.15	1.15	1.15
Pool 10 (H.Gr. Low Vol.)..	New York....	1.90	2.00	2.00	1.80@ 2.10	West Ky. block.....	Louisville..	3.05	1.85	2.00	1.90@ 2.25
Pool 10 (H.Gr. Low Vol.)..	Philadelphia..	1.75	1.85	1.85	1.75@ 2.00	West Ky. mine run.....	Louisville..	1.60	1.35	1.35	1.20@ 1.50
Pool 10 (H.Gr. Low Vol.)..	Baltimore....	1.65	2.00	1.80	1.80@ 1.85	West Ky. screenings....	Louisville..	.65	1.00	1.05	.70@ 1.10
Pool 11 (Low Vol.).....	New York....	1.65	1.80	1.80	1.75@ 1.90	West Ky. block.....	Chicago.....	2.75	2.05	2.05	1.85@ 2.25
Pool 11 (Low Vol.).....	Philadelphia..	1.45	1.70	1.70	1.60@ 1.80	West Ky. mine run.....	Chicago.....	1.65	1.25	1.25	1.15@ 1.35
Pool 11 (Low Vol.).....	Baltimore....	1.55	1.80	1.55	1.50@ 1.60						

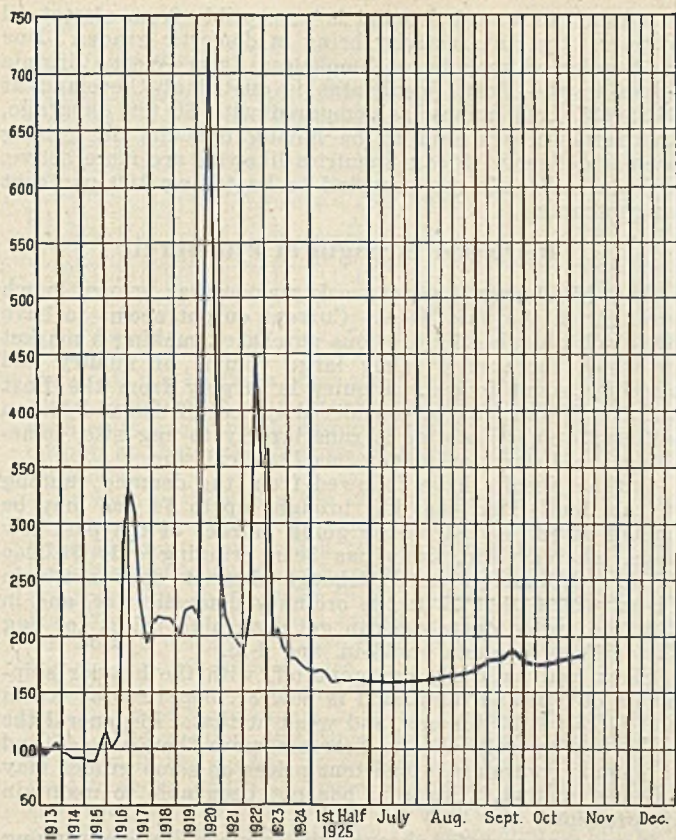
High-Volatile, Eastern	Nov. 3	Oct. 19	Oct. 26	Nov. 2	South and Southwest	Nov. 3	Oct. 19	Oct. 26	Nov. 2		
	1924	1925	1925	1925†		1924	1925	1925	1925†		
Pool 54-64 (Gas and St.)..	New York....	1.50	1.55	1.55	1.55@ 1.60	Big Seam lump.....	Birmingham..	3.10	2.25	2.25	2.00@ 2.50
Pool 54-64 (Gas and St.)..	Philadelphia..	1.50	1.60	1.60	1.50@ 1.70	Big Seam mine run.....	Birmingham..	1.60	1.80	1.80	1.50@ 2.00
Pool 54-64 (Gas and St.)..	Baltimore....	1.45	1.80	1.55	1.55@ 1.60	Big Seam (washed).....	Birmingham..	1.85	1.85	1.85	1.75@ 2.00
Pittsburgh so'd gas.....	Pittsburgh..	2.40	2.50	2.75	2.75@ 3.00	S. E. Ky. block.....	Chicago.....	2.85	3.00	3.00	2.75@ 3.25
Pittsburgh gas mine run..	Pittsburgh..	2.10	2.15	2.30	2.25@ 2.50	S. E. Ky. mine run.....	Chicago.....	1.60	1.95	1.95	1.85@ 2.10
Pittsburgh mine run (St.)..	Pittsburgh..	1.85	2.05	2.15	2.15@ 2.25	S. E. Ky. block.....	Louisville..	3.25	2.60	2.75	2.75@ 3.50
Pittsburgh slack (Gas)....	Pittsburgh..	1.20	1.55	1.40	1.25@ 1.35	S. E. Ky. mine run.....	Louisville..	1.45	1.50	1.50	1.40@ 1.65
Kanawha lump.....	Columbus....	2.55	2.60	2.60	2.45@ 2.80	S. E. Ky. screenings....	Louisville..	.95	1.25	1.25	1.10@ 1.35
Kanawha mine run.....	Columbus....	1.55	1.70	1.70	1.55@ 1.85	S. E. Ky. block.....	Cincinnati..	3.00	2.80	3.25	2.75@ 3.75
Kanawha screenings.....	Columbus....	.95	1.30	1.30	1.25@ 1.35	S. E. Ky. mine run.....	Cincinnati..	1.55	1.60	1.60	1.50@ 1.75
W. Va. lump.....	Cincinnati..	2.85	2.60	2.75	2.50@ 3.00	S. E. Ky. screeni'gs.....	Cincinnati..	.90	1.30	1.20	1.15@ 1.40
W. Va. gas mine run.....	Cincinnati..	1.55	1.65	1.60	1.60@ 1.65	Kansas lump.....	Kansas City..	5.00	4.50	4.60	4.75@ 5.00
W. Va. steam mine run....	Cincinnati..	1.45	1.55	1.55	1.50@ 1.60	Kansas mine run.....	Kansas City..	3.10	2.85	3.00	3.00@ 3.25
W. Va. screenings.....	Cincinnati..	.90	1.25	1.15	1.15@ 1.35	Kansas screenings.....	Kansas City..	2.00	2.40	2.30	2.25@ 2.35
Hooking lump.....	Columbus....	2.55	2.70	2.70	2.50@ 2.90						
Hooking mine run.....	Columbus....	1.60	1.65	1.65	1.50@ 1.85						
Hooking screenings.....	Columbus....	.75	1.30	1.30	1.25@ 1.35						
Pitts. No. 8 lump.....	Cleveland...	2.40	2.35	2.45	2.10@ 3.00						
Pitts. No. 8 mine run.....	Cleveland...	1.85	1.85	1.95	1.95@ 2.00						
Pitts. No. 8 screenings....	Cleveland...	1.00	1.25	1.35	1.40@ 1.50						

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

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

	Market Quoted	Freight Rates	Nov. 3, 1924		Oct. 26, 1925		Nov. 2, 1925†	
			Independent	Company	Independent	Company	Independent	Company
Broken.....	New York....	\$2.34		\$8.00@9.25		\$8.20@8.95		\$8.20@8.95
Broken.....	Philadelphia..	2.39		9.15				
Egg.....	New York....	2.34	\$9.00@9.75	8.75@ 9.25		8.65@ 8.90		8.65@ 8.90
Egg.....	Philadelphia..	2.39	9.25@ 9.75	8.80@ 9.25				
Egg.....	Chicago*....	5.06	8.17@ 8.27	8.14@ 8.20	\$9.50@ 10.00	8.03@ 8.28	\$9.50@ 10.00	8.03@ 8.28
Stove.....	New York....	2.34	10.00@ 10.25	8.75@ 9.50		9.15@ 9.40		9.15@ 9.40
Stove.....	Philadelphia..	2.39	9.85@ 10.25	9.15@ 9.50				
Stove.....	Chicago*....	5.06	8.63@ 8.75	8.50@ 8.64	10.00@ 11.00	8.48@ 8.80	10.00@ 11.00	8.48@ 8.80
Chestnut.....	New York....	2.34	9.50@ 10.25	8.75@ 9.25		8.65@ 8.95		8.65@ 8.95
Chestnut.....	Philadelphia..	2.39	9.65@ 10.00	9.15@ 9.25				
Chestnut.....	Chicago*....	5.06	8.26@ 8.40	8.44@ 8.60	10.00@ 11.00	8.50@ 8.75	10.00@ 11.00	8.50@ 8.75
Pea.....	New York....	2.22	5.00@ 5.50	5.50@ 6.00		5.00@ 6.25		5.00@ 6.25
Pea.....	Philadelphia..	2.14	5.75@ 6.35	5.75@ 6.00		5.00@ 6.25		5.00@ 6.25
Pea.....	Chicago*....	4.79	5.13@ 5.45	5.36@ 6.20	5.50@ 6.00	5.50@ 6.00	5.50@ 6.00	5.50@ 6.00
Buckwheat No. 1.....	New York....	2.22	2.25@ 2.75	3.00@ 3.15		2.50@ 2.75		2.50@ 2.75
Buckwheat No. 1.....	Philadelphia..	2.14	2.50@ 3.00	3.00		2.50@ 3.00		2.50@ 3.00
Rice.....	New York....	2.22	1.80@ 2.15	2.00@ 2.25		2.25		2.25
Rice.....	Philadelphia..	2.14	2.00@ 2.25	2.25		2.25		2.25
Barley.....	New York....	2.22	1.25@ 1.50	1.50		2.25		2.25
Barley.....	Philadelphia..	2.14	1.50	1.50		1.50		1.50
Birdseye.....	New York....	2.22	1.35@ 1.60	1.60				

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



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

Index	1925			1924
	Nov. 2	Oct. 26	Oct. 19	Nov. 3
Weighted average price..	\$2.19	\$2.15	\$2.13	\$2.07

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.

of coal by the carriers is unusually slow. Working time is from four to five days a week at the shaft mines and railroad tonnage is reported fair. There is no change in prices.

In the Duquoin district four and five days a week is the working time at the mines that are operating, but the only size moving well appears to be lump. Egg and nut are slow, with no railroad tonnage except at one mine. Strip mines in this district are working regularly. The Mt. Olive field shows remarkable activity, having almost full working time, a market for all coal and an unusually heavy railroad tonnage moving. Working time is four to five days a week.

In the Standard field there is little change. Coal is still selling at about cost of production and there is no unusual demand for any particular sizes excepting 6-in. lump, and this is scarce because there is no market for the smaller sizes. Steam is slow and railroad coal is reported light. All mines carry "no bills." Working time ranges from three to four days a week. Prices are unchanged.

Domestic business in St. Louis continues to show improvement on account of seasonal weather. The movement of coke locally became good this week; anthracite and smokeless are still slow, dealers in St. Louis having an abundance of anthracite on hand, although smokeless is pretty well cleaned up. Carterville is beginning to move fairly well but the demand continues for middle priced coals. Standard is beginning to get into its own with the poorer classes. Apartments and schools are pretty well filled up. Country domestic is fairly good on all sizes. Local wagonload steam continues to show improvement. Carload is fair but is not equal to the supply. Country steam is fairly good. Several hundred cars of coke have been shipped out from the St. Louis switching district ovens in the last week. Some of these orders are for Buffalo, Toronto and points farther West. This call is for chestnut coke, which takes the place of anthracite. No change in prices.

Heavier Movement from Kentucky

Demand and movement are stronger in Kentucky this week and prices are better. Eastern Kentucky has advanced until practically no block coal is under \$2.85, and best grades are quoted as high as \$3.50; lump and egg running \$2.25@\$2.75, and nut, \$2@\$2.25. Mine-run is unchanged at \$1.40@\$1.65, but screenings are a shade weaker at \$1.10@\$1.35 due to larger production. In western Kentucky 6-in. block has advanced to \$1.90@\$2.25; lump, \$1.75@\$2; egg, \$1.75@\$2; nut, \$1.25@\$1.50; mine-run, \$1.20@\$1.50 and screenings, 70c.@\$1.10. Steam coal is weaker as a result of small nut and screenings being in larger supply. Car shortage is developing in eastern Kentucky.

Railroad consumption is running very heavy, while utility and plants show no real indication of a let-up.

Eastern Kentucky mines appear to be very busy, with a lot of good business in hand, a heavy movement to the lakes, and a steady increase in coal moving into sections affected by the anthracite strike. Western Kentucky is gradually increasing tonnage moving to the North and Northwest.

Fresh Burst of Activity in Northwest

Colder weather over the Northwest contributed to a fresh burst of activity in the Duluth-Superior coal market last week. All the docks operated full time in loading out cars for transmission to points over a wide area including Minnesota, North Dakota and northern Wisconsin. So brisk has been bookings by retailers in the last few weeks that many are taking on fresh supplies.

Industrials are ordering steam coal more freely and inquiries from public utilities are broader than for some time. Some of these buyers have been contracting further ahead recently. On the whole, dock operators are more optimistic regarding the outlook.

Last week forty-one cargoes of coal were unloaded at the docks and ten more were en route. Free bituminous coal on the docks is now placed at 3,700,000 tons and stocks of railroad coal are figured nearly 2,000,000 tons additional.

No panic over the possibility of an anthracite shortage has as yet developed. Dealers are experiencing a steadily expanding trade in Pocahontas and other smokeless fuels and it is figured that supplies of those fuels coming forward will be found ample to cover all requirements.

A brisk and increasing demand for bituminous coal is reported by the managers of coal docks in Milwaukee, and a sort of scramble demand for the comparatively small tonnage of anthracite still in stock. The increased call for Pocahontas consequent upon the shortage of anthracite has kept the price firm and on the upgrade. Dealers are looking for a further advance in prices at the mines, but no change has been made here yet in the rates that have prevailed for several weeks. The weather is unseasonably cold, and consumers now are eager to fill their bins.

Southwest Sees Rebound

A return of cold weather has brought fresh joy to coal operators in the Kansas field, and in more modest degree to the entire Southwest. Oklahoma and Arkansas, because of a market reduced by labor trouble and rumors of labor trouble, do not share commensurately with Kansas in the seasonal activity. A brief period of warmer weather permitted a readjustment between domestic and industrial grades, but, with the resumption of heavy domestic demand due to the early arrival of below freezing weather, a screenings surplus again has begun to accumulate. Consequently, while the price of \$4.75 for Kansas lump has become more firmly established, with some operators quoting it as high as \$5, there is an increasing tendency to shade the list quotation of \$2.35 for Kansas screenings.

Arkansas semi-anthracite lump quotations are fairly stable at \$6@\$6.50 a ton, with several big operators in the Arkansas field still keeping their mines idle.

McAlester (Okla.) lump is quoted at \$7; nut, \$5.50; screenings, \$2.25. Henryetta (Okla.) lump is \$5; nut, \$4.25; screenings, \$2@\$2.25. A slowly but steadily increasing production is reported from Oklahoma.

The demand for the domestic lump and steam size coal in Colorado is in excess of the production, which is causing operators some difficulty to the extent that nut is slow to move. The situation probably will materially improve, as

cold weather has set in in Kansas and Nebraska. Colorado anthracite mines are working at full capacity and the bituminous and lignite fields are operating about 90 per cent. There are no changes in current prices on coal since last week.

The Utah coal market continues dull, due to weather conditions. The railroads have been taking more coal for steam purposes than normal for the season on account of the heavy crops which must be moved, but heating plants are not taking much coal yet. The car supply is ample, but this is due to the light demand for coal rather than the ability of the railroads to furnish necessary transportation facilities. Prices are steady and the labor situation is good. Domestic lump, the next grade to straight lump, is becoming more popular.

Smokeless Situation Mixed at Cincinnati

The smokeless situation in Cincinnati still proves a hard nut to crack. November circulars of the larger Pocahontas producers show one company's price \$5 for lump and egg "to our recognized contract customers," another's \$5.50 and a third's \$6. In the face of all this mine-run marks time.

Under the influence of a car shortage on the L. & N. due to congestion at the lakes, southeastern Kentucky block has stiffened up to \$2.75@3.25 for coals that formerly had a range of \$2.50@3. Egg is \$2.50 and 2-in. \$2.25. Mine-run is about in the same range as last week and the slack commands \$1.25@1.35 for anything that is good. The Chesapeake & Ohio avoided a car shortage by obtaining 1,000 cars from an Eastern road on a mileage per diem basis. Still the congestion at the lake ports primarily and the jam at the gateways is getting rather serious in view of the fact that navigation gets its last fling about Nov. 10.

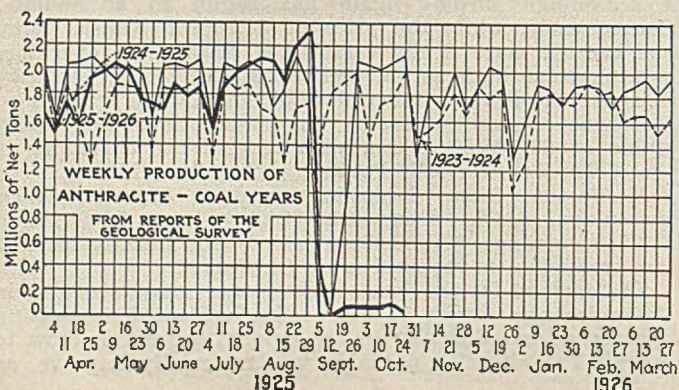
The price of West Virginia coals has started to move upward. One large competitor of a Logan County company that fixed an arbitrary of \$2.50 on lump has broken away and has boosted the November price to \$2.75. Kanawha also has refused to be led and some of the leading coals there are marked up to \$3. Egg and 2-in. are \$2.25@2.50 with mine-run and slack about in the same position as last week.

Gateway figures of the American Railway Association show an interchange of 15,314 cars last week, which was an increase of 821 cars over the preceding week and 2,628 cars over the corresponding period of last year. Of these 3,124 cars went to the lakes.

The lower temperatures coupled with a slight snowstorm have stimulated domestic demand at Columbus to a marked degree. Increased buying by retailers has strengthened mine prices on all domestic sizes. While lump coal is stronger, much more strength is shown in egg, which is much desired in Western markets. Retail prices are steady at former levels.

Steam business is still spotty. There is a gradual movement to increase reserves but this has not been sufficient to instill strength in the market. Large users such as utilities and iron and steel plants are taking a good tonnage and railroads are taking a normal supply. Contracting is not brisk as most of the agreements have been closed. Screenings are not quite as strong as formerly, owing to a larger production of lump and egg.

Freezing weather last week gave a sudden impetus to coal demand in eastern Ohio, with a further stiffening in spot prices on screenings and lump sizes. Slack rose 10c. per ton, being quoted now at \$1.40@1.45; screenings, \$1.45@1.50. Ohio No. 8 lump for domestic use is up 25c. per ton as compared with a week ago.



A much improved demand is perceptible from almost all quarters, the chief activity being in domestic grades. Due to heavier shipments of smokeless from West Virginia mines to the East, Pocahontas is quoted at Cleveland at \$6.25@7 f.o.b. mines, as compared with \$5 ten days ago, and retailers are said to be having difficulty in getting prompt delivery. Steam inquiries likewise are more active, and the railroads are reported to be taking 100 per cent on contracts.

Increased Strength at Pittsburgh

The Pittsburgh district coal market has grown much stronger in the past week. Current output seems to have been well absorbed by previous purchases, making a market in which there is a fairly large volume of inquiry and offerings scant indeed. Inquiry is largely from the East and North and may be considered typical of demand for an anthracite substitute, as it runs largely to egg size, something the district ordinarily has little call for.

Curious results have followed from the demand running in this line. Egg coal has brought up to \$4 and may be quoted at \$3.75@4 as the going market of the past few days, whereas 3-in. lump has been bringing only \$3.50@3.75. Ordinarily the Pittsburgh district does much in 1½-in., which used to be the ordinary domestic size, and in 2-in., but when operators can get such high prices for egg they refuse to quote on 1½-in. and 2-in.

Slack coal naturally has gone off, with the heavier shipments of egg and lump, and is now \$1.15@1.25 for steam and \$1.25@1.35 for gas, and weak at that. In general the market is up fully 25c. in scarcely more than a week and if demand continues so insistent prices on some grades may advance farther. Gas coal has not been able to maintain its premium.

Mines that operated through the summer are now running full and some additional mines have started.

The bituminous trade at Buffalo is in rather demoralized shape. Slack is hard to sell, but the producers of Pittsburgh lump and Allegheny Valley mine-run are putting their prices up 25c. or more, apparently just to see if they can get it. As a rule the shippers here say they cannot sell at the advance, but it may prevail for all that.

Demand Light, Prices Firm in New England

The market in New England is noticeably firmer. Advances in prices on mine-run as well as prepared are being well maintained and it is clear that anything approaching steady demand will mean a still higher level, especially for the smokeless coals. A curtailment of mine-run to the Hampton Roads piers relieved the pressure and to such an extent was it carried out that a few of the agencies were without spot tonnage beyond contract commitments. There also has been some exchange of coal between shippers in order to clear cargoes, but for the most part the available supply is more than ample for current requirements.

On No. 1 Navy standard Pocahontas and New River the range has been lifted to \$4.85@5.10 per gross ton f.o.b. mines for mine-run, with slack continuing to sell at about \$1.30@1.40 per net ton f.o.b. mines. Notwithstanding better prices there is no marked improvement in demand; buying is very sparing.

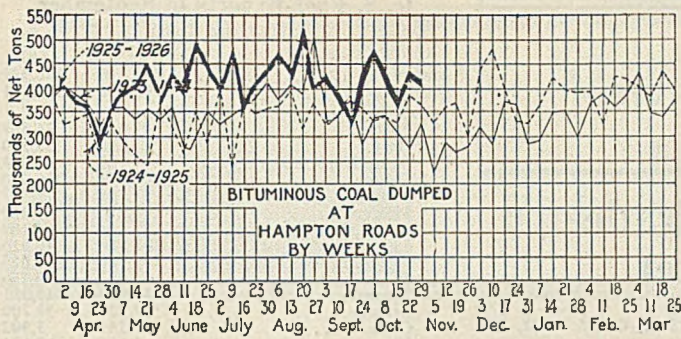
For delivery inland from Boston and Providence there is scattering inquiry, but latterly the mine-run smokeless coals have acquired a reputation for an undue proportion of slack, owing, the buyer surmises, to the heavy demand for screened coal. Prices on cars are \$6@6.25, with the probability of an advance within a few days to \$6.50.

Lump and egg are being held firmly at \$6.50@6.75 for Pocahontas and New River, subject to some delay in shipment. From central Pennsylvania the range of price on the desirable coals is 50c.@75c. higher, retail dealers being willing to pay that much more because delivery is reasonably prompt and the all-rail tariff is so much less.

For Pennsylvania mine-run there is only light demand. Prices have improved, but the smokeless coals still have the call in this territory.

Heavy Movement to New York

New York industrial buyers are calling for heavy shipments of mine-run coal, the retail trade is taking an increasing tonnage, both screened and unscreened, and the bituminous producers whose mines are in operation have



about all the business they can handle. Low-volatile operators equipped to ship prepared sizes similar to domestic anthracite are turning away orders for this part of their output, although the disposal of slack is causing them some trouble.

As high as \$7@\$8 a ton is being quoted for low-volatile egg and stove sizes by central Pennsylvania operators. Unsized lump from which the slack has been screened is bringing \$5.50@\$6.50, f.o.b. mines. Medium-volatile grades are from 50c. to \$1 under these figures. High-volatile egg and stove range in price \$4@\$5 at the mines, and there has been a marked increase in demand recently because of the scarcity of other grades.

Retail dealers are buying an increased tonnage of mine-run, but many consumers have not yet started taking this coal. Cold weather will force them into the market sooner or later, if the anthracite collieries remain idle, and their requirements, added to those of industrial consumers and the railroads, bid fair to create a shortage unless the supply is materially augmented by the reopening of idle mines.

Domestic demand for soft coal is putting a little stir in the trade at Philadelphia, but steam business is as quiet as it has been for weeks past. Each day sees an increase in the domestic use of bituminous of all low-volatile grades. A strong demand is setting in for all mine-run coals of a lumpy nature. Now that the byproduct coke has been almost entirely absorbed there is a strong demand for the beehive product.

Sized gas coals are pretty well sold up, although this has produced a considerable amount of slack which is not moving with the speed that the producers would like. Buying for railroad account of all fuels is moderate and the situation at tide is only ordinary.

The soft-coal situation in Baltimore remains flat and uninteresting in so far as regular mine-run coals are concerned, although reports from the various offices indicate that prepared sizes continue strong and active, with a further advance in price likely. Latest quotations on these coals are from \$5.50 to around \$5.65 per net ton. The coke situation is unchanged, with prices at the highest level they have been for a long time. The export situation has gone absolutely dead, with no records of coal shipments since Oct. 13.

Demand for domestic coal at Birmingham continues to show improvement and spot buying during the past week has amounted to considerable tonnage. Most all business placed was by dealers who had nominal stocks which were depleted by the rush of retail orders following the several cold spells of late, and from community centers and small towns in the territory. The mines have taken on sufficient business to move their output without delay in connection with contract business, on which deliveries have not been materially increased so far. All spot buying was for prompt shipment.

Buying of steam coal is on the increase and there is some scarcity of the high-grade washed and mine-run product, creating a stiffer demand for medium and lower grades, which are moving better than before for some time. Utilities have cut their requirements to a low figure on account of greater activity at hydro-electric plants; the ginning season is about over, and demand from other seasonal industries has slackened considerably, but this loss has been more than offset by healthier and heavier industrial requirements. The stiff demand for all grades of coke has taken a large tonnage of fuel off the commercial market, foundry quotations having gone to \$6@\$6.50 per ton during the past week for spot shipment, with a very active call of wide range for all domestic sizes.

Hard-Coal Substitutes High and Scarce

Even No. 1 buckwheat is no longer available in the New York wholesale market, except for a relatively small amount in the hands of wholesalers. Orders are no longer being accepted by the companies, it is reported, as they already have commitments for practically all the tonnage remaining in the stocking plants. Reserve stocks of other sizes in the hands of the larger producers were exhausted some time ago, and even the speculators have little left.

Some retail yards still have considerable anthracite left, but the bulk of it is steam sizes. The larger coal is being sold in small quantities to regular customers or held for emergencies. Buyers usually are required to take an equal or greater amount of soft coal or coke with each delivery of anthracite.

It is only a question of a short while now until the average dealer will have nothing but substitutes to offer. It is becoming difficult to obtain prompt shipments of the most desirable substitutes, namely, coke and sized low-volatile bituminous. The demand has been so great for several weeks that producers are sold up and in many cases oversold. Besides, the price has gone to a level which buyers hesitate to pay.

Because of these conditions the buying of screened high-volatile and medium-volatile coals has been greatly stimulated of late and prices have advanced.

Coke is now selling for \$9@\$10 at the ovens and is practically unobtainable for prompt delivery.

What little independent buckwheat is to be had commands around \$5, mine basis, for line shipments. Loaded boats of this size in New York harbor are being held at \$6.75@\$7.25 alongside.

Not a great deal of pea and buckwheat arrived at Philadelphia during the week. The storage stock of pea seems to have almost reached the vanishing point and the price is \$12@\$12.50, with some at \$13. Storage buckwheat is fast moving into the scarce class at \$3, with an increase almost a foregone conclusion.

Dealers who delayed purchasing coke as a substitute now find it almost impossible to purchase. Wholesale prices range \$9.50@\$11.50 at the ovens and retail quotations \$17@\$18 per net ton, but the demand from consumers is not at all brisk.

The situation at Buffalo grows more complicated day by day, though more in people's minds than otherwise. So many anthracite consumers have the idea that there is a coal famine because they are not able to get large sizes that the city authorities sent a man to the mining regions and bought a thousand tons for distribution in small amounts at schedule prices to those who were without any. The offering of all sorts of substitute fuel goes on. Coke leads, for there is a great demand.

There is no change in the Baltimore hard-coal market, both dealers and operators apparently being satisfied to mark time for the present at least.

Connellsville Coke Market Suffers Reaction

The Connellsville coke market gained in strength up to early last week, when something happened. Prices went up to a range of \$8.50@\$9—\$9.50 is said to have been obtained from some Eastern jobbers on run-of-oven coke. Prepared coke, broken by various means, seems to have commanded \$1 a ton over run-of-oven, or \$9@\$10.

Inquiry continued to diminish, leaving the market in rather slack condition at this writing, quotable on the basis of last sales at \$8.50@\$9.

Blast furnaces continue out of the situation, but have marked up pig iron prices \$1 a ton in anticipation of higher coke cost when contracts for the present quarter expire.

Foundry coke has gotten into some demand and has made a market, at \$9@\$9.50.

Car Loadings, Surpluses and Shortages

Week ended	Cars Loaded		Surplus Cars	Car Shortage
	All Cars	Coal Cars		
Oct. 17, 1925	1,106,114	186,389	130,797	52,942
Previous week	1,106,099	184,331	136,009	58,256
Week ended Oct. 18, 1924	1,102,300	192,244	99,952	50,160

Foreign Market And Export News

Foreign as Well as Inland Trade Improves in British Market

The general situation in the Welsh steam coal trade is regarded as more favorable, but the improvement cannot as yet be considered as marked. The last two months were undoubtedly the worst in the steam coal trade for many years, and it was hardly to be expected that conditions would remain so bad for an indefinite period. There is no prospect of prices improving for the present, but it is all in favor of the Welsh steam coal industry that there should be some recovery of exports, even if only of a partial character, and inquiries seem to be coming forward from all the customary Welsh markets.

Inland trade, both domestic and industrial, also is reviving. A little contract business is being done, chiefly for locomotives, for delivery over the next two months, there still being unwillingness to do business for twelve months owing to the possible effect of the government subsidy and as to what may happen when the subsidy is withdrawn.

There is a change for the better in the Newcastle-on-Tyne coal trade, and the outlook may now be described as comparatively good. Inquiries for all classes of coal have broadened and cover more extended periods instead of being merely from hand to hand as hitherto. While bookings of the collieries extend into November and also December and some are able to see their way clear to the end of the year. Contract business consists mainly of small gas coals.

Output by British mines during the week ended Oct. 17, according to a special cable to *Coal Age*, totaled 4,715,000 gross tons, compared with 4,685,000 tons in the preceding week.

Belgian Market Unchanged

The situation in the Belgian coal market is unchanged from last week; industrial coals are rather weak and domestic coals generally firm. Prices remain the same; anthracite continues to advance while in industrial coals the tendency is lower. In consequence of decreased foreign exchanges, there is renewed competition both French and foreign, particularly the former. Stocks are diminishing, even in the Borinage

basin. The demand for coke and for ovoids is slightly better.

General Tone Is Firmer At Hampton Roads

The market at Hampton Roads last week was stronger, demand being more active, particularly in domestic coal. New freight rates to New York and New England helped coastwise business also, and bunker trade was brisk.

Prices were strengthened and inquiries more frequent. A slight increase was seen in foreign shipments. The situation in car lots is reported better, and some mines that were practically inactive for several months have begun increased production. Feeling in the trade is more optimistic.

French Market Improves

A slight improvement is noted in the demand for industrial coals in the French market. For domestic coals the situation is very favorable, a scarcity of sized products being feared if the winter is severe. Despite the increase in costs of 2 fr. 50c. per ton brought about by most of the French mines having decided to revert to the old rate of 40 per cent for the cost of living bonus, the North and Pas-de-Calais collieries have raised prices of industrial coals only 40 to 80 centimes a ton. Bituminous peas have been reduced from 109.20 fr. to 107.60 fr. Although domestic coal prices have been increased in the same proportion as the Belgians—i.e. from 5 to 12 fr.—prices are still lower than those of competitors.

During the month of September the O.H.S. received from the Ruhr 758,500 tons of reparation fuels, including 702,100 tons of coal, 227,000 tons of coke and 29,400 tons of lignite briquets. This tonnage does not include the deliveries of German fuels purchased on the free market and credited to the reparations account.

During the first thirteen days of Oct. the O.R.C.A. received from the Ruhr 93,396 tons of coke. The price of indemnity coke has been reduced from 145 fr. 95c. to 144 fr. 75c. including all charges of the O.R.C.A.

U. S. Fuel Exports in September

	(In Gross Tons)	
	1924	1925
Anthracite.....	326,346	163,271
Bituminous.....	1,503,756	1,628,954
Exported to:		
France.....	27,067	36,809
Italy.....	33,590	70,740
Other Europe.....	1,100	8,974
Canada.....	1,201,751	1,346,238
Panama.....	23,700	12,047
Mexico.....	6,222	8,469
Br. W. Indies.....	20,184	2,189
Cuba.....	46,184	40,015
Fr. W. Indies.....	1,118	7,023
Other W. Indies.....	15,893	10,255
Argentina.....	15,660	12,911
Brazil.....	77,282	39,700
Chile.....	781	3,902
Egypt.....	3,366	2,631
French Africa.....	7,606	9,357
Other countries.....	22,252	17,712
Coke.....	41,804	83,955

Export Clearances, Week Ended Oct. 31, 1925

FROM HAMPTON ROADS		Tons
For Italy:		
Ital. Str. Aster, for Porto Ferrajo....	8,834	
Ital. Str. Enrichetta, for Portovechio.	6,976	
For Bermuda:		
Amer. Schr. Ellen Little, for Hamilton.	1,079	
For Dominican Republic:		
Nor. Str. Ottar, for Santo Domingo....	875	
For Cuba:		
Amer. Str. Amella, for Guantanamo....	516	
Nor. Str. Marga, for Santa Cruz.....	1,979	
For Philippine Islands:		
Br. Str. Titan, for Manila.....	3,112	
For Newfoundland:		
Nor. Str. Thorgerd, for Argentina.....	3,603	
For Virgin Islands:		
Br. Str. Maidenhead, for St. Thomas..	6,881	
FROM PHILADELPHIA		
For Cuba:		
Nor. Str. Annetta Paulsen, for Cayo Mambi		

Hampton Roads Pier Situation

	Oct. 22	Oct. 29
N. & W. Piers, Lamberts Pt.:		
Cars on hand.....	1,707	*
Tons on hand.....	110,637	*
Tons dumped for week.....	121,568	131,603
Tonnage waiting.....	12,000	*
Virginian Piers, Sewalls Pt.:		
Cars on hand.....	1,258	*
Tons on hand.....	100,850	*
Tons dumped for week.....	117,311	84,312
Tonnage waiting.....	23,531	*
C. & O. Piers, Newport News:		
Cars on hand.....	2,781	*
Tons on hand.....	140,535	*
Tons dumped for week.....	151,469	146,472
Tonnage waiting.....	13,350	*

* Figures withheld due to shippers' protest.

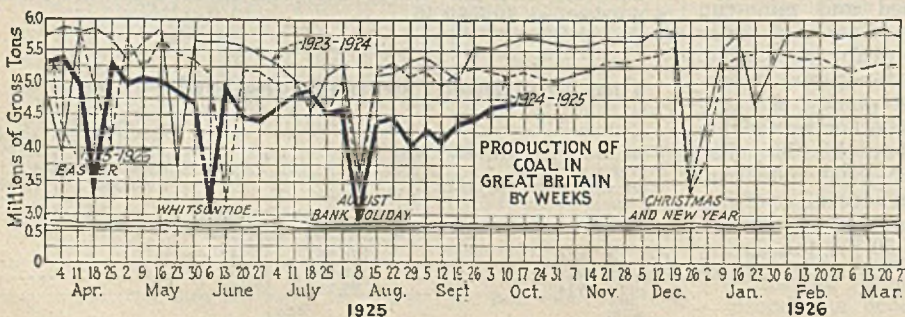
Pier and Bunker Prices, Gross Tons

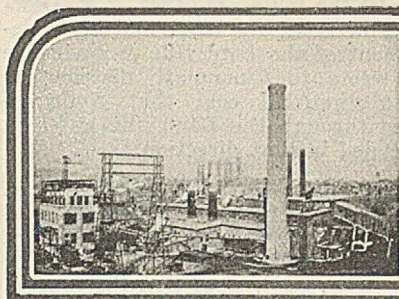
PIERS		Oct. 24	Oct. 31*
Pool 1, New York....	\$5.35@5.60	\$5.50@5.75	\$5.50@5.75
Pool 9, New York....	5.00@5.25	5.25@5.50	5.00@5.25
Pool 10, New York....	4.75@5.00	4.75@5.00	4.75@5.00
Pool 11, New York....	4.45@4.70	4.45@4.70	4.50@4.70
Pool 9, Philadelphia..	4.85@5.05	4.85@5.05	4.85@5.05
Pool 10, Philadelphia..	4.55@4.75	4.55@4.75	4.55@4.75
Pool 11, Philadelphia..	4.35@4.55	4.35@4.55	4.35@4.55
Pool 1, Hamp. Roads.	4.75@4.90	5.00@5.25	5.00@5.25
Pool 2, Hamp. Roads.	4.60	4.75@5.00	5.00@5.25
Pools 5-6-7, Hamp. Rds.	4.50	4.60@4.75	4.60@4.75
BUNKERS			
Pool 1, New York....	\$5.60@5.85	\$5.75@6.00	\$5.75@6.00
Pool 9, New York....	5.25@5.50	5.25@5.50	5.25@5.50
Pool 10, New York....	5.00@5.25	5.00@5.25	5.00@5.25
Pool 11, New York....	4.70@4.95	4.75@4.95	4.75@4.95
Pool 9, Philadelphia..	5.05@5.25	5.05@5.25	5.05@5.25
Pool 10, Philadelphia..	4.75@4.85	4.75@4.85	4.75@4.85
Pool 11, Philadelphia..	4.60@4.75	4.60@4.75	4.60@4.75
Pool 1, Hamp. Roads.	4.75@4.90	5.00@5.25	5.00@5.25
Pool 2, Hamp. Roads.	4.70	4.75@5.00	5.00@5.25
Pools 5-6-7, Hamp. Rds.	4.50	4.60@4.75	4.60@4.75

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

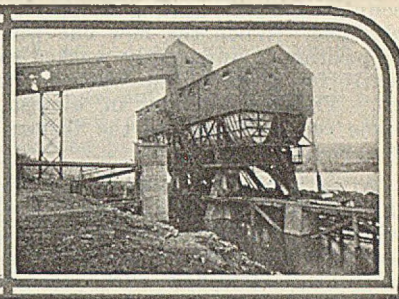
Quotations by Cable to <i>Coal Age</i>		Oct. 24	Oct. 31*
Cardiff:			
Admiralty, large.	22s.3d.@23s.6d.	23s.@23s.9d.	
Steam smalls.....	10s.3d.	10s.3d.	
Newcastle:			
Best steams.....	15s.3d.@15s.6d.	15s.6d.	
Best gas.....	16s.6d.	16s.6d.	
Best bunkers.....	14s.6d.@15s.	14s.6d.@15s.6d.	

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





News Items From Field and Trade



ALABAMA

The Birmingham Coal & Iron Co., Birmingham, of which L. E. Boyetta is president, will soon begin the expenditure of about \$100,000 on tenant houses, tipples, washers, screens, etc., to increase the capacity of the coal mines to about 1,000 tons per day.

The Joseph A. Holmes Safety Association, which has a large number of chapters in the mining camps of the Birmingham district, will disseminate information and instruction regarding mine-rescue and first-aid work among the membership by having outstanding mining men and engineers write papers on various subjects germane to such work. These papers will be printed and circulated each month among the members of the local chapters, where they will be read and discussed. The first of these papers will be prepared by S. L. Morrow, a prominent industrial man, formerly chief engineer of the Woodward Iron Co., who will discuss "What a miner should do after a fire or explosion in the mine."

Estimates of coal production in Alabama for the present year are more than 19,000,000 tons. For the first nine months of the present year the car loadings and other reports show an output of 14,564,000 tons. Output by months so far this year is: January, 1,641,000 tons; February, 1,583,000 tons; March, 1,726,000 tons; April, 1,450,000 tons; May, 1,645,000; June, 1,555,000; July, 1,575,000; August, 1,625,000; September, 1,764,000. As production is on the increase the figures for October, November and December are expected to be large.

ILLINOIS

Sale of the assets and stock of the Southern Gem Coal Co., which includes large coal mines in southern Illinois, was ordered Oct. 19 at Cairo, by Federal Judge George W. English, upon a petition setting forth that the receivers, into whose hands the company was given more than a year ago, have been unable to meet a \$75,000 monthly maintenance expense. The mining property, located in Franklin and Jefferson counties, was valued at more than \$1,500,000.

Six hundred coal miners were given employment Oct. 26, when the Saline County Coal Corporation's No. 3 mine, at Harrisburg, resumed operations after a long shutdown. In Saline County eleven large mines are now in operation.

Six senior students of the mining engineering department of the University

of Illinois, under the direction of Prof. I. M. Marshall, spent the week of Oct. 25-31 visiting the southern Illinois coal fields. They visited, among others, the following mines: Union Colliery Co., Dowell; Black Servant Coal Co., Elkhart; Mine Rescue Station, Benton; Orient Mine No. 2, West Frankfort; Nason Coal Co., Nason; United States Fuel Co., Middle Fork, near Benton; St. Louis Smelting & Refining Co., Collinsville; St. Louis Coke & Iron Co., and National Enameling & Stamping Co., Granite City, as well as the National Lead Co., Salt River, Mo. This is an annual trip required of students before graduation in mining engineering.

The Peabody Coal Co. opened its Mine No. 51, at Andrew, Oct. 16, with two hundred miners employed. The mine normally has an output of 1,200 to 1,400 tons of coal daily. It has been closed since February, 1924.

Mine No. 7 at Kincaid opened Oct. 26.

The Standard Coal and Coke Corporation, a Delaware corporation, has purchased the Sangamon Coal Co.'s mine, North Grand Avenue, East Springfield. The indicated purchase price was \$270,000. The Sangamon company's mine has been considered one of the best in the Springfield district.

Operations at Valier mine, Valier, have been resumed after a shutdown of several weeks.

The West Virginia mine, at Herrin, has been closed down since Oct. 8. This mine is one of several which entered into the recent consolidation of six mines near Herrin by the Standard Coal & Coke Corporation. The West Virginia mine was owned by Wallace Brothers.

The East Mine, Lincoln, which had been closed since early last spring, resumed operation Oct. 26. It is believed that full production will go forward through the winter.

INDIANA

Joseph Stephenson, 58 years old, superintendent of the Little Betty mine, near Linton, and his son, William Stephenson, 28 years old, were killed Oct. 20 in a gas explosion in the mine. A gas pocket was ignited. The body of the son was recovered by mine rescuing crews an hour following the explosion, but the body of the father was not found until three hours later. The two men were inspecting the mine when they came on the pocket of gas, the explosion being set off by the carbide lamps carried by them.

After an idleness of more than two and one-half years, the American mine No. 2, in the Bicknell field, the second largest coal mine in Indiana, will be opened soon. The mine is capable of producing 6,000 tons of coal daily and employs 600 men. Nine other mines in the Bicknell field have been idle almost as long as the American mine.

The Wasson-Pocahontas Coal Co., of Vincennes, has filed a preliminary certificate of dissolution.

IOWA

John Ruth, of Hurley, S. D., has purchased the Lockwood coal mine, at Carbon, and will operate it.

KENTUCKY

The Chesapeake & Ohio R.R. on Oct. 23 asked the Interstate Commerce Commission for authority to purchase three miles of coal railroad operating between Dinwood and Lackey, in eastern Kentucky, for \$106,143.

Tim B. McAuliffe, of Louisville, who formerly operated the McAuliffe Coal Co., with a mine in western Kentucky and jobbing office at Louisville, has returned to the coal trade. He is now with the Louisville office of the Nashville Coal Co., after some months in advertising work. McAuliffe at one time was with the Southwestern Fuel Co. and also connected with the Southern Coal Co.

K. U. Meguire, of the Harlan Coal Co., Louisville, jobber and operator, was one of the incorporators of the Morris Plan Industrial Bank, which is getting ready to start operations in Louisville soon.

A. H. Stepp has become manager of sales for the Hawley-McIsaac Coal Co., Madisonville, a concern with several strip as well as some shaft mine operations. Formerly he was in charge of the Louisville office of the Southern Coal Co., going to Madisonville some months ago.

Tom Finn, formerly with the Southern Coal Co., Memphis, who has been selling out of the Louisville office for some time, has been sent to Nashville, Tenn., as manager of the sales office at that point.

The Banner Fork mines of Henry Ford, at Kentenia are down again, according to Abner Lunsford, who was in Cincinnati recently. About six weeks ago the 16-ft. axle of the drum snapped. As nothing of this kind was kept in stock the mine had to shut down for a

couple of weeks until a new axle was obtained. When the new one was set in position it apparently worked excellently for a short time when it too let go. The break came in almost the same relative place as the former one snapped.

After having disposed of his holding in the mines at Darbyville, Va., in which he and Ralph Bartlit, of Cincinnati, were interested, Charles Thompson, long identified with mines and mining in southeastern Kentucky, announced that he had accepted a position as general manager for the group of Harlan mines controlled by Judge Hall, of Harlan, which include the Three Point Mining Co., the Ellis Fork Mining Co. and the Lena Rue Coal Co.

J. J. Fluck, formerly chief engineer of the Elkhorn Piney Coal Mining Co., and later superintendent of the Weeksbury mines of that company, has accepted a position with the Youngstown Sheet & Tube Co. as superintendent of the Dehue (W. Va.) mines, vice L. E. Scholl, who resigned recently.

MINNESOTA

The new briquet plant of the Berwind Fuel Co. at Superior is now operating at full capacity of 800 tons daily. The company is making its product from Pocahontas screenings. The Stott Briquet Co.'s plant, also at Superior, is operating at capacity. Its product is made from anthracite dust.

The Zenith Furnace Co., at Duluth, is looking forward to a record season in production and sales of domestic coke on this market. The company accumulated a substantial supply in anticipation of a spurt in demand for it as an anthracite substitute. Shipments of its coke have been made over a wider area so far this season.

Both St. Paul and Minneapolis are taking up the strict enforcement of the smoke nuisance ordinances, the city officials feeling that the emergencies which caused a letup in their enforcement have passed.

MISSOURI

The Busy Bee Mine, at Huntsville, is still idle, though it is reported that several of its miners have bought capital stock in the company in order that it might be placed in operation to give employment. The owners proposed leasing the mine to the miners who had been employed there. The miners conferred with Arch Helm, district president of the United Mine Workers, about the lease, and while Mr. Helm approved the lease, he said he could not approve the working conditions, according to George Hepple, secretary of the miners.

A deal has been consummated between the owners of Mine No. 11 at Higbee and former employees of the shaft for the purchase of the property. It is understood that more than one hundred shares of stock were sold in the mine. The shares were \$200 each. The name Moniteau Coal Co. has been chosen. Officers are as follows: James Rankin, president; Fred

Laight, vice-president; A. E. Humphrey, secretary-treasurer. These with Joe Bradley, Mike Marietta, Charles Moore and Charles Deering constitute the board of directors.

OHIO

Suits aggregating \$20,000 for wages have been filed by 281 miners of the Franklin mine of the Cleveland & Western Coal Co., at Stewartsville. A separate petition was filed in each case with Justice Louis M. Shores. Recently the coal company filed suits in common pleas court against the same miners for \$10,000 damages. The company alleges the men had several times closed the mine by illegal strikes, causing heavy monetary loss.

Upon petition of John E. Jones, who claims to be a creditor of the company to the extent of \$63,000, the Athens National Bank has been named receiver for the Canaan Coal Co., which has several mines near Athens. The property of the Canaan Coal Co. is roughly valued at \$500,000. The mines have been closed for six months and one of the mines was partly wrecked by a gas explosion recently.

The Capitol Motors Co., owner of the building where the defunct Southern Ohio Coal Exchange had its offices, in Columbus, has brought suit against ninety-three former coal companies and individuals to collect rent in the sum of \$5,440. The operators' association is now in the hands of a receiver. The suit is brought to collect against the former members individually.

Within ten days after the Hughes Coal Co., Cincinnati, went into the hands of a receiver trustee in bankruptcy John Glaser was able to announce the payment of 7 per cent in cash to the creditors. It is understood that C. H. Hughes, chief stockholder of the company, has agreed to give notes to those holding claims so that the firm will pay out 100c. on the dollar. Most of the creditors have agreed to this and it is expected that the firm's affairs will be wound up in short order.

So bad was the jam of cars during the week of Oct. 18 between the Cincinnati gateway and the unloading

docks at the lake ports that J. M. Dewberry, head of the coal and coke department of the Louisville & Nashville Ry., wrote to Cincinnati distributors asking that all coal that could be routed through the Louisville gateway be headed in that direction.

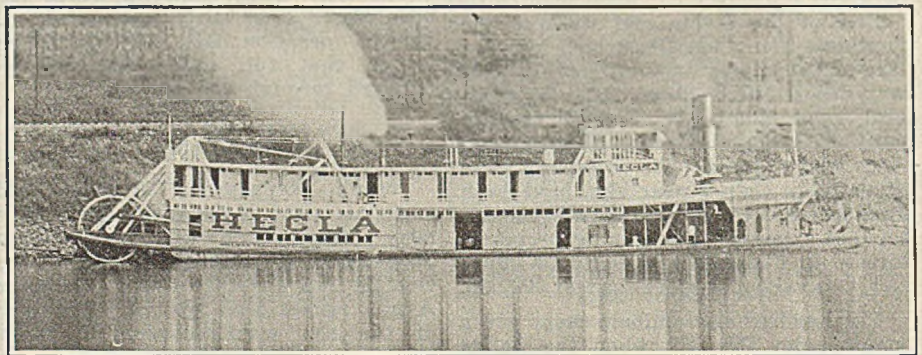
A petit jury in U. S. District Court at Cincinnati on Oct. 27 returned a verdict for the plaintiffs in the breach of contract suit of Edward F. Gerber et al. as F. & R. Coal Co., Pittsburgh, Pa., vs. the Borderland Coal Sales Co., Cincinnati. The amount of the verdict is \$10,263.13. This was the second trial of this case, the first having resulted in a verdict for the defendant for \$27,177 on a counterclaim. This was set aside by U. S. Circuit Court of Appeals. The amount sought by the defendant in its counterclaim was admitted to be due by the plaintiffs at the second trial and is taken into account in the verdict given in their favor.

An electric power deal between the Southern Ohio Electric Co and the United Light & Power Co. has been closed whereby power plant development in the Athens section of the Hocking Valley will be much increased. The United Light & Power Co., a large concern operating quite a few power plants in the Middle West, has taken over the Southern Ohio Electric Co., which operated a large power plant at Floodwood. The two power companies will join in serving all of the southern Ohio mining district. The production of coal for the generation of power will be largely increased with the building of new units to the plant.

Cincinnati wholesalers are beginning to see the advantages to technical enlightenment in fuel engineering. Two are enrolled in the combustion and steam engineering classes of the University of Cincinnati in the persons of Armour Sizer and Elmer Wierhake.

Four large mines in the Baily Run field which were put out of commission recently by the burning out of a high-tension power line have been placed in operation, giving employment to about 800 miners.

Owners of small mines in the vicinity of Athens have started work to supply domestic users in nearby districts.



Towboat "Hecla" of the Hillman Transportation Co. Operating on the Monongahela River

A number of the mines of the Hillman Coal & Coke Co. are bounded on one side by the Monongahela River, on the banks of which the tipples are located. Consequently the coal may be shipped by water or by rail. Here is one of the stern-wheel steamboats that tow barges of Hillman coal downstream.

Farmers are driving to the mines for their winter's supply and there is quite a good deal of activity reported in a small way.

Walter Fassig, president of the Ajax Block Coal Co., of Columbus, has gone to Miami, Fla., to engage in the real estate business, although he retains his connection with the coal company. He has joined with a former Columbus man who has made quite a success in Florida realty.

OKLAHOMA

The Stigler Coal Co., Muskogee, will install a steam shovel for strip mining. W. B. Badger is secretary of the company.

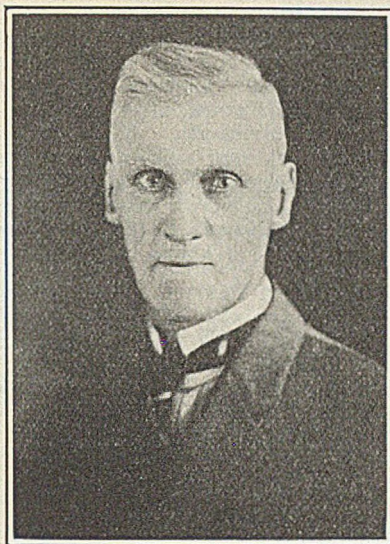
Operators deny that "strike breakers" are being brought from Mexico or any other place to work in the coal mines in the Henryetta field. The denials were made after C. E. B. Cutler, attorney for the union miners, had announced that an appeal would be made to William Green, president of the American Federation of Labor, to protest to President Calles of Mexico against the sending of Mexican laborers into the coal fields. Cutler exhibited a telegram which he is said to have received from the Mexican consul at Oklahoma City, which said that it had been reported to him that Mexican laborers were being imported from Mexico to work in the coal fields.

A report from Muskogee, state headquarters of the United Mine Workers of District 21, says that M. R. Henson, secretary of the district organization, was deposed by the district executive board following an extended hearing on charges made against him recently. Henson was accused of insubordination by William Dalrymple, president of the district organization, who maintains that Henson refused to sign an expense check. The check, according to Henson, was made out to Dalrymple's stenographer and called for \$6 a day for hotel expenses, which should have been only \$1.50. Counter charge of misuse of the union's funds has been filed by Henson, the report says. Neither Henson nor Dalrymple would make any statement other than "it is not over yet."

While drilling for oil on a location near the town of Tonkawa, in the northern part of Oklahoma, the drilling crew struck a coal seam 13 ft. thick at a depth of slightly more than 4,000 ft., it has been reported. It is believed that the coal may be of value later, when mining at that level can be made to pay in this state.

PENNSYLVANIA

Fred J. Dunham and William W. Brighton recently purchased from James R. Somerville Reading No. 2 mine in the C seam of bituminous coal. The mine is located on the line of the Pittsburgh & Susquehanna R.R., which connects with the New York Central at Philipsburg. The coal is considered high grade both for steam and domestic use. The firm will be known in the trade as F. J. Dunham & Co.



Harry E. Kinloch

Mr. Kinloch, age 71, who until Jan. 1, 1925, was general manager of the Valley Camp Coal Co., died in Parnassus, Pa., on Oct. 14, as published in *Coal Age*, Oct. 22. Mr. Kinloch started work in the peat bogs of England at the age of nine.

Pennsylvania Coal & Coke Co. and subsidiaries report a September deficit of \$18,800 after ordinary taxes, depreciation and depletion, but before federal taxes, against a deficit of \$50,777 in September, 1924. Deficit for the quarter ended Sept. 30 was \$108,440, against a deficit of \$147,547 in the third quarter of the previous year. In the first nine months of 1925 the deficit totaled \$457,533, comparing with a deficit of \$288,655 in same period of 1924.

The Lehigh Valley Coal Co. recently started to blow down the sides of mine caves in the Pottsville region as a precaution against someone being injured or killed while illegally digging coal during the anthracite suspension.

The Benjamin washery at Eynon, owned by Frank P. Benjamin, of Scranton, was destroyed by fire on Oct. 23. The washery was built on the site of the old Raymond breaker, which was wiped out by flames several years ago. The washery had not been operated for months preceding the fire. The owner is at a loss to explain how the blaze started.

Elmer Brunke, of Buffalo, authorized by the councilmen of that city to purchase \$10,000 worth of hard coal to help relieve the shortage in that city, visited Scranton recently in quest of supply only to have his appeal turned down. The local agent for the D., L. & W. Coal Sales Co. directed the Buffalo man to take his request to the head offices in New York City.

H. C. Frick Coke Co. continues to increase its number of operating ovens. During the week orders were received to put the Whitney and Hostetter plants in full operation. These plants will work six days a week. Additional ovens were ordered fired at Marguerite and Mammoth. The Colorado Coal & Coke Co. interests have fired up more ovens in the lower "Yough" valley district. About 150 more men were put on. The

plant at Clarissa recently was put to work and 70 ovens will be fired. Fifty are fired at the old Rainey plant at Fort Hill. The Washington Coal & Coke Co. has put into operation between 50 and 60 more ovens at its Star Junction plant.

Members of a mining school at Wilkes-Barre, Pa., recently saw a mechanical loader demonstrated in hard coal by its inventor, Isaac Hochreiter, of Luzerne. The front end of the loader was elevated and then the rear end, to show that it can be operated at any pitch. The inventor said the trough of a normal size loader of this type is 5 ft. wide and that it can be operated on each side of its track to clear a space 14 ft. in width. This permits the working of a face and then a return to clear up the sides of a tunnel or slope. Mr. Hochreiter said the machine may be operated by one man and that the machine and six men would load at least 30 cars a day. The loader moves forward automatically over any character of surface and cleans up as it travels, conveying debris, rock or coal to the car in the rear. A full-sized machine, the inventor said, is now being constructed for one of the operations near Scranton.

TENNESSEE

Thirty-six hours after the arrival in Rockwood of Robert M. Lambie, chief of the West Virginia Department of Mines, the bodies of eight men who had been imprisoned in the mine of the Roane Iron Co. since July 1, were recovered. Mr. Lambie brought a picked crew of men from West Virginia, who unsealed the mine, which has been closed for months because of a raging fire and, equipped with oxygen helmets, went into the recesses of the mine, wrapped the bodies in canvas and brought them to the surface. Immediately after the bodies were brought to the surface the passages were again sealed to prevent the fire from spreading. Mr. Lambie's services were loaned on the order of Governor Howard Gore, of West Virginia, at the request of the U. S. Bureau of Mines.

TEXAS

Texas Pacific Coal & Oil Co. reports for the quarter ended Sept. 30 net income of \$584,890, after expenses and deductions, but before depreciation and depletion. This compares with \$588,254 in the preceding quarter and \$360,073 in the third quarter of 1924. Net income for the first nine months of 1925 was \$1,666,270 before depreciation and depletion, comparing with \$1,627,931 in the same period of 1924.

UTAH

The Utah Railway Co. has petitioned the State Public Utilities Commission to approve a contract which it has made to purchase the National Coal R.R. line now in course of construction into the Gordon Creek coal properties in Carbon County, Utah's chief coal producing center. The line in question

extends from a connection with the Utah Ry. about 8.9 miles up Gorley Creek and the north fork of Gorley Creek. Its completion is expected during the present year. It will serve the properties of the Great Western Coal Mines Co., the Consumers' Mutual Coal Co., the National Coal Co., the Union Coal Co. and the Sweet Coal Co.

The State Farm Bureau and the Salt Lake City Chamber of Commerce have just launched a campaign against fake stock operators. It is estimated that last year approximately \$500,000 in worthless securities was sold in one county alone and that the total loss in the state would run into several millions of dollars. While no stocks are specified, it is known that promoters of mutual coal companies have been most active in the county in which it is estimated the \$500,000 was lost last year. The Bankers' Association is interested in the move and a list of points to consider when stock is offered are given. It is announced that a vigilance committee will be formed in each county. Farmers appear to be among the greatest sufferers.

WASHINGTON

The Washington Union Coal Co., Tono, is installing a new electric hoist inside the mine and an electric pump. The hoist will accommodate 12 cars a trip and the pump will have a capacity of 500 gallons a minute. The concrete foundation for this new equipment has been laid and the work will be completed this week. Alec Turnbull, master mechanic, is in charge of the operations.

WEST VIRGINIA

Brooks S. Hutchinson, of Fairmont, vice-president of the West Virginia Coal & Coke Co., recently purchased the New Annapolis Hotel, 12th and H Sts., N. W., Washington, D. C., for \$2,500,000. The hotel is 11 stories high and contains 400 rooms.

A number of operators were in Pittsburgh, Pa., last week in the interest of the West Virginia merger which fell through in New York recently. It is reported that Cleveland and Chicago banking interests probably will finance the project. It is said that \$12,000,000 is involved.

Recently the State Department of Mines equipped the rescue stations at Charleston, Kilsyth, Matoaka, Welch, Williamson, Logan, Morgantown, Fairmont, Wheeling and Elkins with trucks, which are specially designed to convey the injured to hospitals or their homes, after mine fires or explosions.

Coal mines in the 12½ counties of northern West Virginia (Fairmont region) produced 572,500 net tons of coal in the week ended Oct. 24, compared to 568,200 tons the previous week, to 440,150 tons in the corresponding week of 1924 and to 523,450 tons in the corresponding week of 1923.

The Island Creek Coal Co. reports net profit for the quarter ended Sept. 30 of \$618,335 after all deductions, against

\$478,900 in the corresponding period last year. The net profit for the September quarter equaled \$4.57 a share on the 118,801 shares of \$100 par value common stock, after allowing for preferred dividends. The quarter's earnings last year were \$3.40 a share. For the nine months ended Sept. 30 net profit of \$1,555,376, after preferred dividends, was equal to \$11.20 a share, against \$14.23 a share last year.

The Gilbert-Davis Coal Co. has purchased the property of the Randall Coal Co. and the Jarvis Coal Co. in Scott's Run, near Morgantown, and will be known as mine No. 6. It has been leased by R. A. and George Poland, who operated the Black mine, which will be operated on a co-operative basis, it is reported.

The Fordson Coal Co., owned by the Henry Ford interests, has contracted with the Fairmont Mining Machinery Co. for a \$55,000 steel headhouse and a 1,300 ft. rope and button conveyor at its Nuttallburg mine, in Fayette County. The contract calls for installation by March 1.

Harry A. Cochran, of Baltimore, coal traffic manager of the Baltimore & Ohio R.R., who was a business visitor to Fairmont last week, reports that during September the B. & O. moved 3,250,000 net tons of coal on its system, exclusive of company fuel, obtained for its own consumption. It was one of the biggest months in the history of the B. & O.

J. W. Bischoff, of Elkins, formerly general superintendent of the West Virginia Coal & Coke Co., was recently made superintendent of the Parker Run mine of the Fairmont & Cleveland Coal Co., the largest single tippie mine in northern West Virginia. He succeeds Charles E. Gaskill.

WYOMING

W. L. Kidneigh, for several years past connected with Rock Springs offices of the Megeath Coal Co., of Omaha, has resigned and will go to California, where he is a partner in the Aladdin Sales Co., of San Francisco. He is succeeded by H. W. Moran, of the Omaha offices of the Megeath company.

Mines in the Rock Springs district would be working full time at present if sufficient coal cars were available. Many of the mines of the Union Pacific Coal Co. lost a day during the week ending Oct. 10 because of a car shortage. The increased freight business of the U. P. R.R. is creating a greater demand for the coal of this district. One day recently this road handled 95 freight trains through Rock Springs.

The Megeath Coal Co., whose headquarters are at Omaha, has increased the output at its Rock Springs mine within the last six months to 700 tons daily, an increase of almost 100 per cent. Since William Redshaw, for several years superintendent of the U. P. mines at Winton, was made superintendent in the spring of 1925, much improvement and safety work has been accomplished.

CANADA

Officials of the Dominion Coal Co. state that the outlook for the Nova Scotia coal industry is fairly good for the next four months. An order is expected from the United States for 50,000 tons per month and if it materializes the Cape Breton collieries of the British Empire Steel Corporation will be kept busy until the end of February. The number of miners who have recently left the United Mine Workers is about 300 in addition to 700 who broke away from the union in Pictou County.

Production of coke in Canada during September totaled 102,882 tons, as compared with 95,397 tons in August, an increase of 7 per cent. The gain was largely due to the increased production in Nova Scotia since the settlement of the strike. Ontario ovens produced 53,533 tons or 52 per cent of the total Canadian output. The amount of imported bituminous coal used for coke making was 109,015 tons, as compared with 115,683 tons in August, and the amount of Canadian coal used rose from 26,379 in August to 48,468 tons in September. Imports of coke totaled 78,731 tons as compared with 70,000 tons in August. Exports were 4,268 tons as against 2,007 tons.

The Canmore Coal Co., of Alberta, is erecting a new briquetting plant, which when completed will cost in the neighborhood of \$100,000. The building is being erected by the coal company, the machinery being supplied under contract by Komarek-Greaves Co., Chicago. The plant will be ready for operation about the middle of November.

Coal output in British Columbia during the first nine months of this year was 327,717 tons greater than for the corresponding period of 1924, according to a statement by the provincial Department of Mines. Output by districts during the first nine months of 1925 was: Crows Nest Pass, 653,752 tons; Nicola-Princeton, 116,898 tons; Vancouver Island, 1,006,368 tons, a total of 1,777,018 tons. The gain is due to increased production in the Crows Nest Pass field, which for more than six months of 1924 was closed by a strike.

Traffic

New Coke Rates on B. R. & P. Are Approved

The New York Public Service Commission has approved new rates on the Buffalo, Rochester & Pittsburgh R.R. on coke and coke breeze, to main line stations Buffalo to Barnard inclusive, \$1.39 per net ton; Buffalo to Chace, Perry and Silver Lake, \$1.89; effective Oct. 17. The commission also has approved the establishment of joint rates by the Lehigh Valley, Geneva to B. R. & P. stations, Garbutt, Maplewood, Mumford, Rochester and Scottsville, \$1.51; effective Oct. 21.

Coming Meetings

Illinois Mining Institute. Fall meeting, Nov. 6 and 7 at West Frankfort, Ill. Secretary, Frank F. Tirre, St. Louis, Mo.

Harlan County Coal Operators' Association. Annual meeting, Nov. 18, at Harlan, Ky. Secretary, E. R. Clayton, Harlan, Ky.

American Society of Mechanical Engineers. Annual meeting at New York City, Nov. 30-Dec. 3. Secretary, Calvin W. Rice, 19 West 39th St., New York City.

Fourth National Exposition of Power and Mechanical Engineering. Nov. 30 to Dec. 5, at Grand Central Palace, New York City.

Coal Mining Institute of America. Annual meeting, Dec. 9-11, Pittsburgh, Pa. Secretary, H. D. Mason, Jr., P. O. Box 504, Ebensburg, Pa.

American Mining Congress. Twenty-eighth annual convention, Dec. 9-11, Washington, D. C. Secretary, J. F. Callbreath, Munsey Bldg., Washington, D. C.

New Companies

The Uniflow Stoker Co., Piqua, Ohio, has been chartered with an authorized capital of \$15,000 to manufacture and deal in mechanical stokers. Incorporators are: Walter E. Turner, Fred A. Shane, Walter F. Henne, August Clouse and Leslie T. Hunnicutt.

The Magnolia Coal Mining Co. of Russellville, Ark., with a capital of \$25,000, has been incorporated by J. L. Davis, T. A. Johnston, E. G. Butler, Essie Lee Davis, T. G. Johnston and J. H. A. Baker.

The Monticau Coal Co., Higbee, Mo., has been incorporated with a capital of \$40,000 and will carry on a general mining business. The incorporators are James Rankin, Joe Bradley, Mike Marietta, Fred R. Laight and Chas. E. Moore.

The L. H. & W. Coal Co., Henderson, Ky., with a capital of \$28,000, has been incorporated by U. M. Gager and Harry B. Jennings.

Recent Patents

Method for Separating Materials of Different Specific Gravities; 1,545,636. Thomas M. Chance, Philadelphia, Pa. July 14, 1925. Filed Oct. 14, 1921; serial No. 507,605.

Automatic Trapdoor for Mines; 1,645,274. Ren Williams, West Frankfort, Ill. July 14, 1925. Filed Sept. 27, 1924; serial No. 740,297.

Storage Plant for Coal; 1,547,290. Robert H. Beaumont, Radnor, Pa., assignor to R. H. Beaumont Co., Philadelphia, Pa. July 28, 1925. Filed Nov. 15, 1923; serial No. 674,841.

Apparatus for Crushing Coal; 1,547,491. Emil Barthelmess, Dusseldorf-Oberkassel, Germany. July 28, 1925. Filed Sept. 13, 1924; serial No. 737,572.

Obituary

Walter D. Hunt, 36 years old, a member of the firm of Hunt Brothers, coal operators at Brazil, Ind., died recently at his home following an illness of two weeks of influenza. He had been a resident of Brazil for a number of years and had been engaged in the coal business for the last ten years. He is survived by a widow, a son and a daughter.

The death is announced of **Edward A. McCorn,** at the home of his niece, Mrs. G. J. Coy, of Baltimore. Mr. McCorn was formerly associated with the H. C. Frick Coke Co. of Scottdale, Pa. He was 81 years old and for the past forty years had been a resident of Scottdale.

Milton Mayo, brother of the late John C. Mayo, of Paintsville, Ky., the man responsible for the big Elkhorn operations of the Consolidation Coal Co., was found drowned in 6 in. of water, in a small stream near his home on Oct. 12. The deceased was partly paralyzed, and indications are that he fell into the stream, and was unable to help himself. Milton Mayo was not wealthy, the bulk of the vast fortune of his brother, John Mayo, having been left to his widow and children. A brother, Robert Mayo, and a sister, Mrs. Fred Atkinson, of Paintsville, survive.

New Equipment

Heavy Roller Bearings Adapt Motor to Severe Duty

After two years of experimentation and development the Allis-Chalmers Manufacturing Co., of Milwaukee, Wis., has placed on the market a line of roller bearing induction motors of the type shown in the accompanying illustration. These are of both the squirrel cage and slip ring varieties and are built for both 25- and 60-cycle current. They are, of course, in addition to the sleeve bearing motors which this firm has marketed for years.

In the construction of these motors

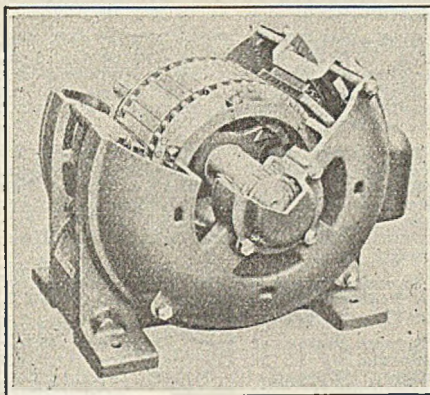
overall length of this motor is appreciably less than that of sleeve bearing machines of like capacity admirably adapting it to close-quarter installations.

It will be readily apparent that this motor is of rugged design intended to meet successfully and withstand conditions of operation that are unusually severe. It is now being built in all sizes up to 200 hp. for various voltages of both 25- and 60-cycle current.

Fuse Box Prevents Contact With Live Parts

Recent improvements in the design of fuse boxes for distribution transformers, so that it becomes impossible for the operator when re-fusing the box to come in contact with current-carrying parts have been made by the Westinghouse, Electric & Manufacturing Co.

The new OD safety-first fuse box is of this type. It consists of a heavy, compact, moisture-proof box, fitted with special mounting brackets that permit it to be installed at the maximum distance below the transmission wires. The door of the box is hinged at the bottom and is interlocked so that it can be removed or replaced only when the fuse tube is at a safe distance



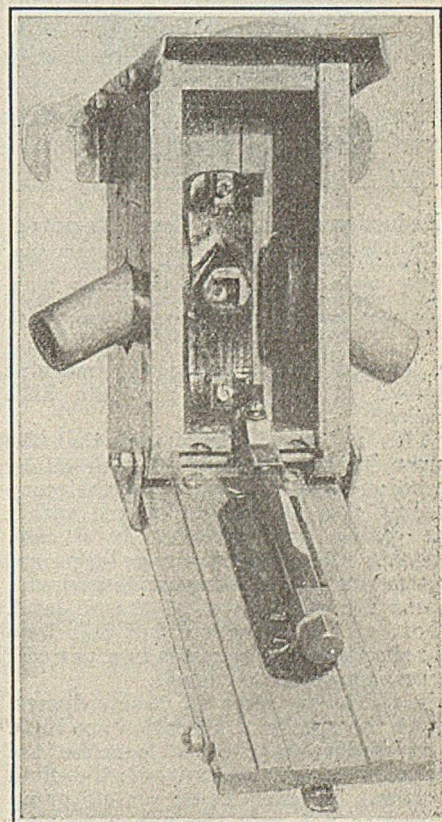
Sectionalized View of Motor

Tapered roller bearings upon either end of the armature shaft take both radial and end thrusts readily. Grease packing in these journals renders attention unnecessary except at long intervals.

the Timken taper roller bearing has been selected because this type is capable of enduring heavy and continuous radial and end thrusts. It is, therefore, particularly adapted to withstand heavy service at high speeds. Because of its rolling action this bearing has practically no wear and the factory-adjusted air gap is maintained indefinitely, with little or no possibility of the rotor dragging on the stator.

Grease is employed as a lubricant and the bearing inclosures are made grease tight, effectively excluding grit and dirt that might cause undue wear. With these provisions both motor and bearings require only infrequent attention, and both are well adapted to installation in dusty or dirty places. A light press fit for the cone and cup of the bearing is sufficient to hold these parts in place, no nuts or other locking devices being required. Bearings may be removed easily when necessary.

In addition to the bearings, other details of design have been carefully considered. Thus the frame has been made of steel casting with integral feet. The coils of the various windings are thoroughly insulated and baked in a waterproof varnish. Ventilation openings in the housing and frame are so placed in vertical planes that falling objects cannot enter the machine. The



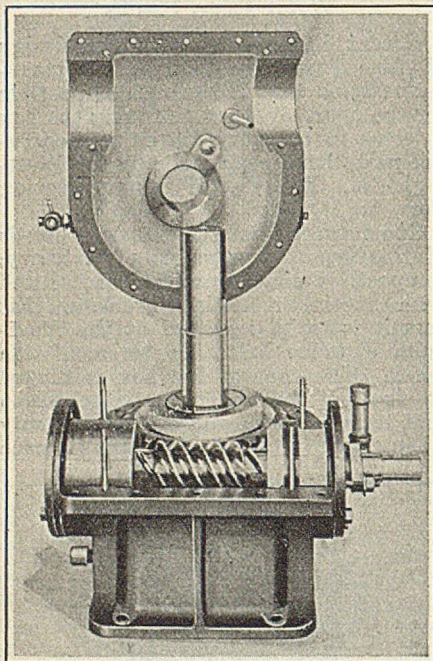
Fuse Is Automatically Taken Off Line

The work of renewing the fuse element in this box is made safe by taking the fuse out of the circuit when the door is opened.

from the line contact. A screwdriver to clamp the fuse link in the new tube is the only tool needed when re-fusing. To insert a new fuse the operator opens the door of the box which action disconnects the fuse and insulates it from the line. He then lifts off the door, inserts the refill in the tube, replaces and closes the door, and the box is again ready for operation.

Oil Forced to Upper Bearing In Vertical Gear

Occasionally in and about the mines application is found for vertical worm reduction gears. Such a device has recently been brought out by the DeLaval Steam Turbine Co., of Trenton, N. J. This gear, shown in the accompanying illustration, has the advantage that where the driving shaft is horizontal, as is usually the case, the motor may



Reduction Gear with Cover Removed

In this machine a cam on the worm gear actuates a pump that supplies oil to the upper main bearing. In the large high-speed units where immersion of the gears is disadvantageous this pump also lubricates the worm and gear surfaces.

be stowed away beside the machine instead of projecting out into aisle space.

This reducer is unique in that the upper bearing is supplied with oil by forced or positive lubrication, the pump feeding this oil being mounted within the casing and operated by a cam. Suitable filling and drainage openings, together with trycocks provide adequate means for the control of the oil level. About all the attention that this type of reduction gear requires is a periodic inspection of the oil level.

In the larger sizes of these reducers, where the speeds of operation are high, it is disadvantageous to immerse the gears in oil on account of the fluid friction. In such cases an oil pump lubricates not only the upper bearing but the worm and gear as well. This reduction is made in a variety of sizes and with shafts extending either up or down.

Publications Received

Mechanical Loading in Coal Mines, by F. E. Cash and E. H. Johnson. Coal mining investigations under the auspices of the Carnegie Institute of Technology, U. S. Bureau of Mines and Advisory Board of Coal-Mine Operators and Engineers. Bulletin 17. Price \$1. Pp. 113, 6 x 9 in.; illustrated. A discussion of the prime factors in the success of loading machines, including transportation and mining methods, descriptions of types of machines and actual operations, costs, advantages of mechanical loading and suggestions as to choice of a loader.

Annual Report of Coal Mine Inspection and Mine Rescue Departments, by Leon Besson, State Mine Inspector, Pittsburgh, Kan. Pp. 139; 6 x 9 in.; tables.

Quantity of Wood Treated and Preservatives Used in the United States in 1924, by R. K. Helphenstine, Jr., Forest Service, U. S. Department of Agriculture, in co-operation with the American Wood Preservers' Association. Pp. 36; 6 x 9 in.; tables and charts.

The Coal Resources of Canada, by M. J. Patton. Bulletin No. 50 of the Departments of History and Political and Economic Science in Queen's University, Kingston, Ont., Can. Pp. 19; 6 x 9 in.; tables.

Geological Maps, Their Study and Use, by A. Nelson. Colliery Guardian Co., Ltd., 30 Furnival Street, Holborn, London, E.C. 4, Eng. Pp. 108; 6 x 9 in.; illustrated. A handbook for mining students, geologists and surveyors.

The Smoky River Coal Field, by James McEvoy. Published by the Dominion Board in co-operation with the geosurvey and Department of Mines, Ottawa, Can. Pp. 19; 6 x 9 in.; illustrated. Examination and comparison with the Kanankis area.

Annual Report of the Mines Branch of the Province of Alberta, Canada for 1924. Pp. 372; 6x10 in.; tables.

Screen Sizing of Coal, Ores and Other Minerals, by E. A. Holbrook and Thomas Fraser. Bureau of Mines, Washington, D. C. Bulletin 234. Pp. 140; 6x9 in.; illustrated. Prepared under a co-operative agreement between the Bureau of Mines, State Geological Survey Division of Illinois and the Engineering Experiment Station of the University of Illinois. Outlines present practice in screening coal and supplements that information with basic points which must be considered by both designing and operating engineers.

Mineral Resources of the United States in 1924. (Summary Report). Introduction by Frank J. Katz; statistics assembled by Martha B. Clark, from data furnished by specialists of the Division of Mineral Resources, U. S. Geological Survey, Washington, D. C. Pp. 108; 6x9 in.; tables. The arrangement of this seventh annual preliminary summary of the country's mineral production is alphabetic by minerals and conforms to earlier issues.

Sources of Limestone, Gypsum and Anhydrite for Dusting Coal Mines to Prevent Explosions, by Oliver Bowles. Bureau of Mines, Washington, D. C. Bulletin 27. Pp. 70; 6x9 in.; illustrated. Covers causes, propagation and prevention of dust explosions, cost of dusting coal mines and availability of dusting materials.

The Physiography of the Upper James River Basin in Virginia, by Frank J. Wright. Virginia Geological Survey, University of Virginia, Charlottesville, Va. Bulletin XI. Pp. 67; 7x10 in.; illustrated. Covers results of a detailed study of the surface features of the central part of the Valley province of Virginia.

Rewinding Small Motors, by D. H. Braymer and A. C. Roe. McGraw-Hill Book Co., 370 Seventh Ave., New York City. Price \$2.50. Pp. 247; 6x9 in., illustrated. Describes practical details of repair-shop practice with step-by-step procedure for rewinding all types and designs of fractional horsepower motors.

The Coal Deposits and Coal Mining of Svalbard (Spitzbergen and Bear Island), by Adolf Hoel. The Norwegian Academy of Arts and Sciences, Oslo, Norway. Vol. 1, No. 6. Pp. 92; 6 x 10 1/2 in.; illustrated.

Soil Survey of Tucker County, West Virginia, by S. W. Phillips. U. S. Department of Agriculture, Bureau of Soils, in co-operation with the West Virginia Geological Survey. Pp. 36; 6 x 9 in.; illustrated.

Association Activities

The Cincinnati Coal Exchange at a meeting on Oct. 20, shied at the idea of accepting associate members into that body. The Exchange is a subsidiary of the Chamber of Commerce and it was proposed that firms holding this membership might have other members of their company in as associate members. R. A. Colter and R. P. Gillham, old members of the trade, balked. The matter was referred back to a committee consisting of Ernie Howe, Fred Legg and George Kearns.

Industrial Notes

Arrangements have been recently effected whereby the Chicago Pneumatic Tool Co. of New York has obtained the right to manufacture and sell the Benz Diesel engine in the United States and Canada. This machine is of the solid injection, vertical multiple cylinder, four stroke cycle type. Like other Diesel engines it has no ignition device thus eliminating a rather delicate mechanism. It is provided with automatic regulation and the entire machine is simple both in construction and operation.

Any kind of petroleum or any of its derivatives can be utilized in this engine. Speed regulation is effected by means of a precision governor which controls the valve on the injection pump, the fuel admitted to the cylinder being thus in exact proportion to the load on the machine. Because of its simplicity and economy this engine should find application at many mines especially as a standby unit to be employed in case of failure of the regular power supply.

Brown, Boveri & Co., Ltd., builders of electrical equipment at Baden, Switzerland, is about to establish an associate manufacturing company in the United States similar to those already created in Great Britain, Belgium, Holland, Norway, Finland, France, Germany, Austria, Denmark, Hungary, Italy, Sweden, Spain, Poland and Czechoslovakia. The company had part in the harnessing of the power of Niagara, electrified and aided in the construction of the Simplon Tunnel and built the first long-distance power-distribution system which runs between Lauffen and Frankfurt and is said to be the first to be constructed anywhere in the world.

The Uehling Instrument Co., of Paterson, N. J., recently appointed the Ernest E. Lee Co., 115 South Dearborn St., Chicago, as its representative in northern Illinois and northern Indiana in connection with the sale of CO₂ recorders, fuel waste meters and other power-plant instruments. The Coon De Visser Co., which has been representing the Uehling Instrument Co. for several years in Michigan, has just moved from 1772 West Lafayette Blvd. to 2051 West Lafayette Blvd., Detroit.

Edward D. Kilburn, vice-president and general manager of the Westinghouse Electric International Co., and Walter S. Rugg, general sales manager of the Westinghouse Electric & Manufacturing Co., were named vice-presidents of the latter company at a recent meeting of the Board of Directors in New York. At the same time Richard B. Mellon, of Pittsburgh, President of the Mellon National Bank of that city and a brother of A. W. Mellon, Secretary of the U. S. Treasury, was elected a director of the company. Mr. Mellon will fill the vacancy caused by the death of William McConway, formerly president of the McConway & Torley Co. Messrs. Rugg and Kilburn will take charge, respectively, of the engineering and sales activities, according to announcement by Vice-President F. A. Merrick, general manager of the company. Vice-President H. D. Shute, aside from the direct operation of the sales department, which will be handled by Mr. Kilburn, will retain his direction of the broad commercial activities of the company, including especially customer relationships. Vice-President H. P. Davis, formerly in charge of engineering and manufacturing activities as applying to the strictly electrical portions of the company's business, will have direction over the entire manufacturing activities of the company and, in addition, will have direction of the general features of the radio business including broadcastings. Mr. Kilburn, in addition to his new appointment, will retain his duties as vice-president and general manager of the Westinghouse Electric International Co.