COAL AGE

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Assuring Fan Operation

IN ALL coal-mining equipment, taken by and large, reliability is of greater importance than economy. Getting the greatest return from the fuel burned or from the power purchased is an excellent objective to keep in view and strive to attain, but in most instances it cannot be subordinated to reliability. For shutdowns and interruptions wreak havoc on production and production costs out of all proportion to their own magnitude. The indirect losses sustained from such suspensions are far greater than their direct expense.

Where the safety of the men employed is at stake, also, continuity of service is doubly essential. Thus it is highly important that the fan be kept in operation even though power may go off the line for more or less extended intervals. To this end auxiliary units, such as gasoline engines either belted to the fan through a clutch or direct-connected to a generator of sufficient capacity to drive both fan and man hoist at reduced speeds, are frequently installed. If steam must be generated to heat water for the washhouse, it is common practice, also, to employ steam engines as standbys on these two pieces of equipment.

Where storage-battery locomotives or power tanks are extensively used their batteries may be made to serve the purpose of standby power to excellent advantage. In such mines some batteries are on charge at practically all times. In order to utilize the energy stored in such accumulators it is only necessary to run a suitable line from the charging station (which is usually located near the shaft bottom or mine mouth) to the fan house and provide there a motor of the proper type and capacity. This source of power may be similarly employed for shop or repair operations on idle or off days as well as for a standby. At several mines this source of power is now being utilized for either or both of these purposes.

Stop the Repeaters

UNDER THE general subject of tracks, there appears in the Union Pacific Coal Co.'s code of standards the following paragraph:

"A record of all derailments shall be kept by the mine foreman giving date, cause, and location. Drivers and motormen must give their reports of such happenings to the mine foremen daily."

This expresses a principle which is one of the important factors underlying the high-production and low-maintenance cost records per unit of equipment at many mines. It applies to all classes of equipment.

Generally speaking the mining machinery of today is wonderfully rugged, considering the limitations of size and weight, and gives excellent service if properly lubricated and not unnecessarily abused. The problem is to differentiate between normal wear, which takes place in any machine even if properly maintained, and trouble due to preventable causes.

A record of failures forms a stairway leading to the bottom of the trouble. Every failure has a cause, and the causes are not as numerous as might be expected. In eliminating troubles which show up frequently, some companies go so far as to redesign parts of equipment which are deemed too light or not suited to the specific local conditions encountered. Usually this is necessary only in the more advanced stages of development. An improvement of installation, operating, repair or lubrication methods can be countered upon to eliminate most of the "preventable" troubles. But before a physician can treat human ills intelligently he must correctly diagnose the case. His training in diagnosis is based on records which the medical profession have been compiling for years. It is much the same in the treatment of failures of equipment. The procedure should be based on a careful and frequent analysis of operating records. Usually there is little excuse for enduring repeated troubles from a common cause.

"No Backward Step"

ORGANIZED LABOR in the coal fields, like organized labor in industry generally, came out of the World War stronger than it ever had been before in the history of the labor movement in the United States. Why that was so, need not be discussed; it is water long since gone over the dam. Among the various union groups were some that recognized the force of economic competition and willingly or unwillingly met capital on the basis of the changed conditions brought about by the post-armistice depression and, later, by the collapse of the 1920 boom.

The United Mine Workers was not among those that trimmed their demands to the unfavorable winds of depression. Under the dynamic, belligerent leadership of a new president, the executives of that organization rallied to the battle cry of "no backward step." Let wages fall elsewhere; the United Mine Workers would stand firm against all demands for a reduction and so save the country from an economic smash-up! Adhering to that resolution, the miners' union has insisted and still insists upon the continued maintenance of the highest basic wage scale ever granted it.

In 1918 the United Mine Workers controlled approximately seventy-two per cent of the bituminous tonnage produced. In 1925 less than thirty-five per cent of the output was mined under the union scale. Entire districts have been swept into the non-union column; many others have become so pockmarked with open-shop operations that the union no longer is the dominant factor in those fields. Mine after mine has closed down in the strongly organized districts, and the beginning of the present month swelled the roster of the idle union operations.

Nor is that all the picture. In the Appalachian Region, where the close proximity of union and non-union mines has intensified the competition between the two groups, the drift from union to non-union production through the exploitation of non-union acreage by operators originally identified only with the union fields has been going on for some time. This development has come to be the accepted means by which the union operator can retain his hold upon his business. The practice, indeed, has become so common that it has ceased to excite comment.

This movement, however, is no longer confined to the fringes of the Central Competitive Field. It has penetrated into the very heart of that great union stronghold. Less than a month ago it was announced that the Peabody Coal Co. had taken over the distribution of the output of a group of non-union western Kentucky mines in territory in which it might normally be expected to push the product of its own Illinois mines. And there are other Illinois and Indiana producers who have maintained friendly relations with the union over a long period of years who are taking similar action to protect themselves.

The lesson ought to be plain enough to convince even the officers of the United Mine Workers that their attempts to hold an untenable position can lead only to further disaster. "No backward step" has a vigorous ring, but the successful leader frequently retreats in order that he may advance. Has the United Mine Workers such leadership or must the real interests of its members be sacrificed in idolatrous worship of a deluding phrase?

Safety in Longwall

A LONGWALL MINE is less likely than any other to be closed by creep. Modified longwall and the slabbing methods also afford a similar assurance of mine safety. All of which does not mean that there will be no difficulty in maintaining the longwall face, especially when the first attempt is made to obtain a break. Perhaps the mine most likely to close up suddenly is the room-and-pillar mine with a 50 per cent recovery. When rooms are started and pillars not drawn or if the drawing of pillars is delayed, a squeeze over a large area is almost sure to start. In Illinois squeezes have repeatedly ridden over big barrier pillars. Unless the roof is broken the mine is in danger. The 100 per cent extraction of longwall, especially where there is no packwalling or the 90 per cent extraction of slabbing, assure complete caving if the panels are sufficiently long and wide, but the room-and-pillar method with its low recovery invites the loss of a mine in a night.

Congratulations!

A NEW ARRANGEMENT has been made for the preparation and distribution of monthly statistics of the exports of coal and coke which will place the figures in the hands of the public about two weeks earlier than has been the case in the past. Heretofore the delay in issuing this data has been the subject of criticism ranging from the profane to the ribald. After all, a good part of the value of statistics lies in their timeliness. It has hardly been flattering to our pride in American efficiency to compare the delays blocking the publication of our export figures—small as they may be—with the speed displayed by some other countries. The Minerals Section of the Bureau of Foreign and Domestic Commerce at Washington is to be congratulated on the speeding up process which makes these figures more news and less ancient history.

Minister Stein Explosion

AFTER MUCH careful experimentation and inquiry the authorities in Germany have reported on the disaster at the Minister Stein Colliery. We print in this issue an interesting article on the subject by Raoul Touwaide. Yet, though the study made was long and arduous, one cannot be assured that the conclusions of the investigators were correct.

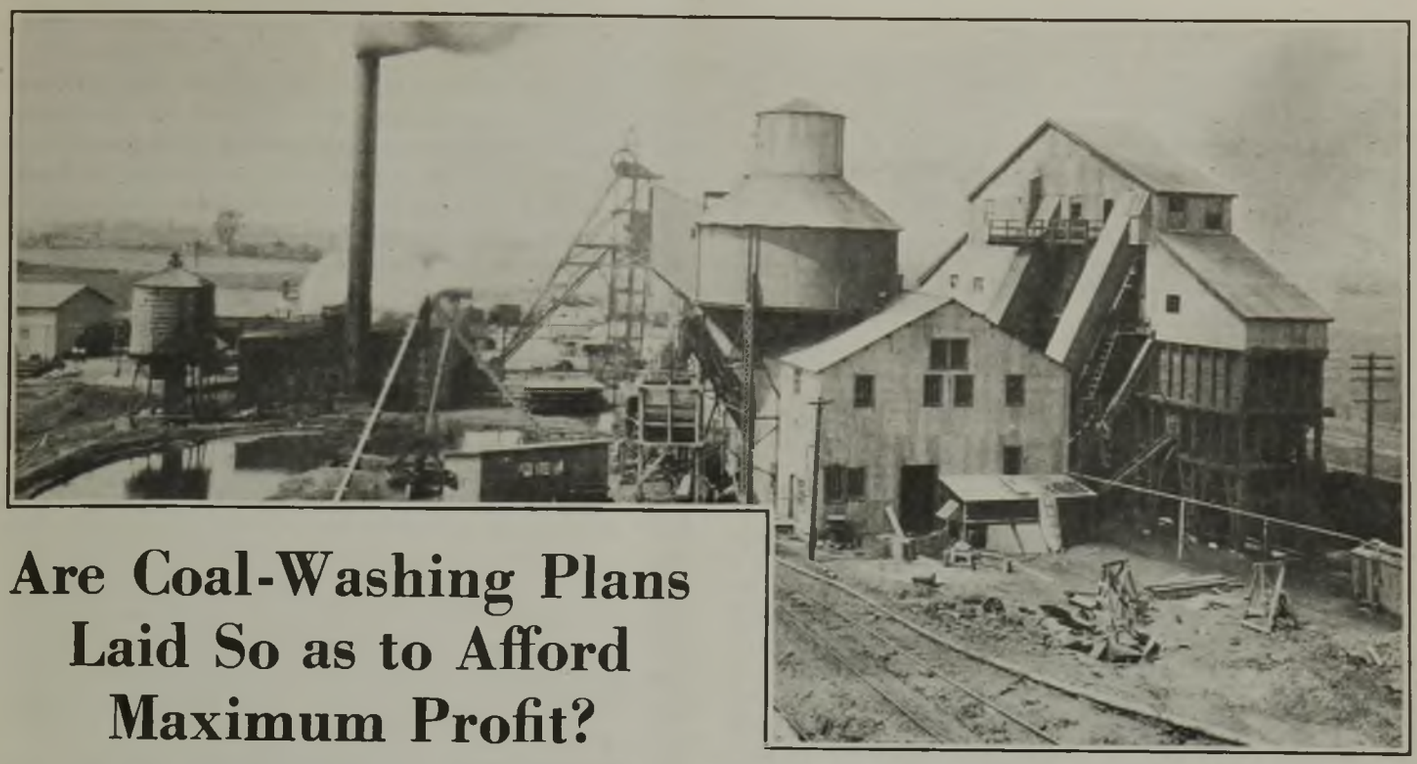
In this mine which was kept free of gas by an unusually large air circulation, it is not surprising that an explosion occurred after a fall of rock had shut off the ventilation. The explosion may have been due to any one of many causes. Possibly the shot to which the explosion is attributed may have been the cause, but only because the gas flooded from the Ida back into the Otto seam or because the Otto seam itself made enough gas that, when the air current was shut off, the air almost immediately became gas-laden. These probabilities seem far more likely than the assumption of the authorities that the "depression" caused by the shot drew gas out of cavities which gas was ignited by the burning parts of the cartridge when they were expelled from the hole. If the cavities of the Otto seam contained methane in such quantity, the seam was surely not non-gaseous in any proper sense of that word.

The evidence that a shot caused the explosion is also dubious. It is stated that a shot was fired about the time at which the accident occurred and that the place at which it was fired was little damaged. It is argued that the damage is usually at a minumum at the point of ignition, but so it might be at the point at which the blast dies down. So this assumption may also be without warrant.

It has been noted that where explosions are known to have started, as in the face of the experimental mine at Bruceton, Pa., it is often found that large piles of planking have been projected against the face and that there has been much violence. These facts have been explained by showing that the explosion often gains in pressure as the wave advances and then throws back waves toward areas of lower pressure, with resultant lifting of material only partly ejected or wholly undisturbed by the main explosive wave. The investigators assume that there was an increase in violence as the explosion extended but apparently are unwilling to admit that this would probably, but by no means inevitably, have resulted in a return wave that would have made a place, that had largely escaped before, a point where much energy was later displayed.

We have learned from Mr. Touwaide that the shot was stemmed, but it would seem that, if it was the cause of the explosion, the shot either blew *out* or else blew *down* the material so easily as to release the burning contents into the roadway. That may be a danger with a shallow shot, the stemming may be too short or the environing walls may be too weak to prevent the issuance of flame before combustion is completed.

But if some things seem uncertain, the value of rock-dust barriers was clearly demonstrated as also the ineffectual protection afforded by water. The proof was so clear than the German authorities, who have hitherto been skeptical, seem to be so no longer.



Courtesy, Link-Belt Co.

Are Coal-Washing Plans Laid So as to Afford Maximum Profit?

Rarely Pays to Remove Middlings as Quality of Coal Is But Little Improved—Clean Coal, However, Keeps Mine Working Steadily—Review of Typical Washery Machinery

By Thomas Fraser
Assistant Professor of Mining,
University of West Virginia

IN THE STUDY of the washery problem the important consideration is to produce such coal as will afford the most profitable return. When coal is washed, so as to remove both bone and slate it usually happens that the analysis is but little bettered by the removal of the bone and a large quantity of coal is thrown away, whereas the removal of slate only will reduce the percentage of ash considerably without wasting any large quantity of the product.

The usual method of disposing of the fine coal (screenings or slack) is to place it on the market in the raw state as a cheap stoker fuel. If the coal seam contains friable impurities, the fine coal is dirtier than the larger sizes and, in many cases, use of mechanical loaders will increase the proportion of dirt in the fines. To produce a desirable grade of small coal under these conditions, the coal must be cleaned by machinery. The proper size at which to make the division between hand picking and mechanical cleaning will vary with individual conditions; but, inasmuch as the nut coal is the most difficult and expensive size to hand-pick and the easiest size to clean mechanically, it generally will be advisable to include the nut coal (2x3 in. or smaller) in the washer feed if a washery is being installed for the smaller coal. This would be the most economical procedure except where the nut coal is comparatively clean and requires only a superficial treatment.

In the extensive Appalachian and Eastern Interior coal regions washeries have been generally regarded until recently as novel appurtenances only to be found at steel-company mines. Although some plants for the preparation of commercial coal have been operated, they are uncommon. However, in the past three years there has been a marked increase of general interest in coal preparation, attended by moderate activity in actual cleaning-plant construction.

The cleaning plant and process best suited for the preparation of coal for the general market may be expected to differ materially from those designed to produce metallurgical fuel. The important considerations which influence the operation of commercial plants are: (1) Market conditions usually prohibit crushing to prepare coal for treatment. (2) Removal of heavy refuse alone usually results in a satisfactory product. (3) Only a small enhancement in selling price is available to cover operating cost and shrinkage. A simpler and cheaper plant generally can be used to prepare a general-purpose fuel than to prepare metallurgical fuel because the complete removal of bone coal and light middling products is unnecessary and usually undesirable. The essential requirements of a plant for this purpose are (1) low plant cost, (2) low operating cost, (3) simplicity of operation, control and repair, (4) minimum loss of coal in refuse, (5) applicability to a wide range of sizes.

Keeping Shrinkage Loss Low

Inasmuch as the increased selling price obtainable for cleaned coal is often small, it is regarded as essential to keep the cost of cleaning and the washer loss or shrinkage down to the absolute minimum although, because of the ready salability of cleaned coal, it may often pay to operate a cleaning plant at an apparent loss; this bringing about, indirectly, a much greater

Headpiece shows tipple and washery of Consolidated Coal Co., Mine No. 7, Staunton, Ill.

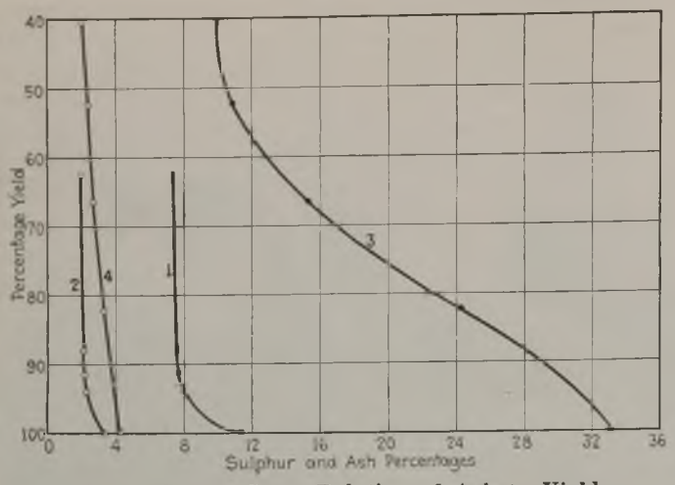


Fig. 1—Curves Show Relation of Ash to Yield

Where the curves are almost horizontal any cutting of sulphur or ash percentages is achieved without much upward progress on the curve and therefore without any marked change in the percentage yield. But where the curves are nearly vertical one can make hardly any progress horizontally without a great change vertically and a big loss in yield. Consequently it is not well to leave the curved tips of the graphs and it is well, indeed, to avoid rising too high on them.

saving through larger sales and steadier operation. Low washer loss is especially important, as every ton of material discarded as refuse decreases the tonnage shipped. Plants should usually be adjusted to take out only the clean rock and heavy bone.

Light bone and mixed particles contain a large proportion of combustible material and rejection of these products as refuse means some loss of fuel; furthermore, because of its low-ash content, removal of bone coal is an expensive ash-reducing measure as a large rejection is necessary to obtain a relatively small decrease in ash in the cleaned coal. In any case, only enough of this bone coal and middling should be rejected to produce a cleaned product of the desired grade. Any type of washer can be adjusted over a certain range of separations; the greater the cleaning effect desired, the greater must be the quantity of material rejected as refuse.

This condition is illustrated by Table I giving the results obtained by washing a sample of high-ash Pittsburgh coal. For experimental purposes several

Table I—Results of Washing a High-Ash Pittsburgh Coal Sample

Product	Per Cent of Feed		Per Cent of Ash		Per Cent Sulphur	
	Direct	Cumulative	Direct	Cumulative	Direct	Cumulative
Raw coal	100.0	....	11.4	....	3.46	....
No. 1 washed coal	62.5	62.5	7.4	7.4	1.97	1.97
No. 2 washed coal	25.5	88.0	8.1	7.6	2.43	2.10
No. 3 washed coal	3.4	91.4	10.5	7.7	3.52	2.15
Middlings	2.6	94.0	37.0	8.0	6.80	2.28
Refuse	6.0	100.0	65.6	11.4	21.80	3.41

products were made; No. 1 clean coal; heavy high-ash refuse, and intermediate products consisting mainly of bone coal and mixed pieces, part coal and part dirt. It should be possible to adjust a commercial plant to make a separation between any two contiguous products shown in the table or at any point on the curves 1 and 2 of Fig. 1, which show the washing results graphically.

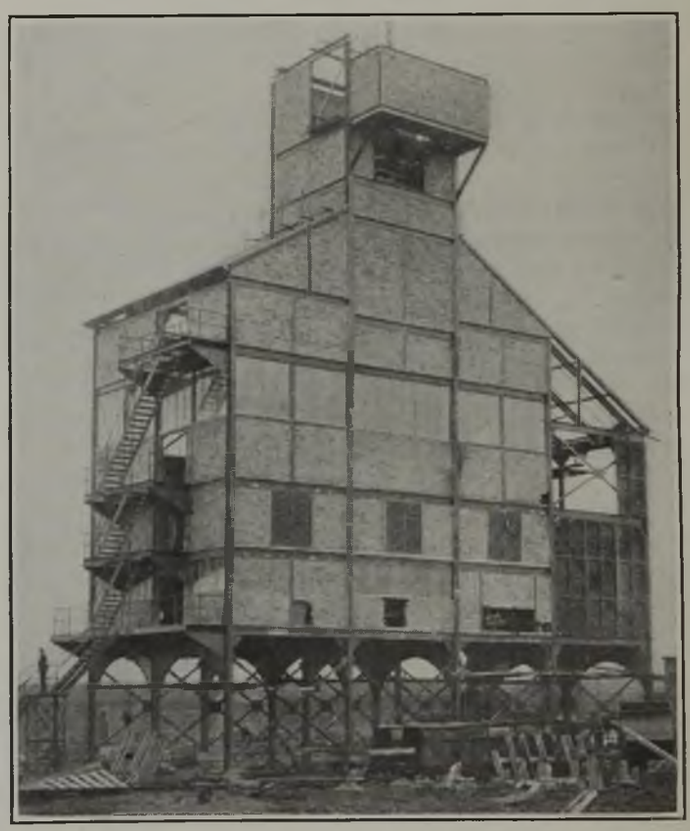
The figures in the second column, headed "Cumulative per Cent of Feed," gives total percentage of combined clean products above the individual products in question: for example, 94 per cent is the combined yield of washed coal and middling products if all are combined as one prepared product; similarly, the cumulative per cent ash (8) is the average ash content of this combined product and the cumulative per cent sulphur (2.28) is the average sulphur content of the combined product.

This means that a separation taking out only the clean heavy rock, designated "Refuse" in the table, would result in a cleaned-coal product containing 8 per cent ash with a refuse rejection or washer loss of 6 per cent, whereas the removal of both heavy refuse and intermediate products (middlings and No. 3 washed coal) would produce a cleaned coal of 7.6 per cent ash with a washer loss of 12 per cent. Thus the removal of 6 per cent of heavy slate reduced the ash content of the coal from 11.4 to 8 per cent whereas the removal of an additional 6 per cent of middlings gave a further reduction of only 8 to 7.6 per cent.

If Power Is Generated Can Wash Cleaner

As indicated by the straightening curves of Fig. 1, the further the ash-reducing process is carried the greater rejection is required to accomplish a given ash reduction. In preparing coal for the general market, rejection of light bone, which amounts to making the separation in the upper portion of the curves, is unprofitable, unless some special use can be made of this part of the reject by crushing and rewashing or by using it at the mine as a low-grade fuel.

In case the larger sizes of coal (lump and egg) are hand-picked and the smaller sizes are cleaned mechanically, coal mixed with or adhering to the rock picked



Courtesy American Coal Cleaning Corp.

Fig. 2—Wardley Plant of John Bowes & Partners, Newcastle-on-Tyne, England

Built by the Birtley Iron Co., Birtley, Durham, England, under American licenses. It has six pneumatic coal separators. The roof is glass and the walls of brick and steel. The three louvers are for the incoming air to the fans. The separators are on the floor above. The louvered extension at the end of the building contains the dust-extraction system.

out of the lump and egg can be reclaimed by crushing and washing with the nut and screenings. In this case, the larger sizes can be cleaned more thoroughly, because the coal loss in the pickings is ultimately recovered.

Although the question might arise as to whether this practice would affect detrimentally the average quality of the cleaned coal product, the washer may generally be expected to remove practically all the extraneous free impurities in the feed, reducing it to a more or less uniform base ash content a little above the inherent ash.

This would depend, however, upon the nature of the picking-belt material introduced. If a large proportion of bone coal were directed into the washery feed in this manner, a deleterious effect on the quality of washed coal might be expected, whereas, if the picking-belt refuse were made up of shale and pyrite fragments with coal attached, the washer could be expected to clean this as completely as the raw coal after crushing sufficiently to free the coal from the rock.

Results of a pneumatic-table test on high-ash refuse material containing a comparatively small quantity of merchantable coal are shown in Table II and curves 3 and 4 of Fig. 1. In this test the material discharging from the cleaning table was separated into ten graded products by means of separate narrow chutes attached to the discharge side of the table and each leading to a separate receptacle. This is similar to the method of testing explained in detail in a previous paper.*

Table II—Recleaning Test and Refuse Material Using Pneumatic Table

	Per Cent of Feed		Per Cent of Ash		Per Cent Sulphur	
Product	Direct	Cumulative	Direct	Cumulative	Direct	Cumulative
Raw material	100.0	100.0	35.5	....	4.28	....
Product						
No. 1	2.0	2.0	10.1	10.1	2.50	2.50
No. 2	5.1	7.1	8.5	9.0	1.98	2.12
No. 3	5.3	12.4	9.3	9.1	2.06	2.10
No. 4	7.1	19.5	9.4	9.2	2.16	2.12
No. 5	8.8	28.3	10.1	9.5	2.07	2.11
No. 6	11.9	40.2	11.2	10.0	2.20	2.13
No. 7	12.2	52.4	13.2	10.8	2.51	2.23
No. 8	14.1	66.5	32.1	15.3	4.45	2.69
No. 9	15.8	82.3	66.8	24.3	5.80	3.29
No. 10	17.7	100.0	73.5	33.1	8.85	4.28

Although the raw material fed to the table contained about three times as much dirt as the bulk of raw coal normally treated in this particular washery, the cleaner products, Nos. 1, 2, 3, 4 and 5, averaged only a little higher in ash and sulphur than the average washed coal produced at the plant, and the comparatively small quantity of such coal recoverable from refuse materials would have little effect on the average quality of the washed coal.

In addition to being undesirable in most commercial operations, the removal of light bone coal and middlings is difficult, requiring such expedients as close sizing, fine crushing and retreatment. Hence the operation which aims at removal of only the heavy refuse can be performed in a much simpler and cheaper plant than is required to obtain the maximum cleaning effect.

Four Main Washing Methods

The coal-cleaning processes that appear best adapted to this particular service are (1) pneumatic-table treatment applied to wider combinations of sizes, (2) single-compartment, large-capacity jigs (either pan- or piston-type) treating unsized coal, (3) rising current or cone washers, (4) trough washers.

Pneumatic tables, though they require separation of the feed into sized products before treatment and thus lack the simplicity of operation that characterizes the jig and cone plants, have so many other advantages that they compensate for the expense of sizing. Furthermore, it is being found that these machines will separate coal from dirt in a wider range of sizes than was at first advocated. Specific data on the maximum range of sizes that can be effectively treated are not available —at least in the literature of this subject. This, obviously, is greatly dependent upon the kind of service to be performed, particularly upon the disposition of bone and light middling products.

For preparation of an easily cleaned coal or one from which only the heavy refuse need be removed, as is commonly the condition in commercial coal preparation, the pneumatic table should treat satisfactorily a comparatively wide range of sizes in one operation. This process, if simplified by combination of sizes treated to reduce excessive screening, is an economical means of cleaning commercial coal because it eliminates drying, thawing and water-clarifying problems incident to the operation of wet plants.

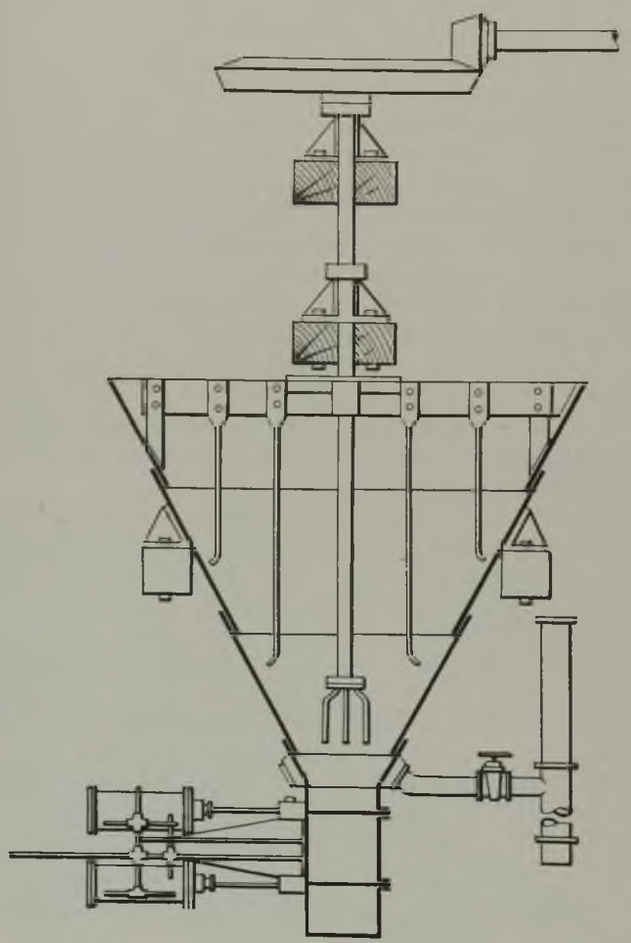


Fig. 3—Cone Washer with Hindered Settlement

Constantly rising water from the main on the right and the motion of the revolving arms enables the coal to keep afloat. The trident at the bottom keeps the bottom stirred up and free to respond to the pressure of the water. Two gates trap the slate at the bottom of the cone. This is the Robinson-Ramsay type of washer.

The wet coal-washing tables under favorable conditions will handle coal up to ¾-in. round-hole size, and if this is the largest size to be cleaned mechanically, a table plant may be used to treat the unsized raw coal. The outstanding advantage of table operation is ease of control and adjustment of the separation; the operation takes place on the table deck in plain view of the operator.

For dry-cleaning nut coal, the spiral separator is effective and inexpensive in operation. Although developed and manufactured in America, these machines

* Fraser, T.; Yancey, H. F. Interpretation of results of coal washing tests, Transactions American Institute of Mining and Metallurgical Engineers, Vol. 69 (1923), pp. 447–469.

for bituminous coal are used more extensively in Great Britain. They are especially adapted for removing flat shale and slate but are not so effective in removing bony materials that break like the coal. Separation depends upon differences in specific gravity, coefficient of friction, and shape of particles, between coal and rock. Sinnatt and Mitton give the following sizes as suitable for spiral treatment; 4x6 in.; 2½x4 in.; 1½x2½ in.; ¾x1½ in.; ¼x¾ in.

Large Coal Does Not Freeze

Where water is available and the possibility that the coal may freeze can be overlooked, jig plants of simple design are a cheap and effective means of cleaning small coal for market. Jigs and rising-current cone washers have the great advantage, for this particular service, that they will handle larger coal than some of the other processes, and unless the coal is extremely bony and hard to wash, will treat a wide range of sizes. Nut coal up to 4-inch round-hole size has been treated in both jig- and cone-type machines, and unassorted raw coal ranging from this size down to dust may often be treated in one operation with sufficient cleaning effect to produce an entirely satisfactory commercial fuel. This depends upon the kind of impurities present and the quantity of impurities in the fines. Just how completely the very fine material is cleaned in such an operation is problematical.

A thorough study of jig performance on a rather bony Pennsylvania coal, treated at 0x1¼ in. size, indicated that particles from ¼ in. to 1¼ in. in size were well cleaned. Hancock has shown that, in a single-compartment jig treatment of Alabama coals up to 3-in. size, the material finer than ⅛ in. is not appreciably improved. In most cases the dust and very fine coal, even if not benefited by the washery operation, is sufficiently small in quantity that it will not greatly effect the average quality of the washed coal. It should therefore, wherever possible, be screened out of the raw coal before it goes to the washers and mixed in the dry raw state with the washed coal. This minimizes the coal-drying and sludge-handling difficulties and greatly simplifies the washery operation.

For simple low-cost operation, Stewart and Shannon Washeries of the pan-jig type have been very successful. They are easy to operate and repair, have few complicated parts that cause protracted delays in case of breakdown, and are built in large capacity units, usually for treating unsized coal; the water circulating system is very simple.

The Montgomery pan jig will pump its own water and some of the other jigs of this type will operate in a tank of water without outside circulation. Machines of this kind, with a settling tank and slow-moving perforated bucket elevator for draining and loading the washed coal, form a cleaning unit of low installation and operation cost and yet well suited to the service required at many commercial mines where marketing difficulties are being experienced because of the high ash in the small coal.

Large-capacity single-compartment piston jigs are also adaptable to this service. While machines of this type are a little larger and occupy more floor space than pan jigs of the same capacity because of the addition of a separate plunger compartment, this difference is of little moment. Some operators consider that the piston jig can be adjusted to make a little closer separation than the pan jig. Plants of this kind would enable the mine operator, by a small capital outlay, to meet the present demand for cleaner coal and to take care of increased impurities in machine-loaded coal.

The jig usually installed for this service is the movable sieve or pan type. The plants are comparatively simple and compact. The small coal from the main tipple shaker is elevated to a small raw-coal storage bin from which it feeds by gravity to the jig. The washed coal and water overflow into an adjacent settling tank, from which the water is pumped back to the jig for reuse, and the coal is raised by a perforated bucket elevator to the washed coal bin over the shipping tracks.

Cost of Plant and Operation

A simple single-compartment jig plant of this general type can be erected for $40 to $60 per ton of daily capacity and operated for 5 to 10c. per ton of coal handled.

The Robinson cone washer is well adapted to use in a plant similar to that just described, replacing the jig as the cleaning unit. This washer is simply a large inverted cone through which a continuous current of water rises and overflows the perimeter of the cone. Raw coal fed into the cone at the center is agitated by the vertical stirring rods and assorted by the rising water current; the velocity of the water current is so

Fig. 4

Charbonnage de Besringen

Hoist, tipple and washer. The plant is located in North Belgium near the Dutch border. The Rheolaveur system of washing is installed.

adjusted as to carry the light coal up and over the sides of the cone into the collecting launder while the heavier refuse sinks through the water and is trapped out through the double-gate, cylindrical refuse chamber at the bottom. This washer has the advantage of large

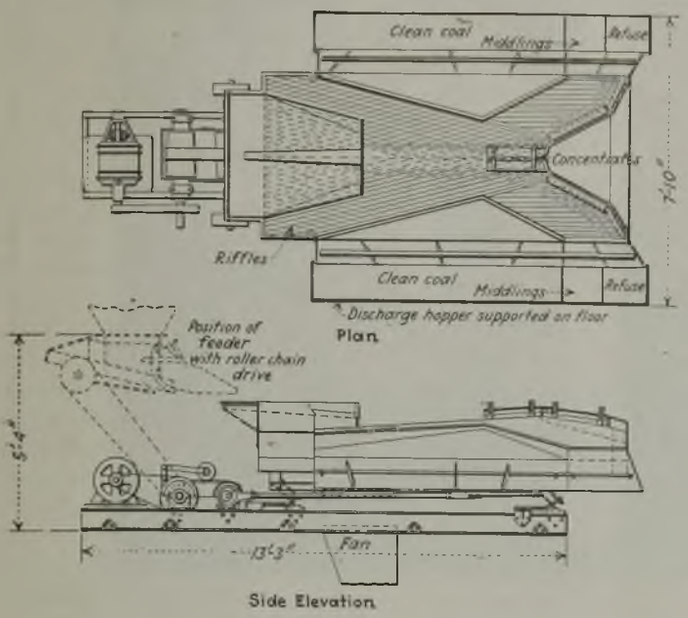


Fig. 5—Pneumatic Coal Separator of Y-Type

Increases the range of sizes treated by 100 per cent. In old types the coal is separated from its impurities on a single, pervious, riffled deck, the impurities being collected at one side. In the new types the refuse is collected in the central portion of the deck and the coal discharged on both sides.

capacity low operating and maintenance cost, and ability to treat a wide range of sizes in one operation. Robinson plants have been widely used in England and in the Alabama field, where they were the first style of coal cleaner to be widely introduced (1890-1910). Though they have been replaced in many coking coal plants by more elaborate systems of treatment, they are still extensively used for preparation of commercial coal where hair-splitting nicety is unnecessary.

Other washers that appear attractive for this particular kind of service are the Rhéolaveur and the sand-flotation process. The former is a Belgian invention which has been widely adopted in France, Belgium and England. It is an adaptation of the old trough washer and has its inherent advantages of large capacity, extreme simplicity, and absence of moving parts. The new feature, peculiar to the Rhéolaveur, is the use of small rising current classifiers as refuse traps. The classifiers form a continuous automatic means of refuse removal, assort and rewash the refuse material, and furnish additional wash water to the main horizontal classifying stream in the trough. The sand-flotation process separates coal and dirt of any size or range of sizes by float-and-sink action in an agitated water-and-sand pulp. By virtue of its large capacity and wide range of sizes treated, a sand-flotation plant, as it is now commonly used in anthracite preparation practice, is comparatively simple and inexpensive.

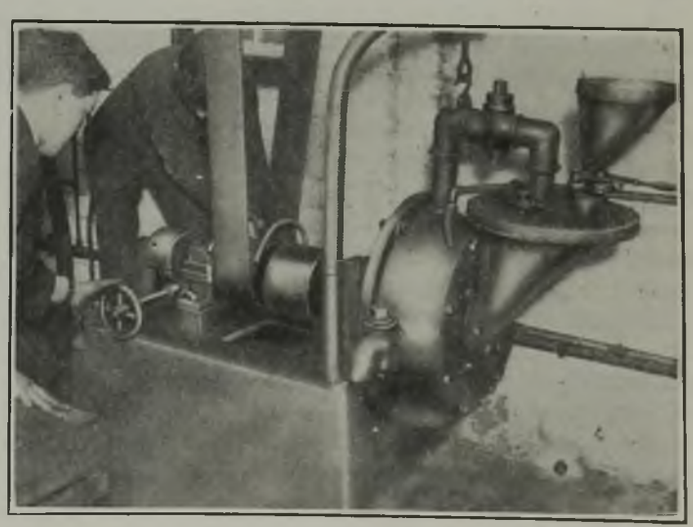
Plants of the kind herein described are best adapted to the preparation for market of coal of the type commonly found in our important coal fields. The simplest device for application of the hydraulic or pneumatic stratification principle will make a separation sufficiently complete for most cases. Therefore, the important differences in machines are matters of mechanical simplicity, sturdiness, cost and capacity.

Flame Safety Lamps Are Safe If Handled Properly

A caution as to the misuse of flame safety lamps in coal mines and a warning against the dangers of using mixed lights in such mines are given by the U. S. Bureau of Mines, in Miners Circular 29 by L. C. Ilsley, electrical engineer. The circular, obtainable on request, points out the dangers of misuse of such lamps. However, the bureau has made hundreds of laboratory tests of flame safety lamps and has never been able to get a failure of a properly designed, double-gauze, bonneted lamp, even in the most explosive mixture of gas and with strong air currents striking the lamp in any of several directions. This shows that when rightly made and rightly used the flame safety lamp is thoroughly reliable.

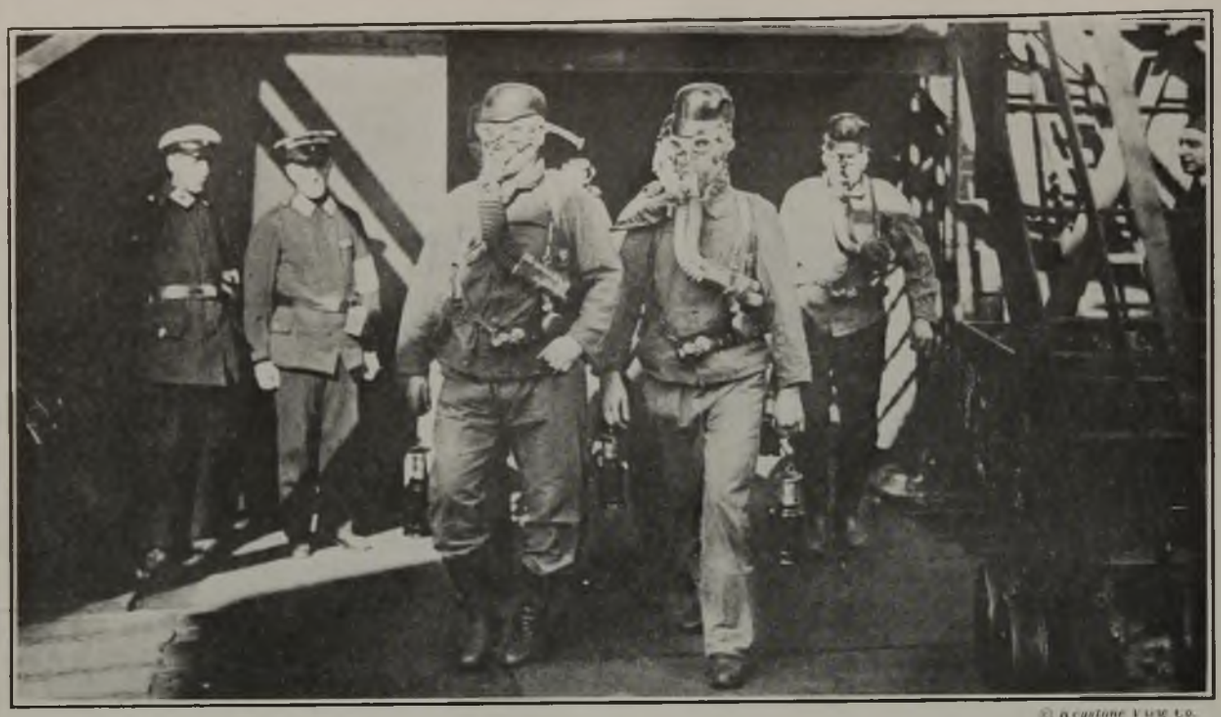
By tests made at the Pittsburgh experiment station the Bureau has found that some kinds of flame safety lamps are safer than others. For example: A single-gauze lamp without a bonnet is safe only in slow-moving air currents; a small-size lamp is not as safe as one of standard size; and a lamp without a bonnet is not as safe as one with a bonnet. The Bureau believes that lamps with internal relighters and magnetic locks are the safest; in fact, it has not approved and probably will not approve a key-locked lamp. The reason for this is obvious.

A flame safety lamp is the simplest device yet developed for quickly determining the approximate percentage of gas (methane) in a mine atmosphere. The Burrell gas detector under skillful handling is more accurate for small percentages, but it requires more skill and more time for a test. In fact, a fire boss could not cover the same ground with the Burrell gas detector that he covers with a flame safety lamp.



"Oil from Coal" at Birmingham University

Experiments in the Bergius method of liquefying coal in a high-pressure bomb, are being conducted at the Mining Research Department at the university in Birmingham, England. The coal is pulverized into the finest powder and is then mixed with hydrogen and passes into a bomb which raises a pressure of 7,000 lb. per square inch. Oil is produced without residue. This photograph shows the colloid mill which pulverizes the coal before it is passed into the bomb. Two assistants of the Department are adjusting the grinders inside the drum.



Explosion in Minister Stein Mine, Germany, Caused By Shot in "Non-Gaseous" Part of Mine

After Fall of Rock Which Cut Off Ventilation an Explosion Occurred That Killed All the Men in the Live Workings—Immediate Cause Believed to Have Been a Small Rock Shot

By Raoul Touwaide
General Secretary
Ressaix Coal Co., Ressaix, Belgium

ACCORDING to a governmental inquiry set on foot by the Chancellor of the German Republic, the terrible accident at the No. 3 shaft of the Minister Stein mine, in the Ruhr district of Germany, Feb. 11, 1925, occurred in a gallery where no traces of gas had ever been found and where there were no old workings around that could, in any way, have released firedamp. A pocket of gas, a single cartridge shot in the rib of the road near the roof and a fall which shut off the air current are declared to have been the causes of the disaster. The explosion occurred at 8 p.m. Of the 145 men in the mine at the time, only nine escaped.

Raoul Touwaide

The Minister Stein mine is owned by the Gelsenkirchen Bergwerkes Aktien Gesellschaft, which controls much of the output of the Ruhr district. There are four shafts, and the No. 3 shaft, at which the disaster occurred, lies about a mile and a half to the south of the area that was operated from the main shaft, No. 1. As a rule the seams worked are regular, though pitching, and no faults disturb the workings. Four seams were being extracted which starting from the uppermost were Ida, Otto, Rudolf and President. Two others were being prepared for operation.

The shaft is circular with a section of 260 sq.ft. and is lined with cast iron. It has three levels, one the main return-air level, 852 ft. below the surface, and two intake levels at 1,050 and 1,280 ft. respectively. All these levels were connected by blind or inside shafts. The illustration shows these coal beds with their thickness. The beds pitch at any angle from 20 to 25 deg. There is only one shaft, and this is divided into two compartments to a depth of 852 ft., that is down to the return airway. One of these, which was connected with a fan, served as an air shaft. About 66,500 cu.ft. of air per minute were circulated through the mine. This is about 458 cu.ft. per person.

The fresh air coming in through the 1,050-ft. level went up the first blind shaft and ventilated all the sections between the upper and second level. Another split of fresh air went through the 1,280-ft. level and passed

over the developments in the Rudolf and Wilhelm beds, the remainder of it reinforcing the draft in the Otto and Rudolf seams in the upper sections of the mine.

The mine was gaseous, but owing to the excellent ventilation no traces of gas could be found in the ordinary daily inspection. It was known to be dusty, and water sprinkling and spraying were practiced. A few rock-dust barriers were provided. The management had decided to build more barriers and intended to rock-dust all entries, roads and airways. This program had been partly executed, and a milling plant had been erected and had started operation a few days before the disaster. The mine was operated with closed lights.

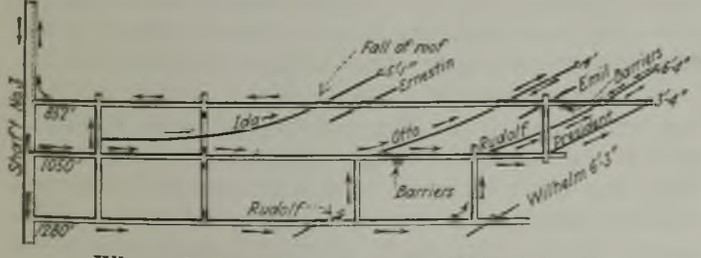
The explosion originated in the Otto seam, starting in the West road, above the 852-ft. level. It went through all the workings of this seam and of the Ida. The other workings of the Rudolf and President seams were spared, the explosion being stopped on both the first and second level by rock-dust barriers of the Taffanel type but slightly modified. However, all the men in those sections were killed by afterdamp, the ventilation being reversed by a roof fall which cut the communication between the shaft and the airway.

Men at Foot of Shaft Escape

On the noon shift of the day of the disaster, 145 men entered the mine, five of them to work near the shaft. A few minutes before 8 p.m., the top cager telephoned to the assistant manager that he had received a call from the 1,280-ft. level, where a few men had arrived at the shaft, declaring that they had heard a dull sound coming from the workings and that the ventilation had been disturbed. They wanted to be hoisted. Permission was immediately granted, and rescue teams were summoned.

The first rescue car arrived at 8.30 p.m., and five minutes later another twenty men were on the ground with complete apparatus. In less than four hours, 150 rescue men fully equipped, some of whom had come a distance of 20 miles, arrived at the shaft. On exploration it was found that the President and Rudolf beds had not been ravaged by the explosion but that all the men in these seams had died of carbon-monoxide poisoning. Other teams went through several rock headings and found eight men still breathing. They were brought to the shaft immediately and treated with pure oxygen but only four of them could be revived.

In all 129 men were killed outright by the explosion, seven were asphyxiated by gases, and nine men, four of whom worked near the shaft, came out alive. It should be added that above the 852-ft. level the gases were stagnant at the time of the rescue work, making exploration difficult. All over the mine many and heavy falls of roof hindered the work of the rescuers, making it, moreover very hazardous.



Where the Use of Rock Dust Justified Itself

Unfortunately, though the barriers kept the explosion from killing by violence the men who were in the Rudolf and President workings, the carbon monoxide that the explosion generated effectually did what the force of the explosion could not do. Many men would have been saved if they had taken with them small self-rescuing apparatus for use in such an emergency.

The fall that caused the disaster occurred where the roads of the Ida workings crossed the 852-ft. level. It cut the mine off from the shaft on the main airway. Examination proved that the explosion started in the West road of the Otto and that it was caused by the firing of a shot. This shot consisted of only one cartridge which had been bored in the rib of the roadway near the roof.

The inquiry proved that no traces of gas had ever been found in the gallery, and there were no old workings around that could in any way have released gas. After several tests in the Derne gallery the following report was issued: "In the roads of the Otto seam there were pockets of gas in cavities of the roof. Under ordinary conditions it was impossible to detect these. When the shot was fired, the gas was drained out of them by the resulting depression."

© Keystone View Co.

Crowd Waiting at the Mine Gates

Investigation seemed to give the company officials a "clean bill of health." Only the rock-dusting appears to have been inadequate, and the law did not require that the mine be thus protected. What little rock dust had been provided did good work, and Government officials expect to require rockdusting.

It was proved by a series of tests that, though a common charge of explosive by the force of the explosion destroys itself in the shothole and also all parts of the detonator, the paper envelope of the cartridge, etc., the firing of a single cartridge does not develop sufficient heat to destroy instantly all the combustible parts of the detonator. These are expelled still burning from the shothole and can easily set fire to gas. All the experts came to this conclusion.

Later on it was proved by means of an interferometer —an instrument that detects gas by the deflection of rays of light in the presence of gas—that gas pockets could be detected 30 ft. away from the point where the gas had been fired. The formation of these pockets of gas was demonstrated by successively stopping and restarting the ventilation, a condition that the opening of doors might cause many times daily during the coal-getting shift.

The explosion was believed to be due not to the presence of gas in a dangerous percentage where the shot was fired and ignited by the shot itself, but to the suction of gas in the road as a consequence of the depres-

sion caused by the shot and the ignition of the gas by the burning particles of the detonator seal.

The place where the explosion started was believed to have been conclusively fixed by the following observations: (1) On the body of the fireboss in charge of this road was found a book reporting the firing of a single cartridge at the time of the explosion. (2) Near the exploded shot were found the bodies of the men by which it had been fired. (3) The mechanical effects of destruction were at a minimum at this point. It has always been noticed in explosions that the damage is least where the explosion starts. Further away combustion is in evidence and, as the distance increases, the effects become worse and worse.

Ida Seam Is Very Wet

In this explosion, it is believed the explosion went through the workings of the Otto and Ida seams, then through the Otto seam between the first and second level and from this level down to the 1,280-ft. level. The Ida seam was naturally very wet. Water constantly streamed along the faces. This, however, had no effect whatever on the explosion. A series of tests recently made in the Derne gallery have proved that, in a road completely wet, 2.14 oz. of dust per cubic yard were enough to render the air susceptible to an explosion.

In the direction of the other seams, the Rudolf, Ernestin and President, the explosion was extinguished both on the first and second levels. Here the rock-dust barriers had operated and quenched the flames. On the other side of the barriers, evidences of high temperature such as coke on props could be found but no flames passed the extinguishing cloud of rock dust that was caused by their destruction. Thus, though water had no effect whatsoever, the bar proved successful.

Barriers of the kind used, however, work only if the speed of the explosive waves is sufficiently high. An empty barrier placed a small distance from the starting point of the explosion was not destroyed, although the planks of which it was constructed were burned. This proves that rock-dust barriers alone will not afford complete immunity and that entries, aircourses, manways and rock entries should be rock-dusted.

The Dortmund Obergamt declares that the disaster will oblige the Control Commission to require rock dusting, in order that the first effects of an underground explosion may be counteracted by the neutralization of the coal dust. He adds that this rule is to be made obligatory on all the mines of the Ruhr district. He adds that "it is, moreover, necessary to forbid blasting in all gaseous sections of a mine and to make a careful study of the precautions to be taken to protect, from the action of toxic gases, men who are not directly injured by the explosion."

From this disaster many useful conclusions can be drawn. (1) Barriers are insufficient to protect a mine against a coal-dust explosion. All entries, haulageways, aircourses, in a word the entire mine, should be rock-dusted. (2) Water sprinkling and spraying systems should be abandoned, for explosions may extend long distances over roads completely wetted. (3) Rescue teams should always try to restore the normal ventilation before making any change in the direction of the air current. Had this been done many men in the Rudolf and President seams would have been brought out alive. (4) All-service gas masks if carried by the men would have given them an opportunity to escape, for the men in the Rudolf and President seams might well have reached respirable air had they been thus equipped. (5) The firing of a single cartridge is a real danger, for as proved by the Derne gallery tests the burning particles of the detonator may be thrown out of the hole thus setting fire to an explosible mixture of air and gas. (6) All cavities in which gas can accumulate should be filled, because, in case of a depression from blasting, these gases may escape into the roadway. (7) Rescue teams using pure oxygen to resuscitate victims are at a disadvantage. It was unfortunate that the rescuers in the Minister Stein explosion did not have carbogen, that is oxygen mixed with carbon dioxide, available to administer to those who were asphyxiated.

Two Horses Escape Death in Runaway

An accompanying illustration shows the top works of the Independent Coal & Coke Co.'s mine at Kenilworth, near Helper, Utah. Until 1925, when a long rock tunnel was completed, it was necessary to pull coal up from the mine to the outcrop shown high on the face of the hill in the picture and then to lower each trip nearly half a mile down a 40 per cent grade shown in the upper left of the photograph to the tipple at the

Runaway Trips Did Circus Stunts Here

right. The strain on cables sometimes proved too much and it was customary for runaways to roar down, crash through the end of the high tipple, describe a long arc through the air over the railroad and alight in a heap.

Old timers at the mines like to tell stories about what happened during some of these acrobatics by runaways. On one occasion a man drove a team of horses and wagon up near the company store and stopped the team, by chance, exactly in the spot which was bound to receive a 10-car trip of flying loads. The man went in the store. No sooner had he entered than the well-known roar sounded down the mountainside.

"Yay! There she comes," shouted somebody in the store, whereupon every one present rushed out on the porch to enjoy the show. They were horror stricken when they saw the team standing unconcernedly in the danger spot switching their tails at bothersome flies. But it was too late to do anything. The trip burst out the end of the tipple, sailed through the air and piled up with a great clatter submerging the team and wagon. When the men pulled the stack of coal and cars apart to find the mangled remains of a good pair of horses, both animals got up from their short incarceration within a prison of cars that had been built protectingly about them with a terrifying suddenness, and walked off, still switching their tails at the same flies. The tellers of this tale insist that the flies were identical.

Viewpoints of Our Readers

How Long Shall We Endure "April Fool Prices?"

It is quite unfortunate that the operators can't get together sooner and announce what anthracite prices will be, at least a week or ten days before April 1. As it is now, some of the companies send out circulars announcing their Spring prices "until further notice" while others *tell* their dealers what the prices will *probably* be and there seems to be nothing definite or permanent about the information which comes to the dealer.

For this reason he cannot prepare his advertisements for the newspapers or circulars for mailing out to his trade until the last minute, with the result that he always gets a rush job and usually a poor one. Last year we had to have an entire new circular printed up because of conditions which changed almost over night, costing us between five and six hundred dollars.

Dealers in a nearby section already had their Spring prices out in the mail when it was discovered that these had been based upon a false rumor and were too low. A frantic effort had to be made to get out a second circular contradicting the first and by the time the whole affair was closed the retail coal merchant looked nothing short of stupid and foolish to the trade he was trying to serve.

Cannot Quote Price

Similarly last year, on April 1, we were unable to tell our customers what the prices would be, and had to accept orders with blind prices. The telephone rang all day long from nearby and fairly distant dealers, all 'phoning each other excitedly asking everyone else whether they knew what the Spring prices were going to be. There seemed to be absolutely no definite information in the retail trade. It was as if the companies did not feel that their own distributors were worthy of confidence and of receiving any advance information upon this subject so vital to the whole trade. In several localities "April Fool Prices" were published by dealers who had later to retract them.

One of the most serious phases of this recent policy of late price announcements has been that the retailer has been utterly unable to formulate his advertising and selling campaigns beforehand. These are not something which can be developed and printed over night. They require a lot of careful thought and study, with the result that last year for instance, the month of April was well under way before the retail dealer was able to launch his advertising matter effectively. This simply means that the retail consumer market responded that much later to these sales impulses and put the whole industry back in the important problem of moving coal during the Spring and Summer.

The operators ought certainly to take a definite stand upon prices *earlier*, so that the retailer can tell his consumer trade the facts and the new prices sooner as well as shoot his advertising promptly on April 1, when it is expected and most effective. This policy of procrastination in the announcement of prices, is costing us all time and money in the selling and moving of anthracite.

Hiram Blauvelt,
Vice-President.
Comfort Coal-Lumber Company,
Hackensack, N. J.

Failed to Establish Sinking Fund for New Batteries

In reference to what you say to the replacement of battery locomotives by reel-and-cable equipment in the editorial entitled "The Battery Locomotive" appearing in the issue of Feb. 11, would say that I believe investigation will show that in the few, not many, cases where battery locomotives have been changed to reel and cable this was due not to unsatisfactory or expensive operation but to failure to provide a sinking fund with which to pay for the renewal of the battery. The money that should have been put aside for battery renewals was diverted to lowering operating costs or taken as profit.

Had the coal business not been through such a long term of depression with its attendant financial distress, I do not think any wise coal operator would consider changing a battery locomotive to reel and cable unless he was unfortunately the victim of a misapplication such as too small a battery or locomotive.

When Industry Improves

I feel today that, if and when the present deplorable condition of the coal-mining industry is relieved and there is money enough available to operate coal mines in the best and most economical way, the storage-battery locomotive will stand out more than ever as one of the most desirable pieces of equipment that can be installed.

For this reason I feel that the editorial is misleading and unwise and will tend to hold back improvements in coal gathering and haulage. The opinion stated coming from such a source as *Coal Age* must and does carry lots of weight.

Locomotive Builder.

Gas Mask Does Not Provide Oxygen for Breathing

In the Feb. 18 issue of *Coal Age*, p. 263, Dr. R. R. Sayers is quoted as saying in effect, "If necessary the gas mask may be used in poisonous atmospheres or in those deficient in oxygen."

I am under the impression that gas masks are for use only in normal air contaminated with small percentages of poisonous gases and that oxygen-breathing apparatus should be used in case of oxygen deficiencies and large percentages of poisonous gas. When wearing a gas mask one should carry a lighted flame safety lamp which is in perfect condition and if the safety lamp is extinguished it is a warning that the mask may not give the desired protection.

Rescue Foreman.

Battery Power and Safety

Had the editor who wrote the remarks on "The Battery Locomotive" in the issue of *Coal Age* of Feb. 11 paused to think of the unprecedented number of mine accidents that have occurred since Jan. 1 of this year, either from gas or coal dust in suspension, and the danger to life and property ever present through exposed wires and the ones from the trolley, I do not see how he could do otherwise than advocate greater safety. Yet he commends equipment that he must know would add to the danger.

Battery Locomotive Manufacturer.

Underground Operation

Trying Out a Seam of Doubtful Value By Slopes to the Working Seam

Fearing That Roof in Upper Bed Would Be Bad, Plans Were Made to Chute Coal Temporarily From Upper to Lower Seam — Now Drift Mine Will Be Started

By J. H. Edwards
Huntington, W. Va.

Coal in an upper seam is rarely chuted to a lower measure as a means of bringing it to the tipple, at least in West Virginia, but this is being done at a mine in the southern part of the state. Here the upper seam is 48 in. thick and lies 65 ft. above the main producing bed. At this operation, coal has been mined from the lower bed for years, but it was not until recently that the upper seam was opened. Now about 200 tons per day is being produced from this upper seam, dumped in a rock chute and reloaded into cars for transmission to the tipple.

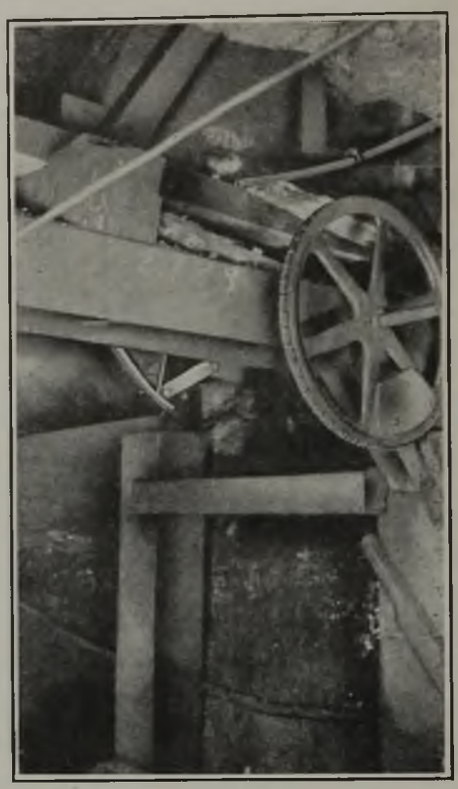
This upper bed is known to have, generally, a rather bad roof, so it was not advisable to spend much money in the initial development. The opening was accomplished by driving two rock slopes, a few hundred feet apart, up from the lower seam.

One slope, which is equipped with track, is used for handling material and as an intake airway. This mounts to an angle of 30 deg. and is of 5x10-ft. section. The other slope, which is driven at 45 deg., is 5x8 ft. and is used as a coal chute and return airway. The chute proper is a 3x3-ft. wooden box.

Undercut Gate Controls Coal

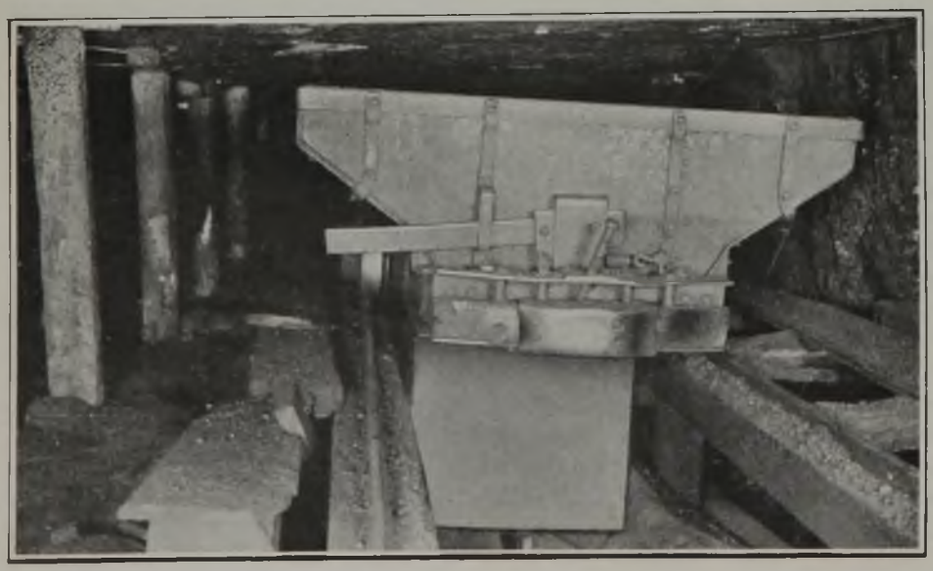
The opening at the bottom is controlled by an undercut gate mounted above the track in a haulage entry of the lower seam. A trip of empties is loaded, in short order, without uncoupling. The motorman remains on the locomotive in order to spot the cars under the chute and the brakeman manipulates the gate.

The car dump at the top of the chute is nothing but a pit or hopper between the rails. In this upper seam automatic drop-bottom mine cars are used.



Undercut Gate at Foot of Slope

Above the gate frame can be seen the bottom of the wooden chute which takes up a part of the area of the slope. The remaining area is used as a return airway. After an opening is driven to the outside the slope will no longer be necessary as an airway, so will be utilized entirely as a chute and storage bin.



Drop-Bottom Car Discharging at Top of Chute

The coal averages 48 in. in thickness, and the top was found to be much better than is usual for that seam. The use of automatic drop-bottom mine cars made it possible to utilize simple dumping equipment. The hole between the rails is the only indication that this is the dumping point for the mine.

As yet there is no direct opening to the surface. Power for operating the cutting machines and for charging the storage-battery locomotives is brought up the material slope from a connection on the trolley wire of the lower mine. The slope is not equipped with a hoist. Instead, a locomotive is used to pull the material car.

At present the output of the upper seam is handled, seemingly, with an absolute minimum of investment. But the coal has been found to be of good quality and has good top, so the management is proceeding with the idea of a more permanent installation.

An airway will be driven to the surface, after which the entire area of the slope, now containing the

Brakeman Loading a Trip of Empties

From this point at the foot of the chute the coal is hauled to the surface in the same manner as is the output from the lower, or principal, producing seam. The chute acts also as a storage bin so that a whole trip of empties can be loaded in a few minutes by the motor crew.

wooden chute, can be used for coal. It is likely that an electric hoist will be installed at the other slope for handling machinery and supplies.

For Rougher Levels Why Use Slow Precision Level?

In the British coal field, especially in the northern (Scottish) area, where the dip of the strata is irregular and steep, the ascertainment underground of the variations in level from the government or "ordnance" datum presents many difficulties. On level roadways and moderately inclined planes, the dumpy level and rigid staff is generally used.

Where the inclination exceeds 10 deg., the roads are quite generally leveled by the use of the straightedge and spirit level. On inclinations above 40 deg. the altitudes are taken trigonometrically with the theodolite (or non-reversing transit).

It is surprising that where the variations such as on a "level" haulageway are only a few feet in a hundred, a dumpy level is used, and yet where the variations are greater, one finds a primitive and rough straightedge instrument employed. Work with the straightedge where the instrument is not properly designed is bristling with inaccuracies. Realizing such possibilities in this class of work, I designed a straightedge and staff some time ago and put it to use, and the results have been good. The measuring rod or staff is similar in size to the inner portion of a surface leveling rod of the old box type and is made in lengths of 3 ft., 4 ft. and 5 ft. respectively. The base of the rod is pointed and shod with a piece of case-hardened steel. Using a pointed end instead of one that is rectangular makes for correctness as there is no chance that the level to be taken will be that of first the front and then back of the rod.

If used in wet or dirty roadways, the ordinary calibrated staff in time becomes obliterated. For this reason among others, the zero reading on the staff is at a distance from the bottom corresponding to the top of the straightedge, which is generally about 6 in. deep.

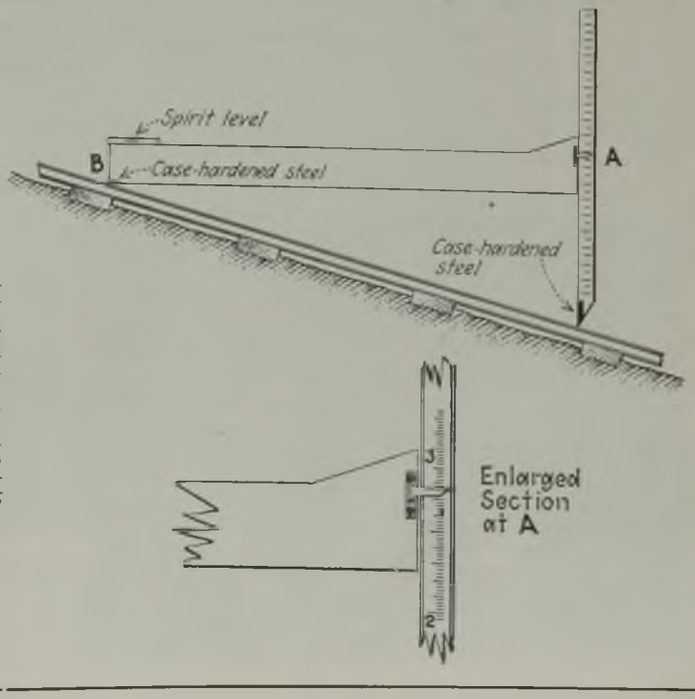
The straightedge is made from well-seasoned wood in such suitable lengths as 6 ft. and 10 ft. The top and bottom are machined truly parallel and of an exactly determined length. To facilitate maintaining it of that length, the straightedge is cut short and end pieces with the grain of the wood at right angles to the length are fastened to the ends, these being smoothed till the correct length is attained. To insure that the measuring rod is at all times at right angles to the end of the straightedge, a small triangular piece of wood is placed at one end of the latter which increases the contact surface to about 9 in. On this end as shown in the sketch, a pointer is placed which is designed to swing from its projecting position when not in use. Screws capable of being adjusted to correspond with zero on the measuring rod are also provided. The opposite end of the straightedge where in contact with the rail, has also a case-hardened piece of steel inserted. The leveling tube used is of ordinary adjustable design and is fitted with a graduated tube. This may be placed either on top or mounted on an adjustable carrier on the side convenient to the person reading the staff. In use the points to be observed are: (1) That the point *B* is definitely marked and that the straightedge is placed properly thereon. (2) That the level is laid if on top, parallel to the straightedge, and not in any way at an angle thereto. (3) That the staff is plumb in both directions.

In the hands of capable assistants, quick work can be done with this straightedge and on inclined planes the results will compare favorably with any other method of taking levels.

P. W. BROWN.
View Park,
Cowdenbeath, Scotland.

Straightedge Outpaces Dumpy Level

With a straightedge like this, rapid work can be done. The steel point gives definiteness to the point being leveled. The rail at the back of a rod may be some tenths of an inch lower than in front, and the assistant may not always sense the importance of watching this discrepancy, thus vitiating the results.



Practical Pointers For Electrical And Mechanical Men

Slate Dump Handles Cars of Several Types

At Ehrenfeld, Pa., the Pennsylvania Coal & Coke Corporation was confronted with the problem of providing a slate dump which would accommodate several types and sizes of cars from two mines. The slate cars are pulled up an incline to a point where they are dumped into a bin which is emptied by a motor-driven self-dumping larry.

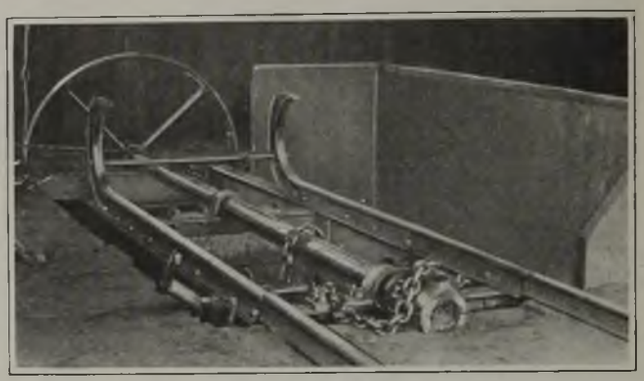
The accompanying illustrations show the rather novel slate dump. This was built in the company shop at Gallitzin. The cars handled with it are of two wheel bases, 24-in. and 30-in. and are of various lengths and body shapes. The dump is of the side-tipping, gravity type, counterbalanced by suitable weights.

One end of the car is held by stationary horns engaging the forward wheels and the other by a chain which is looped over the bumper. The chain is tightened by rotating a shaft fitted with a ratchet handle. This shaft is located so that the chain pulls the cars forward against the horns and at the same time holds the back end down to the track.

At the forward end of the dump is a brake wheel for controlling the tipping, and for stopping or holding the dump in any desired position. The unbalance for the self-dumping action is obtained by having the main shaft set ¾ in. off center.

In Normal Position

Cars of two different wheel bases and of various lengths and body shapes are handled by this slate dump which was made in the central repair shop of the company.



At first thought it might appear that the time required for placing the chain over the bumper, tightening, unloosening, and removing, would prove a serious objection to the dump. This, however, is not so. The tightening device is geared so that it requires but a few seconds to apply and tighten the chain. After the dump tips a few degrees it begins to raise a counter-balance which brings it back to the upright position.

Superintendent S. W. Blakeslee states that the dump is entirely satisfactory for the service and that its action is not influenced by the design or size of the slate car handled.

Flue Trouble Reduced by Continuous Blowing

Only the power-plant engineer who has had to "fight" boilers using hard, untreated water can appreciate what it means to be entirely rid, or practically relieved, of trouble from that source. The installation of a high-grade water-treating plant is, of course, the commonly advocated solution, but the money for such equipment is not always forthcoming. The use of boiler compounds, which require little or no initial investment, can be a great help in reducing the trouble from boiler scale.

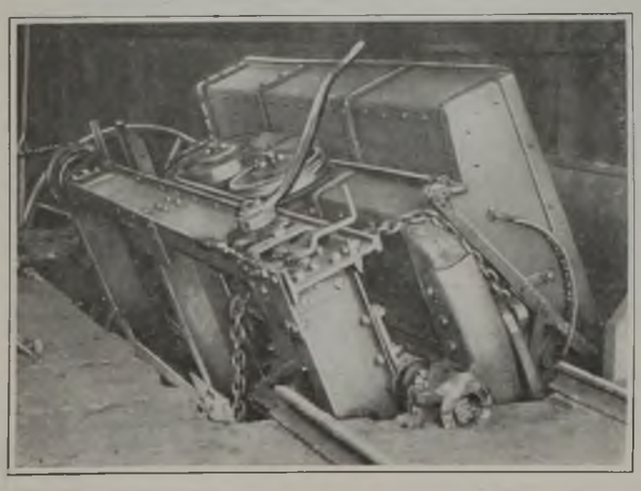
Other methods of reducing the deposition of scale are by skimming and blowing down. In many instances, however, these are used solely for the prevention of foaming. At a certain power plant in Ohio, skimmers were installed with this intention, but they also greatly reduced the deposition of scale.

Experience at the Mulga (Ala.) mine of the Woodward Iron Co. proved that continuous blowing down of a boiler also can limit materially the quantity of scale deposited. The illustration shows one of the four continuous blowoffs in use on a battery of 400-hp. vertical water-tube boilers.

No Scale Accumulated

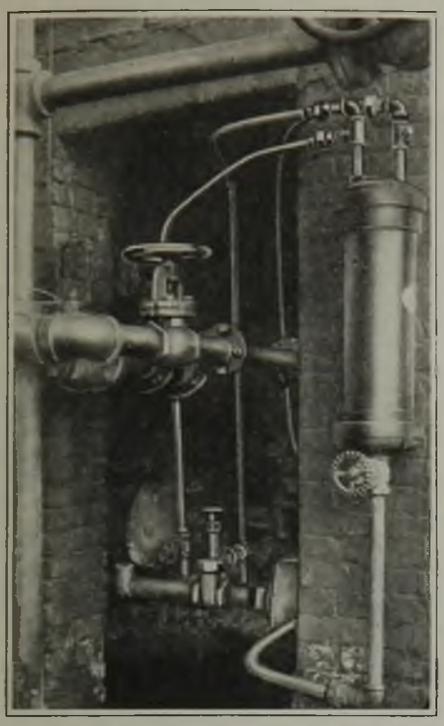
Ninety days after the installation an inspection revealed that little or no scale had accumulated in the boilers, and in the operation there had been no indication of foaming. No boiler compound was used. According to the master mechanic, J. L. Franklin, before the installation, even when using a compound ⅛ in. or more scale would form.

It was the practice, formerly, to blow down the boilers six times in



How Car Is Held

When the chain which is looped over the bumper is tightened, the car is forced against the horns and held to the track. The lever, with the handle showing above the car, operates the chain-tightening rachet.



Installation on 400-hp. Boiler

The body of the continuous blowoff is at the right. The installation is made by connecting four small lines to the regular blowoff line. The quantity of water drained continuously from the boiler is determined by the size of the special orifice used.

24 hrs., but even then scale caused the failure of from 10 to 20 flues per month in the four boilers. At the time that the photograph was made, the continuous blowoffs had been in use ten months with a record of no flue failures.

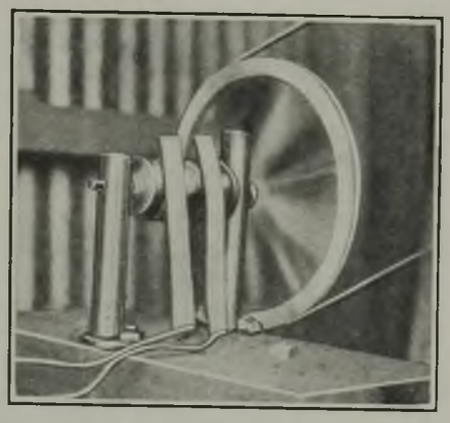
E. D. Clark, general superintendent, explained that the results in the Mulga boiler plant have been so gratifying that the company has decided to equip all of their railroad locomotives in the same way.

Improvised Flasher Gives Years of Service

Ten years ago an explosion occurred at No. 1 mine of the Roden Coal Co. at Marvel, Ala. It is said that the fan may have stopped and thus been one of the contributing causes of the explosion. This fan, which is motor-driven, is located about 1,000 ft. from the hoist house where the starting compensator is installed. In order that there would never again be a chance for the fan to stop without showing a visible indication at the hoist house, a flashing mechanism was installed.

This flasher, which is still in use, is shown in the accompanying photograph. It consists of a part of an old controller drum with a sewing machine pully mounted on the shaft. The drive is by a round leather belt from the fan shaft. Bearings for the contact drum are holes drilled through the short pieces of pipe which form the pedestals. The drum turns at 100 r.p.m. and flashes the signal light once in each revolution.

Until a year or two ago the connections of the flasher were such as to open the circuit through the lamps. A periodic clicking in the village radio receivers was traced to this flasher, so that connections were changed in a way which eliminated the annoyance. An extra lamp was added in the circuit, in series with the main signal lamp, and the flasher connections changed so as to short circuit the extra lamp. The periodic changes in resistance of the circuit causes the desired flicker of the signal lamp.



Flasher Is Driven from Fan Shaft

This device has been operating for ten years. The contact drum is one removed from an old controller. The pulley came from a scrapped sewing machine. Interference to radio receivers caused connections to be changed so as to avoid breaking the signal circuit.

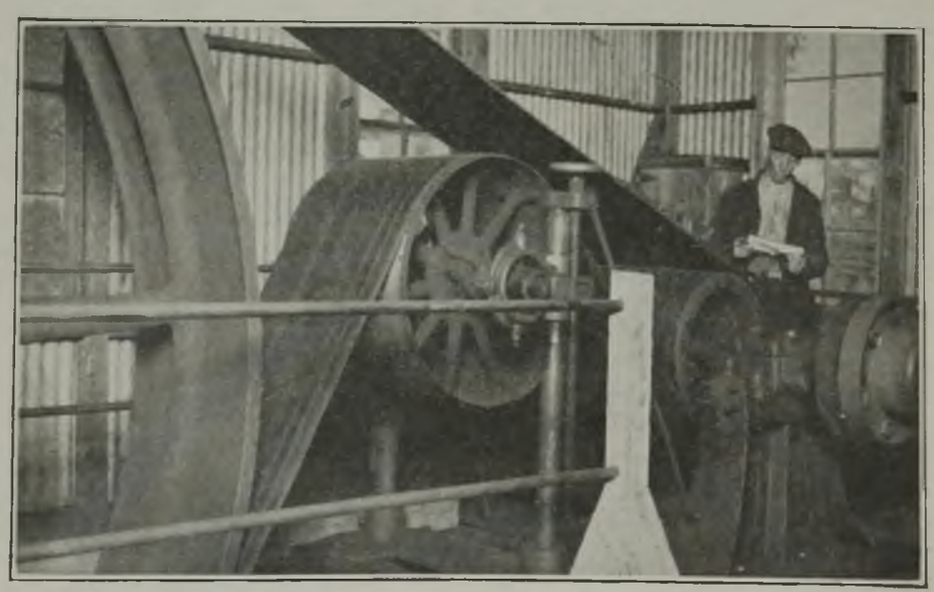
Many fans are placed where the noise of their motion is not readily audible to the men in the power house. Consequently they would not take notice if the fans should stop. A flashing light, on the other hand, is a warning that can hardly be overlooked.

An Idler Pulley Should Be of Large Diameter

In a number of instances short-center belt drives have proved successful on mine fans, generators, air compressors and so on. In some cases, however, such drives have been found unsatisfactory. Short belt life and trouble with idler bearings were mentioned as objections in several instances.

Usually such troubles can be traced to the fact that an idler pulley of insufficient diameter was selected. This causes a severe reverse bend in the belt and makes the idler pulley operate at a high speed. Vibration, and lubrication troubles attendant with high speed, cause the bearing trouble.

An example of a well selected idler pulley is shown in the accompanying illustration. This is on the drive of a 150-kva. alternator which until a few years ago was used regularly, but now serves as a reserve to purchased power at the plant of the Roden Coal Co., Marvel, Ala. Although the alternator pulley is but of 22-in. diameter, the idler pulley is 30-in. This is a contrast to many cases where idler pulleys are used which are considerably smaller than the small pulley of the drive.



With Big Idler, Less Vibration and Belt Curvature

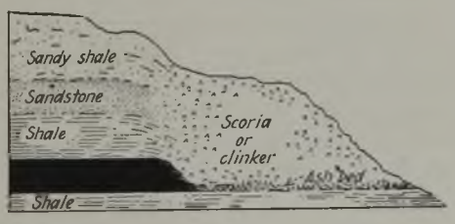
The drive of an alternator at the Marvel mine of the Roden Coal Co. A 30-in. diameter idler is interposed between the steam engine and a 150-kva. alternator equipped with a 22-in. pulley. Often the success of an idler drive depends on the diameter of the idler. The larger the better, so long as the small pulley has sufficient belt contact.

Book Reviews

Outcrop Fires and Glaciation Make North Dakota Mining Troublous

Some of the matters which are taken for granted in Eastern coal fields are not all to be regarded as certainties in dealing with the North Dakota coal fields. This is due to the character of the Tertiary beds in which the lignites of that state are found. In common with the coals of most Western regions, aridity has made the beds subject to spontaneous or other combustion along the outcrops. Few of the thicker beds have wholly escaped burning.

Some were doubtless set on fire by man, others may have caught fire from prairie conflagrations, but it would seem that spontaneous combustion has been the chief cause. The burning of the coal beds has doubtless been going on for thousands or tens of thousands of years, ever since the erosion of the overlying strata brought them near the surface or exposed them in bluffs or buttes.



Lignite Burned at Crop

The scoria may be 60 ft. thick where the coal is 35 or 40 ft. in thickness. One can be almost sure that the base of the cinder pile is at the bottom of the bed, but how far in the hill the operator must go before the lignite will be found unburned is uncertain. Whole townships of the thickest lignite, centuries ago perhaps, passed away in smoke.

As an example the Bowman coal bed of Bowman and Slope counties may be cited, this thick 35-ft. coal bed having been burned over many townships so that its former extent is known largely by the clinker it has formed. Lignite beds, however, less than 4 ft. thick do not burn, except under unusually favorable conditions. A 10- or 12-ft. coal bed will often give clinker beds 20 to 30 ft. thick.

If the overburden is very porous, slow combustion may have proceeded beneath 20 or 30 ft. of cover, resulting in pits or depressions on the surface. Clinker from a lignite bed 10 ft. thick may attain a thickness of 30 ft. and from a 35- or 40-ft. bed may be 50 or 60 ft. thick with much fused or slag-like material. Masses of such clinker of 10 to 20 tons weight are not uncommon.

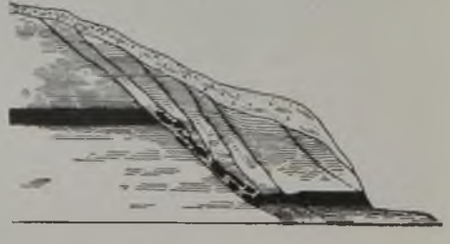
Big Landslides Annoy

This is not all, where the beds have been deeply eroded the face of the bed has occasionally slumped down. This may lower, almost unaffected, a large area of the bed and there is a risk that the man who opens a mine in the slumped fringe of the coal area may work in it for a while and then find the bed has disappeared.

Investigation will prove that the rest of the bed which has not been disturbed lies several feet higher requiring for its exploitation a new opening and needing somewhat different surface works from those that were planned and provided in the expectation that the whole deposit was lying at the level at which the slumped fringe was found. So caution is necessary when opening an outcropping bed.

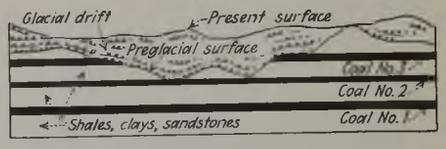
There is also trouble from glaciation. Of the 28,000 square miles of workable lignite beds—there are 32,000 square miles in all—about 15,000 are covered more or less by glacial materials deposited during the epoch of continental glaciation, the debris ranging from fine silt to large boulders.

This glaciation, taking place in beds imperfectly consolidated, has created much erosion, the depth of which is not determinable on the surface as is the erosion of contemporary rivers and streams. The glaciated material has filled up the channels it has created, and the surface of the ground may show little of the damage that has been done. When, however, the beds are worked, the glaciated materials are encountered, the signal for caution being the softening of the coal. If this warning is not heeded the drift may be tapped, and then trouble will be encountered in handling the large quantities of water the drift contains.



Where the Outcrop Slumps

When the lignite is eroded, and also the measures under it, a large slip, slump or fault occurs and the bed is thrown down. Expensive surface equipment should not be built until drill records show the exact position of the coal.



Glacier Has Destroyed Lignite

On approaching the drift the coal gets soft and if mining is continued large quantities of water stored in glacial drift will pour in.

But the operator is not without advantages. Royalties are low. The Federal Government and the Northern Pacific R.R. will lease lignite for 5c. per ton or some slightly higher figure. (Under the present law there is no way in which state or school lands may be leased). The beds also are quite level and subject apparently only to the difficulties mentioned.

Stripping Cover Not Heavy

Furthermore in removing cover for strip mining there is little difficulty in digging the overburden as it is not so hard in these Tertiary as in the Carboniferous rocks. This overburden is in many places not heavy. In 1924 about one-half the lignite mined was excavated by stripping and the average cover did not exceed 3.5 times the seam thickness, ranging as it did from two to five times the cover, whereas in the United States in general the cover is 6.04 times the seam thickness, in Illinois it is 3.86 times and in Oklahoma 10 times the thickness of the coal. There are several hundred millions of tons of lignite in North Dakota such that the ratio of overburden to coal does not exceed three.

The general complaint that lignite weathers is offset by a large size of the lumps which can be obtained by proper mining. If this lignite is stored so that air is largely excluded as in cellars, concrete or brick bins or in root cellars when neither the summer's sun nor wind can dry it out, it will slack somewhat but not

enough to do otherwise than bring it to a size that is best suited for burning. Excessively large lumps are not desirable for furnace firing.

The percentage of moisture in the lignite in a number of samples as received at the laboratory of the School of Mines of the University of North Dakota ran from 25.34 to 43.47 per cent, with probably higher values at the mine, the volatile matter ran from 22.97 to 30.34, the fixed carbon from 24.39 to 34.11, the ash including sulphur from 2.90 to 20.68, the sulphur from 0.09 to 14.03 and the thermal capacity from 5,516 to 7,130 B.t.u.

The statements made are based on an interesting report, Bulletin No. 4 of the North Dakota Geological Survey, produced in co-operation with the School of Mines, College of Engineering, University of North Dakota, containing 228 pp. with 21 plates and 18 illustrations.

Industrial Museums Needed In the United States

No country perhaps has done more to promote industry than the United States, yet few have done less in their museums to make record of their achievements. There are few places in the United States where historic machinery can be sent for public exhibition, and even there when it arrives it will be housed with collections of an entirely different type.

The reviewer wonders if the coal industry would be considered so sleeping and unprogressive if in some national museum, where it could be seen without dirt and discomfort, were placed some of the wonderful mechanisms by which coal is mined, loaded, conveyed, transported, hoisted, sized, cleaned and prepared for market.

Critics Might Learn

Those learned critics who believe coal mining to be an ancient art without any modern development might be apprised of the actual facts or at least their children might be. The present generation is almost beyond conviction. The public might also note that nearly every modern development from rails to pumps, from steam engines to locomotives took their initial steps in the darkness of the mines or within shadow of its heapstead.

A book of 117 pages measuring 6x9½ in. has been published by the Macmillan Co. on "The Industrial Museum" the price of which is $3. The author, Charles R. Richards, director of the American Association of Museums, has toured Europe for the General Education Board of the National Society of Vocational Education to see the excellent work of the European museums of industry. He finds much to praise and much to condemn. Beginning as the United States would from the ground up and not being confronted for a while with the need of expansion, it might build better museums as to housing, arrangement and convenience, but perhaps it would be long acquiring the historic machines which the European museums exhibit. If we are going to rival their treasures we must make a beginning; or rust, moth, decay and the depreciations incident to age will destroy many valuable opportunities.

It is well said that in early ages industry was performed in the open. Today it is hidden behind closed doors. The public has only a hint of what is going on. But nevertheless, people in general are quite inquisitive. Any one can note that fact on passing an excavation, the building of a roadway or the construction of a building or a railroad. It must be admitted, however, that the public though inquiring is not any too well informed. We have done marvels without such exhibitions. What may we do if we have them! The spirit of progress will be greatly aroused when we view them.

Industry Behind Closed Doors

Mr. Richards' analysis in this volume is keen. We can scarcely avoid quotation. His treatment of the subject is adequate and the illustrations in full-page plates are excellent. We can only hope that what he is striving for will be accomplished for all the larger cities, thus preserving our past, accelerating our future and creating a knowledge of what we are, each in his own sphere, performing. All industry is related and an industrial museum will keep each part of industry in step with the best and most available in the rest. It is well worthy of note that the ventilation engineers were in wonderment when the mining engineers at the recent meeting of the American Institute of Mining & Metallurgical Engineers descanted on a certain article as the last word on the ventilating art. The science of ventilation has for many years had little attention from mining men and the mastery of the subject now lies with the heating and ventilating engineer.

Recording Watt-Meter of Human Progress

Some fifty of the learned societies for the study of science, politics and industry have combined to prepare a record of 1925, entitled "The American Year Book." About 270 men and women have contributed, over ninety of whom have had a part in more than one section. This annual was first published in 1909 but in 1919, under the unfavorable circumstances following the war, was discontinued. This year with a splendid co-operation from the learned societies it is issued once more. It contains eight parts—Historical, American Government, Governmental Functions, Economics & Business, Social Conditions & Aims, Science Principles & Application, The Humanities, Chronology & Necrology. The publisher is the Macmillan Co., 60 Fifth Ave., New York City, and the price is $7.50.

Chemistry's Industrial Side

A two-volumed book entitled "Industrial Chemistry" has appeared with Allen Rogers, supervisor of the Industrial Chemical Engineering Course and Head of the Department of Industrial Chemistry at Pratt Institute, Brooklyn, N. Y., as editor. The first volume is said to be devoted to inorganic chemistry, and it seems somewhat odd to find 22 pages on "Fuel and Power Generation" and finally fertilizers of an organic character under that head. As regards the first, it may be said that, in the use of coal, oil and wood, we use the materials as if they were inorganic and rather wish we had pure carbon and pure hydrogen to deal with. The second book is marked "Organic" and covers in 136 pages city gas, industrial gases, coal tar and its distillation products. The two volumes which contain in aggregate 1,267 pages measuring 6 x 9½ in. are published by D. Van Nostrand Co., of 8 Warren St., New York City. The book sells for $12.00 net.

Publications Received

Possibilities for the Commercial Utilization of Peat, by W. W. Odell and O. P. Hood. Bureau of Mines, Washington, D. C. Price, 35c. Bulletin 253. Pp. 160; 6x9 in.; illustrated.

Report of the Massachusetts Special Commission on the Necessaries of Life. The Commonwealth of Massachusetts, State House, Boston, Mass. House No. 1250, January, 1926. Pp. 187; 6x9 in.; tables and diagrams. Numerous references to coal are included.

News Of the Industry

White House Favors Early Action; Jacobstein Would Encourage Mergers To Settle Coal Industry's Troubles

The campaign to induce Congress to enact some form of coal legislation at the present session is gaining ground. Although most Washington observers—including some who favor action—feel that Congress will adjourn without formally considering any specific proposals to make the coal industry the subject of federal regulation, interest in the question has been growing since the House committee on interstate and foreign commerce began hearings on March 30.

Before the hearings actually commenced it was common talk in Washington that the threat of coal legislation was as dead as the anthracite strike. Even after the hearings were announced there were some who dismissed them as a gesture made to soothe the members of Congress who had presented half a hundred bills during the time the hard-coal mines were idle. Last week, however, the flat statement was made that the committee intended to report out a bill. Still later the hands of proponents of legislation were strengthened by the announcement that the White House favored action before Congress adjourns.

Precedent received a severe jolt the first day the committee met. Reversing the usual practice of having witnesses direct their remarks to the provisions of specific bills before the committee, Chairman James S. Parker, Republican, of New York, asked the witnesses to discuss the theory justifying legislative action and the economic necessity for coal-trade regulation.

President Desires Action

President Coolidge, it may be stated, is of the opinion that it is very desirable to have Congress take action at this session. Whether the President's message to Congress last December is to be construed as a blanket indorsement of all of the recommendations of the United States Coal Commission and a suggestion that those recommendations be enacted into law is a question upon which the views of the White House are not known. Spokesmen for the President will go no further at the present time than to say that two points are to be considered essential:

(1) To enact legislation enabling the President to appoint a mediation board in the face of an actual or a threatened strike.

(2) To set up machinery for coal administration in the case of a shortage.

Only two witnesses were heard by the committee last week—Representative Allen Treadway, of Massachusetts, whose testimony was covered in the preceding issue of *Coal Age*, and Representative Meyer Jacobstein, Democrat, of Rochester, N. Y. According to the latter, the basic troubles in the anthracite industry go deeper than a recurring deadlock between capital and labor. The fundamental deadlock is economic. Ownership and location are highly concentrated; labor is a monopoly.

Scores High-Cost Mines

Thirty to thirty-five per cent of the output, said Congressman Jacobstein, is mined at high costs and low profits; 50 per cent at low costs and high profits. The bulk of the high-profit coal was controlled by the major producers, who, he said, restricted their output in order that a market might be found for the high-cost coal. In that way the industry was using the high-cost mines to keep up prices and to keep down wages.

The witness admitted that the big companies named mine prices lower than those charged by the independents, but argued that the difference was made up in transportation earnings of affiliated railroads and in profits accruing to separately established selling agencies. Congressman Walter H. Newton, Republican, Minnesota, wanted to know whether increased production by the big companies would not drive the independents out of business and create a complete monopoly. The witness conceded that that would be true, but added that such a development would bring "the monopoly" out into the open and, if the monopolistic powers were employed against the public, compel strict regulation.

Later in his testimony it was brought out that one of the remedies Mr. Jacobstein had in mind to put the whole coal industry on a proper basis was a modification of the Sherman anti-trust law which would encourage consolidations and combinations. He would combine strong companies with weak ones in somewhat the same manner proposed for railroads in the Transportation Act of 1920. To enjoy relief from the Sherman law, however, the industry would be compelled to assent to federal licensing and control.

Representative Ashton C. Shallenberger, Republican, Nebraska, inquired whether the existence of high- and low-cost operations was not common to all industry. The witness agreed, with the reservation that only in coal was production restricted to foster the high-cost operations. He declined to admit, when questioned by Mr. Newton, that labor was in anywise responsible for restricted output.

Part of the trouble with labor, he contended, was due to the belief of the worker that labor was not receiving its share of the profits. The actual investment in anthracite, he stated, approximated $450,000,000; book values approximated $620,000,000 and the valuation placed on the properties by coal company engineers exceeded $900,000,000. Labor wanted to know upon what basis profits were to be figured.

Urges Publicity of Facts

Turning to the question of remedies for conditions which he asserted the people insisted must be changed, Mr. Jacobstein proposed, first, compulsory fact-finding and publicity to prevent exorbitant prices and compel fair wages. Such publicity, he said, should include figures on actual costs of production, sales realization, profits, wage rates, transportation charges, interest on investments, capital structure and interlocking directorates. He also would require reports from wholesalers because middlemen were sometimes "a screen" behind which the producers concealed their real earnings.

Mr. Jacobstein critized the failure of the operators to make the usual spring reductions this year. He said they had assured the public they were opposing increased wage demands so that prices might be held down, but that the failure to make the spring cuts meant an average increase of 30c. per ton to the consumer. The recent hard-coal agreement, he added, could in no sense be considered a permanent

Water Works Switches From Oil to Coal

The Kansas City Water Works, which has been using oil as fuel for about six years, recently closed a contract to install pulverized coal-burning equipment and expects to save $30,000 a year by using southern Kansas coal as fuel instead of oil. About 90 tons of coal will be consumed daily.

solution of the difficulties in the anthracite region.

In his discussion of the bituminous situation the witness began by contrasting the diffusion of interests and the wide area underlain with soft coal with the concentration of control and deposits in the anthracite field. Quoting Secretary Hoover's charge that the bituminous industry was "one of the worst functioning" in the United States, he declared that it was overdeveloped and overmanned, carrying an excess of 200,000 workers who demanded high daily wages to compensate them for broken running time.

The shift from union to non-union production, he observed, is menacing the existence of the United Mine Workers and forecasts serious disturbances when the Jacksonville agreement expires next March. Unless Congress acts now, it may reassemble next March too late to prevent a strike which would interfere with interstate commerce. The industry, he thought, was woefully backward in the use of machinery.

Representative Adam M. Wyant, Republican, Pennsylvania, wanted to know how overproduction affected prices. The witness conceded it led to bad breaks. He was not, he explained, arguing for legislation which would deny profits. Mr. Shallenberger interjected that present prices were high. Mr. Jacobstein retorted that prices should be higher than in prewar days because in those days the industry did not make a fair profit. Representative John G. Cooper, Republican, Ohio, mentioned the losses in output in the Central Competitive Field. The witness thought there was a more economic use of labor in the non-union fields, viz., lower daily rates and higher weekly earnings. Mr. Wyant insisted freight rates had something to do with the shift.

Opposes Government Ownership

Mr. Jacobstein was questioned closely on his theory that coal should be regulated because it was a quasi-public utility. Representative Schuyler Merritt, Republican, Connecticut, asserted the witness' proposal to limit the opening of new mines would take away property values in undeveloped acreage. To follow a "do nothing" policy, answered the witness, means to imitate the ostrich. Mr. Jacobstein declared he was opposed to both government ownership and to price-fixing.

He modified his position on price-fixing, however, when questioned by Representative Sam Rayburn, Democrat, Texas. Mr. Rayburn did not think Congress would modify the Sherman law unless a great public benefit would flow from such action. If the government controlled production, wouldn't price-fixing and other forms of control follow? Mr. Jacobstein answered that he was not afraid of price regulation in a natural limited monopoly. Control, he admitted, would have to extend to the selling agencies. Such control was better than the present anarchy, which is unfair both to operators and workers.

"When you control production," asked Mr. Rayburn, "won't you have to assure the producer a reasonable profit?"

"Yes."

"Then, wouldn't you have to touch prices and distribution?"

"Eventually we might have to."

"Could we write anything into the law to insure continuous production?"

"No, and I would not if I could because the public will not support the idea of compulsory labor."

Despite this admission, Mr. Jacobstein believed legislation would help prevent strikes because with all the facts known he did not believe labor could hold out for an unfair settlement. A statement by Representative George Huddleston, Democrat, Alabama, that it was just a question of time before there would be a tremendous convulsion in the non-union fields was seized by the witness as another proof that legislation was needed.

Hearings were resumed Tuesday morning with Representative Robert Luce, of Waltham, Mass., on the stand. He urged that standards of quality be set up to apply to all shipments of domestic sizes of anthracite. He expressed the opinion that it would be entirely practicable to require that a certificate be attached to each bill of lading indicating the size of the coal and certifying that the non-combustible content of the coal is not above a certain specified percentage. He would vest supervision of coal shipments in the Bureau of Mines.

It is expected that the hearings, which were resumed on April 6 after an adjournment from April 2, will last another ten days. Following testimony by Congressmen, representatives of the operators, the wholesalers, the retailers and the American Federation of Labor will be heard. It is understood that Secretary Hoover also has been invited to appear.

Keystone View Co.

Representative Meyer Jacobstein

Turner Urges Rock-Dusting

Director Turner of the U. S. Bureau of Mines has issued a statement advocating rock-dusting of bituminous coal mines to prevent explosions. "More than 90 per cent of bituminous mines in the country have not yet adopted rock-dusting," he said.

Five Union Mines Close Near Pittsburgh, Unable To Pay Jacksonville Scale

Coming almost simultaneously, the action of a number of coal interests in the Pittsburgh district working on the Jacksonville scale in closing down their mines recently is construed as a final abandonment of the attempt to operate at the higher rate in competition with Southern fields and other companies working on the 1917 rate in this district.

Mines in the Pittsburgh district that have shut down, all of which operated on the Jacksonville scale, follow:

Scott mine of the Montour Collieries Co., at Imperial.

Hazel mine of the Chartiers Creek Coal Co., near Canonsburg.

Bulger mine of the Bulger Block Coal Co., near McDonald.

Two mines of the Carnegie Coal Co. —the McDonald and Atlas, the latter at Atlasburg.

The Carnegie Coal Co. has started operations at a small mine, the Cedar Grove, near McDonald, to offset the other two closed.

Among the so-called independent commercial operations the Pittsburgh Terminal Coal Corp. is about the only sizable concern that continues to work on the Jacksonville scale.

Lewis Deplores Ohio's Plight But Denies Help

The special committee of operators, representing a great majority of mines in the southeastern Ohio field, recently appointed to confer with John L. Lewis, president of the United Mine Workers, which reported at a mass meeting of operators at Nelsonville, Ohio, April 1, held out no hope of a solution of the difficulties in the field being gained through concessions by the United Mine Workers. The committee, which consisted of Walter Wolf, Nelsonville-Murray Coal Co., Nelsonville; C. C. Sharp, Big Bailey Coal Co., Nelsonville; P. C. Morris, New York Coal Co., Columbus; N. D. Monserrat, Monserrat Bros., Columbus; O. C. Newton, Sunday Creek Coal Co., Columbus; G. S. Jones, Ohio Collieries Co., Toledo, and Dr. T. R. Biddle, Poston Consolidated Coal Co., Athens, reported obtaining practically no satisfaction from the conference with the union miners' chief.

The committee quoted Lewis as admitting that he did not know how to relieve the mining industry in the southeastern Ohio field. Lewis asserted that he could not see how the miners could work on any scale in competition with non-union fields. He agreed that conditions were deplorable but that he had nothing to offer. He frankly admitted that he felt extremely sorry for the plight of the miners, but could see no way out of it at this time.

After hearing this report the operators proposed a tentative plan to take the case to the miners direct. The committee which conferred with Lewis was directed to confer with committees of other districts in the state on a plan looking to the adoption of a scale to be substituted for the Jacksonville agreement.

Wants Public to Know What Industry Will Do To Insure Steady Coal

By Paul Wooton
Washington Correspondent of *Coal Age*

To learn what the industry itself is doing to insure the public a continuous supply of coal is one of the principal objectives of Representative James S. Parker, of New York, in the investigation which he is directing in Congress. Mr. Parker is chairman of the Interstate and Foreign Commerce Committee of the House of Representatives. It has been his observation that heretofore the attitude of both operators and miners toward proposed legislation has been purely negative.

Mr. Parker believes the country wants to know, and is entitled to know, exactly what the industry proposes to do toward guaranteeing a steady supply of this necessity of life. He points out that other businesses manage to settle their troubles without plunging whole sections of the country into famine.

Before recommending legislation Chairman Parker feels that an opportunity should be given the industry to make such constructive suggestions as it has to propose.

"I have given no small amount of thought to the best way of approach to the coal problem," Mr. Parker said in discussing the situation with this correspondent. "At most of the coal hearings during the past several Congresses a bill has been set up and industry has been invited to attack that particular measure. I feel that perhaps a better way would be to start out, as we have done, with no preconceived plan and ask those in the industry what constructive suggestions they have to offer. We have begun by hearing the members of Congress who have proposed coal legislation. Full opportunity will be given any other representatives of the public who desire to be heard. Then we hope to hear what measures of assurance the operators and the miners are willing to give that there will be adequate supplies of coal at all times.

Would Encourage Self-Reform

"It is my opinion that business should be encouraged to reform itself. There can be little question that there is need for reform in the coal industry. There must be some way to adjust differences without going to war every two years. Whether this is done by removing the causes of controversy before they become acute, as the steel industry seems to do with some success, or whether it is done by special machinery for conciliation, such as the railroads are proposing to employ, is of little concern to the public. The people are not particular as to the method so long as a way is found to maintain production."

Mr. Parker is anxious to correct any impression that may have been gained from certain statements in the newspapers that the committee has no serious intention of reporting a bill. "These reports show a strange conception of members of Congress. They are too busy to spend days and weeks listening to witnesses if there is no intention of taking action. We expect to listen patiently to any who are qualified to represent the different points of view. Then we will weigh the evidence and agree on a bill which we will recommend to the House."

While Chairman Parker would not attempt to lay down a detailed plan for the conduct of the hearings, it seems probable that operators representative of all the principal districts will be invited to appear. They will be asked what assurances they can give of maintaining a continuous supply of coal and what steps they propose taking to prevent biennial strikes. Similar questions probably will be asked of representatives of the United Mine Workers.

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Representative James S. Parker

John Fritz Medal Awarded To E. D. Adams

The John Fritz gold medal was bestowed on Edward Dean Adams with appropriate exercises at the Engineering Societies Building, New York City, March 30. The award was made for great achievements as "engineer, financier, scientist, whose vision, courage and industry made possible the birth at Niagara Falls of hydro-electric power." Dr. Frank B. Jewett, past president of the American Institute of Electrical Engineers and now chairman of the John Fritz medal board of award, presided.

Addresses were made by James M. Beck, former Solicitor General of the United States, and Dr. A. E. Kennelly, of Harvard University. Major Fred J. Miller, past president of the American Society of Mechanical Engineers, made the presentation. Mr. Adams responded in an interesting address in which he traced the development of the Niagara Falls Power Co. from its inception to the present time.

At a dinner given to Mr. Adams prior to the presentation exercises short speeches were made by W. H. Onken, Jr., editor of *Electrical World;* L. B. Stillwell, chairman of the Engineering Foundation, and Prof. C. F. Scott, of Yale University.

New Orient Shuts Down; Will Be Developed Further

Following the series of mine shutdowns in the southern Illinois coal fields recently, New Orient, at West Frankfort, Ill., the largest mine in the world, suspended operation indefinitely March 29. The closing of this mine placed eleven hundred men out of work. The Chicago, Wilmington & Franklin Coal Co., which owns the mine, plans to continue development work during the summer, using about three hundred men in driving entries and getting the mine to capacity production stage by next fall.

Normally the mine employs fourteen hundred men. The world's hoisting record of 12,825 tons in one day is held by the "New Orient" and officials say the mine is capable of producing fifteen thousands tons daily and providing employment for eighteen hundred men.

New Orient has been producing coal since Dec. 1, 1922, this being the first suspension.

Hudson Coal Co. Reorganizes Operating Staff

Reorganization of the operating division of the Hudson Coal Co. took place at a recent meeting of colliery superintendents and foremen conducted in the main office at Scranton, Pa., according to reliable reports. A series of resignations, promotions and transfers resulted.

Company executives declined to discuss the changes but it is understood that the changes will be as follows:

Samuel Oakley, superintendent of the Marvine colliery—resigned.

Karl Hughes, superintendent of Clinton colliery, Vandling — promoted to superintendency at Marvine.

Thomas Steele, superintendent of the Dickson colliery—resigned.

Seth Reese, assistant superintendent of Marvine colliery—promoted to superintendency at Dickson.

James F. Loftus, foreman at Eddy Creek colliery—promoted to assistant superintendent under Superintendent L. H. Weichel at Olyphant.

Harry Williams, foreman at Baltimore colliery, Wilkes-Barre—promoted to assistant superintendent under Mr. Weichel.

Mr. Oakley, who resigns the superintendency of the Marvine operation, has been in the employ of the Hudson firm forty years, rising in the ranks from coal cutter to the post of superintendent.

Mr. Hughes, successor to Mr. Oakley, has been in continuous service with the Hudson firm for years, serving for a time as chief colliery engineer at the Powderly colliery, in Mayfield. Later he worked as superintendent at the Vandling operation.

Previous to his appointment as superintendent at the Dickson colliery, Thomas Steele supervised operations at Legitt's Creek company plants.

Mr. Loftus and Mr. Williams, who have been advanced to positions of assistant superintendents under Mr. Weichel, will have under their jurisdiction the Olyphant, Eddy Creek, Miles Slope and Grassy Island operations.

Deadlock Again Looms in Britain's Coal Situation; Subsidy to Industry Causes Deficit in Nation's Finances

No decisive action looking to an agreement respecting the Royal Coal Commission reported resulted from the conferences of mine owners and employes held in London last week. Both joint and separate sessions were held, and it was hoped that some important conclusions might follow. The points at issue, however, are being referred to the district organizations.

The operators have given the miners a detailed statement of their attitude toward the recommendations of the committee which recently suggested measures to revive the declining British coal industry.

On the vital question of wages the owners propose immediate national negotiations to settle general principles, which are to be incorporated in a new agreement to include a ratio between profits and wages, but which will leave the determination of the minimum percentage payable on basis of rates in each district to the district associations.

This means in effect that the owners refuse to consider the fixation of a national minimum wage and insist on wages being the concern of the districts themselves.

Say Operators Want Wages Cut

"This," says a statement issued by the Miners' Federation, "has constituted an almost insurmountable obstacle to an amicable settlement." The miners also contend that the operators made it evident that they intend to demand heavy reductions of wages.

"In the absence of definite proposals for a minimum percentage," they declare, "we have to assume that the position of the owners is as stated by them last July. Consequential wage reductions would vary from 1s. a day in best to over 5s. in the worst districts."

A. J. Cook, secretary of the Miners' Federation, declared in a speech April 2, that it is quite clear the owners were using the present position to declare war on the mining community and would lock out their employees to enforce their proposals.

Premier Baldwin divided his time during the Easter holidays between London and his country seat, so that he could easily be reached should the coal situation develop alarming symptoms.

Objections to continuing the coal subsidy granted last August as a temporary measure continue to be vigorously voiced. In governmental circles it is felt that the coal crises must be solved by the mine owners and miners on a strictly economic basis, without relying on further subsidy in any form whatsoever.

In this connection it is pointed out that the British coal trade has been subsidized in one way or another, during the last ten years, to the tune of about $300,000,000 out of the taxpayers' pockets.

The subsidy added £19,000,000 to Great Britain's national expenditures during the financial year ended March 31, and caused a deficit of £14,038,120. The official figures indicate that otherwise there would have been a surplus of nearly £5,000,000.

Agree to Semi-Monthly Pay; Close Mines

Although the Elm Grove Mining Co. agreed to pay its miners twice a month instead of once a month, as the company had proposed, after a strike of about 2,500 miners in the northern West Virginia panhandle and eastern Ohio, which lasted about a week, the United Mine Workers was confronted on March 31 with the startling news that the company would close down its mines for an indefinite period.

A report is current to the effect that refusal of the union miners at the plants of the Connellsville By-Product Coal Co. and at seven other mines of the Paisley interests to accept a reduction of 20 per cent from the Jacksonville scale as proposed by the company, was responsible for the shutdown. It is further stated that general manager Arkwright announced, that the company could no longer pay the present union wage scale.

The Paisley interests have been among the few in the Morgantown field that have retained an agreement with the union and made it possible in part to preserve a union organization in the Scott's Run section, the only section of northern West Virginia where any considerable number of union mines are operating.

Six other mines in this district, operated by the Lorain Coal & Dock Co., the Barton Mining Co., the United States Coal Co. and the Massillon-Belmont Coal Co., also closed down, throwing 1,730 men out of work.

Four Pursglove Mines Halt In Morgantown Field

Four mines of the Cleveland-Morgantown Coal Co., near Morgantown, W. Va., owned by the Pursglove interests, Cleveland, suspended work indefinitely April 2. This left only one operating company employing union labor continuing operations in the Morgantown field.

Expiration of existing contracts, the weak condition of the market and inability to pay the Jacksonville wage scale were assigned by company representatives as the reasons for the suspensions.

No comment on the closings was forthcoming from United Mine Workers officials. R. M. Williams, in charge of the Morgantown region, said the union was continuing its unionization activities among the men employed in open-shop mines in the district.

The only remaining union operations in Monongalia County now are the mines of the Gilbert-Davis interests.

Pittsburgh Coal Co. Ready To Open Tenth Mine

The Pittsburgh Coal Co. plans to reopen Ocean No. 5 mine, at Smithfield, Pa., within the next week. This will be the tenth mine of the company to work on the 1917 scale in the Pittsburgh district. The mine has been closed since Feb. 14, 1925. About 100 men are expected to go to work at the new operation when it opens.

There are now 15 mines working on the 1917 scale in the Pittsburgh district, a check-up of activities in the district reveals. Five mines are being operated by the Bethlehem Mines Corporation, subsidiary of the Bethlehem Steel Corp., and one by the Pittsburgh & Erie Coal Co. at Braznell.

Co-operation Necessary to Success of Mining Machines

In order to get the maximum out of a mining machine there must be close co-operation between employer and employee and an organization back of the machine, said Sam Mavor recently in the second of a series of six lectures on "Some Problems in the Mining Industry," given under the auspices of the department of mining of the University of Sheffield, England. As increasing the length of the shift was out of the question, the only solution of the problem of cutting production cost, said he, was increased application of machines in mining.

Until recently, Mr. Mavor said, mining machines had not been resorted to in British mines until all other means of making the seam pay had failed, and as a consequence such machines worked under a handicap and oftentimes failed. Increased facilities for the transportation of coal from the face were necessary, he thought.

Conveyors had fallen into disrepute because the early models had not been brought to a high degree of mechanical perfection and often worked under unfavorable conditions. Their value is now realized, however, and some of the newer mines are being laid out for the use of conveyors. Mr. Mavor stressed the importance of an unfailing supply of mine cars to handle the coal from the conveyors. In some cases haulage efficiency was raised by increasing the size of the mine cars from 10 cwt. to 20 cwt. The coal should be loaded onto the cars as soon as possible in order to eliminate expensive long conveyors.

In conclusion Mr. Mavor advised the mining students to specialize in some one line and become expert in that line. The value of the expert in the mining industry, said he, was just being realized. The mining industry was the last of the major industries to take up scientific control and management. It was very important, he said, to lay out the mine scientifically. It is in this work that the expert will be most needed.

Form New Union District In Upper West Virginia; To Fight Open-Shop Mines

District No. 17 of the United Mine Workers, in West Virginia, has been split up by the international union and a new district, embracing the twelve and one-half counties in northern West Virginia, now known as No. 31, has been formed. The change will become effective May 1. The action was taken in Indianapolis, March 26, but was not made public until April 3. The change was deemed necessary because of the geographical location of northern West Virginia, according to Van A. Bittner, international representative in charge.

In announcing the establishment of the new district representatives of the international union—Percy Tetlow, John O'Leary, A. R. Watkins, and Van A. Bittner—state that "the affairs of District 31 will be in complete charge of the international union until the organization in this field is thoroughly established."

Operators are of the opinion that while the union may wage a more determined campaign to recruit its forces in northern West Virginia, such evidently being the purpose of the establishment of a new district, the organization is confronted with a great many difficulties in view of the existing economic situation which caused nearly all the mines that had been operating under the Jacksonville agreement to suspend operations because they could no longer operate under the higher wage scale, even though friendly with the union. Under the circumstances, therefore, it is not believed that it will be possible to get producers who have been operating non-union mines to become parties to any agreement that will preclude a continuance of operation in competition with other mines in West Virginia or in other states.

Barnum on Self-Government

"Self-Government in Industry" is the theme which will be stressed at the session of the Natural Resources Division of the Chamber of Commerce of the United States when the annual meeting is held, May 11. Walter Barnum, president of the Pacific Coast Co., New York City, one of the three speakers, will discuss the question with respect to the coal industry. The other two speakers will represent the oil and the lumber industries.

Northern Pacific to Open Bids

Bids for coal for the Northern Pacific Ry. for the line extending from Mandan, N. D., to Missoula, Mont., required from May 1, 1926, to April 30, 1927, will be received until April 12 by R. J. Elliott, purchasing agent of the road, 5th and Jackson Sts., St. Paul, Minn. Not less than 1,200,000 nor more than 2,400,000 net tons will be required, to be delivered in approxmately equal monthly proportions.

The Edwight mine of the Raleigh-Wyoming Coal Co., in the New River field, was closed down recently according to reports.

Pities Those Blind to Need For Conservation

"Conservation, like other vision, is not to be considered a question of morals; it is more a matter of education, of experience, of intelligent interest," said George Otis Smith, Director of the Geological Survey, in an address at the annual dinner of the American Society of Naval Engineers at Washington, D. C., March 27. "We should not condemn so much as pity the defective eyesight of our fellow citizens who can see no reason why we as a nation cannot spend as we go, regardless of the sources of our present wealth and equally thoughtless as to the wherewithal for the future. 'Please help the blind!' is the placard that should be hung on the breast of every public official who neglects any opportunity to plan for the distant future of his state or country, or tacked outside the door of the boardroom of every big corporation that fails to guard its reserves of raw material, or painted above the wide entrance to any legislative hall whose occupants can spell out that long word 'preparedness' only when martial music arouses attention and flying colors stimulate the optic nerve."

Southern Illinois coal producers are working on the details of a plan to ship coal to the Twin Cities by barge. The southern Illinois operators propose to develop a fleet for operation on the upper Mississippi River in order to regain a market for southern Illinois coal which has been practically eliminated since the freight rates went up last season.

Government Needs Engineers

The U. S. Civil Service Commission announces examinations for senior mining engineer (safety service) and senior mining engineer (coal and metal), applications for which will close May 18. Vacancies are to be filled in the Bureau of Mines, Department of Commerce, for duty in Washington, D. C., or elsewhere. The entrance salary is $5,200 a year. After the probational period required by the civil service act and rules advancement in pay without material change in duties may be made up to a maximum of $6,000 a year. Promotion to higher grades may be made in accordance with the civil service rules as vacancies occur. Full information and application blanks may be obtained from the Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. civil service examiners at the post office or custom house in any city.

The Commission also announces examination for junior mechanical engineer (fuel combustion), junior mining engineer and junior engineer to fill vacancies in various branches of the government service throughout the United States. Receipt of applications will close April 17. The entrance salary is $1,860 a year. After the probationary period required by the civil service act and rules advancement in pay may be made without change in assignment up to $2,400 a year.

The Commission announces an examination for assistant business economist (coal), receipt of applications to close May 11. The examination is to fill a vacancy in the position of assistant economic analyst, Bureau of Mines, Washington, D. C., and vacancies occurring in positions requiring similar qualifications, for duty in Washington, D. C., or in the field. The entrance salary is $2,400 a year, with advancement to a maximum of $3,000 a year.

U. S. Chamber of Commerce Initiates Action To Abate Uneconomic Trade Practices and Abuses

The setting up of machinery for the elimination of trade abuses and uneconomic trade practices, marking a further step toward the eventual self-government of business, was announced March 18 by the Chamber of Commerce of the United States. The board of directors of the national organization authorized the appointment of a permanent committee on trade relations to serve as the focussing point for all activities in this direction.

The new committee will comprise representatives of wholesaling, retailing, manufacturing and the consuming public. It will serve in the first instance as a clearing house for information relating to the adjustment of trade disputes and the suppression of trade practices detrimental not only to the merchant and the manufacturer but to the consuming public.

It is recognized that the first task of the committee will be to promote the setting up of the necessary machinery within the various trades to facilitate the adjustment of disputes between manufacturers, wholesalers and retailers in a particular trade. It will aid in the adjustment of disputes between members of different trades and eventually, it is expected, will serve as the capstone —or lead to the organization of another committee which will serve the same purpose—in the entire structure of trade self-regulation.

"As at present contemplated," said Alvin E. Dodd, manager of the department of domestic distribution of the National Chamber, in a statement explaining the functions of the new committee, "the joint trades relations committee will be composed of one influential member of each trade. Each of the members of this committee will be the key man in developing in his particular trade a joint trade relations committee to include manufacturers, wholesalers and retailers."

News Items From Field and Trade

ALABAMA

The Pratt Fuel Corp., of Birmingham, has installed a new steam shovel, one of the largest in the state, at its mine at Hagger, Walker County. The company is making several new openings at Hagger and will erect 20 new houses for miners.

ARKANSAS

The Vilonia Coal Co., Vilonia, of which M. E. Sams is secretary, is beginning the development of 57 acres of coal land.

ILLINOIS

About five hundred men were thrown out of work April 1 with the closing of the New Baden mine of the Southern Coal, Coke & Mining Co., at Belleville. Company officials say the mine will be closed indefinitely. In a statement W. F. Davis, general superintendent, said: "Illinois must have a lower wage scale if we are to survive. It also is necessary for the officials of the United Mine Workers to accept a more liberal attitude toward mechanical loading devices and assist the operators to a day wage scale for undercutting machines used in connection therewith, if the non-union invasion of the Illinois coal markets is to be checked." Some of the miners may be taken to the Shiloh mine within a short time, Davis said.

Nokomis Mine Sold.—The Brewerton Coal Co., of New York and Chicago, it is announced, has purchased the Nokomis mine of the Nason Coal Co. The mine has not been operated since Feb. 5, and there is no immediate prospect of resumption.

Peabody mine No. 15, better known as Cora mine, at Andrew, reopened March 25, after having been closed since Feb. 11.

The Illinois Miners' Examining Board has announced its itinerary for this month as follows: West Frankfort, Miners' Hall, 8th; Duquoin, Miners' Hall, 9th; Centralia, Miners' Hall, 10th; Litchfield, Hod Carriers' Hall, 19th; Springfield, State House, 20th; Taylorville, Court House, 21st; Danville, Court House, 22d; LaSalle, City Hall, 23d; Peoria, Court House, 24th.

Franklin County produced 13,082,000 tons of coal during 1925, according to statistics compiled by Lon Fox, president of Subdistrict No. 9, United Mine Workers. The 1925 output broke the 1920 mark of 11,299,280 tons by 1,700,000 tons. Fox compiled his figures to refute the contention that union mines cannot successfully compete with the non-union fields of Kentucky and West Virginia.

INDIANA

Officials of District No. 11, United Mine Workers (Indiana) have protested against any step to appoint Walter Wills, of Linton, as a member of the Indiana industrial board. The mine officials say that because of the big percentage of accidents in mines, one member of the industrial board, which has to do with the settlement of compensation claims, should be an experienced miner.

The Indiana joint purchasing board will receive bids in April for supplying coal to state institutions for the year beginning May 1. Bidders may bid on all or part of the coal required.

KANSAS

The conference of top vein coal stripping operators of the Mulberry district with officials of the miners' union in an effort to negotiate a contract has been postponed until April 25.

Seventy-seven miners in District 14, United Mine Workers (Kansas), have completed the course of mine rescue training given by federal mine rescue car No. 6 since its arrival in the district, Oct. 19, 1925. Thirty-one miners also have completed the course in first-aid given by instructors attached to the car.

Rules for the Kansas state first-aid and mine-rescue meet to be held at Pittsburgh May 22, were drawn up March 29 by U. S. Bureau of Mines instructors and officials of the Kansas mine inspection department. The winning team will be sent to the international meet in San Francisco, Sept. 2, 3 and 4.

Fire destroyed the tipple of the Sheridan Coal Co.'s mine No. 7, near Breezy Hill, early in the night of March 30. Two shotfirers in the mine at the time escaped through an air-shaft. The mine has been operated for several months by the Eastern Coal Co. The origin of the fire is not known and representatives of both the Sheridan and Eastern companies are conducting a thorough investigation.

KENTUCKY

One of the laws enacted by the Kentucky Legislature at the session just closed, and now in effect, is Senate Bill No. 67, fixing the rights and duties of coterminous owners of mineral lands, imposing penalties for trespass underground, and giving owners of adjoining properties the right to arrange for surveys from shafts and through mines on adjoining properties to determine whether or not any trespass has been committed.

Work on the Virginia-Kentucky highway through the Lotts Creek section in eastern Kentucky, has been held up pending agreement with some of the coal companies through whose property the highway will extend. Some changes in the routing will be necessary as the line is laid out to run through miners' homes and other buildings in some instances.

Receivers of the **Himler Coal Co.** have been visiting the mine of the company at Himlerville, where portable conveyors are to be installed for transporting coal from the face of the rooms to mine cars in the heading. The mine has a capacity of 30,000 tons weekly. Fred G. Hatton, president of Hatton, Brown & Co., Inc., Columbus, Ohio, is one of the receivers.

Construction of 30 barges for the West Kentucky Coal Co. will be started this month. The new barges will be used in the company's coal transportation trade in the Mississippi and Ohio rivers.

MASSACHUSETTS

Hard-Coal Stocks Low.—Stocks of anthracite in the yards of Massachusetts retail coal dealers on March 1 totaled 53,418 net tons, according to the Special Commission on the Necessaries of Life. This compares with 725,558 tons on hand on April 1 of the preceding year. Deliveries to consumers during the eleven months ended Feb. 28 aggregated 3,887,646 tons, as against deliveries during the entire preceding coal year of 5,115,717 tons.

MICHIGAN

Will Enlarge Dock.—Work of rebuilding and remodeling property recently purchased by the Escanaba Coal & Dock Co. will be started at once. The dock will be enlarged to permit handling of 150,000 tons of coal annually and it will have an actual storage capacity of 100,000 tons. Its equipment will be capable of handling 500 tons of coal an hour.

MINNESOTA

The Zenith Furnace Co. has nearly completed extensive overhauling of its coke-oven plant at Duluth, made necessary by a fire, several weeks ago, which caused a loss of $75,000.

MISSOURI

To Open $100,000 Strip Mine.—Evan Jones and A. E. Marriott, of Moberly, have closed a deal for 400 acres of coal land south of Higbee for a strip mine. The consideration was said to be close to $30,000. It is said that a switch will be laid from the Missouri, Kansas & Texas tracks to the field. The Kansas City Power & Light Co. will furnish power to operate the machines and will use all the coal produced. This will mean the expenditure of approximately $100,000 before the coal can be put on the market, it is said. The company will install a crusher at the strip pit to crush the coal before shipping.

Missouri mines in 1925, according to statistics compiled by O. L. Hengar, of the State Bureau of Mines, Jefferson City, produced 2,542,449 tons of coal valued at $7,411,162.

An injunction suit brought by the Clay Coal Mining Co., of Excelsior Springs, against local union No. 27, United Mine Workers, was refused last week by the Circuit Court in Clay County. The operators alleged that the union miners were intimidating their workers, who are non-union.

In about sixty days coal will be loaded from new strip mines to be worked near Higbee by the Howard County Mining Co. Work has begun on switch tracks by the M. K. & T. R.R. The coal company intends to remove from 30 to 70 ft. of earth off the coal by the use if the largest steam shovels built. Winson Brothers, of Minneapolis, Minn., have charge of all the operations in the production of this coal. The coal underlying the lands which were purchased, consisting of 500 acres, is 3 ft. 3 in. thick.

NEW JERSEY

Retail coal dealers at Atlantic City have joined hands in supporting an exhibition of devices for the burning of anthracite buckwheat for domestic use. They have leased a storeroom at Atlantic and Kentucky Aves., where they have set up heaters and have them in active operation. The exhibition will be continued as long as the interest of the public continues, which so far has been very satisfactory.

NEW MEXICO

An area of 720 acres of coal land in Sandoval County will be offered for lease soon by the general land offices. A royalty of 10c. a ton, an investment of $25,000 during the first three years of the lease and a minimum production of 15,000 tons yearly commencing with the fourth year of the lease are the requirements.

NEW YORK

The contract for furnishing three-quarter smokeless coal to the Erie County armory of the 106th Artillery for a year, amount not specified, was awarded on March 31 to the Dealers' Coal Co., Buffalo, on its bid of $4.83, delivered, which requires some carting. The highest bid was $5.74.

Dump-House of New Mine at Allais, Ky.

Drop-bottom cars are used at this drift mine, which was opened about one year ago in the Hazard field by the Columbus Mining Co. A rope-and-button conveyor retards the coal on its descent to the tipple located in the valley.

Bids will be opened April 10 for furnishing 35,000 tons of bituminous three-quarter slack to the Buffalo waterworks.

OHIO

The Lick Run Coal & Clay Co., of Nelsonville, has filed a petition in bankruptcy in the U. S. Court at Columbus, listing liabilities of $72,446 and assets of $132,309. This company was organized with P. J. Merz, president; Douglas McGill, vice-president, and Robert Green, secretary, to reopen a mine near Nelsonville that had been abandoned by E. A. Cole & Co. After erecting an expensive tipple operations were started, but the coal was limited. Later the tipple was destroyed by fire, but the loss was covered by insurance. Another tipple was then constructed, but the mine has been idle for several months.

PENNSYLVANIA

Mining Students Get Certificates.—Eight employees of the Bethlehem Mines Corporation, all of Wehrum, have completed a two years' course in mining sponsored by the state vocational education board in co-operation with the school of mines of Pennsylvania State College. The course was instituted three years ago by the vocational board. The instructor of the class at Wehrum is Ray Mardis, who also is employed by the Bethlehem corporation. Those who completed the course are Leonard Mulvehill, Frank Collobert, Charles Walton, Samuel A. Gromley, Thomas Madigan, Andrew Pero, Clarence Frazier and Raymond C. Mardis. Seventeen men in the class have completed one year's work.

Revenues of the Delaware, Lackawanna & Western R.R. from anthracite shipments in 1925 were $5,818,872 less than in 1924, attributable to the suspension of mining in the last four months of the year. The annual report of the company, however, reveals a decrease of only $238,673 in net income, which totaled $14,430,194. Revenues from other freight increased $2,216,186, due in large measure to special efforts made to obtain other freight traffic to fill in the gap caused by the loss of anthracite traffic.

In the week ended March 27 mines of the **Pittsburgh Coal Co.**, operating on the 1917 scale in the Pittsburgh district produced a total of 37,923 tons of coal, a new high record since operations were started last August. During the same week the mines established a new daily maximum of 6,683 tons. The number of miners working reached a new high point with 1,860.

The total net income of the Lehigh Valley Coal Co. for 1925 was $643,118, a decrease of $2,657,953 from that of 1924, the consolidated income report shows. Coal receipts for the year were $11,978,094 less than for the previous year.

Sixteen miners, arrested recently when matches were found in their clothing as they were leaving the Mollenauer Mine No. 3 of the Pittsburgh Terminal Coal Corp., were fined $50 each on charges of violating the mine safety laws at a hearing before Justice of the Peace John Popp, Jr.

Erection of a steel coal tipple, bin and trestle approach has been begun at the Mt. Hope coke plant of the Snowdon Coke Co., near Brownsville. It is expected to have the tipple in operation about the middle or latter part of April.

TEXAS

Texas Pacific Coal Income Up.—A net income of $730,430 for 1925 is reported by the Texas Pacific Coal & Oil Co., after depreciation, depletion, amortization, etc. The figure is equal to 86c. a share earned on 844,004 shares of $10 par stock, and compares with $32,665, or 3c. a share in 1924. Gross earnings for 1925 were $5,641,373, as against $5,080,915 in 1924. Other income was $536,706 in 1925 as compared with $60,554 in the preceding year. The report showed operating expenses

in 1925, $2,809,413; in 1924, $2,633,468; interest, rentals, etc., in 1925, $909,404; in 1924, $747,820; depreciation in 1925, $1,728,832; in 1924, $1,727,516.

VIRGINIA

Revive Norfolk Exchange.—Plans are on foot to revive activities of the Hampton Roads Coal Association, composed of coal agents and managers with offices in Norfolk. This will be of special interest to local shippers to the port, as the association aims for mutual friendship and co-operation for the betterment of the port and shipping facilities. Clayton M. R. Wiggs is president and Chester B. Koontz, secretary, of the association.

Safety Boosters Meet.—The seventh annual banquet of the Safety Boosters of the Clinchfield Coal Corp., held at Dante, March 27, was attended by about 200 officials. The loving cup for the unit holding the best safety record for the year was won by the Dante operation, R. S. Adams, superintendent. The 1925 fatality record was 2.5 per million tons. The addresses included "Accident-Prevention Experience," F. E. Harr, industrial claim agent; "The Mine Foreman's Duty," Frank R. Clark, superintendent Clinchco operation; "Prevention of Accidents by Falls of Slate and Coal," D. L. Rumgay, superintendent Wilder operation; "Handling the Careless Worker," R. S. Adams, superintendent Dante operation; "Psychology of a Safety Committeeman," W. R. Sparks, safety committeeman, Clinchco operation. D. H. Pape, assistant to the executive secretary of the National Coal Association, stressed the value of complete statistics on safety.

WEST VIRGINIA

A statement was issued April 3 by Robert M. Lambie, chief of the state Department of Mines, showing that one hundred safety meetings were held in West Virginia in March and that 12,000 coal miners has signed the safety pledge. "Coal, the Source of Power," the state Department of Mines film, was shown April 7 at the safety meeting held at the mines of the Mallory Coal Co. at Mallory, Logan County.

Operation of mine No. 6 of the Crab Orchard Improvement Co., at Eccles, Raleigh County, began this week. Mine No. 5, where the explosion occurred, will start in about a month. The inquest into the explosion got under way this week, starting at the mine April 7.

Foundations have been built by the Webb Coal Co. for a rope and button conveyor at its Webb mine, along the Coal River branch of the Chesapeake & Ohio Ry. at Garrison, Boone County. The Winifrede seam is worked at a height of 600 ft. above the tipple. The conveyor will be 1,200 ft. long.

Figures compiled by the Kanawha Coal Operators' Association show that in 1925 5,250,854 tons of coal was produced in the Kanawha field by 3,136 men, compared to 3,820,937 tons by 4,976 men in 1921, which the operators say was a normal year. Figures for 1925 show greatly increased activity under non-union conditions, when compared with 1921.

State mining department officials received word last week that the mine fire was completely extinguished in No. 63 of the Consolidation Coal Co., at Monongah. Recently the coal that had been burned was removed from the interior of the mine.

The Consolidation Coal Co. through the federal state employment bureau in Charleston, is advertising for coal miners at its Jenkins and McRoberts (Ky.) plants.

Strike Helped N. & W. Earnings.—Due largely to increased demand for bituminous coal because of the anthracite strike, operating revenues of the Norfolk & Western Ry. in 1925 were the largest in the history of the road. Net revenues from operations, $37,284,175, the annual report reveals, increased $9,446,594, or 33.9 per cent, over the 1924 net.

Daniel Boone Coal Corporation's Mine No. 8

Located at Heiner, Perry County, Ky., and operated and managed by the Columbus Mining Co. The mine, which produces coal from the Flag seam, formerly was the property of the Maynard Coal Co. The coal is moved from near the top of the hill by means of a steel button conveyor, to the tipple, which is equipped with shaker screens, picking tables and loading booms.

Traffic News

Lake Coal Shipments to Toledo Embargoed on Hocking Valley

M. S. Connors, general manager of the Hocking Valley Ry., has advised all lake shippers that an embargo has been placed on all shipments of coal via the Hocking Valley intended for transshipment to the Northwest until 6,700 loaded cars at the Toledo docks are cleared away. He expressed the belief that the embargo would not be of long duration, however, as the loading machines at the docks are being operated 24 hours daily. One of the causes was a freak in the current of the Maumee River, where the docks are located, which was too strong for tugs to get the lake boats in position for loading. An order was sent to Cleveland for more tugs and the larger type are being used to place the boats. The Toledo docks have a capacity of 1,000 cars daily and it will not take long to eliminate the congestion.

Advices from the Head of the Lakes show that there is still 29 in. of ice in the harbor at Duluth-Superior and less from the head of Lake Superior down to the passageways from Lake Erie. The date for opening of navigation is thus in doubt.

Rates to Black Tom Unjust, Says Tentative Report

Examiner Griffin, of the Interstate Commerce Commission, in Docket 16645, Harbor Coaling Corp. vs. Baltimore & Ohio R.R., recommends that the Commission should find the rate assailed is unreasonable and unduly prejudicial to the extent that it exceeds $2.79 per gross ton. The complainant alleged that the rate of $3.09 from mines in Clearfield, Cumberland-Piedmont and Meyersdale districts to Black Tom Pier, Jersey City, N. J., is unreasonable and unjust, discriminatory and prejudicial. The $3.09 rate applies to local track delivery, Jersey City, and the examiner agrees with the complainant that the pier rate should apply, which is $2.79. Reparation was recommended.

Suspend Hard-Coal Rates To the East

The Interstate Commerce Commission, in I. & S. 2637, has suspended from April 1 until July 30, 1926, the operation of certain schedules as published in various tariffs of the Central Railroad of New Jersey, the Delaware & Hudson, the Delaware, Lackawanna & Western, the Erie, the Lehigh & New England, Lehigh Valley, New York, Ontario & Western and the Reading, which propose changes in the rates on anthracite from Pennsylvania mines to points in New Jersey, New York and Pennsylvania. To illustrate: From the Wyoming district of Pennsylvania to Albany, N. Y., the present rate on prepared sizes is $2.65 (gross ton) via D. & H., and $3.02 via D. L. & W.-N. Y. C. The proposed schedules would make these rates $2.75 and $2.88, respectively.

Among the Coal Men

J. E. Westervelt was appointed sales manager of Castner, Curran & Bullitt, Inc., on April 1. At the same time the company announced that it had taken over the marketing of the output of additional mines with a total production of between five and six million tons.

Thomas Fraser, formerly of the U. S. Bureau of Mines, but recently assistant professor of mining at West Virginia University, has been engaged by the Pennsylvania State Geological Survey to assist in the study of fine sizes of anthracite in the anthracite region beginning in the spring. Mr. Fraser is recognized as one of the best authorities in the United States on the preparation and washing of coals. He will assume his new duties May 1 with headquarters in Wilkes-Barre. Mr. Fraser will co-operate with Dever C. Ashmead, anthracite mining engineer of the U. S. Bureau of Mines.

William T. James, superintendent of Bon Ayr Mine of the Bon Ayr Mining Co., and W. C. Barr, president of the City Coal Co., both of Jasonville, Ind., have been named members of the board of directors of a newly formed industrial bureau of that city, organized for the purpose of developing the commercial and industrial interests of Jasonville.

E. E. White, formerly president of the E. E. White Coal Co., in the Winding Gulf field, is wintering at St. Augustine, Fla.

A. G. Bailey, manager of Castner, Curran & Bullitt, Inc., at Norfolk, has taken over the management of the New England Coal & Coke Co. **H. J. Spear,** who was manager of the New England Coal & Coke Co. and the Mystic Steamship Co., a subsidiary, will give his attention to the management of the latter.

Nels R. Erickson, of Ogden, has become general sales manager of the Carbon Fuel Co. and the Blazon Coal Co., of Salt Lake City. Erickson has been general manager of the Superior Rock Spring Coal Co., of Ogden, having been connected with Utah and Wyoming coal operating companies for the past 14 years. At one time he was with the Lion Coal Co., of Ogden.

Ernest A. Bowen, formerly assistant secretary-treasurer of the Superior-Rock Springs Coal Co., Ogden, Utah, has accepted a position as traveling auditor for the J. C. Penny Co.

Edgar Blackwell, former superintendent of the New River company at Scarbro, W. Va. has been appointed safety director of that company.

Rembrandt Peale, Jr., vice-president of Peale, Peacock & Kerr, recently arrived at New York on the "Aquitania" after spending several weeks in Europe.

J. W. Bischoff has been appointed superintendent of the Bower Mine of the West Virginia Coal & Coke Co., at Bower, W. Va., succeeding B. M. Mitchell.

Major Clarence T. Starr

Clarence T. Starr has resigned as coal specialist for the Chamber of Commerce of the United States and on April 12 will assume the duties of assistant to the president of the Pittsburgh Terminal Coal Corporation, C. E. Tuttle, who also is chairman of the board. Major Starr was elected chairman of the Washington section of the American Institute of Mining & Metallurgical Engineers a few months ago.

Obituary

Thyssen, German Coal and Iron Magnate, Dead at 84

August Thyssen, famous Ruhr coal and iron magnate, died near Muehlheim, Germany, on April 4, aged 84. Death was due to pneumonia following an eye operation.

Thyssen began his industrial career in the '60s with a capital of $6,000, which he invested in a rolling mill at Hamborn, employing sixty men. Like John D. Rockefeller, he developed a region whose natural resources were untouched. In later years they called him the Rockefeller of the Ruhr. The first rolling mill at Hamborn is now the Deutsches Kaiser Works, employing 26,000 workers. His various enterprises engaged the service of 70,000 employees.

Beginning life as a Ruhr contemporary of the late Hugo Stinnes' father, Thyssen, unlike the Stinnes family, reinvested all his earnings in his own business until he became a veritable colossus of the coal, iron and steel industry, with holdings in India, France, Belgium, Holland and South America.

Few of the heavy industries of Germany failed to feel Thyssen's grasp. He was the biggest coal operator in the country. He owned iron mines, rolling mills, steamship lines, docks, cement factories and allied industries.

When the World War began Thyssen manufactured small arms for the Central Powers. Despite this small share of the armament industry, he went into competition for heavy armaments, and in the end he broke the Krupp monopoly in big guns.

As soon as the war ended Thyssen transformed his munition plants into electrical machinery plants and was no less successful. During the French occupation of the Ruhr the octogenarian industrialist worked fifteen hours a day while his men labored in three shifts under the eyes of French sentries. He opened every mine he had in the Ruhr and developed it to full capacity to make up to Germany the coal production she had lost when Upper Silesia and the Saar passed out of her control.

Colonel Thomas G. Price, aged 69, one of the prominent coal men of northern West Virginia, who was connected for a number of years with the Consolidation Coal Co. and before that with the Camden interests, died March 28. Mr. Price was a native of Franklin County, Virginia. Thirty-seven years ago he located in Marion County, being employed by Bennett and Talbott, railroad contractors, who built the Monongah branch of the Baltimore & Ohio R.R. from Fairmont to Clarksburg. Later he became identified with the Monongah Coal Co. and the Camden interests and for a number of years was outside superintendent of the mining plant at Monongah. He continued in that capacity after the Monongah operation had been taken over by the Consolidation Coal Co., remaining with the latter company as long as his health permitted him to do so.

Joseph Watson, pioneer Colorado resident and coal mining expert, died March 15 in Louisville, Ky., his home for the last twenty years, following an illness of a few months. Mr. Watson was 61 years old when he died, having lived in Colorado for forty-seven years. He first settled in this state in Trinidad in 1879, later lived for many years in Gunnison, and in 1907 became general superintendent of the National Fuel Co., opening the Puritan mine for that company in Weld County. In 1916 be became general inspector for the Coal Operators' Mutual Insurance Co., with headquarters in Louisville, and held that position until his death.

Ned Irish, formerly engaged prominently in the operating end of the anthracite industry and a member of the firm of Irish Bros., Philadelphia, died at his home in Norristown, Pa., on March 29. He was 72 years of age, and at his funeral on the 31st, there was a large attendance of coal men from Philadelphia and the hard-coal region.

The death is announced at Port Colborne, Ont., of **Thomas Lannan,** managing director of the Century Coal Co., at the age of 70 years. He was a prominent figure in the coal zone, having been identified with marine interprises and construction work practically all his life. He was manager of the Comion Bros. coal dock at Port Colborne, subsequently buying out the dock and merging it with the Century Coal Co., a subsidiary of the Canada Steamship Lines.

Production And the Market

Soft-Coal Trade Flounders in Aim at Stability; Distress Tonnage Sets Fictitious Values

The opening of the new coal year finds the bituminous trade of the country still floundering around in its efforts to put the business upon a stable and profitable basis. In the East this process is hampered by the fact that there still is enough distress tonnage seeking a buyer to dull the interest of the consumer in offerings at fair prices and to establish a fictitious basis of values. In the West and Middle West the competition between union and non-union coals gives large industrial consumers the whiphand in discussing contract renewals.

The blizzard which swept over so many states last week added a touch of last-minute activity to the domestic trade. The flurry, when measured in tonnage, however, was inconsequential. Many retail distributors, it is true, were caught with scant stocks in their yards, but the rush orders they placed with the mines were for small lots. Only in Kansas was buying sufficiently heavy to have any real effect on the "no bill" situation.

In the drive to corral domestic business many bituminous districts established spring prices which represent substantial reductions from the schedules in effect prior to April 1. For the major domestic sizes the new circulars of the Illinois and Indiana producers show a cut of 40c. per ton. In the Far West still more drastic reductions have been made in the past fortnight, but it does not appear that these latter cuts have stimulated buying. Alabama, on the other hand, reports active contracting by retail dealers on the new spring prices.

Price Situation Unsettled

Less success has attended efforts to stabilize quotations in the Appalachian region. Low-volatiles have been particularly hard hit in the readjustment process. April circulars had hardly reached the buyer before one large West Virginia company dropped its lump price 25c. Mine-run, too, is weak in both Eastern and Western markets. Except in eastern Kentucky, high-volatile prices on prepared sizes have been wobbling badly. *Coal Age* Index of spot bituminous prices on April 5 stood at 158 and the corresponding price was $1.93. This was a decline of five points when compared with the index for March 29.

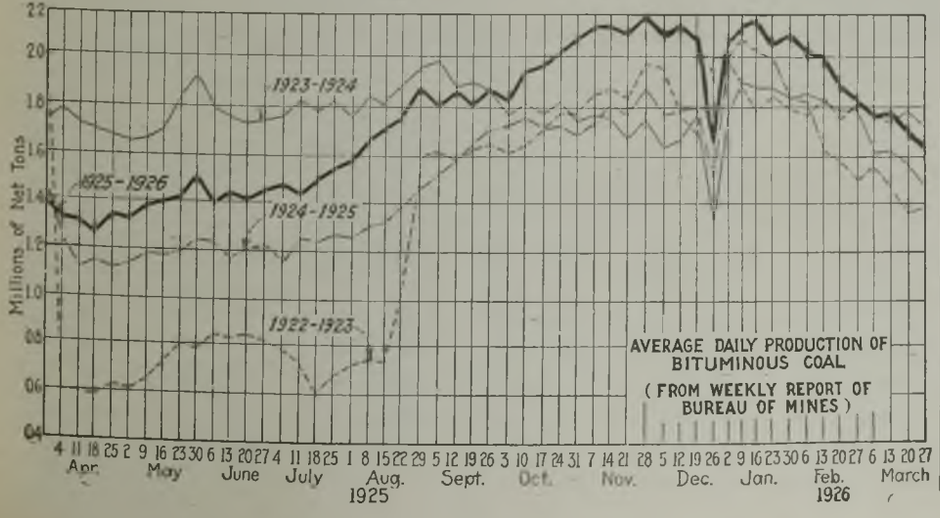
The most hopeful feature in the present situation is the steady decline in production rate. Bituminous output for the week ended March 27 was estimated at 9,609,000 net tons by the Bureau of Mines. Barring the Christmas holidays, this was the lowest weekly output reported since the beginning of last August. Holidays the end of last week held out the hope that further reductions would be registered.

Anthracite Production Climbing

Anthracite production, on the other hand, has been climbing. For the week ended March 27 the output was estimated at 1,991,000 net tons. In view of the growing disinclination of buyers to pay premium prices, the halt in this high rate last week was not unwelcome to the independent shippers. For the most part, the latter can no longer command premiums in excess of 50c. over company maximum. Steam sizes are weak.

There are signs of a slowly expanding market for No. 1 buckwheat coal in the domestic trade. This movement is slightly accelerated by the scarcity of pea. Most of the latter size now being produced is being consumed in the anthracite region. It is reported that at least one big company is planning a reduction in the No. 1 price, but there is nothing to indicate that the producers will reverse themselves on the question of prices on the larger domestic sizes.

The Connellsville coke market is featureless.



Estimates of Production

(Net Tons)

BITUMINOUS

	1925	1926
March 13	8,641,000	10,690,000
March 20 (a)	8,283,000	10,263,000
March 27 (b)	8,353,000	9,609,000
Daily average	1,392,000	1,602,000
Coal yr. to date (c)	468,167,000	535,614,000
Daily average	1,542,000	1,760,000

ANTHRACITE

March 13	1,656,000	1,966,000
March 20	1,513,000	1,963,000
March 27	1,640,000	1,991,000
Coal yr. to date (c)	85,627,000	50,442,000

BEEHIVE COKE

March 20	226,000	263,000
March 27 (b)	220,000	251,000
Cal. yr. to date (c)	3,115,000	3,824,000

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

Drive on for Spring Business

The drive for spring and summer business in the Middle West was opened last week with price reductions by Illinois and Indiana operators. Effective April 1, leading Franklin County shippers quoted $2.60 on lump and 6x3 egg, $2.55 on 3x2 egg, $2.50 on cook-stove egg, chestnut and mine-run, $2.40 on pea and $2 on 2-in. screenings. Central Illinois offered coal at approximately 25c. less. Fourth Vein Indiana circulars named $2.60 on lump and egg; Fifth Vein, $2.25. Advances are planned later in the season.

There also were a number of contracts signed—in most cases for screenings. Franklin County is asking $1.75 on 2-in. coal, and some business has been closed at 10@25c. higher. The prevailing contract figure on 1¼-in. screenings in southern Illinois is $1.60. Fifth Vein Indiana coal has been signed up at $1.35@$1.50. Most of the railroad bids are in, but no awards have been made. St. Louis reports that some Springfield and Mt. Olive screenings have been quoted as low as $1.25 on contract and some Standard mine-run at $1.65.

Aside from a rush demand for domestic sizes, brought about by the blizzard which swept over Illinois and neighboring states, business at the mines was sluggish. This flurry, however, resulted in many small-lot orders for immediate shipment and temporarily reduced the number of "no bills" in the southern districts. Duquoin did not fare so well and the outlook for Mt. Olive is not promising. The Belleville field is limping along.

Eastern Coals Press Middle West

Eastern shippers are still combing Chicago and other markets in the Middle West for orders. High-grade smokeless mine-run has been offered to the retail trade as low as $1.65. Quotations on high-volatile coals cover a wide range. Wholesalers have been pressed to take 4-in. Logan County block at $1.60 and 4x2 egg at $1.35. Eastern Kentucky block is $2@$2.50 and egg, $1.75@$2.25. Anthracite receipts are increasing.

Raw weather and a falling thermometer increased household demand for Kentucky coal last week. For the most part, however, retail dealers in Louisville were able to meet the demand with stocks on hand, but in some other parts of the country hurry-up orders were placed with the producers.

There is a moderate movement of Kentucky coal to Northern markets. Producers in the eastern part of the state are signing up some lake business and the western district is lining up orders north of the Ohio River in territory formerly considered the exclusive preserve of the Illinois and Indiana producers. Eastern Kentucky block is $1.75@$2.25; lump, egg and nut, $1.75 @$2; mine-run, $1.50@$1.60; screenings, 90c.@$1.10. Western Kentucky block is held at $1.75@$2; lump and egg, $1.50@$1.75; nut, $1.35@$1.60; mine-

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

Low-Volatile, Eastern	Market Quoted	Apr. 6, 1925	Mar. 22, 1926	Mar. 29, 1926	Apr. 5, 1926†
Smokeless lump	Columbus	$3.10	$3.35	$3.10	*$2.75@$3.00*
Smokeless mine run	Columbus	1.90	2.10	2.00	*1.90@ 2.00*
Smokeless screenings	Columbus	1.20	1.15	1.15	1.00@ 1.35
Smokeless lump	Chicago	2.85	3.10	2.60	2.50@ 2.75
Smokeless mine run	Chicago	1.85	1.95	1.85	*1.65@ 2.00*
Smokeless lump	Cincinnati	2.85	3.25	2.75	2.50@ 3.00
Smokeless mine run	Cincinnati	2.00	2.25	2.10	*2.00*
Smokeless screenings	Cincinnati	1.50	1.35	1.35	1.25@ 1.50
*Smokeless mine run	Boston	4.35	4.40	4.25	*4.10@ 4.25*
Clearfield mine run	Boston	1.95	2.05	1.95	*1.75@ 2.00*
Cambria mine run	Boston	2.25	2.30	2.15	2.00@ 2.35
Somerset mine run	Boston	2.10	2.10	2.00	*1.85@ 2.15*
Pool 1 (Navy Standard)	New York	2.65	2.85	2.75	*2.60@ 2.85*
Pool 1 (Navy Standard)	Philadelphia	2.65	2.80	2.80	2.65@ 3.00
Pool 1 (Navy Standard)	Baltimore	2.10	2.10	2.05	2.00@ 2.10
Pool 9 (Super. Low Vol.)	New York	2.05	2.35	2.30	*2.15@ 2.35*
Pool 9 (Super. Low Vol.)	Philadelphia	2.00	2.35	2.35	2.20@ 2.50
Pool 9 (Super. Low Vol.)	Baltimore	1.90	2.00	1.90	1.85@ 1.95
Pool 10 (H.Gr.Low Vol.)	New York	1.80	1.95	1.95	*1.70@ 2.00*
Pool 10 (H.Gr.Low Vol.)	Philadelphia	1.65	2.05	2.05	1.90@ 2.25
Pool 10 (H.Gr.Low Vol.)	Baltimore	1.75	1.80	1.75	1.70@ 1.80
Pool 11 (Low Vol.)	New York	1.55	1.70	1.70	*1.50@ 1.85*
Pool 11 (Low Vol.)	Philadelphia	1.55	1.80	1.80	*1.55@ 1.85*
Pool 11 (Low Vol.)	Baltimore	1.50	1.65	1.60	1.60@ 1.65
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.45	1.50	1.45	*1.35@ 1.55*
Pool 54-64 (Gas and St.)	Philadelphia	1.45	1.45	1.45	1.35@ 1.55
Pool 54-64 (Gas and St.)	Baltimore	1.70	1.35	1.30	1.30@ 1.35
Pittsburgh so'd gas	Pittsburgh	2.40	2.45	2.45	*2.35@ 2.50*
Pittsburgh gas mine run	Pittsburgh	2.00	2.05	2.05	2.00@ 2.15
Pittsburgh mine run (St.)	Pittsburgh	1.80	2.00	2.00	*1.90@ 2.00*
Pittsburgh slack (Gas)	Pittsburgh	1.65	1.45	1.45	**1.50@ 1.60**
Kanawha lump	Columbus	2.10	2.10	2.10	*1.85@ 2.30*
Kanawha mine run	Columbus	1.50	1.55	1.55	1.40@ 1.70
Kanawha screenings	Columbus	.95	.85	.85	**1.00@ 1.20**
W. Va. lump	Cincinnati	2.00	2.05	1.85	1.75@ 2.00
W. Va. gas mine run	Cincinnati	1.30	1.50	1.40	**1.40@ 1.65**
W. Va. steam mine run	Cincinnati	1.20	1.35	1.35	**1.35@ 1.50**
W. Va. screenings	Cincinnati	1.00	.85	.85	**75@ 1.10**
Hocking lump	Columbus	2.25	2.50	2.35	2.25@ 2.50
Hocking mine run	Columbus	1.45	1.50	1.50	**1.40@ 1.70**
Hocking screenings	Columbus	1.15	1.05	1.05	**1.00@ 1.20**
Pitts. No. 8 lump	Cleveland	2.25	2.25	2.25	1.90@ 2.65
Pitts. No. 8 mine run	Cleveland	1.75	1.85	1.85	1.85@ 1.90
Pitts. No. 8 screenings	Cleveland	1.45	1.35	1.40	**1.50@ 1.60**

Midwest	Market Quoted	Apr. 6, 1925	Mar. 22, 1926	Mar. 29, 1926	Apr. 5, 1926†
Franklin, Ill. lump	Chicago	$2.60	$3.00	$3.00	*$2.60*
Franklin, Ill. mine run	Chicago	2.35	2.40	2.40	2.35@ 2.50
Franklin, Ill. screenings	Chicago	2.10	1.85	1.90	*1.75@ 2.00*
Central, Ill. lump	Chicago	2.35	2.60	2.35	*2.25@ 2.40*
Central, Ill. mine run	Chicago	2.10	2.10	2.10	*2.00@ 2.10*
Central, Ill. screenings	Chicago	1.90	1.40	1.40	*1.25@ 1.40*
Ind. 4th Vein lump	Chicago	2.60	2.75	2.75	*2.25@ 2.60*
Ind. 4th Vein mine run	Chicago	2.10	2.20	2.15	2.10@ 2.25
Ind. 4th Vein screenings	Chicago	2.05	1.70	1.70	1.65@ 1.75
Ind. 5th Vein lump	Chicago	2.10	2.15	2.15	2.00@ 2.35
Ind. 5th Vein mine run	Chicago	1.95	1.95	1.95	1.85@ 2.10
Ind. 5th Vein screenings	Chicago	1.70	1.30	1.30	1.25@ 1.35
Mt. Olive lump	St. Louis	2.50	2.75	2.75	*2.50*
Mt. Olive mine run	St. Louis	2.25	2.15	2.15	2.15
Mt. Olive screenings	St. Louis	1.75	1.40	1.40	1.40
Standard lump	St. Louis	2.25	2.50	2.50	2.50
Standard mine run	St. Louis	1.80	1.80	1.80	1.75@ 1.85
Standard screenings	St. Louis	1.70	1.15	1.15	1.15@ 1.20
West Ky. block	Louisville	1.85	1.85	1.85	1.75@ 2.00
West Ky. mine run	Louisville	1.35	1.30	1.30	1.15@ 1.50
West Ky. screenings	Louisville	1.25	.95	.95	**90@ 1.10**
West Ky. block	Chicago	1.85	1.75	1.75	1.65@ 1.85
West Ky. mine run	Chicago	1.30	1.15	1.15	.80@ 1.50
South and Southwest					
Big Seam lump	Birmingham	2.25	2.35	2.00	1.75@ 2.25
Big Seam mine run	Birmingham	1.75	1.75	2.00	1.75@ 2.25
Big Seam (washed)	Birmingham	1.85	2.10	2.25	2.00@ 2.50
S. E. Ky. block	Chicago	2.10	2.60	2.35	*2.00@ 2.50*
S. E. Ky. mine run	Chicago	1.55	1.65	1.65	1.50@ 1.85
S. E. Ky. block	Louisville	2.10	2.35	2.00	1.75@ 2.25
S. E. Ky. mine run	Louisville	1.35	1.55	1.50	**1.50@ 1.60**
S. E. Ky. screenings	Louisville	1.10	1.00	1.00	.90@ 1.10
S. E. Ky. block	Cincinnati	2.10	2.25	2.10	2.00@ 2.25
S. E. Ky. mine run	Cincinnati	1.25	1.50	1.50	1.25@ 1.75
S. E. Ky. screenings	Cincinnati	1.05	.90	.90	**80@ 1.15**
Kansas lump	Kansas City	4.25	4.35	4.35	4.25@ 4.50
Kansas mine run	Kansas City	2.85	2.85	2.85	*2.50@ 3.00*
Kansas screenings	Kansas City	2.75	2.50	2.50	2.50

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

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

	Market Quoted	Freight Rates	April 6, 1925 Independent	April 6, 1925 Company	Mar. 29, 1926 Independent	Mar. 29, 1926 Company	April 5, 1926† Independent	April 5, 1926† Company
Broken	New York	$2.34	.....	$8.00@$8.50	.....	$8.15@$9.25	.....	$8.15@$9.25
Broken	Philadelphia	2.39	.....	9.15	$9.00@12.50	9.00@ 9.25	*$9.00*	9.00@ 9.25
Egg	New York	2.34	$8.25@$8.50	8.25@ 8.50	10.25@11.00	8.75@ 9.25	*9.50@10.25*	8.75@ 9.25
Egg	Philadelphia	2.39	8.50@ 9.20	8.30@ 8.50	9.25@12.50	9.15@ 9.25	*9.25@ 9.90*	9.15@ 9.25
Egg	Chicago*	5.06	7.76@ 8.40	7.42@ 8.08	.....	8.13	8.75	8.13
Stove	New York	2.34	8.50@ 8.75	8.50@ 8.90	10.50@11.00	9.25@ 9.50	*9.50@10.25*	9.25@ 9.50
Stove	Philadelphia	2.39	9.10@ 9.55	8.75@ 8.90	9.60@12.50	9.35@ 9.50	*9.60@10.00*	9.35@ 9.50
Stove	Chicago*	5.06	8.12@ 8.50	7.82@ 8.00	.....	8.33@ 8.58	8.88	**8.58**
Chestnut	New York	2.34	8.25@ 9.50	8.25@ 8.50	10.25@11.00	8.75@ 9.15	*9.50@10.25*	8.75@ 9.15
Chestnut	Philadelphia	2.39	8.50@ 9.35	8.40@ 8.50	9.25@12.50	9.00@ 9.15	*9.25@10.25*	9.00@ 9.15
Chestnut	Chicago*	5.06	7.94@ 8.25	7.59@ 8.00	.....	8.33@ 8.53	8.88	8.33@ 8.53
Pea	New York	2.22	4.25@ 5.00	5.00@ 5.50	6.00@ 7.50	6.00@ 6.35	**6.50@ 7.50**	6.00@ 6.35
Pea	Philadelphia	2.14	5.00@ 5.75	5.25@ 5.30	6.50@ 7.50	6.00@ 6.50	*6.50@ 7.00*	6.00@ 6.50
Pea	Chicago*	4.79	4.91@ 5.36	4.69@ 5.00	.....	5.65@ 5.80	5.65	5.65@ 5.80
Buckwheat No. 1	New York	2.22	2.00@ 2.75	2.50@ 3.00	2.50@ 3.00	3.00@ 3.50	*2.10@ 2.60*	3.00@ 3.50
Buckwheat No. 1	Philadelphia	2.14	2.00@ 2.25	2.50	3.00@ 3.50	3.00	*2.50@ 3.00*	3.00
Rice	New York	2.22	1.90@ 2.25	2.00	1.85@ 2.25	2.00@ 2.25	*1.50@ 2.00*	2.00@ 2.25
Rice	Philadelphia	2.14	1.75@ 2.00	2.00	2.25	2.25	2.25	2.25
Barley	New York	2.22	1.35@ 1.50	1.50	1.30@ 1.65	1.60@ 1.75	*1.30@ 1.50*	1.60@ 1.75
Barley	Philadelphia	2.14	1.50	1.50	1.75	1.75	*1.50@ 1.60*	1.75
Birdseye	New York	2.22	1.40@ 1.60	1.60	1.40@ 1.60	2.00	**1.60@ 1.75**	2.00

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

run, $1.15@$1.50; screenings 90c. @$1.10.

Try to Unload Dock Surplus

Current movement in the dock trade at the Head of the Lakes has been erratic, in keeping with the weather fluctuations in demand. Bookings for early April delivery, however, have been substantial and industrial inquiry has improved. Sales agents have started an aggressive campaign to cut down the stocks on hand—estimated at 2,375,000 tons—before navigation opens. Irregularity in prices has been the result and quotations are off 25@50c. a ton, except upon smokeless, which slipped sharply a few weeks ago.

With orders for anthracite flowing in at an increasing rate, dock operators feel that the market will readily absorb 1,000,000 tons during the coming season of navigation. Retail yards at Superior and Duluth have been booking fill-up orders from householders who are not quibbling over what the price may be. On the industrial side the most active demand at the present time is for bituminous screenings, which are held at $4, f.o.b. docks.

Unseasonably cold weather kept the retail trade in the Twin Cities busy last week, but few orders were placed with the wholesalers. Steam buyers, too, have been holding back, influenced in their policy by the fact that they have been able to pick up distress tonnage here and there. Weather conditions also had a favorable effect upon the movement of coal in Milwaukee.

Snowstorm Cleans Up "No Bills"

The heavy snowstorms which swept over the Middle West last week cleaned up the "no bills" in the Kansas field and brought full-time operation to the mines that were open. Stripping operations were the chief beneficiaries. Shaft-mine screenings are scarce, but the demand has been met by crushed shovel mine-run. Arkansas and Oklahoma operations shared little in the rush demand. Although the retailers specified small cars of Kansas coal, they took any equipment loaded.

April reductions averaging $2 per ton have failed to stimulate domestic demand for Colorado coal. Retail buying, for the most part, is limited to current consumer demand. Steam-coal movement, on the other hand, is active and prices have been advanced approximately 50c. Colorado mines are running about three days a week.

A weather flurry toned up Utah retail business last week, but there was little reaction at the mines. Few operations are doing better than two days a week. Industrial demand is subnormal and "no bills" are piling up. An interesting development is the activity of companies doing business on a C. O. D. basis. Two companies, offering Carbon County coal, are now working on this plan in Salt Lake City. One has cut quotations 75c.@$1.50 and the other, $2.25 per ton.

Smokeless Prices Slumping

The price situation in smokeless coals is still unsettled. After most of the standard shippers had announced a $3 price on lump and egg for April, one of the largest in the field—the Crozer-Pocahontas Co.—quoted $2.75 and three other distributors met that figure. Nut is $2@$2.25 in the Cincinnati market; mine-run fairly steady at $2, and slack, $1.25@$1.50.

Diversion of business from the Harlan to the Elkhorn field is the outstanding development in the high-volatile market. One contract calling for approximately 700,000 tons for steel plants has been switched to the Elkhorn district on a $1.50 mine-run basis. Several Ohio and Canadian utility contracts also are going to the Elkhorn field on the same basis. The $1.50 price has been fairly well established as the ruling lake figure. Heavy contract buying on "a mine-run basis" has strengthened the market in slack. Some coal still can be had at 80c., but the better grades are $1@$1.15.

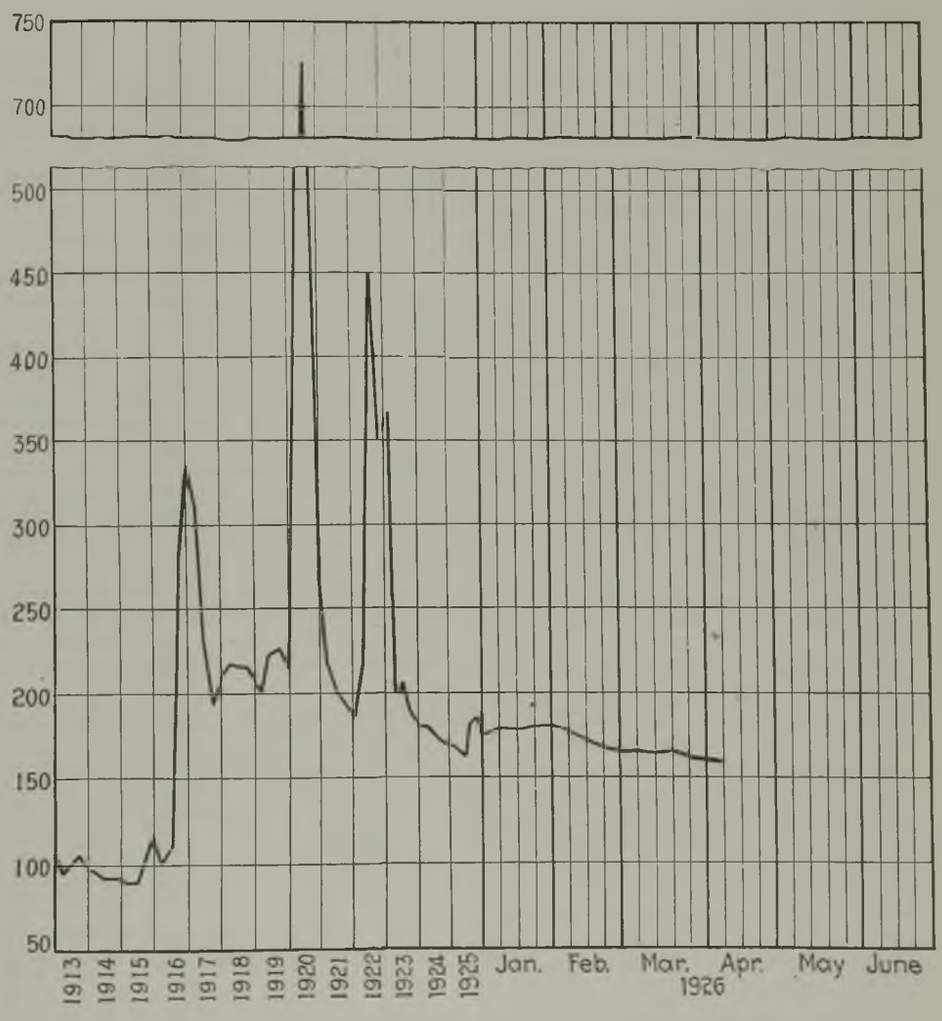
The market for prepared sizes is in a state of collapse. Southeastern Kentucky is sticking to the $2@$2.25 range on block, but 4-in. West Virginia block is freely offered at $1.75@$2 and egg is weak at $1.50@$1.75. Spot mine-run, both steam and byproduct, is draggy.

Uncertainty Rules Central Ohio

The central Ohio steam trade is still an uncertain quantity. Many of the contracts which expired April 1 have not been renewed, and there is nothing in sight to indicate that they will be. With supplies plentiful, buyers find the spot market equal to all their demands. No improvement is expected until the lake trade is in full swing. Southern Ohio, which is now producing about 18 per cent of capacity, is cherishing no hopes, however, that it will be an active participant in that business.

Except in the case of slack and nut-and-slack, it has been difficult to market eastern Ohio coal—even at a loss. Screenings, however, have again stiffened and recent quotations show an advance of 10c. Production in the No. 8 field during the week ended March 27 was estimated at 217,000 tons, or 31 per cent of potential capacity. The output was 30,000 tons less than in the week preceding and 34,000 tons under the figures for the corresponding week in 1925.

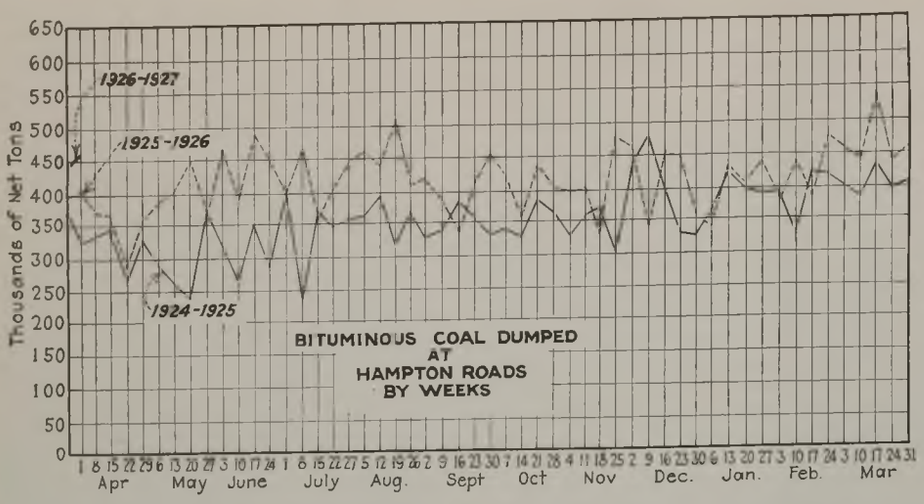
What little business is left in the Pittsburgh district appears to be drifting into the hands of a few operators. The majority of the producers seem to feel that they cannot operate on the Jacksonville scale and do not care to follow the lead of the Pittsburgh Coal Co. in its open-shop policy. That com-



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

	1926				1925	1924
	Apr. 5	Mar. 29	Mar. 22	Mar. 15	Apr. 6	Apr. 7
Index	158	163	167	168	162	171
Weighted average price	$1.93	$1.97	$2.02	$2.03	$1.96	$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 of 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.



pany during the week ended March 27 had nine mines running and produced 37,923 tons—approximately 15 per cent of its weekly output in 1923.

Slack coal is up 10c., but steam mine-run is off a dime. Screened gas coal, too, is a shade easier. Some West Virginia mines working the Pittsburgh seam have been offering three-quarter steam at $1.35, as compared with $1.90 @$2 in the Pittsburgh district. Lake season contracts have been sought by these same non-union interests at $1.45.

More Pennsylvania Mines Down

A number of the smaller operations in the central Pennsylvania field have shut down until demand shows more life. Production last month was 70,340 cars, as compared with 82,648 cars in February. Prices on the higher grades of coal are steady, but quotations on lower grades have weakened. Pool 1 is $2.50@$2.60; pool 71, $2.35@$2.45; pool 9, $2.10@$2.20; pool 10, $1.85@$1.90; pool 11, $1.65@$1.70; pool 18, $1.60.

Industrial demand for bituminous coal in the Buffalo market is as dull as has been the case for several weeks past. Nominal quotations are unchanged. Domestic demand last week reflected winter weather conditions, but there was little call for the "substitute" fuels. The only sign of interest in that section of the trade was in the low-volatiles. Consumers rebel against current coke prices despite recent reductions.

Midsummer moribundity characterizes the steam coal market in New England. Inquiry for all grades is very light. Consumers who buy in volume appear to have made a resolution to pay the lowest prices which have prevailed in recent years. They are relying upon accumulations at the southern loading piers to control the situation. Those who will not buy distress tonnage expect their regular sources of supply to modify quotations in the light of the prices at which demurrage coal has been moved.

Southern Spot Market Demoralized

The spot market at Norfolk and Newport News is demoralized. Few shippers pretend to ask more than $4.25 gross, f.o.b. vessels, for Navy Standard coal. There is a surplus available at the Northern ports for inland delivery and spot prices are wobbly. As low as $5.60 gross on cars at Boston has been heard within the past few days.

There are only occasional inquiries for Pennsylvania bituminous, either for all-rail or rail-and-water shipment. Quotations are soft. Even where the competition with the low-volatiles from southern West Virginia is not direct, the central Pennsylvania shippers know that only a minimum figure will attract any attention.

Marine freights are settling into a low season basis, especially on steamers. Only those owners with good connections are able to keep their tonnage continuously in service along the coast, and rates are correspondingly easy. Retail prices on steam coal at Boston have been reduced.

Distress Coal Still a Factor

Distress coal, which can be bought at $1@$1.25, mines, is still a depressing factor in the New York bituminous market and dulls the interest of consumers in other spot trade. Tidewater buying has been slow. There are many loaded boats in the harbor awaiting buyers. Most of these boats were loaded to relieve congestion at the piers. Small quantities of sized Connellsville coke are moving at $3.50@$3.75, ovens. A few vessels of foreign coal and coke reached the harbor last week.

At both Philadelphia and Baltimore, as at New York, there is little interest displayed by buyers in contract renewals. The only bright spot in the latter city is the export situation, which has absorbed some of the coal standing at the piers. The eagerness of Philadelphia coal men to line up contracts has resulted in many attractive price tenders, both to utilities and industrials. Spot gas slack is the weakest member of the slack family. April contracts on pool 1 coal at Hampton Roads average $1.75 net, f.o.b. mines.

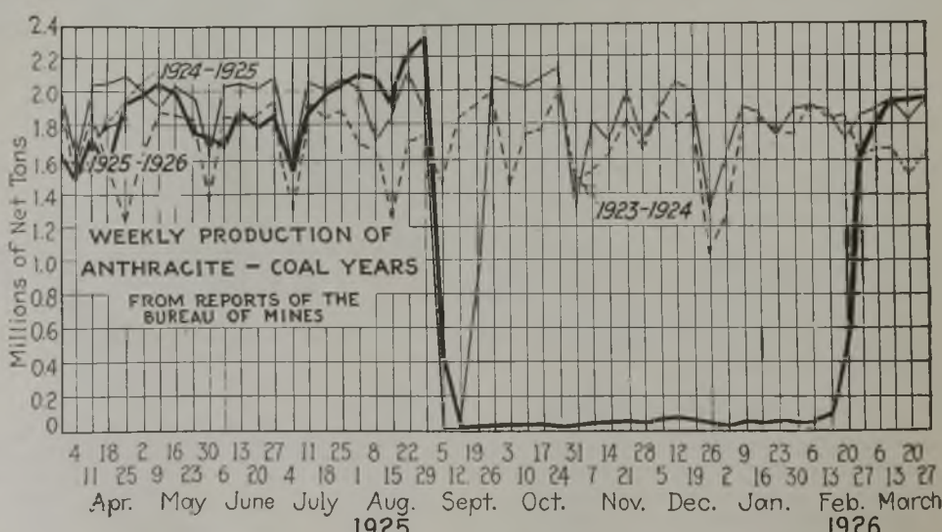
Sales of domestic coals in the Birmingham market last week were largely on contract orders. At the present rate of buying the bulk of the medium and high-grade coals will be booked up through the spring and summer by the end of May. On the industrial side there has been no material decline in the demand for high-grade mine-run and washed coals. All large consumers are taking their contract quotas. Output approximates 400,000 tons per week.

New York Anthracite Demand Easier

Domestic anthracite coals were easier in the New York market last week. Independent shippers welcomed the week-end suspensions in the hope that the price situation—from their standpoint—would be improved. Current quotations cover a wide range, with the average minimum around $9.50. Stove and nut lead in demand. Pea is still scarce, much of the output being consumed in the region. There was no change in company prices on April 1, but it is reported that at least one large producer is planning a cut of 50c. on No. 1 buckwheat.

Retail dealers, however, readjusted prices to the consumer. The new schedule generally prevailing in Manhattan is as follows: Broken, $14.25; egg and nut, $14.50; stove, $14.75; pea, $10.75; No. 1 buckwheat, $6.40; rice, $5.90; barley, $5.40; bituminous, $7.25. One company announced that Welsh anthracite would be retailed at $2 per ton above the price on the Pennsylvania product.

Independent shippers at Philadelphia signalized the new coal year with reductions which brought their average quotations down to 50c. above the company range. Retail dealers, for the most part basing their prices on company coal figures, which showed no change, established the following basis: Egg and nut, $15.75; stove, $16; pea, $12; buckwheat, $8, curb delivery.



Car Loadings and Supply

	Cars Loaded — All Cars	Coal Cars
Week ended March 20, 1926	977,209	183,205
Preceding week	967,411	188,834
Week ended March 21, 1925	911,481	140,746

	Surplus Cars — All Cars	Coal Cars	Car Shortages — All Cars	Coal Cars
March 22, 1926	213,780	79,551	.....	.....
March 15, 1926	198,854	72,214	.....	.....
March 22, 1925	320,565	168,963	.....	.....

Buckwheat Demand Broadening

There is a growing demand for buckwheat as a domestic fuel and more dealers are offering this size to the household consumer. In many cases buckwheat is replacing pea, which is not being shipped in quantities equal to the demand. Summer fill-ups have started and that prevents real weakness in any domestic size. The steam trade is slow. There is considerable shading of independent prices, particularly on buckwheat.

Baltimore retailers have not deviated from their policy of placing the bulk of their orders with company shippers. With milder weather, they are hopeful that high premiums on independent tonnage will disappear. Most of the yards have some stock of each domestic size and there has been no great difficulty in supplying current needs of consumers.

Spot trade in the Connellsville coke region last week was extremely dull. There has been little call for spot furnace coke, which is quoted at $3.25, and no surplus seeking a market. Spot foundry coke is $4.50@$5, with buying light and production closely regulated. Production during the week ended March 27, according to the Connellsville *Courier* was 187,630 tons. Furnace ovens produced 104,800 tons, or 200 tons more than during the preceding week; merchant ovens produced 82,830 tons, a decrease of 2,580 tons.

New Title for Safety Director

Because Bureau of Mines officials felt that the title "Director of Safety Service" was a misnomer, a change in designation was made this week, and henceforth the official in charge of this branch of the work will be known as "Chief Engineer, Safety Service."

Total Coke Output Falls in February; Daily Rate Gains

Output of byproduct coke during February, according to the Bureau of Mines, totaled 3,500,000 net tons, a decrease of 304,000 tons, or 8 per cent, compared with the output in January, although the daily rate increased to 125,006 tons, a gain of 2,295 tons, or 1.9 per cent. The coke plants operated at about 94 per cent of capacity. There have been 80 byproduct plants in existence since November, of which 74 are active.

Total production of beehive coke in February, estimated at 1,402,000 net tons, shows a gain of 21,000 tons, or 1.5 per cent, compared with that in January.

Production of all coke amounted to 4,902,000 tons, the byproduct plants contributing 71 per cent (73 per cent in January), and the beehive plants the remainder.

Monthly Output of Byproduct and Beehive Coke in the United States[a]

(In Thousands of Net Tons)

	Byproduct Coke	Beehive Coke	Total
1923 Monthly average	3,133	1,615	4,748
1924 Monthly average	2,833	806	3,639
1925 Monthly average	3,332	893	4,225
November, 1925	3,557	1,213	4,770
December, 1925	3,760	1,307	5,067
January, 1926	3,804	1,381	5,185
February, 1926	3,500	1,402	4,902

a Excludes screenings and breeze.

Estimated Monthly Consumption of Coal in the Manufacture of Coke

(In Thousands of Net Tons)

	Consumed in byproduct Ovens	Consumed in beehive Ovens	Total Coal consumed
1923 Monthly average	4,523	2,507	7,030
1924 Monthly average	4,060	1,272	5,332
1925 Monthly average	4,787	1,371	6,158
Novembr, 1925	5,111	1,913	7,024
December, 1925	5,403	2,062	7,465
January, 1926	5,466	2,178	7,644
February, 1926	5,029	2,212	7,241

Of the total output of byproduct coke during February, 2,859,000 tons, or 81.7 per cent, was made in plants associated with iron furnaces, and 641,000 tons, or 18.3 per cent, was made at merchant or other plants.

Bethlehem's Output of Coal And Coke Climbs

The 21st annual report of the Bethlehem Steel Corporation shows that for the year ended Dec. 31, 1925, the mines of that concern produced 6,331,246 gross tons of coal, as compared with 5,586,200 gross tons in 1924, and that 4,446,472 gross tons of coke was manufactured as compared with 3,446,728 tons in the previous twelve months.

The coal properties of the Corporation are located in the vicinity of Ellsworth, Heilwood, Johnstown, Marianna, Slickville and Wehrum, Pennsylvania; Fairmont and Morgantown, West Virginia. The properties are estimated to contain 840,395,000 tons of coal and are equipped to produce 10,000,000 tons per annum. The Corporation also owns 1,704 byproduct coke ovens.

Erie Coal Segregation Not Imminent, Is Report

No plan of segregation of the Erie R.R. coal interests is imminent or under consideration, according to a report this week. The subject of segregation of the Erie's holdings of the stock of the Pennsylvania Coal Co., it is understood, was not considered at the March 26 meeting of the railroad's directors. It has been pointed out that in addition to the fact that the Pennsylvania Coal Co.'s shares are pledged specifically as collateral security for a bond mortgage loan made to the Erie R.R., there is no interlocking of the two companies. The directors, officers and management of the Pennsylvania Coal Co. are all, it is stated, separate and distinct from those of the railroad company.

Federal Fuel Yard Asks Bids

Chief Engineer Pope, Government Fuel Yards, sent out proposals March 30 for bids on anthracite and bituminous coal for the fiscal year commencing July 1. Bids are to be opened at 10 a.m. May 12 at the office of Mr. Pope, in Washington, for 12,450 tons of anthracite and 244,500 tons of bituminous.

Coal Produced in Missouri in 1924[a]

(Exclusive of Product of Wagon Mines)

County	Net Tons — Loaded at Mines for Shipment	Sold to Local Trade and Used by Employees	Used at Mines for Steam and Heat	Total Quantity	Value — Total	Value — Average Per Ton	Number of Employees — Underground — Miners *b*	Underground — All Others	Surface	Total	Average Number of Days Worked	Average Tons Per Man Per Day
Adair	123,193	26,082	5,020	154,295	$474,000	$3.07	218	111	24	353	138	3.17
Audrain	3,291	12,877	122	16,920	69,000	4.08	36	13	4	53	264	1.21
Barton	702,690	5,440	31,724	739,854	2,170,000	2.93	33	10	636	679	122	8.96
Bates	198,220	2,002	7,625	207,847	518,000	2.49	103	22	102	227	146	6.25
Boone, Chariton, and Callaway	600	18,738	.....	19,338	65,000	3.36	43	8	7	58	176	1.87
Caldwell, Clay, and Platte	51,279	45,590	2,756	99,625	472,000	4.74	194	79	24	297	182	1.84
Grundy, Harrison, and Schuyler	2,050	7,904	237	10,191	52,000	5.10	40	12	6	58	151	1.16
Henry	101,300	9,605	826	111,731	322,000	2.88	21	3	99	123	192	4.73
Lafayette	277,635	39,163	9,699	326,497	1,238,000	3.79	865	273	101	1,239	124	2.12
Linn	2,699	19,027	103	21,829	104,000	4.76	72	18	12	102	111	1.92
Macon	170,533	9,519	1,546	181,598	559,000	3.08	594	159	59	812	101	2.21
Putnam	8,547	.....	.....	8,547	26,000	3.04	47	9	5	61	89	1.56
Randolph	128,289	6,070	3,865	138,224	446,000	3.23	328	55	37	420	144	2.29
Ray	363,639	41,504	3,059	408,202	1,529,000	3.75	993	277	132	1,402	146	1.99
Other counties *c*	34,560	781	841	36,182	110,000	3.04	62	19	12	93	135	2.88
Total	2,169,155	244,302	67,423	2,480,880	8,154,000	$3.29	3,649	1,068	1,260	5,977	135	3.08

(a) Note that the coal statistics of the Geological Survey for a given year include only the mines that had an output in that year. Many mines that operated in 1923 produced no coal in 1924; moreover, many of the mines that did produce in 1924 worked for a short time only. The number of active mines of commercial size in Missouri was 149 in 1923 and 127 in 1924.

(b) Includes also loaders and shotfirers. (c) Johnson, Ralls and Vernon. Statistics issued by U. S. Bureau of Mines.

Foreign Market And Export News

Welsh Trade Picks Up As Boats Wait to Berth; Tyne Market Marks Time

London, England, March 23.—The Welsh steam coal trade was much more active this week, largely owing to the better arrival of shipping, and for the first time in two months ships have been waiting to berth. This factor, combined with better loading facilities at the docks, has enabled operators to clear large stocks of coal and also to put their pits into more regular operation.

There are indications that foreign buyers, in anticipation of some unusual event on May 1, are laying in heavy stocks of coal as a precautionary measure. In addition to this there is the usual accelerated activity preceding the Easter holidays. These influences have served to stiffen prices, though as yet there is little sign of operators covering the gap of around 3s. 3d. between selling prices and cost of production.

On account of this gap there is a feeling in Wales that unless the subsidy is continued or some other relief measure is introduced, many of the pits must close down. The report of the Coal Commission has been received with mixed feelings, though the general attitude is hostile.

The situation at Newcastle has fallen entirely under the influence of the Coal Commission report, and until it is known what is going to happen in the industry there is little inclination to do business of any sort. The business for March is quite good and the exports are satisfactory, but there is very little forward business on foot. The only contract worth reporting is one of 40,000 tons of Durham gas coals for the Genoa gasworks, to be delivered from May to August.

Output by British collieries during the week ended March 20, according to a special cable to *Coal Age*, totaled 5,370,000 gross tons, compared with 5,285,000 tons the preceding week.

Belgian Conditions Unchanged

The Belgian market jogs on without startling change, reports Brussels under date of March 25. Domestic coals are sluggish and industrial grades maintain their position with difficulty. Foreign competition being to a certain extent eliminated by the rise of sterling, this may react favorably on the Belgian coal market, especially in the Borinage.

Coking smalls are moving at 85@87 fr. and in spite of their high prices they are in great request. Lean duffs, and especially smalls 0x8 for cement works, are scarce at 42@45 fr. per ton. In semi-bituminous, large sizes, such as 10x20 for boilers, are neglected. Small sizes, on the other hand (5x10, 6x8 and 10x15) are active, but the demand for bituminous peas and beans is restricted. The official price on lean smalls has been fixed at 70 fr.

Belgium received 269,424 tons of reparation fuels in February against 312,632 tons in January.

French Spot Demand Featureless; Agree on Summer Prices

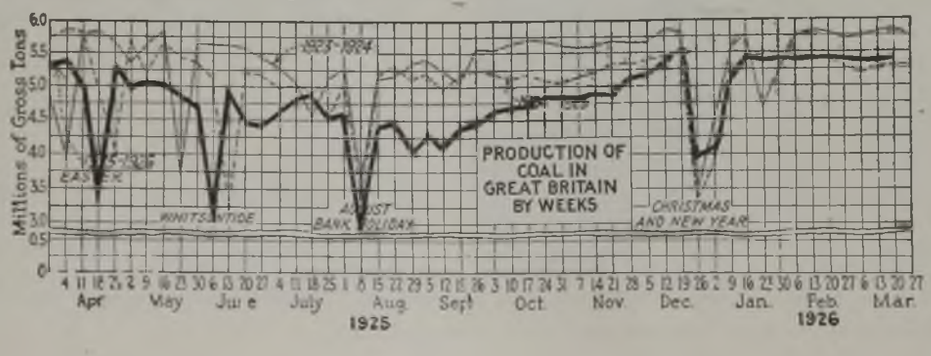
Paris, France, March 25.—There was little change in the French coal markets the past week. Domestic demand is restricted by the weather and the merchants' yards are well stocked. Nevertheless, the mines find a fairly ready sale for their output because Belgian prices are up 6@10 fr. and British quotations are too high to appeal to French buyers. As a result there is a better movement of semi-bituminous and lean nuts. Industrial buying is well sustained.

At a meeting in Paris ten days ago French and Belgian producers reached an agreement on domestic prices in the Paris district for the summer season. The base prices on French coals at the mines range from 162 to 210 fr. on semi-bituminous, 165 to 210 fr. on quarter bituminous, 160 to 210 fr. on lean coals and 180 to 230 fr. on anthracite. A discount of 10 fr. is given for April-May orders, 6 fr. on June-July business and 4 fr. on August orders. The base price on ovoids is 136 fr. and the discounts are 15, 10 and 5 fr., respectively.

Base prices on Belgian coals range from 177 to 230 fr. on semi-bituminous 175 to 230 fr. on quarter bituminous, 175 to 235 fr. on lean and 175 to 255 fr. on anthracite. Discounts are 12 fr. on water and 10 fr. on rail shipments in April and May, 6 fr. on June-July orders and 4 fr. for August. The base price on ovoids is 116 fr. and the discounts are the same as on French patent fuel. Belgian prices are in French francs, and will be subject to correction only when exchange rates have dropped to 80 Belgian to 100 French francs.

In addition to the summer discounts, there also are discounts on large orders. These are 0.5 fr. for lots of 500 to 999 tons; 1 fr. for orders of 1,000 to 1,499 tons and 1.5 fr. for orders exceeding 1,500 tons.

French production, exclusive of the Saar, during January was as follows: Coal, 4,160,862 metric tons; lignite, 90,353 tons; coke, 293,813 tons; patent fuel, 360,319 tons. The Saar turned out 1,112,658 tons of coal and 22,249 tons of coke.



Export Clearances, Week Ended April 1

FROM HAMPTON ROADS

	Tons
For Brazil:	
Ital. Str. Monte Vevoso, for Rio de Janeiro	7,277
Ger. Str. Adeline Hugo Stinnes No. 3, for Rio Grande do Sul	5,715
Br. Str. Skipsea, for Rio de Janeiro	6,604
Br. Str. Essex Heath, for Rio de Janeiro	5,272
For Nova Scotia:	
Br. Str. Fred. Cleves, for Halifax	677
For Cuba:	
Nor. Str. Ravnanger, for Havana	5,087
For Italy:	
Ital. Str. Maria Adele, for Porto Ferrajo	9,914
Du. Str. Vredenburg, for Genoa	9,809
Ital. Str. Sic Vos Non Vobis, for Palermo	2,904
For Mexico:	
Nor. Str. Hanna Nielsen, for Santa Rosalia	3,368
For French West Indies:	
Br. Str. Mathara, for Fort de France	7,213

FROM BALTIMORE

For Italy:	
Br. Str. Lady Brenda, for Savona	4,537
Jap. Str. Kofuku Maru, for Venezia	7,398

Hampton Roads Coal Dumpings*

(In Gross Tons)

	Mar. 25	Apr. 1
N. & W. Piers, Lambert's Pt.: Tons dumped for week	152,916	172,261
Virginian Piers, Sewalls Pt.: Tons dumped for week	92,640	91,945
C. & O. Piers, Newport News: Tons dumped for week	144,390	146,982

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

Pier and Bunker Prices, Gross Tons

PIERS

	March 27	April 3†
Pool 1, New York	$5.50@$5.75	$5.50@$5.75
Pool 9, New York	5.10@ 5.30	*5.10@ 5.25*
Pool 10, New York	4.75@ 5.00	4.75@ 5.00
Pool 11, New York	4.50@ 4.75	4.50@ 4.75
Pool 9, Philadelphia	5.10@ 5.40	5.10@ 5.40
Pool 10, Philadelphia	4.95@ 5.15	*4.80@ 5.15*
Pool 11, Philadelphia	4.60@ 4.80	*4.25@ 4.50*
Pool 1, Hamp. Roads	4.40@ 4.50	*4.25@ 4.35*
Pool 2, Hamp. Roads	4.20	4.15@ 4.25
Pools 5-6-7, Hamp. Rds.	3.90	**3.95@ 4.00**

BUNKERS

Pool 1, New York	$5.75@$6.00	$5.75@$6.00
Pool 9, New York	5.35@ 5.55	*5.35@ 5.50*
Pool 10, New York	5.00@ 5.25	5.00@ 5.25
Pool 11, New York	4.75@ 5.00	4.75@ 5.00
Pool 9, Philadelphia	5.35@ 5.65	5.35@ 5.65
Pool 10, Philadelphia	5.20@ 5.40	*5.05@ 5.40*
Pool 11, Philadelphia	4.65@ 5.05	*4.50@ 4.75*
Pool 1, Hamp. Roads	4.50	*4.35*
Pool 2, Hamp. Roads	4.30	*4.25*
Pools 5-6-7, Hamp. Rds.	4.00	4.00

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

Quotations by Cable to *Coal Age*

Cardiff:	March 27	April 3†
Admiralty, large	24s 6d.	24s.6d.
Steam smalls	14s.	**14s.3d.**
Newcastle:		
Best steams	18s.	18s.
Best gas	18s.@ 20s.	**20s.**
Best bunkers	16s.6d.	16s.6d.

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

Coming Meetings

Canadian Retail Coal Association. Annual convention, King Edward Hotel, Toronto, Ont., Can., April 14 and 15. Secretary, B. A. Caspell, Brantford, Can.

American Welding Society. Annual convention, 29 West 39th St., New York City, April 21-23. Secretary, M. M. Kelly, 29 West 39th St., New York City.

California Retail Fuel Dealers Association. Thirteenth annual convention at Del Monte, Calif., April 22-24. Secretary, J. B. Muir, Oakland, Calif.

Mine Inspectors' Institute of America. Annual meeting, Seventh Avenue Hotel, Pittsburgh, Pa., May 11-13. Secretary, G. B. Butterfield, Hartford, Conn.

International Railway Fuel Association. Eighteenth annual convention, Hotel Sherman, Chicago, Ill., May 11-14. Secretary, J. B. Hutchinson, Omaha, Neb.

National Retail Coal Merchants' Association. Ninth annual convention, New Willard Hotel, Washington, D. C., May 17-19. Resident vice-president, Joseph E. O'Toole, Transportation Bldg., Washington, D. C.

Electric Power Club. Convention at The Homestead, Hot Springs, Va., May 24-27. Secretary, S. N. Clarkson, B. F. Keith Bldg., Cleveland, Ohio.

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

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

Midwest Retail Coal Merchants Association. Annual meeting, May 25 and 26, at Kansas City, Mo. Secretary, James P. Andriano, St. Joseph, Mo.

Western Canada Fuel Association. Annual meeting at Winnipeg, Manitoba, Can., May 27 and 28. Secretary, W. H. Morrison, Winnipeg.

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

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

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

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

New Equipment

Light Weight and Strength Distinguish This Screen

A vibrating screen, new to the mining field, has been put on the market by the Universal Vibrating Screen Co., of Racine, Wis. This screen, the makers claim, handles efficiently either wet or dry materials, 1¼-in. in size to 30-mesh. The Type C screen is shown in the accompanying illustration.

In construction the screen is strong, being built of steel and oak. The steel side members receive all the wear from material passing over the screens. The upper frame is supported on special springs at centrally located points at the end of the frame. The makers

A Slight Motion but Sudden Makes Screening Easy

A shaft with two off-center weights rotated at 1,800 r.p.m. gives this screen a vibration that makes fine material roll on its way rapidly to the holes in the wire cloth.

claim that this two-point suspension is essential, as it tends to equalize the load or feed to screen, so as to keep the vibratory action at an equal intensity over the entire screening area even though the material is fed unevenly at the upper end of screen. To eliminate all possibility of dead areas the distance between the screen cloth supports is made comparatively short. Additional vibration is transmitted directly to the center of cloth where it is most needed.

The vibrating mechanism is simple. It consists of a shaft on which two off-center weights are mounted, and which is rotated at a speed of 1,800 r.p.m. Specially designed dust-proof housings are used for the self-aligning ball bearings, and it is claimed by the makers, all parts of the assembly are 100 per cent oversize, to insure continuous and trouble-proof service. The power requirement is a little over ¾ hp.

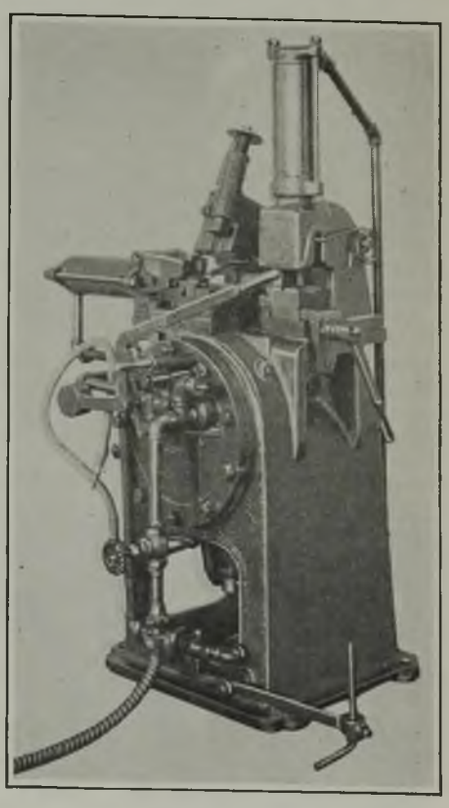
The Type C screen, using screen cloth 3 ft. wide and 8 ft. long, is said to meet nearly all requirements. Special sizes are built, however, among which is the Type F vibrator, using either perforated plate or heavy wire cloth, 4 ft. 8 in. wide by 6 ft. long. This latter type has been designed especially for handling large quantities of fairly dry material, and is essentially a heavy-duty screen. The vibrating mechanism is mounted directly beneath the screening surface, where it is thoroughly protected by steel plates from wear of material passing through the screen, and there are no obstructions to the flow of material.

These screens can be driven from shafting in the plant or by individual motors. The weight of the Type C screen, without motor, is 735 lb., and of the special Type F is 1,050 lb.

Will Sharpen All Sizes of Hammer Drills

Rock-drill users sometimes require a drill sharpener that is sufficiently light and compact to be easily moved and that is able to make ordinary hammer-drill steel bits and shanks effectively. Among these are strip pits and coal mines, also rock tunnels in connection with the latter. To meet this need the Sullivan Machinery Co., Chicago, Ill., has developed the so-called Type C all-hammer sharpener, which weighs only 1,000 lb. and occupies a floor space of only 3½ x 2½ ft. It may be mounted on timbers or skids and is easily moved when necessary. It is capable of making and resharpening any ordinary hammer-drill steel up to 2½-in. gage, and of forging collar or lug shanks. All operations, both upsetting under the dollies and swaging or dressing out the wings, under the vertical dies, are performed by hammer action, with powerful, fast-hitting, horizontal and vertical air hammers.

The sharpener, as shown by the illustration, consists of a substantial,



Portable Type of Sharpener

Though light it has a bit-gaging device similar to that on larger machines. This accurately gages the wings and enables a true double taper to be given the bit.

cast-steel frame on a pedestal, on which are mounted the horizontal hammer for upsetting and the vertical hammer for swaging. In the base is contained the vise or clamp for holding the steel while being dollied and the diaphragm and toggle which furnish the power to operate the clamp. The horizontal and vertical hammers are similar in type and action to those standard on older Sullivan sharpeners. Heavy springs are used to retract the dolly and to lift the upper vertical die from the steel when air is shut off. Dollying is controlled by a hand lever and swaging by a foot lever, the two interlocking, so that the vertical hammer cannot strike while the vise is closed. An adjustable bit-gaging device is provided similar to that used on the older machines, for accurately gaging the wings and for enabling a true double taper to be given the bit. This gage is mounted on a substantial hinge, which permits it to be raised out of the way when not in use, affording a clear view of all the working parts.

Small Machine Handles Much Dust

In the accompanying illustration may be seen the dust spreading machine recently developed and placed on the market by the Chas. C. Steward Machine Co., Inc., of Birmingham, Ala. This shows the machine fully guarded, and equipped with electric motor. It may be fitted with a gasoline engine with equal facility and in fact when thus equipped has been found better fitted for rock dusting the main slopes of mines, inasmuch as these passages are seldom fitted with trolley wire or other conductors from which electric current may be drawn.

This machine weighs less than 1 ton when fully equipped. The frame is all steel, electrically welded. The hopper is small, holding only about 200 lb. of dust. This is agitated by means of three disks on a shaft passing through the bottom of the hopper. This shaft also carries a small pinion which drives a gear on a valve shaft which rotates the dust valve at the desired speed. This delivers the dust to the wind pipe and also seals the air blast from the dust in the hopper.

Although this dust blower is small, it is capable of "shooting" 3,000 lb. of dust per hour without any "blow back" through the hopper. When equipped with a gasoline engine the exhaust is turned into the dust pipe and is blown off with the dust. The nozzle of the machine may be turned by a lever attached to it. An elbow which will slip over this nozzle may be employed to divert the flow of dust at right angles to the pipe if desired.

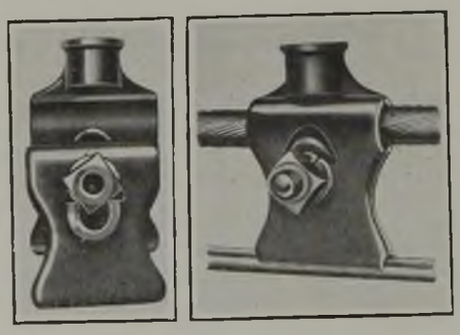
Machines of this kind have been built as low as 30 in. above the rail. They have also been used in mines where the coal ran 14 ft. in thickness, the results in both cases being excellent. In most instances where this machine is used within the mine a car filled with sacks of dust goes along with it. This serves as a source of supply, sacks of dust being taken from it as desired.

Some operators, however, are using this machine without the supply car. In such a case the dust is distributed along the entry to be treated during the day's run. The last in-going trip takes the machine into the mine and leaves it for the dust crew. This consists of two men who operate and feed the machine and also push it along the entry. This is easy as the unit is light and need only be moved a few feet at a time. The sacks of dust are picked up along the entry as they are reached. By this means the labor cost of rock dusting is small and the operation in nowise interferes with the normal working of the mine.

The builder states that these machines are being sold, fully equipped with gasoline engine, f.o.b. Birmingham, for $545 each.

Clamp Holding Trolley Wire Supports and Taps Feeder

Demand for some practical device to simplify and cut erection costs in overhead construction has led to the development of a combination feeder-trolley clamp, announced by the Ohio Brass Co., of Mansfield, Ohio. This clamp, arranged for attachment to a standard insulated hanger, supports in a single unit assembly, both the feeder wire and the trolley, the two being firmly gripped at a predetermined distance of separation, by the tightening of one center bolt.



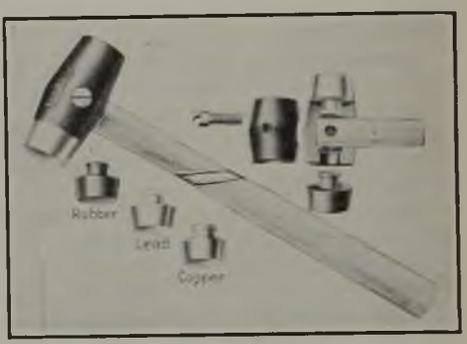
Supports Both Feeder and Trolley Wire

This clamp supports and grips both the feeder cable and the trolley wire in a mine heading. These two conductors are thus held at a predetermined distance of separation and individual supports for each are unnecessary. Lip acts as a cable sling while feeder line is being slung.

It is estimated that the use of this combination cuts almost in half the material and the work required for the separate installation of these conductors. The clamps themselves act as feeder taps, thus eliminating all necessity for the latter. Flecto iron, a new malleable metal is used in the manufacture of this combination clamp, making, it is said, a product that is entirely free from brittleness.

Hammer Fitted with Several Interchangeable Tips

The patent and manufacturing rights to the interchangeable soft-tip hammer illustrated have been acquired by the Husky Wrench Co., 928 Sixteenth Ave., Milwaukee, Wis. The hammer is made in 2- and 4-lb. sizes.



Will Strike Cushioned Blow That Will Do No Injury

Hammer has tips of copper lead, rubber or other soft material

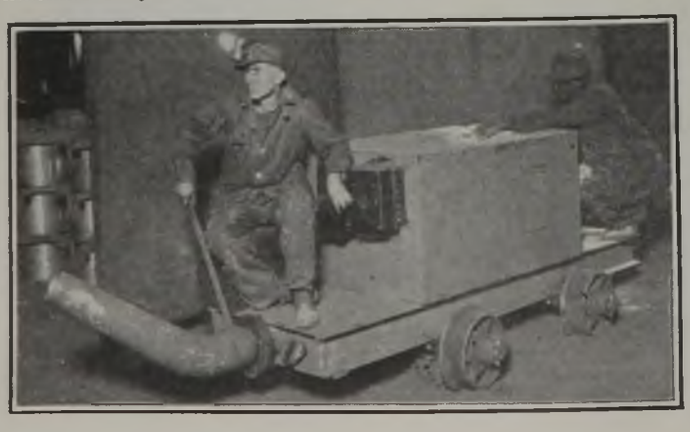
Hammers are supplied with interchangeable soft tips of copper, lead, rubber or other material as desired. They are marketed in sets with two of each kind of tip. The tips can be replaced after loosening the fillister-head screw and separating the housings.

New Companies

The F. P. Weaver Coal Co., Ltd., of Montreal, Que., has been incorporated to carry on the business of mining and selling coal and other fuels wholesale and retail, with a capital stock of $500,000. The incorporators are John Antliff Kent, Stewart Gordon Robertson, Hugh Canniff Willson, and others, of Toronto, Ont.

The G. & G. Coal Co., Orville, Ohio, has been incorporated with a capital of $20,000 to operate mines and deal in coal at wholesale. The incorporators are Ralph Marie, Carl Graber, Benjamin Graber, Willis Horn and H. M. Garver.

The H. D. Grace Coal Co., Coshocton, Ohio, has been incorporated with a capital of $10,000 to mine and sell coal in the Coshocton field. Incorporators are Hugh D. Grace, Edward A. Crawford, Robert H. Daugherty, Karl K. Sherrettes and Elise C. Hosick.



Electric Duster

This dust spreader is small, weighing less than a ton and is well adapted to treating mine passages where current from a trolley wire is available.