

COAL AGE

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A Challenge to Sound Thinking

THE CONFERENCE between Central Competitive Field operators and the United Mine Workers, which opens at Miami next Monday, will mark the beginning of the most important negotiations since collective bargaining became an accepted fact in the organized bituminous coal fields. Issues far greater than the question of the extension of the Jacksonville base rates wait decision. The future of the unionized bituminous districts is at stake.

Whether that future is to be one in which the sphere of union influence again expands or whether it is to be one of continuing decline in union-mined tonnage depends largely upon the attitude in which the conferees approach the problem. If discussions are confined to a renewal of the Jacksonville scale, then the negotiations will be a failure. Regardless of its outcome, a strike, in the present state of the public mind, would be a calamity to the industry. An agreement which went no further than a renewal of the 1924 contract would be almost as tragic.

The future success of the organized fields is not to be decided solely upon the question of wages. What the industry needs is to think more of production costs in the broader sense. Although wages have been the largest single item in these costs, it is unsound to treat wages and production costs as synonymous and interchangeable terms. Efficiency, both in labor and in management, must be given greater weight than too many producers have been willing to accord it in the past.

It is in an attack upon the broader problems that real hope for the future lies. President Lewis of the United Mine Workers has been caustically critical of what he characterizes as "a multiplicity of badly organized, poorly financed and wretchedly managed producing units." Some operators have been sharp in their indictment of the union on the charge of blocking mechanical progress and increased productivity. This indictment Mr. Lewis has repeatedly denied, insisting that labor asks only "a fair share" of the fruits of better operating and mechanical technique.

Little is to be gained by the industry if both sides are content to do no more than lay down these recurring barrages of charges and countercharges. Much is possible if both sides will sit down at the conference table in a spirit of sincere co-operation and honestly endeavor to work out plans for greater efficiency, better labor conditions and lower production costs. If Mr. Lewis and his associates can offer specific, practical suggestions for improvement in management, the employers should not be too thin-skinned to listen. On the other hand, if the operators are able to substantiate their charges that union policy has been detrimental to efficiency and the march of mechanization, Mr. Lewis should be the first man to insist upon reform in his own organization.

There is neither intrinsic virtue nor satisfaction in low wages. On the contrary, modern industrial thinking favors high wages when labor productivity and management make the payment of such wages economically sound. The "factoryization" of the mines, against which some coal diggers loudly protest, offers the best promise of greater financial rewards to labor. *Coal Age*, therefore, hopes that the coming conference will so attack the larger issues before it that the operators will favor a high wage rate and the union such changes as will secure greater production.

Personality in Business

TO BE ENTIRELY SUCCESSFUL, a business must represent the self-expression of the men who direct it. Irrespective of its nature, an enterprise that fails to reflect the personality of its executives cannot reach its ultimate possibilities. To retain the services, loyalty and co-operation of its employees, a corporation must offer something more than good wages, honest treatment and recognition of meritorious service.

To hold the good will of a customer, a company must offer something beyond high-quality products, well serviced, at attractive prices. This "something" is often intangible and is variously called individuality, personality or self-expression. Although strictly speaking inanimate, corporations, companies and businesses are in reality animate, for they are made up of individuals. They, therefore, can and should exhibit the humanness of the men who direct them.

What is true of corporations is likewise true of individuals, for the man who does not express his individuality in his duties, no matter how menial, cannot hope to rise above the ranks of the average. The "average" man of today is he who has for some reason or other repressed, suppressed or entirely lost his personality. He is merely a human machine who, regardless of how efficiently he may perform his duties, is as much like his neighbor as one "flivver" is like another.

Perhaps this age of intense mechanization has something to do with the apparent decrease in the number of "outstanding" figures in our industrial life and in the rank and file of the workers who go to make up our businesses. But paradoxically, perhaps, there are more opportunities today than there were in less mechanized times for the man of personality to rise above the common level of his fellow workers. In fact, personality, is today more essential to success in nearly all lines of endeavor than most other desirable human qualities.

Businesses as well as persons can exhibit their individualities in many ways and those who lack this quality, those who possess it only to a limited extent, or who have an unpleasant personality, can cultivate or modify it to the desired or necessary extent. He who would be more than a small frog in a large puddle, should be a self-expressionist.

Safety Is Good Engineering

A BIG PROBLEM has been presented by the underwriters to the engineers of the American Engineering Council: What is the relation between larger production per man and increased safety? Surely the correct answer is, in brief, that increased production that results from good engineering promotes safety, but that a large output obtained from mere hustle or from installing larger machinery without safeguards may have the opposite effect.

Suppose a coal company seeks to get a large tonnage by changing its haulage methods. It could purchase larger locomotives, designed for greater speed, and the increased tonnage might be obtained, for more cars would be hauled at higher velocities, but if the rails were not changed to accord with the greater weight and higher speed and if the curves were not reduced or eliminated the rails might spread. If the couplings were inadequate, trips might part because of the greater strains and consequently the cars might be wrecked. The final result would be a greater tonnage and a higher accident rate.

It is likely also that the repair costs would be greatly increased. Some of these accidents would result in more time being expended in repair, but as many of the cars might be replaced by new ones, the repair labor might not be sufficient to reduce materially the production per man, so that the net result might, as far as the payroll was concerned, show a gain in tonnage per employee.

On the other hand with or without the purchase of new locomotives, the tonnage might be increased by improving the certainty in operation. Delays might be avoided by scheduling. Block signals might be introduced. Heavy grades might be eliminated increasing tonnage and reducing accidents. Vertical curves might be eased, eliminating the locking of the bumpers and consequent derailments and incidentally accidents. Momentum grades might be eliminated. Rails might be made heavier. Horizontal curves might be made less sharp, and where they were severe, tie plates and even braces might be introduced.

Good ties kept in condition by the use of preservatives might be installed, thus preventing the spreading of the tracks. Long ties might be introduced at intervals to keep the track in place. Frequent inspection might be given to the condition of the roadway. Frogs and switches of proper design might be provided. Permanent rerailing devices might be introduced where derailing was to be anticipated. The road might be properly ballasted. Automatic switches and doors might make the road safer for trip riders.

Headroom might be increased. Passing space for pedestrians might be widened. Operating clearance for car coupling might be provided. Concrete might be used in places to stabilize the track or to prevent derailments from pulling down posts and timber sets. Plank nailed along timbers at the level of the tops of cars would have a similar result. Good bonding and adequate feeders would assure better power for the locomotive. Coupling could be eliminated, at the foot of the shaft or on the tiple, by putting in a revolving dump and using swivel couplings and, at the face, by the use of conveyors delivering coal to an unbroken trip. Safety chains could be provided. The cars could be inspected and if found faulty repaired.

Where the wheels were held on the axles by cotter pins a spring rail might be used to test, at some point where the cars were empty and speed slow, the adequacy or presence of these pins. Tail lights could be used. Good rules might be introduced eliminating the pushing of trips, the making of flying switches, the traveling over sharp curves at excessive speed and the overloading of cars with rock and coal, weakening the cars and bending the axles in one case and causing spillage in the other. Other rules would prohibit running the trolley wheels in the wrong direction or operating the locomotive when the motorman was not in his seat.

Resistance and consequent strain might be reduced by the use of roller bearings. Roads might be kept scrupulously clean thus preventing trip riders from falling. Protection might be provided to prevent the car nearest the motorman from climbing up into the space provided for him.

Care might be taken that the locomotive was not overloaded so as to race unduly on heavy, or to lose time on adverse, grades. Provision might be made for adequate sanding facilities both as to quantity of sand and its regularity of flow, regardless of frost and of the entry of the wheels into water at swags, if these latter were not wholly eliminated in the new program. Care might be taken that no new car or locomotive was run at speed over the track, especially new cars that are likely in some cases to run on three wheels. Good treads without false flanges on the locomotives and reliable tires that will not work loose might also enter into the program.

These are a few of the provisions that would insure at the same time both speed and safety of operation. The result would be that the degree of functional certainty that we demand from hoisting would be attained in haulage, and high tonnage per man without an increased accident rate would follow inevitably.

To all these might be added larger locomotives and higher speeds, but certainly to introduce these without a good track would be suicidal. Safety and large production can only be simultaneously attained through the medium of good engineering. Where else can one reasonably look for either the one or the other?

At Last a King

A FEW YEARS AGO—1903 to be specific—Senator Couzens was a clerk in a coal office. In sixteen years he rose to affluence and became a figure in the industrial affairs of the nation. Recently he has attained political prominence. A suit to compel payment of a larger income tax than had been collected from him showed that he received after sixteen years \$29,308,000 for his stock and during that time had been paid over \$5,000,000 in dividends; to say nothing of what had been paid him as salary—but then he was no longer in the coal industry. His profits were made in the manufacture of automobiles.

The coal industry has had many a baron but never yet a king. The steel, oil, copper, railroad, shipping, telephone, tin-plate, aluminum, public utility and other industries have had their monarchs or at least men who were so dubbed by the press, but with a sense of fitness, the coal industry, one of the biggest of them all, has so far not aspired to anything but a meager barony. The newspaper scribes show good judgment in their use of titles. They used to say "robber barons" but of recent years truth has prevailed over imagination.

Continuous Centrifuges Particularly Adaptable To Drying Finer Sizes of Coal

Rapid and Efficient Drying of Mixed Sizes of Coal, Long a Difficult Problem, Can Be Accomplished by New Types of Centrifuges—Fines Can Be Recovered and Moisture Content Reduced to from 4 to 18 per Cent

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RAPID AND EFFICIENT drying of breaker and washery coal, particularly the steam sizes, and the recovery and efficient utilization of material finer than No. 4 buckwheat, has long been an important problem in the anthracite field. It is one that has alike engaged the attention of the operators, the mining and mechanical engineers, and the experts on combustion. This problem has not occasioned much thought or trouble in the bituminous fields for, at the present time at least, wet preparation of soft coal is but little practiced except where it is desired to reduce the sulphur and ash content prior to coking. Therefore, in the following discussion, the application of the latest developments in centrifugal driers will be treated with the anthracite field only in view. But it is to be borne in mind that what is said with reference to anthracite can and does hold true for the drying of bituminous coals.

The oldest method, and the one still in general use for drying anthracite, whether from breaker or washery, is known as "gravity-and-air" drying. This may be accomplished in stock piles, drainage pits or bins, or while the material is in transit in hopper-bottomed cars. This method is too well known to require description here. It may, however, be pointed out that coal dried in this manner seldom carries, except in the domestic

sizes, less than 12 to 15 per cent of water. And the finer steam sizes may even contain 18 per cent of moisture and sometimes more.

Mechanical driers of the externally or internally fired type can reduce the moisture content to any desired extent but they are expensive to operate and require careful supervision to keep devolatilization of the coal to a minimum. Further, they must necessarily cause a

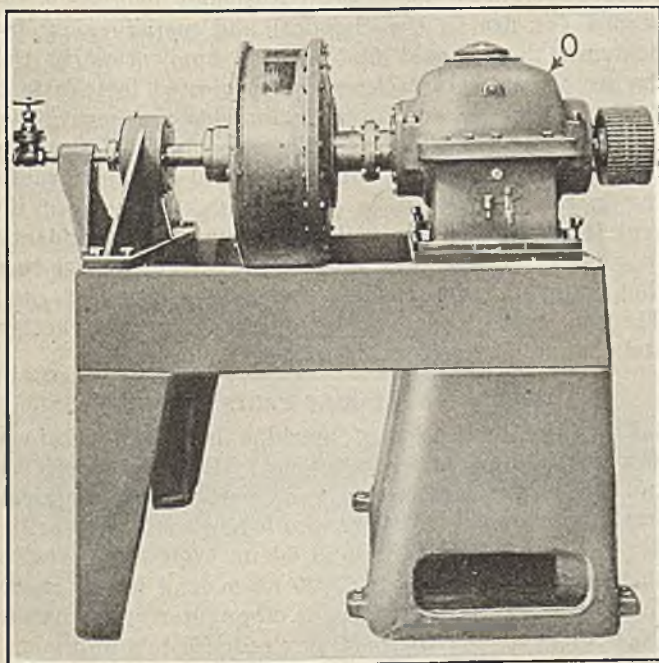


Fig. 1—A Simple Continuous Centrifugal Filter

The number of wearing parts in this Laughlin single-bowl machine are reduced to a minimum, for it has no cloths, screens or other filtering mediums. It is simple in construction and operation, requires small floor space and operates on from 4 to 6 hp. when empty. In the machine illustrated, the water-box has been removed to show the construction of the solid filtering bowl.

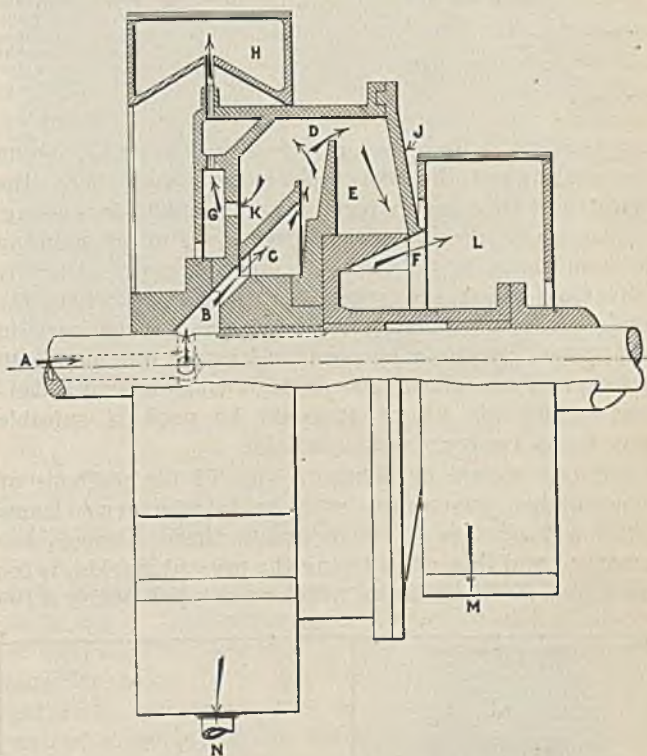


Fig. 2—Sectional View of Single-Bowl Filter

This filter, being wholly centrifugal in its action, appears to offer a solution to the problem that has bothered anthracite producers for years—the recovery and efficient utilization of material finer than No. 4 buckwheat, and the rapid and efficient drying of the smaller sizes of breaker and washery coal. It should also prove helpful wherever wet preparation is practiced in the bituminous field.

large amount of breakage and disintegration if applied to the larger sizes. For these reasons the use of driers of this type is confined almost entirely to coal intended for pulverization or other industrial uses that require a practically dry fuel.

The recovery and proper drying of material finer than about $\frac{1}{4}$ in., variously called slush, sludge or silt, has long been a source of worry to the anthracite industry. This is not only because of the financial loss involved by the waste of these "fines" but also because of the stream pollution they occasion. Without giving details, it is safe to say that the present annual production of anthracite slush amounts to several million

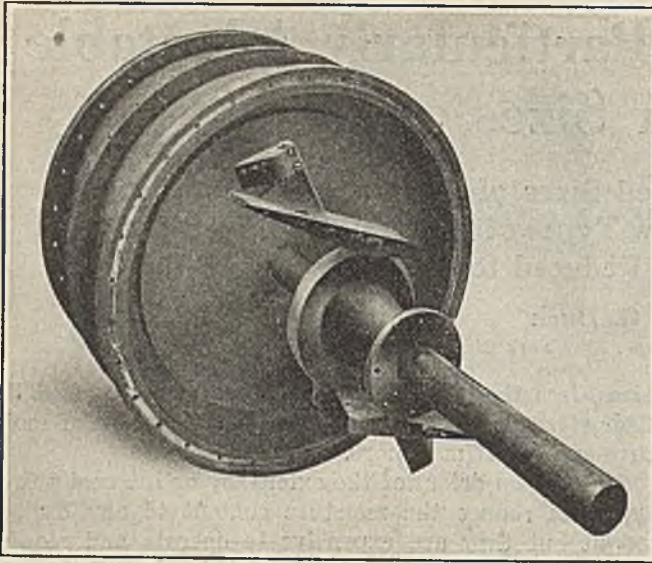


Fig. 3—Rotating Element of Double Filter

The scraper arms, for removing the dried material from the machine, are here shown pulled forward from their correct position on the shaft. The arms revolve with the element but at a slightly different speed. This differential in speed produces, in the dry solid, a motion relatively opposite to the direction of rotation of the filtering element and thus works it along to the discharge openings.

long tons annually. Because of second mining, robbing operations, and the working of the poorer beds, the quantity of this fine material is undoubtedly increasing.

Practically all slush is now disposed of by running to slush dams, by using it for flushing material, or by delivering to various types of settling tanks where the solids are removed and stocked, later to be burned in mine power-plants or shipped. Although only about 40 per cent of the slush now made is considered recoverable, practically all of it could be used if suitable methods of recovery were available.

For one reason or another, none of the methods of disposal just given are entirely satisfactory. Dams entail a total loss of slush unless these storages are reworked and this, considering the present market, is too expensive. Settling tanks, which accomplish nearly a 100

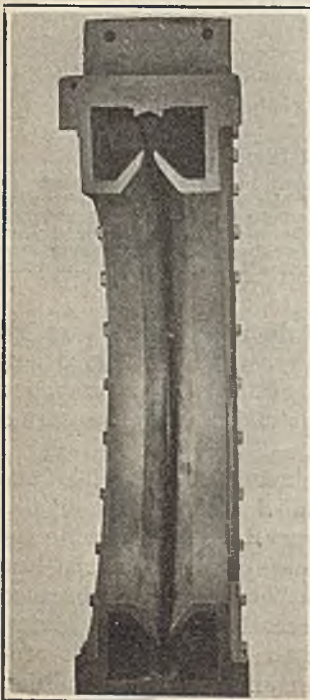


Fig. 4

Liquid Discharge Chamber of Continuous Filter

This casting is but half of the entire liquid discharge chamber which completely surrounds the rotating element. Depending upon the tonnage and the nature of the coal treated, as well as on the speed at which the machine is operated, the water in the solid discharged from the solid bowl filter will vary from 10 to 20 per cent.

per cent recovery, deliver a product containing about 40 per cent water. This requires long drainage to reduce the moisture content much below 18 per cent.

Continuous filters of the cloth-covered type have been applied to the recovery and drying of anthracite sludge. But these devices can reduce the moisture content to only 19 or 20 per cent whereas both briquetting and pulverized fuel operations generally require a raw material that is practically moisture free. Frequent shut-downs are required to clean the pores of the filter cloth which are easily clogged. Lastly, these filters can recover only the coarser portions of the slush.

In the past, several centrifugal driers have been developed primarily for the drying of coal. However, the majority of these were unsatisfactory when operating in a closed circuit because the fine coal, passing through the screens, caused the circulating wash water to back up in the equipment. The fine material "packed" the screens and the majority of these centrifuges were only intermittent in action.

NEW DRIERS OVERCOME OLD OBJECTIONS

In the driers about to be described, these objections have been almost entirely overcome. These new machines are capable of delivering a product that is granular instead of pasty as is the material obtained from the usual types of continuous filters. The fine coal thus recovered is admirably suited for briquetting or for pulverized fuel applications. Coal coming from these driers contains from 4 to 18 per cent of water. The moisture content naturally depends upon the type of filter employed and upon the size of the original feed and the amount of moisture carried by it. The total loss of solids averages about 0.1 per cent.

After several years of experimental work, the Laughlin Filter Corp., 120 Broadway, New York City, has recently placed on the market two types of centrifugal filters or driers. Both of these machines are novel in construction and operation. Although originally intended for use in the chemical and metallurgical industries, they should find a wide application in the drying of coal. In fact, several projected installations in the anthracite and bituminous fields are now either under test or consideration. These machines, depending upon the type selected, can handle coal and dust ranging in size from $\frac{1}{2}$ in. to —300 mesh. Because of its centrifugal action, the solid bowl type has a tendency to remove a large portion of the slate, bone and clay that naturally accompanies the smaller sizes of coal. The two types are radically different in construction and they will, therefore, be separately described.

NUMBER OF WEARING PARTS REDUCED

The solid bowl type of machine is a self-contained unit, centrifugal and continuous in its filtering action and simple in construction and operation. It requires small floor space, a 24-in. single-bowl machine being 64½ in. long, 41 in. wide and 64 in. high. It operates at speeds of from 400 to 1,000 r.p.m. and inasmuch as it requires no cloths, screens or other filtering mediums, the number of wearing parts are reduced to a minimum. The machine is made in single- and double-bowl types, both of which can be obtained in various sizes and capacities. A 24-in. single-bowl type, with the water-box removed, is shown in Fig. 1. Four to 6 hp. are required to operate the double-bowl machine, at the above speeds, when empty. The capacity of the 24-in double-bowl

type of filter is from 2½ to 5 tons of dry solids discharged per 24-hr. day per horsepower of input. The moisture content of the discharged material will vary from 10 to 20 per cent depending upon the nature and tonnage of the coal treated and the speed of operation. The capacity naturally increases, and the water in the discharge decreases, with increased speed. By increasing the moisture content of the solid material discharged the capacity of the machine, with the same power input, can be raised two or three fold. The capacity of these filters is limited only by the horsepower applied and the size of the driving gears.

In Fig. 2 is shown a cross-section of the single-bowl machine. The mixture to be filtered or dried is fed through the hollow shaft *A*, from which it passes by centrifugal force, to the annular distributing chamber *B*. The machine element *J* (shown in Fig. 3, the cover-plates being removed) in which this chamber *B* is located, together with the cover-plates themselves, revolve with the hollow shaft to which they are affixed. This motion throws the material being filtered through the holes *C* and thence against the annular surface *D*. Centrifugal force packs the solid against *D*, the liquid is forced out and drops back past *C* and through *K*. From here, because of the rotation of the machine, it passes into *G*. The liquid is then discharged into the stationary chamber *H*, which is an annular casting made in two parts as shown in Fig. 4. The liquid passes from this chamber through *N*.

The solid matter remaining on the peripheral surface *D* is removed therefrom by the arms shown in Fig. 3 and, in more detail, in Fig. 5. These scraper arms revolve in the chamber *E*, with the machine element *J* but at a slightly different speed. By changing the gear ratios in the gear box *O*, Fig. 1, a speed differential between the main element *J* and the scraper arms of from 995 to 999 r.p.m. per 1,000 r.p.m. of the element *J* is maintained. The magnitude of this speed differential is dependent upon the material being filtered and it produces, in the solid, a motion relatively opposite to the direction of rotation of the element *J*. The solids are guided by the arms toward the center of the machine and discharged through the opening *F* into the "mud chamber" *L*. The dry material passes from the mud chamber through *M*.

With this type of filter or drier the moisture content of the finer mixed sizes of coal can be reduced to 12 to 18 per cent with a loss of solids of about 0.1 per cent. Material from the finest dust up to ½ in. can be handled without previous sizing. Because of the efficiency and



Fig. 5—Scraper Arm of Centrifugal Filter

This view clearly shows the auxiliary scraper pieces which, extending to the inner part of the filter chamber, serve to remove the dried solid from that part. A 24-in. double-bowl filter will deliver from 2½ to 5 tons of dried solids per horsepower of input per 24-hr. day.

compactness of this type of filter, there is apparently no reason why it could not be used with reasonable assurance of success for the recovery of anthracite fines and slimes. It would also seem desirable to operate this drier in closed circuit with thickeners or clarifiers where these are already installed.

The screen type of machine is designed to handle coarser material than the solid bowl type and on this account requires less power and has a greater capacity.

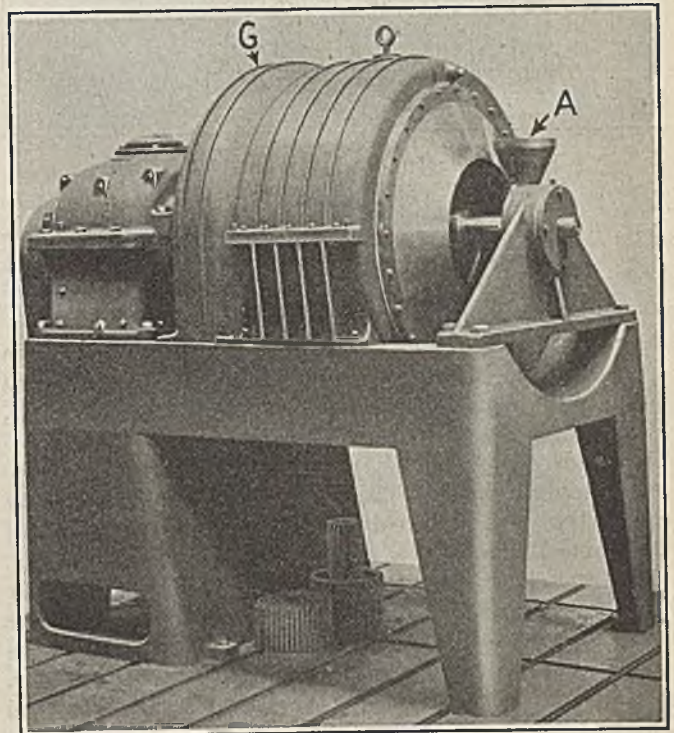


Fig. 6—Screen Type of Centrifugal Drier

This Laughlin machine has a greater capacity and requires less power than the solid bowl type since it is designed to handle coarser material. It is continuous in operation and has a capacity of from 10 to 15 tons of dry solids discharged per 24 hours per horsepower of input. Depending upon the mesh of the screens employed it can handle material from 1 in. to 40 mesh.

It is slightly larger, being 74 in. long, 41 in. wide and 68 in. high. Depending upon the screen mesh employed, it can handle material from 1 in. to 40 mesh, the capacity being 10 to 15 tons of dry solid discharged per 24 hr. per horsepower of input. It can reduce the moisture content of the discharged solids to from 4 to 12 per cent, the final content varying within wide limits with the size of the solids and the speed of operation. Previous sizing is unnecessary but the number of screens and their mesh will vary with the size of the material being dried.

One of these machines, assembled for operation, is shown in Fig. 6. The material to be dried is fed into the hopper *A*, from which it passes directly into the compartment *B*, Fig. 8. In Fig. 7 is shown a view of the centrifuge from which a portion of the jacket has been removed, exposing the bowl *C* which is made of ¼-in. plate with ¼-in. openings. Depending upon the nature of the solution being handled, the plates and screens may be made of either steel, bronze, brass or any other special metal. This illustration also shows the discharge openings *D* through which passes the material that is retained within the primary screen *E*, Fig. 8.

Fig. 7 also shows how the screens are attached to the sleeve with which they revolve. The three screens, pri-

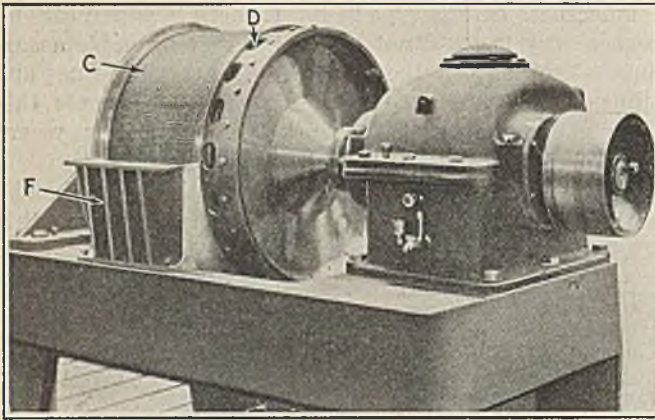


Fig. 7—Screen Bowl of Centrifugal Drier

In this illustration a part of the water chamber *F* has been removed to show the bowl screen *C* and the solid discharge openings *D*. Within wide limits, the final moisture content of the dried solids discharged varies with the size of the solids and the speed of operation of the machine. The lower and upper limits of the retained moisture in the dried solids are about 4 and 12 per cent respectively.

primary *E*, "backing" *J* and bowl *C*, are clearly shown in Fig. 8. The spiral screening element, the principal function of which is to push the dried material ahead, is shown in detail in Fig. 9. This element is of phosphor-bronze and carries in a recess in its edge a series of aluminum blades. These are slotted for the pins by which they are attached to the spiral. The details of the blades, which are $\frac{1}{4}$ in. thick, are given in Fig. 10. When the element is stationary those blades at and near the top of the spiral drop into the recessed edge, while those below the center of the element are extended as shown in Fig. 9. When the spiral is revolved, however, centrifugal force causes all the blades to slip outward on the pins by which they are affixed.

This element revolves with and within the screens *E*, *C* and *J*, but at a slightly different speed. The means of obtaining this differential in speed, and its function, are identical with those described under the solid bowl type of filter. However, in the screen type the magnitude of the speed differential varies from 980 to 992 r.p.m. of the spiral element per 1,000 r.p.m. of the screens. The aluminum blades in the recessed element

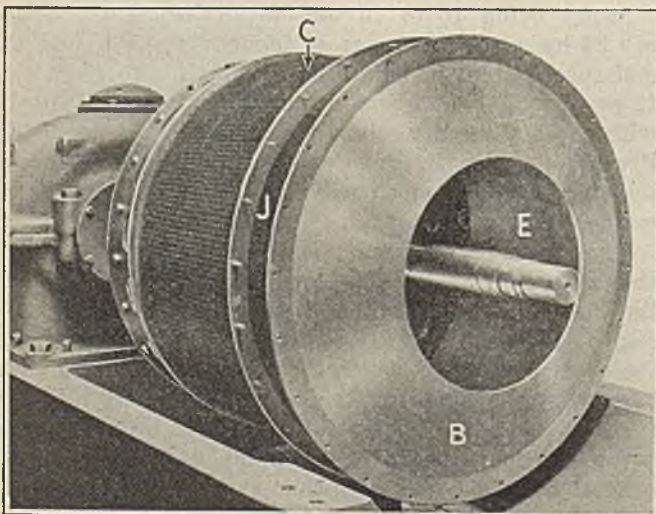


Fig. 8—Moving Parts Are Rigidly Supported

The three screens, primary *E*, "backing" *J* and bowl *C*, are clearly shown in this illustration, as is the manner in which these screens are supported. The method of attaching them to the shaft is shown in Fig. 9. When using this machine, previous sizing is unnecessary although the number of screens and their mesh will vary with the size of the material being dried.

press, by centrifugal force, against the primary screen *E* which has openings of various size depending on the material being treated. These blades help force the retained material along the screen parallel with the shaft. Any solids that pass through the screen, together with the water, flow from the machine through a water chamber *F*, part of which is shown in Fig. 7. The dry solids confined within the primary screen are worked along to the openings *D*, Fig. 7, where they are discharged into the chamber *G*, Fig. 6.

The only wearing parts are the screen *E* and the aluminum blades. The wear on these elements is slight and they can easily be replaced.

This type of machine should be particularly adaptable to drying and recovering coal ranging in size from $\frac{1}{2}$ to $\frac{3}{4}$ in. In closed circuit with a solid-bowl type of filter,

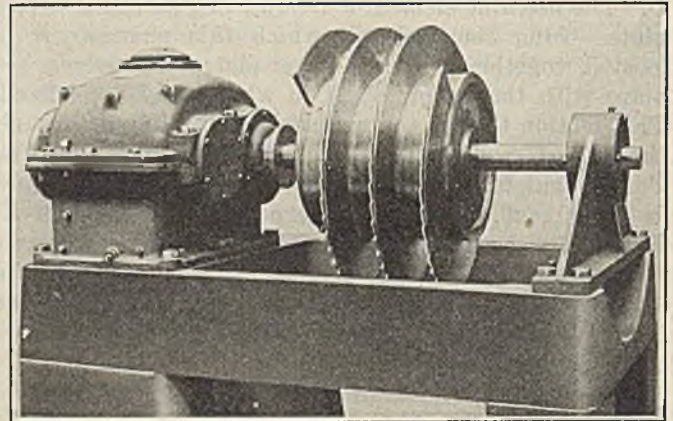


Fig. 9—Spiral Screening Element of Drier

The principal function of this element is to force the dried material along the screens, parallel with the shaft, to the outlet openings *D*, Fig. 7, where it is discharged into the chamber *G*, Fig. 6, and thence from the machine. Note the aluminum blades in the recessed edges of the spiral which, pressing by centrifugal force against the screens, help move the dried material ahead.

it should be able to eliminate much of the trouble now occasioned by "fines" in the coal industry. Another type of coal drier, which is centrifugal both in principal and action is the invention of H. B. Carpenter, general superintendent of the Minnequa Works of the Colorado Fuel & Iron Co. of Pueblo, Colo. Although this machine is particularly adaptable to the smaller sizes of bituminous coal intended for coking purposes, it can also be applied with equally satisfactory results to the drying of the finer sizes of anthracite and to other granular substances. Six of these machines have been in operation at the Minnequa Works for nearly 3 years and have given excellent service. There are many installations abroad, notably in England, where similarly good results have been obtained.

The use of these driers to remove the greater percentage of the free moisture in coal for coking has resulted in many economies. Among their chief advantages are: (1) The coking time is decreased; (2) the fuel consumption per ton of coal coked is reduced; (3) "flaking" of the oven walls is materially lessened if not entirely eliminated; (4) the volume of gases produced during coking is decreased, thus permitting of a reduction in size of the "foul-gas" mains or, alternatively, the velocity of the gases in the mains is reduced; (5) the required condenser capacity is decreased; (6) the ammonia liquor is more concentrated; (7) the water is consistently removed thus assuring uniformity of oven operation and of the product obtained.

The Carpenter coal drier is regularly built in seven

types designed to handle coal from $\frac{1}{4}$ to $\frac{3}{8}$ in. in size. Except for the number of screens the construction of the several types is the same. As all ribs in these machines are interchangeable, to shift types it is only necessary to add ribs and screens. This can be easily done. Depending upon the size of the coal being dried, the initial moisture therein, and the hourly capacity, the number of screens in these centrifuges will vary from 1 to 4, the horsepower required from 30 to 125, the capacity from 50 to 200 tons per hour, and the efficiency of water removal from 60 to 80 per cent. Within wide limits, the coarser the feed the greater is the capacity and the efficiency of water removal, as well as the less the horsepower required and the fewer the screens necessary. These machines operate at two speeds, those requiring the smaller horsepower and having the lowest capacity running at 260 r.p.m. and the larger ones at 360 r.p.m. Close sizing is unnecessary as

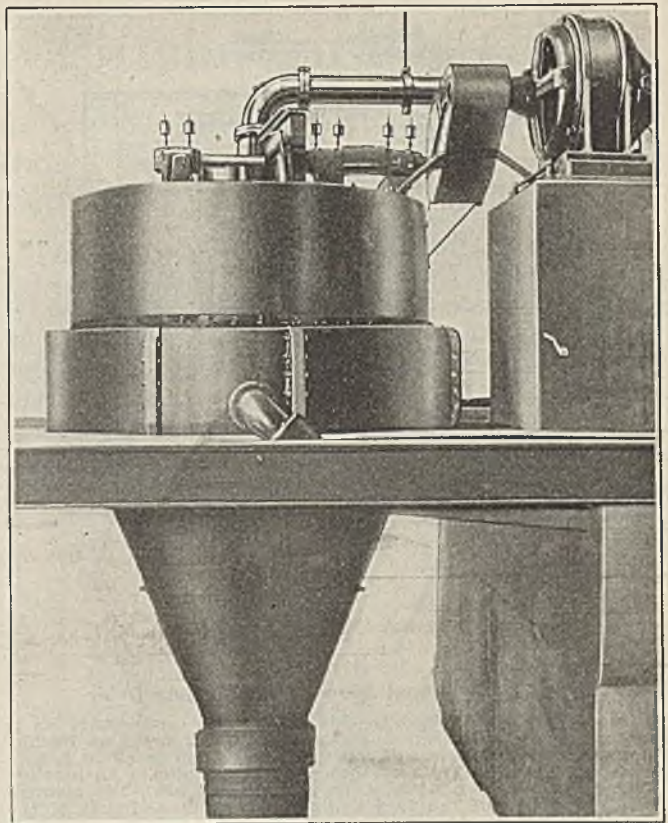


Fig. 11—A Continuous Centrifugal Coal Drier
 The Carpenter machine can be applied with equally satisfactory results to the drying of the finer sizes of anthracite and other granular substances although it is particularly adaptable to the smaller sizes of bituminous coal intended for coking purposes.

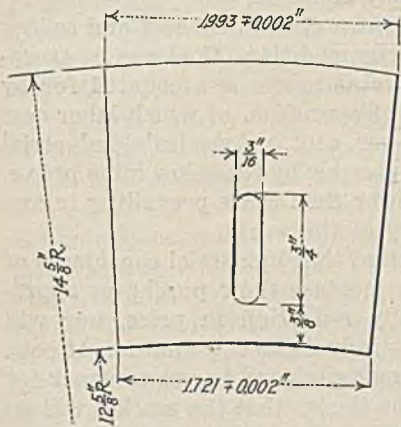


Fig. 10
Details of Aluminum Screening Blades

These blades are slotted for the pins by which they are attached to the spiral element. The wear they receive is slight and they are easily replaced.

will be apparent from the screen analysis of the feed to the machines at Pueblo, Colo.

In Fig. 11 is shown an external view, and in Fig. 12 a cross-sectional view, of one of the Carpenter driers in operation at the Minnequa Works of the Colorado Fuel & Iron Co. Depending upon the size and quality of the material being dried the shaft *A*, Fig. 12, is driven, usually by a motor, at a speed of from 200 to 600 r.p.m. As previously remarked, these machines when drying coal are regularly driven either at 260 or 360 r.p.m. This motion is transmitted to the vertical shaft *B*, and thereby to the screen cone, by the pinions *C* and *D*. Wet coal is delivered to the feed hopper *E* at a constant rate by means of a conveyor belt or other suitable device.

Falling through this hopper by gravity, the coal passes between the feed vanes *F* of the rotating upper spider casting *G* to the impact or screen distributing plate *H*. The height of this plate or disk is previously adjusted by means of the screw *I*, to give the desired clearance *J* between the top of the disk *H* and the bottom of the upper spider casting *G*. This clearance regulates the amount of coal that can pass into the drier. In the successful operation of this centrifuge it is necessary that the coal to be dried shall contain no particles larger than will pass through the opening *J*, otherwise the coal will "build up" and "jam" the machine.

The raised distributing vanes or webs *K* on the upper surface of the disk *H*, which is rotating at high speed, throw the coal off the disk with considerable velocity and force. This distributes the coal uniformly about the periphery of the upper screen plate *L*₁ and the impact drives a large part of the water out of it through the

perforations of the screen plates. The angle of these screen plates has previously been adjusted, by means of the adjusting screws *M*, to the inclination at which coal will slide over the screens at the desired speed. During this passage the coal is also acted upon by the centrifugal force of rotation which results in more of its water being removed. To the lower edge of the screen plate *L*₁ is attached the serrated distributing rim *N*₁, which tends to prevent the coal from passing from one screen to the next in a mass. This rim separates the coal into fine streams and causes its passage in quantities more nearly approximating single particles. After passing the rim *N*₁ the coal impinges upon the second screen plate *L*₂ and a further portion of the water retained in the coal is here driven out through the screen by impact. The angle of the second row of screen plates likewise having been adjusted to the proper position, by the adjusting screws *M*, centrifugal force again acts upon the coal as it passes down the screen plate and over the second distributing rim *N*₂.

GREATEST FORCE APPLIED WHEN MOST NEEDED

As the coal passes downward over the screen plates and distributing rims in succession, the centrifugal force exerted upon it increases with the increased diameter of the screen cone. The force of impact of the coal upon the screen plates also increases. This brings the greatest forces to the coal at the time they are most needed—namely, for the removal of the final moisture from the nearly dry material. In this particular machine the coal passes over the third and last screen plate *L*₃ and distributing rim *N*₃ and is discharged from the cone. The retarding plate *O* prevents the coal from falling directly from the screen basket into the hopper

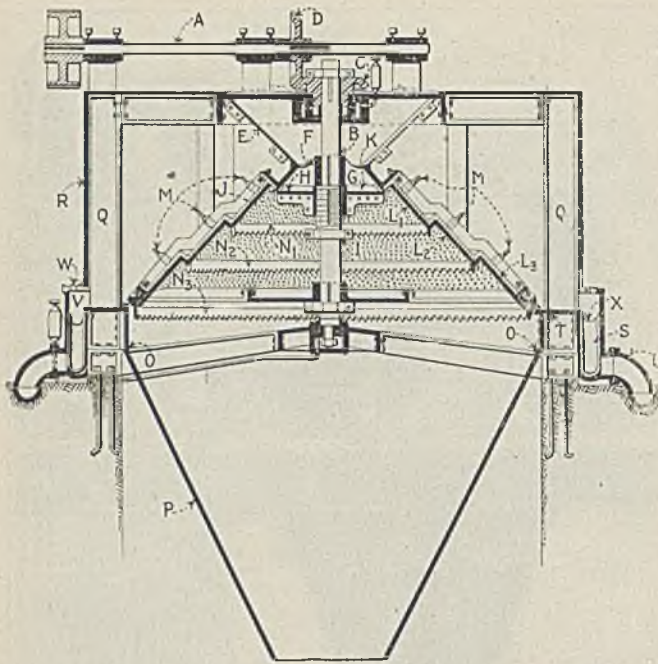


Fig. 12—Sectional View of Continuous Drier

Close sizing of the feed to this machine is unnecessary as is apparent from the screen analysis of the coal dried at Pueblo, Colorado, where six driers of this type have given excellent service for about 3 years. Tests of these machines indicate an average efficiency of water removal of nearly 73 per cent, the average moisture content of the feed being 20 per cent and that of the dried coal 5.5 per cent.

P. Instead, a wall of coal is built up above the retarding plate O in front of the lower portion of the side frame members Q.

This wall of coal prevents it, at the high velocity of discharge, from cutting into the framing. The coal then drops into the collecting hopper P from which it is carried to storage bins by a conveyor belt or other suitable means. More than three screens in series may be necessary in those cases where the desired result is not obtained with the system just described.

The water which passes through the screen plates L₁, L₂, etc. is thrown upon the side housing R and is deflected into the water sluice S by the water discharge plates T. The water sluices slope toward the outlets U in the direction of rotation of the screen cone. The water passes out of the outlets by gravity. The apertures V and the removable plugs W are provided for the purpose of facilitating the examination of the water sluice linings X.

AVERAGE DRYING EFFICIENCY 73 PER CENT

Tests made at Pueblo, Colo., covering a period of seven months showed that machines of the type just described were drying coal having an average screen analysis as follows: On $\frac{3}{4}$ in., 0 per cent; $\frac{1}{2}$ in., 1 per cent; $\frac{1}{4}$ in., 10.4 per cent; $\frac{1}{8}$ in., 30.9 per cent; $\frac{1}{16}$ in., 23.5 per cent; $\frac{1}{32}$ in., 18.8 per cent; and through $\frac{1}{64}$ in., 15.4 per cent. On this feed, over the same period of time, the moisture content of the wet and dried coal and the efficiency of water removal was as shown in Table I.

Table I—Operation of Carpenter Coal Driers at Pueblo, Colo.

	Initial Water in Coal Per Cent	Final Water in Coal Per Cent	Efficiency of Water Removal Per Cent
Average.....	19.9	5.5	72.8
Maximum.....	22.4	6.2	79.0
Minimum.....	16.8	4.7	70.0

The machines at Pueblo are operated with 75 hp. and have an average hourly capacity of 100 tons per machine. In England bituminous sludge, all of which passed a $\frac{1}{2}$ -in. screen, has had its water content reduced from 20 to 8.5 per cent by this type of drier.

Future installations of both Laughlin and Carpenter driers in the coal fields will be watched with interest for they appear to offer solutions to many troublesome problems that now beset the coal producer.

U. S. Coal Prices Kept Low and Steady

Of equal importance with regularity of supply in a well functioning industry is reasonableness of price. In this respect the performance of the bituminous mining industry is one for which no apology is necessary. Government reports show that from 1880 to the outbreak of the world war the mine price of bituminous coal was very low and remarkably constant.

The war period brought a rise in the cost and selling prices of practically all commodities. Coal was no exception. The increase in mine prices is accounted for by an increase in the cost of operation, of which labor cost constitutes nearly 70 per cent. America's industrial development was made possible by these low mine prices, which continue to be lower than those prevailing in any other industrial country of the world.

It must be borne in mind that industrial consumers of bituminous coal do not increase their purchases appreciably by reason of any reduction in price, nor will higher prices materially reduce the consumption of coal. When the price is low many buyers do not contract for their fuel supplies on the theory that the market will go still lower or that coal is so plentiful that proper stocks need not be carried; hence when a demand from an unexpected quarter causes a little flurry, the market is crowded with buyers, many of whom attempt to buy far beyond their immediate needs. In other words, psychology has great influence, and fear of an approaching scarcity, whether well-founded or not, has almost as much effect upon prices as an actual shortage.

An advance in price is a sure stimulus to an increase in production, which is after all the only remedy for a shortage of any product. The industry has met the present situation by rapidly increasing its weekly output from an average of 9,500,000 tons in June to a record production of 13,400,000 tons in the last week of October. This increase, it may be noted, is nearly equal to the normal weekly production of Great Britain.—Walter Barnum, president, National Coal Association, before the International Bituminous Coal Conference.

Two Errors in Table Corrected

In the article entitled "Mechanical Cleaning Makes Rapid Strides in 1926" which appeared in the Annual Review Number, Jan. 27, the table on p. 132 should be entitled "Bituminous Washing and Dry-Cleaning Plants and Additions, 1926." Another correction should also be made. Contrary to the statement in the table, the plant at Library, Pa., being erected for the Pittsburgh Coal Co., will be furnished with Arms air tables.

COAL AGE INDEX READY

The Index to Vol. XXX of COAL AGE is now ready for distribution. A postcard addressed to the subscription department will bring you your copy.

Mining Methods in the Pittsburgh District*

Coal Has Long Been Produced in This Region—Mining Methods Have Been Improved from Time to Time—Those Now Used Vary Somewhat to Meet Local Conditions—Surface Topography Imposes Few Limitations

FIRST MENTION of the production of coal in the Pittsburgh district refers to a mine under Duquesne Heights in Pittsburgh. This mine furnished coal for the garrison of Fort Duquesne as early as 1760. Coal had been dug and used as fuel near Brownsville, Fayette County, in 1759. This, however, was not an underground operation.

"Cole mines," at various places were shown on the maps of Ohio in 1770. The Penns purchased from the chiefs of the Six Nations all of the coal in western Pennsylvania lying south of Kittanning. The purchase price is reputed to have been \$10,000. During the Revolution coal from Herron Hill, Minersville and Coal Hill, all within the present city limits, was used in Pittsburgh. Today there is one custom pit in operation at Coal Hill, or what is now Duquesne Heights.

The first steam engine using coal as fuel, was erected in Pittsburgh in 1794. The first gas-coal mine in the Youghiogheny district was opened in 1796 and in 1803 coal was first shipped from Pittsburgh by water. Naturally, the mines along the Monongahela River were among the first to be developed. With the completion in 1884 of the necessary locks and dams, which permitted of slack-water navigation, the real development of the district began. Between 1840 and 1855 the No. 8 field of Ohio and the Fairmont region of northern West Virginia were opened. Since that time there has been a continuous development of the coal resources of the Pittsburgh district until it now produces about 30 per cent of the bituminous coal annually used in this country.

One of the earliest methods of working the Pittsburgh bed consisted in driving a single entry, usually 1½ yd. wide, at some easily accessible point on the outcrop. Rooms or gangways were then turned off to the right and left. Ventilation was usually poor and inadequate. Where the coal dipped, drainage was secured by rising on the coal. Much top and bottom were left in the workings and this was usually lost. From this simple country-bank plan of operation there has developed the present room-and-pillar method; first with the double-entry, and then the multiple-entry, system. In some parts of the district no attempt is made to draw pillars; in others, where the coal is much more valuable, the recovery runs as high as 95 per cent of the section mined. Where pillars are not drawn, as in the operations of eastern Ohio, the advancing work recovers between 50 and 60 per cent of the coal. But where pillars are drawn there is usually a uniform system in the method of advancing and retreating. However, many mines frequently find it necessary to change this system to meet local conditions.

*Abstract of a paper of the same title presented before the meeting of the American Institute of Mining and Metallurgical Engineers, at Pittsburgh, Pa., Oct. 5 to 9, 1926. This paper was written by N. G. Alford and B. F. Hoffacker from information in their own files and from data furnished by C. F. Lynch, general superintendent, H. C. Frick Coke Co.; J. C. Lubken, general manager, Allegheny-Pittsburgh Coal Co.; by the Valley Camp Coal Co.; Lincoln Coal & Coke Co.; and the Buckeye Coal Co. As here used the Pittsburgh district includes Allegheny, Washington, Greene, Fayette and Westmoreland counties in Pennsylvania and Belmont, Jefferson, Harrison and Monroe counties in Ohio, together with the northern and Panhandle sections of West Virginia.

Fig. 1 shows the method of working that was used between 1860 and 1880 in the 4th pool of the Pittsburgh district on the Fayette County side of the Monongahela River. Fig. 2 illustrates the present method of advancing and retreating in the Pittsburgh bed in the Connellsville coke region. Fig. 3 sets forth the double-entry room-and-pillar method used prior to 1900 in the old Connellsville basin, and in Fig. 4 is illustrated the present method used in the Ohio No. 8 district. Figs. 5 and 6 show, respectively, the present methods of work-

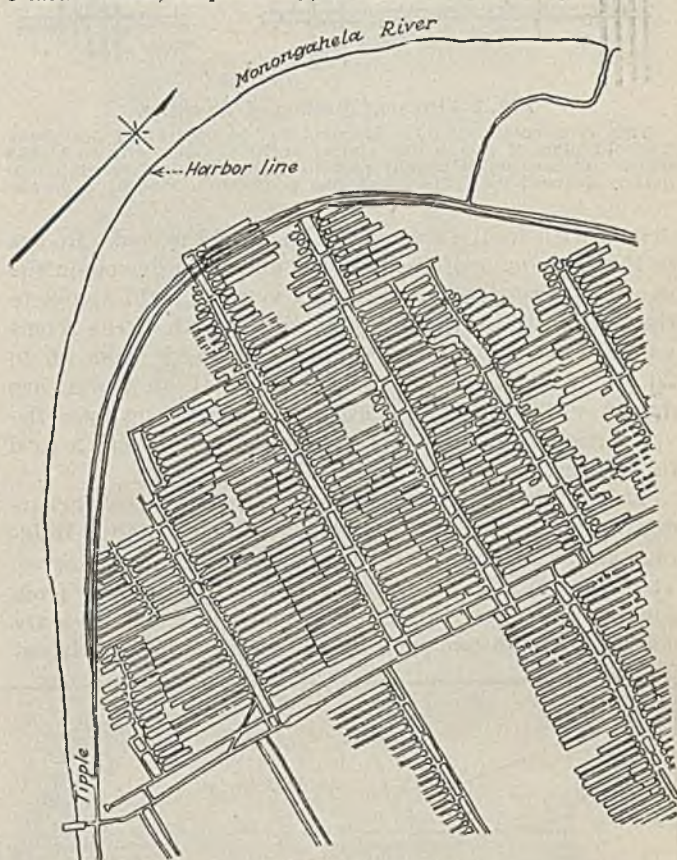


Fig. 1—Old Plan of Working the Pittsburgh Bed

This is the method that was in use between 1860 and 1880 in the fourth pool on the Fayette County side of the Monongahela River.

ing used in the West Virginia Panhandle and Fairmont districts. Plans of two of the latest shaft designs are shown in Fig. 7.

Prospecting is carried on chiefly with core drills, by testing at the face in adjoining workings and by sampling carloads of coal from contiguous mines. The outcrop sections are cut, and samples analyzed wherever possible. The thickness of the Pittsburgh bed throughout the field varies from 4½ to 9 ft. The coal in place weighs from 78 to 82 lb. per cu.ft., mining losses range from 5 to 45 per cent and the yield per acre-foot varies from 1,080 to 1,600 tons.

In the sections where pillars are not drawn, the rooms are driven from 20 to 25 ft. wide, and from 200 to 300 ft. long with 8- to 10-ft. pillars between them. The rooms are often turned off from butt entries and are

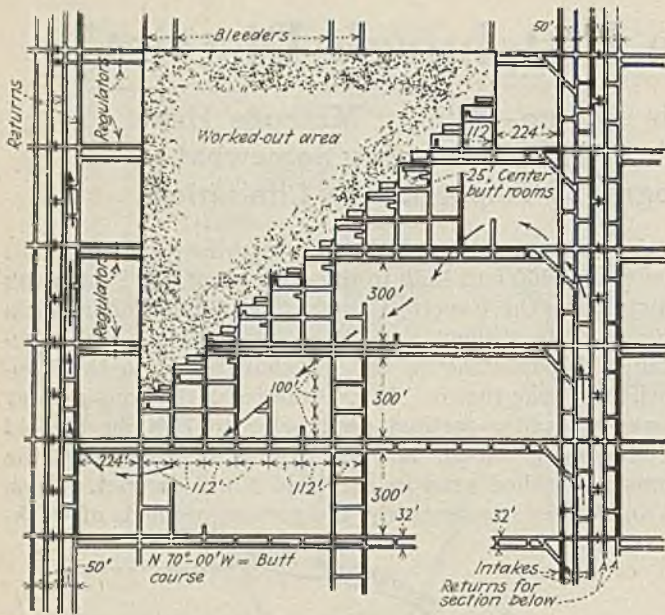


Fig. 2—Present Method of Working

This is a combined advancing-retreating method of operation. The old plan of rooms has almost entirely given way to blocks which are successively split and the pillars thus formed immediately drawn back. The break line is of course kept at an angle.

driven with their faces on the faces of the coal. Rooms in the remainder of the field are generally driven on the panel system with practically all work at right angles to the butt and face cleats. The usual length of the rooms varies from 200 to 300 ft. and the width from 10 to 20 ft. Headings vary from 8 to 10 ft. in width, are driven on 35- to 50-ft. centers and, depending upon the ventilation and haulage requirements, are from 2 to 6 in number.

The extent of the coal reserves held by the various mining companies in this district differs widely. Holdings are as small as 1 acre and as large as 152,000 acres. The usual area embraced in a single operation is from 1,000 to 2,000 acres although as many as 6,000 acres are worked through one opening. Coal is acquired in irreg-

ular-shaped tracts, and the present practice is to square holdings by exchange on butt and face lines. The ownership of the coal is practically all in fee and only a small percentage is leased. Royalties on leaseholds vary from 10 to 52 cents per ton. This latter figure will eventually obtain where the royalty is based on an annual increase, during stated periods, for the life of the operation.

There are practically no topographic limitations to prevent the development of the coal within the district. A plentiful supply of fresh water is available for all mining and domestic purposes, and the region is amply served by high-tension electric lines which are linked with perhaps a dozen privately-owned power plants. Locally, timber is scarce as but little of the original or second growth now remains. The Ohio, Monongahela and Allegheny rivers afford valuable means of transportation. Four major railroad systems traverse the boundaries and the interior. In the fields that were first developed much pumping is required, from 1 to 15 tons of water being handled per ton of coal mined.

There are no legal restrictions or lease conditions affecting the mining methods now used. Mines employing organized labor are the only ones that have restrictions on narrow work. Some operations in the district are union and some are non-union. The majority of the workers are of foreign birth and represent nearly all of the Central European countries.

The Pittsburgh bed contains a pair of persistent partings, 3 to 8 in. apart, known as the twin slates or "bearing-in" bands. Below the twin slates is another stratum of impurity that separates the "brick coal" from the bottom coal. The "breast" coal above the twin slates is usually the cleanest part of the bed. The top coal occurs in from 1 to 6 benches which are separated from the main bench and from each other by shales, slate or sandstone partings of varying thicknesses. In some portions of the district one or more of the roof coals become thick enough to permit of its recovery.

Faults, erosions, horsebacks, swamps and other geological disturbances occur throughout the field. But

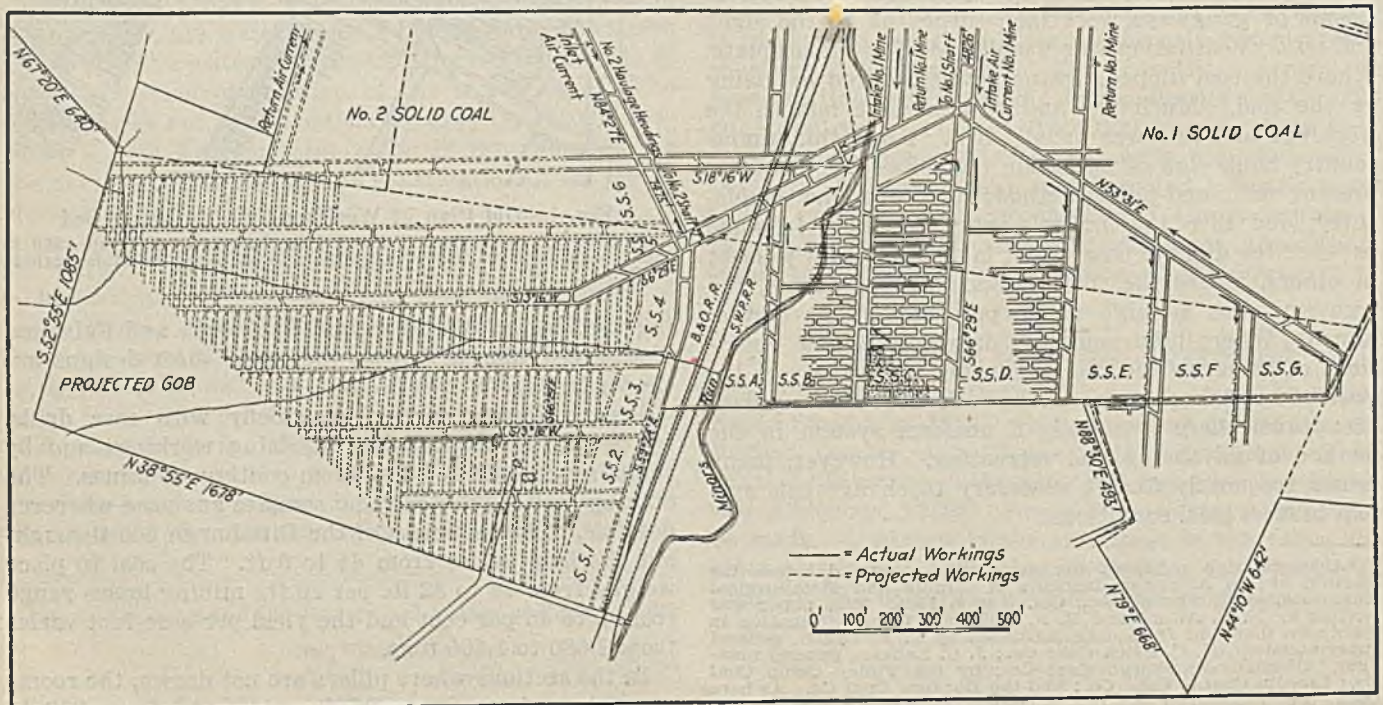


Fig. 3—Double Entry System of Operation Formerly Used in the Connellsville Basin

Room-and-pillar mining of this variety with double entries was followed in the Connellsville region prior to about the year 1900. It has now been almost completely supplanted by the plan shown in Fig. 2 which assures greater recovery.

the coal lost from these causes, to date, is less than 1 per cent of the total quantity mined. In certain areas if the roof coals and their slates are missing, and the sandstone replaces them, the sulphur content is abnormally increased. The bottom consists of either black slate or limestone but, in some places, a thin stratum of fireclay occurs between the coal and the limestone, or between the coal and the slate.

The dips vary from less than $\frac{1}{2}$ per cent to as much as 15 per cent along the eastern edge of the field where the bed rises rapidly. The butt and face cleavage planes, or cleats, are one of the most distinctive features of the coal in the Pittsburgh district. The course of the face ranges from N. 12 deg. E. to N. 27 deg. E. The hardness of the coal and its sulphur content increases, and its thickness decreases from the eastern edge of the district toward the west. The volatile matter in the coal increases progressively from east to west, and the fusing point of the ash decreases from the northeastern to the southeastern parts of the district. As a rule coal

Because of the great length of outcrop the majority of openings in the district are naturally slopes or drifts. But because the outcrop coal is being rapidly exhausted, the more important openings now being made are generally shafts or slopes. The best designed shafts in this district now have three compartments. The shafts are usually about 12x24 ft. over-all and from 200 to 600 ft. deep. Linings are of concrete, brick, or timber with steel or wooden buntons. The contours of the coal are either already known or can easily be determined in advance. Therefore, most of the shafts are

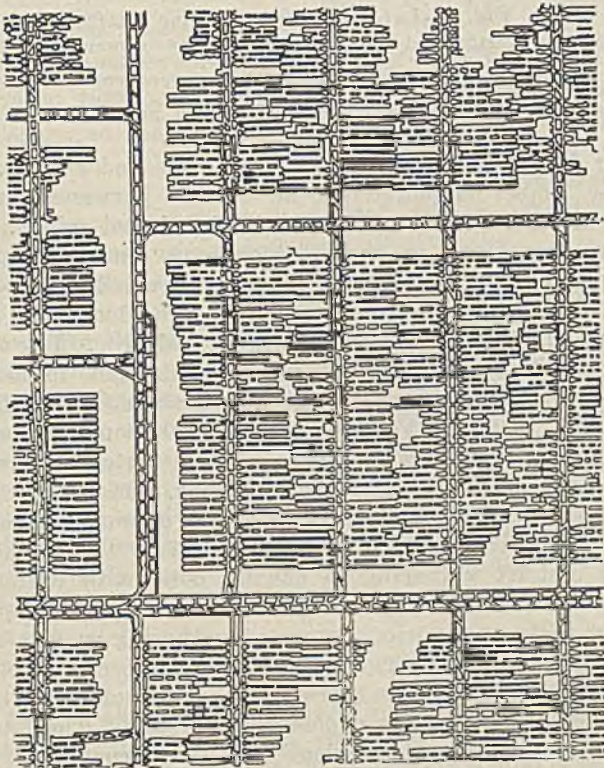


Fig. 4—Present Plan in Ohio No. 8 District

Main entries are triple or multiple but room entries are double. In most mining districts room-and-pillar methods are now rapidly giving way to panel and block systems and long-face mining is making its appearance particularly where mechanical loading is being tried.

in any one basin has the same content of volatile matter and, necessarily, a uniform fixed carbon content. Except for the variations occasioned by the different anticlines traversing the field, the prevailing dip is from northeast to southwest.

The maximum cover in the Pittsburgh district occurs in the southwest corner of Greene County, Pennsylvania. Here the coal lies approximately 1,000 ft. below stream level and 1,400 ft. under the tops of the hills. Under the ridges, the cover of the Pittsburgh seam varies from 100 to 1,400 ft. with an average of about 400 ft. The thinnest cover is naturally along the outcrop and over the isolated beds of coal occurring near the edges of the field. High-grade coal is found with as little as 10 ft. of cover.

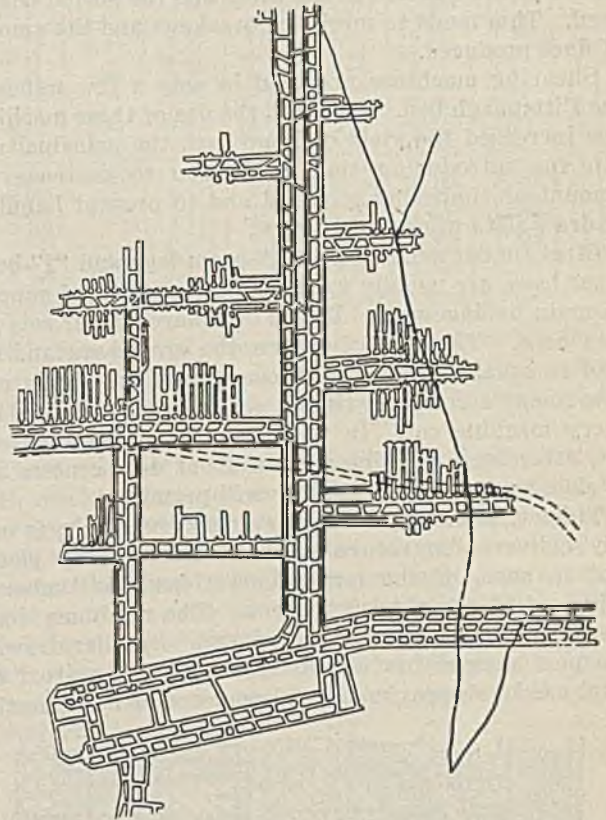


Fig. 5—Present Mining Plan in West Virginia Panhandle

Main entries are here driven multiple with room entries either double or triple. One great objection to such a plan of mining is the difficulty encountered in recovering pillars if the rooms are allowed to stand for any appreciable length of time after they have been driven up to their limits.

now located at the low point of the area to be worked so that drainage, and grades for the loads, naturally will be toward the shaft bottom.

Where the Pittsburgh bed is too deep to be reached by a drift or slope, vertical hoists are naturally used. These hoists are practically all of the balanced type, have platform or self-dumping cages and handle but one car per trip. The older hoists have cylindrical drums, but many of the newer ones are equipped with cylindro-conical drums. The majority of the hoists are operated by wound-rotor induction-motors of from 150 to 800 hp. In most instances they receive power from a central station system. A few direct current hoisting motors have been installed with flywheel motor-generator sets and Ward-Leonard controls. This system, although rather expensive to install, is economical because of the low power demand especially at reduced capacity. Skip-hoisting has not been necessary as the depth of hoist (150 to 400 ft.) is comparatively small. The present tendency in the district is to install electric hoists with steam stand-bys and self-dumping cages.

The average mine-track gage in the Pittsburgh dis-

trict is 42 in. Rail weights are usually 16 or 20 lb. in the rooms, 30 lb. on the butt entries and from 40 to 80 lb. on the main haulways.

Where the coal face is drilled by the company, two drillers will average 100 holes in 8 hr., using an air drill driven by a portable electric air-compressor. When the coal is undercut an average of 6½ ft. three holes are usually used in each place and each hole yields approximately 6½ tons of coal. In most mines drilling is done by hand, twisted augers being used in making 2-in. holes. Special attention is given by the larger companies to the location of the shots and the size of charge used. This tends to minimize breakage and the amount of fines produced.

Shearing machines are used in only a few mines in the Pittsburgh bed. Although the use of these machines has increased the yield of lump coal, the principal reason for introducing them has been to decrease the amount of timbering required and to prevent handling of draw slate where it occurs.

Steel timber sets, using "H"-beam legs and "I"-beam cross-bars, are usually used for permanent roof support on main haulageways. Round or square timber sets are also used. The space between the cross-bars and the roof is usually cribbed with condemned posts. In narrow rooms a complete timber set is commonly used for every machine cut. In wide rooms a row of posts is set, after each machine cut, on about 4-ft. centers and as close to the face as loading will permit.

Timber, commonly in storage near the tippie, is usually delivered in return trips to the working places. But in some of the larger operations this timber is delivered by a night supply crew. The minimum diameter of props is 4 in. at the small end. In pillar drawing the post recovery is usually about 50 per cent of the total used. Approximately 70 per cent of all mine tim-

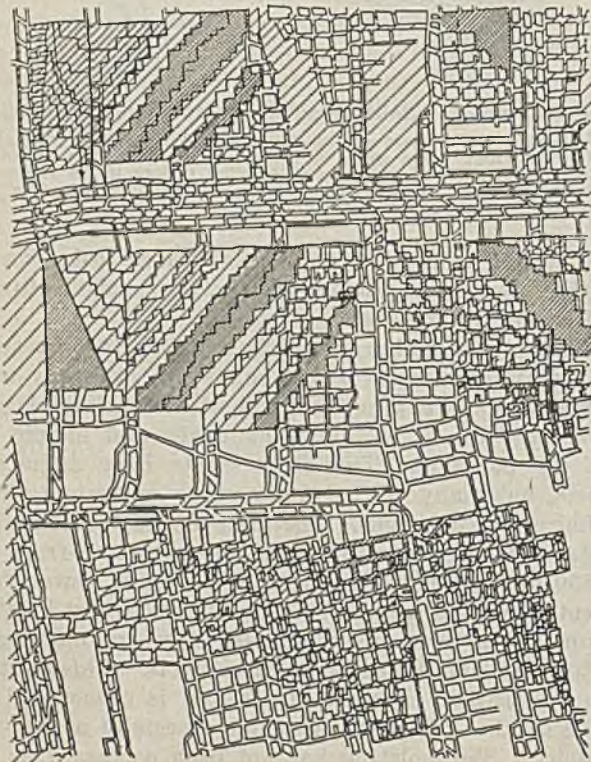


Fig. 6—Present Mining Plan in Fairmont District

In general this plan is quite similar to that shown in Fig. 2. The coal is first blocked out and the blocks then drawn back. Greatest production is secured on retreat, and the percentage of recovery is high. Local conditions do not always permit of driving the various mine passages as they are projected.

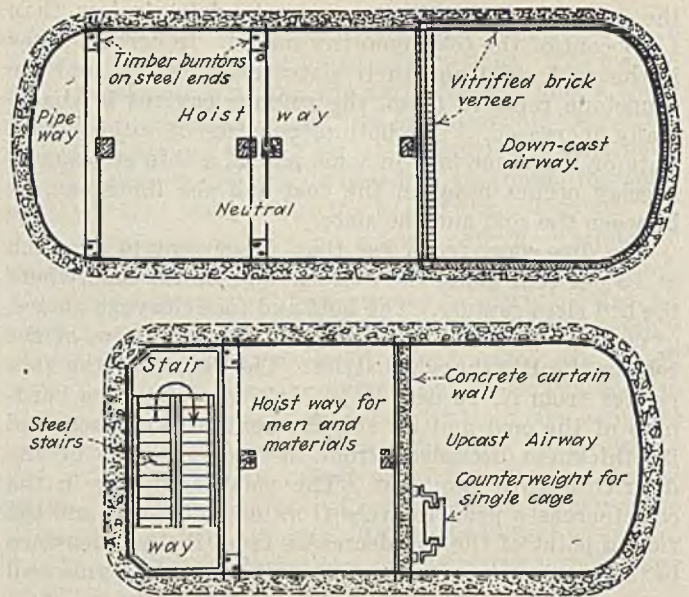


Fig. 7—Latest Designs of Mine Shafts

Although drifts and slopes were once used in many operations in this district shafts had to be adopted for reaching the coal as the depth became greater. Such shafts were once lined with timbers and cribbing but concrete has now almost completely supplanted less permanent materials for this purpose.

ber is used in the form of posts, caps and cross-bars. The timber employed for all mining purposes varies from 3.8 to 7 ft. b.m. per net ton of coal mined. A few operations in the district have timber-treating plants but the volume of timber thus treated is small.

Little use has been made of mechanical loaders in the Pittsburgh district of Pennsylvania and Ohio. The only practical applications of mechanization in large underground areas are in the Fairmont and Scotts Run regions of West Virginia. Here both conveyors and shoveling machines have been used in various types of modified longwall, and room and pillar, workings.

Both wooden and steel mine cars are employed, their capacity varying from 1½ to 4½ net tons. Throughout the district gathering is usually done with animals. But where the height of the coal or severe grades prevent their use, various types of gathering motors are employed. Haulage is done by storage battery or trolley locomotives of various types, by gasoline motors, by belt conveyors and by the endless rope system. The latest type of underground haulage is the unit conveyor system used by the H. C. Frick Coke Co. at its Colonial mines in Fayette County. Here the coal is carried about 23,000 ft. by 20 unit conveyors and the amount thus handled averages more than 10,000 tons per day.

MOST COMPRESSORS USED ARE SMALL

Usual pumping practice employs multi-stage centrifugal pumps, in most cases driven by 2,200-volt alternating-current motors. Gathering pumps are usually of the plunger type with capacities varying from 50 to 100 gal. per minute. In most instances these machines are portable and mounted on trucks.

The use of air compressors is confined chiefly to small units. These are used in gassy mines near the point of power application. There are nearly as many types of mine fans used in the Pittsburgh district as have been developed for the coal industry during the past 20 years. At some mines the fans often handle as much as 400,000 cu.ft. of air per minute against water gages as high as 3½ in. The usual practice is to so split the main current that sufficient air is sent to each working section. The

Table I—Labor Required for Mining Coal in the Pittsburgh District

	Pittsburgh Bed, 27 Mines			Thick Freeport, Average, (2 Mines)	Pittsburgh and Thick Freeport Bed, Total—29 Mines			Ohio No. 8 District, 33 Mines (8 Companies)			Panhandle, West Va., 15 Mines			
	Max.	Min.	Average		Max.	Min.	Average	Max.	Min.	Average	Max.	Min.	Average	
Days worked.....	27	19.9	25.14	22.5	27	18	24.96	26.33	20.94	24.85	27	17	24.6	
Total monthly production—net tons	153,469	12,659	53,027	64,846	153,469	12,659	53,843	69,837	13,197	36,336	43,514	9,774	21,499	
Daily average production.....	6,419	487	2,147	2,902	6,417	487	2,199	2,652	630	1,462	1,740	425	874	
Average thickness of coal, inches.....	90	53	74	77	90	53	74	64	52	57.5	64.5	47.5	55.9	
Men Working per Day	Loaders and pick miners.....	51	259.01	274.86	898	51	260.10	1,418	139	643	188	60	98	
	Machine men.....	78	9.13	14.01	26.22	78	9.13	14.85	153	24	82	25	7	
	Total tonnage men.....	898	61	273.02	301.08	898	61	274.96	1,556	171	725	213	69	
	Day men—inside.....	171	30.5	96.69	171	30.5	96.69	482	58	206	88	15	41	
	Day men—outside.....	76.4	12.0	41.89	76.4	12.0	41.89	185	24	78	41	10	20	
	Day men—total.....	944	54.5	179.26	138.58	944	54.5	176.45	667	82	296	122	25	61
Total all men.....	1,842	115.5	452.85	439.66	1,842	115.5	451.41	2,223	253	1,021	335	94	171	
Net tons per Man per Day	Loaders and pick miners.....	18.92	5.27	8.29	10.56	18.92	5.27	8.45	9.55	7.64	8.49	10.62	7.08	8.91
	Machine men.....	125.02	45.71	110.67	110.67	125.02	45.71	8.00	94.35	40.44	66.78	109.87	42.50	72.83
	Total tonnage men.....	16.23	4.88	7.86	9.64	16.23	4.88	8.00	8.37	6.79	7.53	9.55	6.07	7.95
	Day men—inside.....	38.49	14.45	30.01	38.49	38.49	14.45	28.78	28.78	22.31	26.55	46.57	12.90	21.31
	Day men—outside.....	95.12	23.08	69.28	69.28	95.12	23.08	77.44	36.44	60.16	78.41	26.27	43.70	
	Day men—total.....	19.58	6.80	11.98	20.95	21.54	6.80	12.46	20.97	14.24	18.42	27.82	9.03	14.32
Total all men.....	7.13	3.49	4.74	66.00	8.29	3.49	4.87	5.86	4.93	5.34	7.10	3.82	5.11	
Man Hours per Net Ton Mined	Loaders and pick miners.....	1.518	0.423	0.965	0.758	1.518	0.423	0.947	1.047	0.838	0.942	1.129	0.754	0.897
	Machine men.....	0.175	0.064	0.072	0.072	0.175	0.064	0.000	0.198	0.085	0.120	0.188	0.073	0.110
	Total tonnage men.....	1.637	0.493	1.018	0.830	1.637	0.493	1.000	1.178	0.956	1.062	1.216	0.838	1.007
	Day men—inside.....	0.548	0.208	0.267	0.548	0.548	0.208	0.208	0.358	0.278	0.301	0.620	0.172	0.375
	Day men—outside.....	0.347	0.084	0.115	0.347	0.347	0.084	0.084	0.219	0.103	0.133	0.304	0.102	0.183
	Day men—total.....	1.176	0.409	0.668	0.382	1.176	0.371	0.642	0.562	0.381	0.434	0.885	0.287	0.558
Total all men.....	2.292	1.122	1.688	1.212	2.292	0.965	1.643	1.623	1.365	1.498	1.965	1.126	1.565	

air from each section is, of course, returned through overcasts to the main return airway without passing through the other workings. Overcasts are built of brick, concrete or a combination of both. Permanent stoppings are constructed of brick, tile or cement and doors are made of wood or steel.

In many mines the cutter-bars of the mining machines are equipped with watering devices. The working places are thoroughly wet down before the shots are fired. Dust is periodically removed from the entries and main haulage roads. Several of the larger companies have adopted rock-dusting within the past year. Rock-dusting is frequently employed on all haulage roads as well as return airways, but there are some mines where it is used only on the main haulageways. This latter practice applies generally to the mines of western Pennsylvania and northern West Virginia. Safety lamps are used in the majority of the mines in the district.

LABOR FIGURES ARE INTERESTING

Table I shows the number of men employed and the nature of their duties, at 27 mines operating in the Pittsburgh bed in western Pennsylvania and at 2 mines in the thick Freeport vein in the same section. It also includes similar data from 33 mines in the Pittsburgh bed in eastern Ohio and from 15 mines in the same bed in the Panhandle district of West Virginia. Data regarding the various mines employing organized labor, and operating in the Pittsburgh bed of the Fairmont district, is not included in the table. But these data show that the average amount of labor required to produce a ton of coal under union conditions is slightly less than the average given for the mines in the Pittsburgh bed in southwestern Pennsylvania. All figures relating to production were taken from the month of largest output, during the last three years, for each of the mines included in the present survey.

The data on the number of man-hours required to produce a ton of coal is here given not for the purpose of showing the average amount of labor required by all mines in the district but to show the performance of some representative operations, both union and non-union. The largest amounts of tonnage labor in the

Pittsburgh district were used in the mines employing organized labor. The thickness of bed represents the average thickness of the minable coal in each of the mines studied.

The number of machine men working per day includes both machine runners and helpers. In calculating the average production per day, a crew of two men has been taken as the unit. The number of man-hours per ton includes the time of both runners and helpers and is based on the actual number of hours in the working day of each mine and not on the time actually spent at the working face. All labor required in the production of coal, whether employed inside or outside of the mine, is included in the data.

THREE-QUARTERS OF TOTAL COST IS LABOR

The total labor cost, in the districts included in the table, varies from 70 to 80 per cent of the total cost. The expense incurred for supplies averages from 5 to 8 per cent of the total mining cost. In the production of a ton of coal about 0.16 lb. of explosives, 3.7 ft. b.m. of timber and 4 kw.-hr. of power are required. This latter item is distributed approximately as follows: Coal cutting, 0.16-kw.-hr.; haulage, 1.5 kw.-hr.; pumping, 0.9 kw.-hr.; ventilation, 1.5 kw.-hr.

The most important factors in the operation of open-pit mines are the thickness and character of the deposit and the overburden. Of secondary importance are surface topography, water supply, dip of the coal, condition of the surface (whether wooded, rocky, barren or improved), the nature and extent of surface improvements, location of the nearest railroad, sites for tipples and necessary housing and the availability of electric power.

The No. 8, or Pittsburgh bed, is the only one in the district that is stripped and, with few exceptions, the overburden is similar throughout the field. From the coal upward, it consists usually of shale, limestone, or shaly sandstone and soil, in the order named. The topography of this district is generally uniform, consisting of gently-sloping hills. However, the horizontal distance between the outcrop and the point of maximum depth of cover that can be economically stripped may vary considerably.

Underground mining is employed where the over-

burden is too heavy to remove by stripping. The usual stripping limits are between 10- and 50-ft. of cover, although in some places coal with less than 10 ft. of cover is usable. Coal having more than 50 ft. of cover is also sometimes stripped. The principal consideration controlling the depth of stripping operations is the ability of the shovel to dispose of the overburden at the point of stripping. In passing through the crown of a hill box-cuts are necessary and the stripped material is usually removed by the coal-haulage equipment. The coal in the No. 8 bed varies from 54 to 84 in. in thickness, but the bulk of the tonnage is obtained from the thinner coal.

SULPHUR BALLS ARE A BYPRODUCT

Practically all of the "stripped" coal is used as railroad fuel, for general steam purposes and for heating. It has given excellent results in these services. When picking-tables, shaker-screens and loading-booms are used, the stripped coal compares favorably in every way, with that obtained from adjoining underground operations. Sulphur balls of varying size are often found in the coal of the Ohio No. 8 district. These are collected and sold to the manufacturers of sulphuric acid. One open-pit mine in the Pittsburgh district cuts what is known geologically as the Panhandle Trench. This "trench" is a local thickness of the bottom coal and in this particular case the bed thickened from 66 in., its normal height, to 120 in.

The average depth of cut in the district is 40 ft., with a maximum of 60 and a minimum of 15 ft. Cuts as deep as 70 ft. have been made in certain cases. The width of the first cut varies from 75 to 100 ft., depending upon the nature of the overburden and spoilage room. Wherever possible, the first cut is made along the outcrop of the coal to the limits of the property, and the excavated material thrown to one side. The loading shovel follows immediately behind the stripping machine, taking a 30-ft. cut in the coal and leaving a 45-ft. berm for the stripping shovel on its return cut. Where conditions permit, the coal is loaded directly into railroad cars. Under ordinary circumstances the coal is loaded into dump-cars which convey it to the tippie where it is hand picked. The use of picking tables, shaker-screens and loading booms is now practically imperative at all stripping operations. The return cut of the stripping shovel is made 30 ft. wide and the overburden is deposited within the cut made by the loading shovel. This operation is continued to the limits of the stripping.

LARGE STRIPPERS ARE EMPLOYED

Shovels, either steam or electrically operated, are used. The strippers are mounted on double trucks and the loading shovels on caterpillars. The capacity of the dipper of the usual size of stripping shovel varies from 5 to 8 cu.yd. This is attached to a 50-ft dipper-stick mounted on a 90-ft. boom having an operating radius of from 125 to 150 ft. and a dumping height of from 60 to 70 ft. above the coal. The dipper of the loading shovel usually employed has a capacity of from 1½ to 2½ cu.yd. and is attached to a 25- to 30-ft. dipper-stick mounted on a 30- to 40-ft. boom. This machine is usually steam-operated.

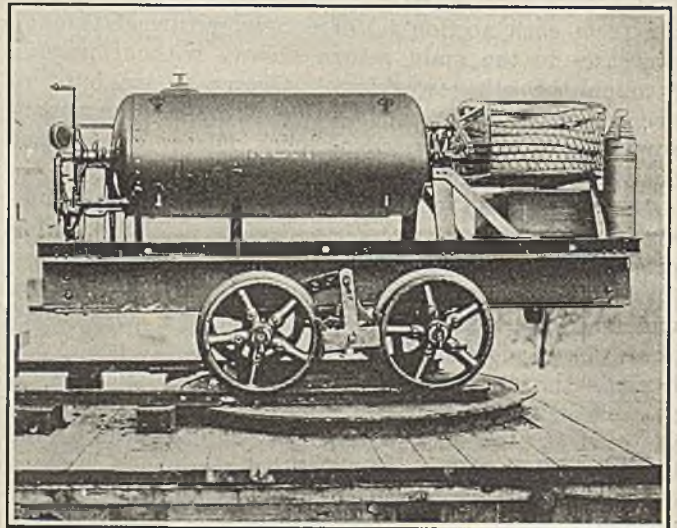
Dinky engines varying in weight from 12 to 50 tons together with the necessary dump cars, comprise the haulage equipment when the coal is sent to a tippie.

The cars may be either side or bottom dump, are built of either steel or wood, and have a capacity of from 4 to 16 tons. The track gage is usually 36 in. and 40-lb. rails are commonly used.

Sandstone or limestone, when it occurs in the overburden, is broken by drilling and shooting. This makes its removal less difficult, saves power and eliminates unnecessary wear on the shovel. Shooting of this hard rock is usually done well in advance of the stripper so that the elements may aid in the disintegration of the overburden. Many of the well-known types of portable well-drilling machines are used for this work. When the coal is hard, it is usually shot. This decreases the quantity of small sizes produced and also saves wear on the loading shovel. Jackhammer drills are commonly employed for sinking the shot holes and small charges of explosives are the rule.

Keeps Fire Extinguisher on Railroad Car

Fires in mines, as elsewhere, are best fought at their inception. The Consolidation Coal Co., of West Virginia, keeps fire extinguishers, of the type shown, on the front



Ready to Put Out Fire at Any Mine

The extinguisher is kept on a railroad truck ready to be transported, without any preliminary loading, to the mine at which a fire occurs. In this way it is possible to subdue many fires by the preferred "direct-fighting" method.

end of railroad cars ready to be sent to any mine that requires them. The platform of the flat car which is used to transport the extinguisher to the mine can be seen in the lower part of the illustration. The extinguisher car is mounted on a track of the standard gage of the mines in which the apparatus is to travel. "These railroad cars," said J. J. Forbes in his article on "Safety Kinks" at the Detroit National Safety Congress, "are kept at a central point to serve several mines and in case of fire are sent at once to the mine that needs them. Some of the larger mines also have an extinguisher of this kind located inside the mine. The turntable on the railroad car facilitates the unloading of the truck."

THERE ARE MANY THINGS which an association can do besides build markets. In some cases advertising helps to accomplish these other things. For instance, it enabled the National Knitted Outerwear Association to standardize its product. Incidentally the business of the industry jumped in four years from \$300,000,000 to \$600,000,000.—Charles F. Abbott, American Institute of Steel Construction, Inc.

America Surpassed by Europe In Production of City Gas

R. S. McBride of the editorial staff of *Chemical & Metallurgical Engineering*, states that a number of complete gasification processes have been tried out in the United States on a commercial scale. However, at the present time none of these appears to have been operating for the production of city gas.

In Europe, on the contrary, there are a number of processes operating on a commercial scale for this purpose. Apparently, none of these foreign developments has found the economic situation encountered in the United States favorable for similar development. This is probably largely the result of the difference here and abroad in the relative prices of bituminous coal, coke, anthracite, oil and low-grade fuels. With the constant threat of increasing cost of gas oil and the more serious danger of its total unavailability, this situation may change somewhat. But it is not profitable to consider here how soon or to what extent these changes may come to pass. No generalizations on this subject are feasible, for in every locality many distinctive conditions must be taken into account by the management in determining when any change, and then what change, should be made.

In previous reports to the American Gas Association there have been descriptions of the Strache "Double-Gas" process, the Tully and several other processes that have found the widest application in Europe. Nothing has been noted in recent engineering literature to indicate that any basic changes have occurred in these or similar processes which necessitate consideration at present.

Several American developments have also been considered in earlier reports. Among those most frequently and conspicuously mentioned have been the Doherty, the McDonald and the Wilcox. Apparently the last named has been used only on low-grade Western bituminous coals and lignites; and the other two are not, so far as the present author is aware, being used at any point commercially, either for city or industrial gas supply. The most extensive trials of both the Doherty and McDonald processes have been with the idea of manufacturing industrial fuel gas. But as yet neither process has passed out of the development stage to the point where its backers are undertaking further installations.

Railroads Make Huge Fuel Savings

As a result of continued improvements in locomotive design and better supervision in the use of coal, the railroads of the United States made a new high record for fuel economy during 1926. According to *Railway Age*, had freight and passenger locomotives in 1926 utilized fuel with only the same efficiency as in 1920, the cost of coal for their operation would have been nearly \$75,000,000 greater than it actually was.

Coal consumption in proportion to gross ton-miles for the year just ended was approximately 21 per cent less in freight service, and about 16 per cent less in passenger service, than in 1920. Making due allowance for the differences in the quantity of freight handled and the number of passengers carried, the greater efficiency in the use of fuel enabled the railroads to save approx-

imately 8,100,000 tons of coal in 1923 above that consumed in 1920. This saving increased to about 16,150,000 tons in 1924, was nearly 24,500,000 tons in 1925 and amounted to approximately 29,000,000 tons in 1926.

Dynamite Will Ignite Coal Dust

The U. S. Bureau of Mines, at its experimental station at Bruceton, Pa., is able to show by actual tests that dynamite, as well as black powder, will ignite coal dust. It is also able to prove that when associated with rock dust in sufficient quantity coal dust will not be



Figs. 1, 2 & 3—Dynamite Will Readily Ignite Coal Dust

On the left in this illustration may be seen the effect of detonating 2 oz. of 60 per cent dynamite in the open. The flame produced was so small as not to appear on this photo. In the center is shown the effect of piling 15 lb. of coal dust from the Pittsburgh bed on top of the 2-oz. charge of dynamite before detonation. The dust was ignited and the resulting flame leaped 15 to 20 ft. in all directions. In the test at the right 55 per cent of rock dust was mixed with the coal dust. The result was merely a cloud of dust without visible flame of any kind.

ignited by dynamite or, for that matter, any other explosive.

The accompanying photographs, taken with a *Coal Age* camera, prove these facts. In Fig. 1 is seen the ignition in the open of a 2-oz. charge of 60 per cent nitroglycerine dynamite, detonated electrically. The resulting flame was so small that the camera did not register it at all. The solid products of combustion—smoke—are seen drifting away in a cloud.

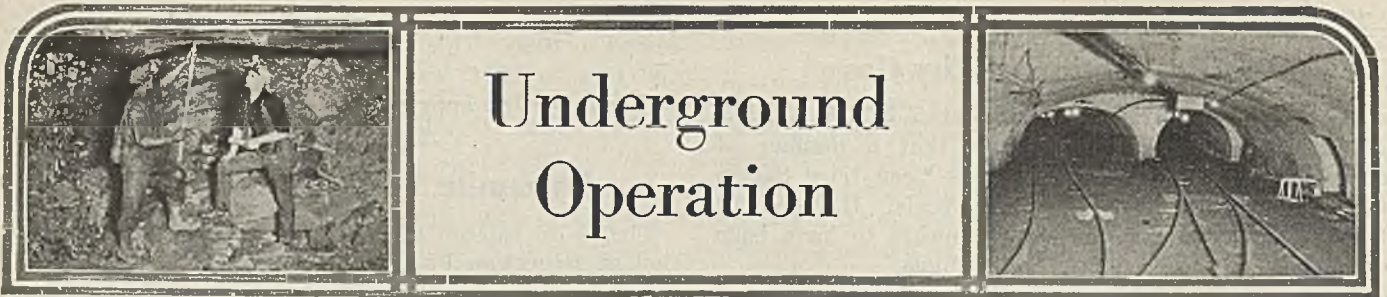
In Fig. 2 is shown the effect of detonating a 2-oz. charge of 60 per cent nitroglycerine dynamite on which was heaped a 15-lb. sample of coal dust. This dust is ignited and flared up in a burst of flame, 15 to 20 ft. in diameter. The coal dust was from the Pittsburgh bed and 85 per cent of it passed through a 200-mesh screen.

The flame-preventive effect of rock dust mixed with coal dust when a 2-oz. charge of dynamite is detonated is displayed in Fig. 3. In this test the dust mixture contained 55 per cent of inert matter. As can be noted, there was no ignition of the coal dust present.



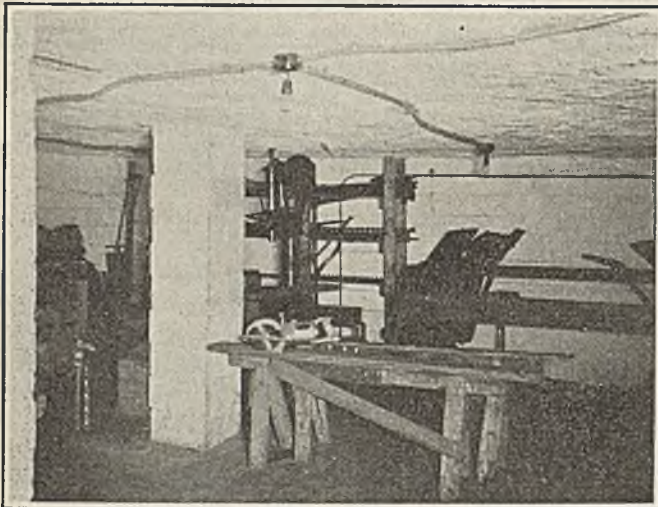
Coal Mining Institute Men at Experimental Mine

Of late years it has been the custom of the Coal Mining Institute of America to arrange for a visit (biennially) to the federal experimental mine at Bruceton, in conjunction with its annual meeting. On the occasion of each visit the Bureau of Mines arranges an entirely different "bog of tricks" in the form of interesting and instructive experiments. Many of the men seen in this photograph have made a half dozen or more visits to Bruceton. They learn much each time by observation.



Carpenter Work Done Underground Accelerated by Shop

If the management of almost any coal company will but investigate it can find many ways of lightening the work involved in performing many jobs through the use of equipment that is available for the purpose but which has not as yet been installed. It can also speed up certain classes of work and thus save much expense



Underground Carpenter Shop at Valier

In this shop work that must be made to measure and to fit is completed with the least effort and in the shortest possible time because adequate facilities are provided. Here also are stored and kept in repair the tools used by the day men. Note the portable circular hand saw lying on the only bench in view. This tool greatly speeds ordinary wood sawing and trimming.

for labor, by providing proper facilities in addition to the equipment that might logically be deemed necessary.

For example, at practically all mines the handiwork of the carpenter is everywhere in evidence. Much, if not even most of it, is done "on location," that is, lumber and tools are taken to the site and there utilized in building the desired structure. In most cases the facilities available are inadequate to the accomplishment of the job in hand with the least effort and in the shortest possible time.

If such work is done underground the light in most cases is poor and the quarters cramped. Even the convenience of a horse, not to mention that of a work bench, as a rule is lacking. The heavier power-driven tools also, those that are most conducive to both speed and accuracy as well as to the saving of labor, are out of the question. Inasmuch as most carpenter work is performed to measure wherever possible a shop should be provided for the working of wood.

At the Valier mine in southern Illinois the officials are constantly on the alert for ways and means of cutting the cost of those jobs that affect remotely, as well

as directly, the expense of coal production. To this end a spacious underground carpenter shop has been provided. This is well lighted and whitewashed and is equipped with at least a few labor-saving tools. Here the more exacting jobs of woodworking are accomplished. The equipment provided is intended chiefly to facilitate the building or repair of mine cars and the construction of rock-dust troughs, shelves and barriers. This shop which is near the foot of the man and material shaft is shown in the accompanying illustration.

Several work benches have been installed as well as racks, boxes and bins for the storage of lumber, tools and hardware. The shop is also fitted with a portable electric hand saw and a drill press together with vises and clamps. Under ordinary conditions only one man is employed in this shop, but he is enabled to do as much work in one day as three men can do on location. In addition to his major work of carpentering he cares for and issues picks, shovels and other tools used by the day men, these being stored in this shop.

Any shop resulting from an elaboration of this idea should be more fully equipped, and might logically be expected to effect even greater savings than this one has shown. Such a shop might well include facilities for framing timbers. A suitable compartment could be provided for the storage of a limited quantity of this material, which could then be brought out, be prepared and used as necessity might require.



Mine Surveys Should Be Regularly Made

Fuller success in the operation of a mine is not attained without the employment at regular intervals of a surveying corps. Entries cannot be maintained on a straight course nor rooms driven on center without the use of a transit. The work of the corps, of course, should not end here. Levels should be run to aid in the solution of haulage and drainage problems. Pillars should be measured to assure the maintenance of the gob fronts on a straight line.

The accompanying illustration shows two members of a corps advancing an entry line to the face in the Derby mine of the Stonega Coke & Coal Co. This company employs two corps for the field and office work involved in keeping the maps of nine mines up to date. Advances are recorded every 30 days on these maps.

Date.....		MINE DUST SAMPLES			By.....	
SAMPLE		MINE	LOCATION	DUST FROM	TOTAL WEIGHT	REMARKS
NUMBER	KIND					

Fig. 1—Report Blank

The sampler must date and sign this report blank and include, for each sample, all of the data required.

Sampling and Testing Mine-Road Dust At Phelps Dodge Mines

Periodic sampling and testing of the dust in mine haulageways is not a new procedure. But it is of such importance as a safety measure, and has been so long neglected by many companies, that too much stress cannot be laid upon it. A study of the methods of sampling and testing mine-road dust at the mines of the Phelps Dodge Corporation shows to what extent some of the larger companies carry their safety programs.

Fig. 2 shows the homemade scoop used for taking samples. This device is 8 in. wide, has a 10-mesh screen, and contains a drawer that is the same width at the scoop. Samples 1 in. deep and 8 in. wide are taken the full width of the entry. After the dust is collected, the hinged "guard" is dropped and a shaking motion imparted to the scoop. The dust passing through the screen is collected in the drawer of the scoop. This sample is quartered and a properly marked air-tight can, such as is shown in Fig. 2, is filled with it.

they are separately analyzed. The moisture and ash content of the dust is alone determined for these are the significant factors in all mine dusts. The results

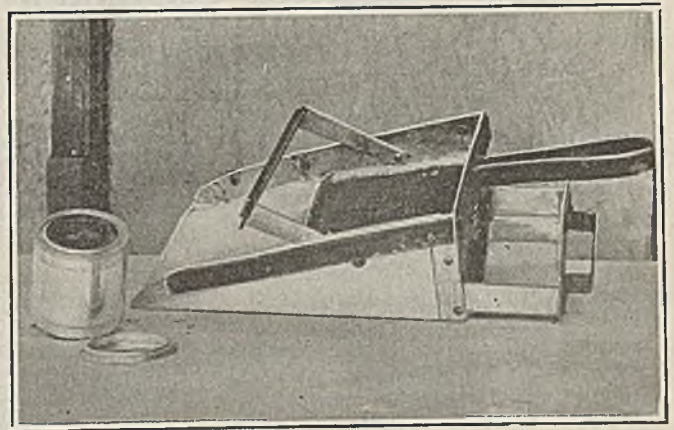


Fig. 2—Mine Dust Sampler and Sample Can

A strip of the mine dust 8 in. wide and 1 in. deep is taken the full width of the entry with the sampling scoop. The hinged guard is dropped and the scoop given a shaking motion. This causes the smaller particles to pass through the 10-mesh screen where they collect in the drawer of the scoop. The sample is quartered down, placed in a properly marked air-tight can and sent to the laboratory.

Samples are taken every 60 days at predetermined points in the entries. The data regarding these samples are recorded by the sampler on a blank similar to that shown in Fig. 1. The samples, together with the record blanks, are then taken to the chemical laboratory, where the dust is analyzed.

Samples are first treated on a 40-mesh screen, the material that refuses to pass this mesh being discarded after first noting its weight. The dust passing through is further treated on a 100-mesh screen. After recording the weights of the +100- and -100-mesh material

of the analyses are recorded on the form shown in Fig. 3. Where either the moisture or ash in a sample is considered too low for safety, that part of the mine from which the sample was obtained is examined for excessive amounts of coal dust. If deemed necessary, any accumulation of dust is removed and the mine at that point is thoroughly wet down and rock dusted. This lessens the likelihood of explosion.

PHELPS DODGE CORP.—STAG CANON BRANCH MINE SAFETY DEPARTMENT DUST ANALYSES											
Dawson, N. M.								Date.....			
SAMPLE		MINE	LOCATION	DUST FROM	TOTAL WEIGHT	SCREEN TEST			MOISTURE %	ASH %	REMARKS
Number	Kind					Over 40	Over 100	Under 100			

Fig. 3—Form Used at Phelps Dodge Corp., Stag Canon Branch, for Reporting Dust Analyses

Each sample of mine dust is subjected to a screening test. The dust is first passed over a 40-mesh sieve and the material failing to pass is rejected after first noting its weight. The -40 mesh dust is then screened on a 100-mesh sieve and after recording the

weights of the 100 and -100-mesh material they are separately analyzed for moisture and ash only. These qualities are the only significant factors so far as flammability is concerned. In event that either the moisture or the ash in a sample is considered

too low for safety, the part of the mine from which the sample was obtained is examined for excessive amounts of coal dust. If thought necessary, the accumulation of dust is removed and the mine thoroughly wet down and rock dusted at that point.



News Of the Industry



Union Firm Against "Backward Step" Despite Waning Numerical Strength; Lewis' Control Unshaken by Brophy

By Sydney A. Hale
Associate Editor, *Coal Age*

When operators of the Central Competitive Field face the scale committee of the United Mine Workers at Miami, Fla., next Monday, they will be confronted with a demand for a two-year extension of the basic wage rates carried forward by the Jacksonville agreement, which expires March 31.

These rates are the minimum which the union will accept. In the development of the negotiations they also will be found to be the maximum which the union can hope to get. As the situation now shapes up, the union leaders would hardly dare to consent to less. It is hardly conceivable that the producers would agree to pay more; many of them are convinced that they can escape bankruptcy only by paying less.

Steadfast Against Lower Wages

The union scale committee is under a mandate to take "no backward step," and that mandate was approved by the votes of approximately 98 per cent of the 1,500 delegates who attended the union convention at Indianapolis, Ind., last week. The official instructions, embodied in the report of the union scale committee, are as follows:

(1) We recommend to the convention, in lieu of all resolutions relating to wages and working conditions that have been presented to this convention, that the properly authorized and accredited representatives of the organization be instructed to secure the best agreement possible from the operators in the Central Competitive Field on the basis of no reduction in wages and that any agreement so secured be submitted to a referendum vote of our membership for ratification.

(2) We recommend that the agreement be made for a period of two years, beginning April 1, 1927, and expiring March 31, 1929.

Policy

(1) For the purpose of meeting any unforeseen emergency that may arise a policy committee shall be created which shall be composed of the scale committee of the Central Competitive Field, three representatives from each outlying district, the international resident officers and the members of the international executive board, and that this policy committee be empowered to take such action for the protection of the interests of our organization as circumstances may require and to advise the membership of all unexpected developments which cannot now be foreseen or provided for.

(2) Your committee recommends that the outlying districts be authorized to enter into wage scale negotiations with their respective operators when the opportunity presents itself; it being understood, however, that no outlying district will conclude

an agreement until after the agreement for the Central Competitive Field has been secured or permission to do so has been granted by the policy committee mentioned herein.

(3) The committee recommends that all contracts in the bituminous districts run concurrently and expire on the same date.

Except for the change in dates and a few unimportant variations in phraseology which do not affect the meaning of the report, these instructions are identical with those given the scale committee of 1924. Local union demands for the 30-hour week, elimination of the automatic penalty clause, union ownership of all loading machines, tonnage rates on loading machines, removal of local grievances and the other subjects forming the text of the 225 resolutions from local unions referred to the convention scale committee were quietly blanketed by the committee report offered as a substitute for "all resolutions relating to wages and working conditions."

Three of these demands, however, did reach the discussion stage on the floor of the convention. Conservative leaders informed the radical delegates that the attainment of the 30-hour week must be the outcome of long negotiations. That, they explained, had been the course pursued in winning the 8-hour day. Evolution, not revolution, must be the watchword in bringing about the acceptance of such reforms.

Fears Ford Methods

The question of rates on loading machines—already a bone of contention wherever this form of mechanization has been introduced—was not so easily disposed of. Dave Stuart, a delegate from local union 4638, Belleville, Ill., opened the discussion with a mild speech in support of a resolution from his local demanding the flat prohibition of any day rates for cutting, loading or shooting. Mr. Stuart expressed fear that the operators might try to turn the mines into miniature Ford plants.

Secretary William Mitch of district 11 (Indiana), defending the failure of the committee report to make specific mention of loading-machine rates, said that the machine question was still in the development stage. Fixing tonnage rates for loading machines, he continued, is a tremendous problem. This

is one of the questions which will come up for discussion at the joint conference and he hoped that it would be referred back to the districts for final adjustment. Unless something definite can be worked out for the Central Competitive Field, each district will have to go along as it has been.

"We will discuss machine loading in the interstate conference just as fully as the operators will permit," promised President Lewis. "If we fail to receive proper consideration there, we will still maintain our right to deal with the question in district conferences." The United Mine Workers, he asserted, stands for the encouragement of the installation of labor-saving devices and improved machinery, but insists that all the benefits of such installations should not accrue to the operators. Labor is entitled to its fair share in the form of higher wages and shorter hours.

Many Illinois and Indiana operators who criticize the United Mine Workers, he asserted, are themselves opposed to the introduction of loading machines because the physical conditions of their mines will not permit the successful operation of such machines. So they surreptitiously oppose them on every possible occasion. "But every time the operators and the miners fail to agree, good old *Coal Age* comes out with another attack upon the union as opposing mechanization."

Brophy 37 Years Late

The proposal, urged by the Brophy faction, that no contract be signed with any producer operating mines in more than one district unless that contract covered all operations of such company, was swept off the convention floor by President Lewis. After paying ironic compliment to Mr. Brophy for his belated discovery of a question that was first discussed 37 years ago, when the United Mine Workers was organized, Mr. Lewis stated that, in effect, the Brophy faction was asking that miners in Illinois, Indiana and western Pennsylvania go on a strike until the U. S. Steel Corporation consented to a unionization of its coal subsidiaries in West Virginia, Kentucky, Utah and Alabama.

"How long do you think you would have to strike in Danville," he asked, "to get Alabama signed up?" To adopt such a policy, he pointed out, also would mean closing down all the mines of the Old Ben Coal Corporation, Madison Coal Corporation, Peabody Coal Co., the Rock Island mines in Iowa, the anthracite mines of the Pennsylvania Coal Co., 58 collieries of the Reading and the Lorain Coal & Dock Co. operations in Ohio. "Such a policy would be unsat-

Nearing Deplores Raise In Lewis' Salary

Speaking in Akron, Ohio, Feb. 1 before the local International Labor Defense organization, Scott Nearing, radical author, scored the action by which the United Mine Workers at the recent convention at Indianapolis raised the salary of President John L. Lewis from \$8,000 to \$12,000.

"The miners have made Lewis a member of the upper bourgeois class," he said. "Officers of any labor division should be paid the same as the average worker in that class. It is the only way to keep the officers on the workers' level."

isfactory from any standpoint. Had it been practical or within the bounds of reason, the union wouldn't have waited 37 years to put it into effect."

Whatever Central Competitive Field operators who have felt the bite of no-union competition may think, the leaders of the United Mine Workers believe that their demand for a contract negotiated upon the basis of no reduction in wages a highly conservative one. "We could come in here with extravagant demands, and probably get a lot of applause," remarked Harry Fishwick, president of district 12 (Illinois) and chairman of the scale committee, "but I say that applause is not going to feed hungry mouths and is not going to help our men back home."

That the union is numerically weaker than it was in 1924 or in 1922 is an open secret, despite the attack made at the convention on the accuracy of the figures recently compiled by the U. S. Bureau of Mines (*Coal Age*, Jan. 27, p. 145). Administration leaders roundly condemned John Brophy of central Pennsylvania for discussing those figures on the floor of the convention, and John Lewis, who led the attack, sought to impress his followers with the idea that the survey had been inspired by non-union interests and compiled by men unfriendly to the United Mine Workers. Yet, the most administration spokesmen would claim for the union in the bituminous fields was 42 to 48 per cent of the tonnage—and they offered no figures to support this estimate.

It is plain, however, that this weakness in numbers has not lessened the fighting spirit of the organization. Neither has it weakened the control of the Lewis group over the rank and file. The opposition at the recent convention was far less effective than that shown in some earlier meetings in the Lewis régime when the Farringtons and the Howats joined forces. And while the opposition led by Brophy was critical of the administration, when it came to the question of wages and working conditions it demanded far more than the administration was willing to incorporate in its program for the Miami conference. So there is no comfort for the operator looking for lower wages in the opposition.

Illinois Operators Hope to Agree On Wages Without Tie-up of Mines; Strike Seen by Pittsburgh and Ohio

The Illinois delegation of operators will leave for Miami, Fla., Friday night, Feb. 11, to attend the joint conference of operators and miners, Feb. 14. Reservations have been made at the McAllister Hotel in Miami, where the conference probably will be held. Illinois operators appear hopelessly divided on the question of machine-loading wage rates, one of the major problems to be discussed at the joint conference. They do not recognize a machine rate as the solution of their ills, however.

It is believed that the operators will ask for the right to utilize any and all machines in the mines, also the right to hire and discharge miners and to employ company shotfirers in order to reduce to a minimum the amount of fines in production. Discussions also will involve the creation of a board of neutrals to deal with wage matters in dispute from time to time.

The Illinois and Indiana operators are rather cheerful over the mildness of the wage demands of the miners at the Indianapolis convention and a feeling seems to exist that a satisfactory agreement will be reached before any walkout or suspension assumes a serious nature after the Jacksonville contract expires, March 31.

The Miami conference probably will last for at least a week, the operators declare. However, nothing definite is expected to come out of the first negotiations. An adjournment is looked for after a full discussion of the miners' wage demands and the operators' proposal for a flexible wage scale carrying a 10 per cent premium over the non-union rate and based on the periodical average wage paid in the non-union fields.

On adjournment a second conference is expected to be provided for, probably in the middle of March either in New York City or some other Northern city.

Western Kentucky Unionized?

It has been reported in Chicago that the miners in Muhlenberg and Ohio counties of western Kentucky have been organized by the United Mine Workers. It is said also that the miners in the other counties of that field have been organized, but the strength of the union outside of the Muhlenberg and Ohio counties is questioned. It is expected that the Muhlenberg and Ohio county miners will be called out if a suspension of mining takes place in the union bituminous coal fields on April 1. Such a walkout will have a far-reaching effect in the Chicago coal market.

Not a bit of surprise was expressed in Pittsburgh coal circles by the action of the miners' convention in giving the wage committee a free hand to obtain the best terms possible, though expressing opposition to a reduction in wages. Operators of the Pittsburgh district have never, since the subject of the miners' convention came up a few months ago, believed that the union would countenance a cut in wages, and for that

reason the coal trade has believed right along that there would be a tie-up in the union fields on April 1.

There are three classes of operators in the Pittsburgh district, in relation to wage conditions, which may be summarized as follows:

(1) Those who will go along with the union on any wage proposition.

(2) Those who work union but would prefer a lower scale.

(3) Those who operate open shop.

The first and third of these groups are the most powerful, since they include the greatest part of the Pittsburgh tonnage. In the first group may be counted the Pittsburgh Terminal Coal Corporation, the Steel Corporation mines and the mines operated by the local public utility. In the third group is the Pittsburgh Coal Co. and a few supporters in the district, with many supporters in the Westmoreland and Fayette county fields.

The second group is the one that operates its mines only at a profit when prices are high and which cannot compete with other commercial operations in normal periods.

Thus, as sized up here, the first group will sign any new scale the union may propose, while group 2, the weakest link in the local chain, will be the ones to plead for a lower scale. The third group, of course, will not be represented at the meeting.

Ohio Set Against Present Scale

Ohio operators are practically a unit in opposing the continuation of the present wage scale with miners in all districts of the state. They are firmly convinced that the present scale, if continued by the Miami joint wage conference, will mean the elimination of Ohio operators from the competitive field. Therefore they stand united in demanding what they style a "competitive scale" which will permit them to operate and sell coal in competition with the non-union fields of West Virginia and Kentucky.

United Mine Workers delegates from District 17, which includes southern West Virginia, returning from Indianapolis have announced that a vigorous organization campaign will be launched in the southern part of the state this spring. Details of the campaign it is stated, will be worked out when the policy committee and the scale committee of the miners in the Central Competitive Field meet the operators at Miami.

The belief is entertained by southern West Virginia operators that if the operators and miners can reach no agreement at Miami, the union will have its hands full in taking care of a strike which will be sure to follow and will have neither the time nor the money to devote to West Virginia. If the existing wage contract is renewed, however, then West Virginia operators expect the union to speed up the organization campaign it has been conducting quietly for some time.

Officials Seek Better Rates For Mine Insurance

"A serious shortage in certain states of facilities for insuring coal mines against liability for the payment of compensation benefits" caused a committee of state insurance commissioners, headed by Joseph Button of Virginia, to appear at the annual meeting of the National Council on Compensation Insurance, at the Hotel Astor, New York City, on Feb. 1, with a view to establishing conferences between the parties concerned.

The visiting committee, consisting of Colonel Button, Frank N. Julian of Alabama and A. S. Caldwell of Tennessee, presented a resolution adopted by the National Convention of Insurance Commissioners at Los Angeles on Nov. 19, 1926. The resolution declared that insurance organizations which formerly carried more than half the business of insuring coal-mine owners against injury to their workers have withdrawn from the field. "It is necessary to ascertain whether this type of business may be made attractive to private insurance without detriment to the public interest or whether the states must assume the burden of insuring this type of risk," the resolution said.

The National Council on Compensation Insurance appointed the following committee to confer with the insurance commissioners in regard to rates for coal-mine risks: Travelers Insurance Co., United States Fidelity & Casualty Co., Metropolitan Casualty Insurance Co. of New York, Bituminous Casualty Exchange, Consolidated Underwriters, Liberty Mutual Insurance Co., Lumbermen's Mutual Casualty Co. and American Mutual Liability Insurance Co.

The National Convention of Insurance Commissioners will meet in Richmond, Va., in May.

Seek Better Bunker Facilities At Mobile

The Deepwater Coal Corporation, Birmingham, Ala., has filed a petition with the Interstate Commerce Commission asking that body to order the Louisville & Nashville R.R. to lease its coal terminal facilities at Mobile to the Southern Ry. and order the latter to use them in view of the fact that the latter's facilities are alleged to be inadequate and vessels will not use them for bunkering purposes. As an alternate proposition the Commission is asked to grant the same freight rates over the Northern Alabama Ry. and the Louisville & Nashville from its mines in Walker County as apply on the Southern Ry. in order that the terminals of the Louisville & Nashville may be used in bunkering ships at Mobile. Petitions seeking to overcome the same difficulties have been filed with the Alabama public service commission.

The Massachusetts Commission on the Necessaries of Life recommends that a sum of money up to \$50,000 be made available by the Legislature for examining and testing the coal deposits of that state, which probably are not greatly different in combustible character from those of Rhode Island.

Electrified Fencing Leads To Manslaughter Charge

During the British coal strike last year Cory Bros. & Co., colliery owners, electrified a wire fence at their Ogmores Vale power station, South Wales, to protect their coal stocks. A pit boy came into contact with the fence and died. As a result the dead boy's brother has brought a charge of manslaughter against officials of the company. Prominent lawyers have been engaged by both sides and the company's officials have been committed for trial on bail of £25 each.

The prosecution alleges that a current of 110 volts was passing through the wire at the time, while the defense maintains that it was only 60 volts, and was, therefore, innocuous. Medical evidence was that the boy died as the result of the electric current, though burns were absent. Great interest is being taken in the result of the trial.

Somerset (Pa.) Operators Revoke Wage Advance

A reduction in wages was announced last week by four of the largest coal operators in the Somerset district of central Pennsylvania. The mining and day labor rates were both reduced. The new scale, which went into effect Feb. 1, is the same as that paid prior to the increase granted the miners on Nov. 1, 1926. The four companies that are now operating on the lowered scale are the Berwind-White Coal Mining Co., Lochrie Coal Mining Co. and the Reitz Coal Co., all of which have main offices in Windber, and the Consolidation Coal Co., with main offices in Somerset.

The reduced rates also affect the Berwind-White company's operations at St. Michael and Herminie. The reductions amount to 20 per cent and are declared to be necessary in order to compete with the non-union fields in West Virginia.

Many Candidates Urged For I.C.C. Vacancy

Senator Reed of Pennsylvania is putting forward Representative Temple, of that state, as candidate to be a member of the Interstate Commerce Commission. Cyrus Woods, also Reed's candidate, was recently rejected by the Senate. It is understood the same forces that opposed Woods may oppose Temple.

Representative Sanders, Democrat, of Texas, last week urged the President to nominate Clarence Gilmore, chairman of the Texas Railroad Commission, to the post, while the Texas Republicans, headed by Col. R. B. Creager, Republican national committeeman, are supporting H. H. Haines, recently candidate for Governor of Texas.

Public Coal Land Leased; To Offer New Tracts

A lease to develop coal on 880 acres of public land in Wyoming will be awarded to the Altamont Coal Co., of Evanston, Wyo., in the absence of adverse claim, it was announced by the Interior Department Feb. 5. The company has a preference right claim to a lease on the area, which is located in Uinta County. Provisions of the lease stipulate that the company must make an initial investment of \$45,000 during the first three years in developing the property and must produce a minimum of 35,000 tons of coal per year commencing with the fourth year of the lease. A royalty of 12½c. per ton, mine run, on all coal produced must be paid the government.

Sale by public auction of coal leases on two tracts of public land in Utah and North Dakota has been authorized by the Interior Department. The first tract, comprising 111 acres, is situated in Emery County, Utah, and the lease will be offered by the local land office at Salt Lake City, the date to be announced by that office later. Under its terms the successful bidder must pay the government a royalty of 15c. per ton on coal produced, must make an initial investment of \$500 during the first three years and must produce at least 300 tons of coal per year commencing with the fourth year of the lease.

The second tract contains 40 acres and is located in Mountrail County, North Dakota. The auction sale will be conducted by the local land office at Bismarck, N. D., the exact date to be made public later. The successful bidder obtaining the lease must make an initial investment of \$500 during the first three years and must produce a minimum of 400 tons of coal per year beginning with the fourth year of the lease. A royalty of 10c. per ton, mine-run, must be paid the government on all coal produced.

Industries Continue to Raise Storage Piles

Although some industries slowed up production slightly in December, such interests in general consumed more coal during that month, according to the National Association of Purchasing Agents. The total of 45,085,000 tons compares with 42,324,000 tons in November. Coal stocks in the hands of industrial consumers on Jan. 1, the association's survey shows, were 55,010,000 tons, an increase of 5,637,000 tons over the total on Dec. 1. Based on the prevailing rate of consumption there was an average of 37 days' supply on hand in all industries.

Comparative Estimates of Output, Consumption and Stocks

(In Thousands of Tons)

	Output	Industrial Consumption	On Hand in Industries
August	54,577	37,152	38,641
September	57,424	37,512	40,682
October	63,267	41,115	44,271
November	68,556	42,324	45,535
December	66,104	45,085	49,373
Jan. 1	55,010

New Parker Fuel Measure in Congress Provides for Federal Administrator; Fact-Finding and Mediation Dropped

Defeat of previous coal measures in Congress has not deterred Representative James Parker, chairman of the House Committee on Interstate and Foreign Commerce, from authorship of such legislative proposals. He introduced a new measure in the House Feb. 5 which he styles "The Emergency Fuel Act of 1927." While lacking any provisions for fact-finding or mediation machinery, acknowledging that no need for it exists, the bill provides for the appointment by the President of a Federal Fuel Administrator "whenever the President is of the opinion that an emergency exists on account of shortage of coal." The term of office of the administrator shall expire when the President shall declare the emergency to have terminated.

Sec. 2 of the bill provides that "the Federal Fuel Administrator shall, under the direction of the President (a) ascertain whether the available supply of fuel is being distributed in a fair and equitable manner throughout the United States and the causes of shortage in any locality; (b) co-operate with any department or agency of the government of the United States or of any state, territory, district, possession, or political subdivision thereof, in securing an equitable distribution of fuel, and (c) submit such reports and recommendations to the Interstate Commerce Commission as he may deem advisable and necessary for carrying out the purposes of this act.

Amends Interstate Commerce Act

"Sec. 3.—Paragraph (15), Section 1 of the Interstate Commerce Act as amended is amended by adding at the end thereof the following sentence:

"Any emergency proclaimed by the President in accordance with the provisions of the Emergency Fuel Act of 1927 shall be deemed to be an emergency within the meaning of this paragraph; and until the termination of such emergency has been proclaimed by the President under such act, the Commission may exercise its authority under this paragraph in such manner as it deems best calculated to relieve shortage of fuel in any locality during such emergency, and, if any Federal Fuel Administrator has been appointed, shall give full consideration to any report and recommendation that may be received from him."

In a statement issued on Monday Representative Parker said: "The most critical persons could not say that in any way is governmental interference with private business. It has been contended by many that the Interstate Commerce Commission had the right, through priority orders, to control the shipments of coal during an emergency. This bill eliminates all doubt and question as to the powers of the Interstate Commerce Commission in case of an emergency by the addition of a sentence in the Transportation Act of 1920.

"The appointment of a Fuel Admin-

istrator simply is to provide an agency through which the needs of the various states and political subdivisions thereof can be brought to the attention of the Interstate Commerce Commission. It is specifically stated in the bill that the Fuel Administrator is to co-operate with any agencies set up by the state or political subdivisions thereof, to the end that there may be an equitable distribution of coal. The Fuel Administrator is not authorized to issue priority orders under the terms of this bill but to make reports to the Commission and that body issues the orders in compliance with the Transportation Act.

"This bill does not embrace the recommendations for a special temporary board for conciliation and mediation, as it is possible to do this through the Board maintained by the Labor Department. This bill has been drawn with one object in view, to give the President the power to bring about the equitable distribution of the available supply."

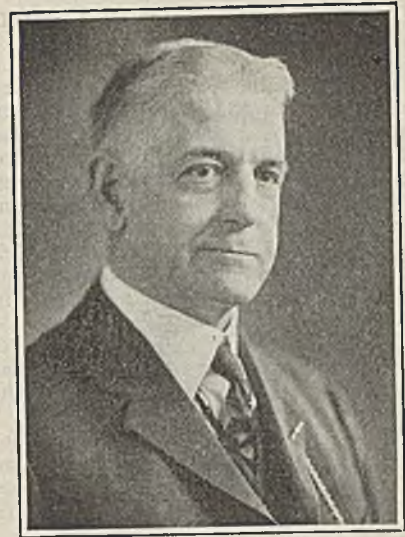
Representative Adam M. Wyant, of Greensburg, Pa., who was conspicuous among the opponents of coal legislation, also issued a statement on Feb. 7 on the latest Parker measure.

"It is to be regretted," said Congressman Wyant, "that Chairman Parker of the House Committee on Interstate and Foreign Commerce did not follow to its logical conclusion the sound line of reasoning which led to his admission that additional mediation machinery for the coal industry, which he recently advocated, is unnecessary. There is no more need for the additional emergency distribution legislation, covering coal, oil and gas, for which he asks in a bill which he introduced Feb. 5, than there is for legislation to provide mediation boards additional to those of the Department of Labor.

Says Bill Would Add to Ills

"Other than creating another temporary 'bureau,' enactment of the bill would aggravate any emergency. It would clutter up the machinery with red-tape bureaucrats of whom business has had its fill. That judicial body known as the Interstate Commerce Commission is no more in need of advisory boards, super or otherwise, than is the U. S. Supreme Court. There is no question of the complete power of the Commission to function effectively in the emergency distribution of coal or any other commodity. The Commission is expressly authorized by the Transportation Act to do just that very thing, and when we had a Federal Fuel Distributor in 1922 and 1923 he did nothing more than advise with the Commission.

"Incidentally, however, there is no emergency in sight. Whether or not pending wage negotiations result in a suspension of work in the union fields April 1, there is no danger of a fuel shortage. Every legislator and every editor, who is not ignorant of the facts



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Bobs Up with New Coal Bill

Undismayed by the defeat of his previous coal measure, Representative James S. Parker of New York presented an "emergency fuel act" in Congress on Feb. 5.

and who is not intellectually dishonest, will support that statement. With a non-union production sufficient to fuel the nation, reinforced by eighty million tons of bituminous coal top of ground, together with most satisfactory railway facilities and car supply, it is utterly inconceivable that an emergency could arise.

"Only through legislation, in fact, could an emergency be created. There will be no legislation, no more bureaus and bureaucrats, and hence no coal crisis, strike or no strike."

Coal Legislation Unlikely In President's View

President Coolidge is unshaken in his belief as to the need for bituminous coal control legislation, it was indicated at the White House last week. In his annual message to Congress he stated that no progress appears to have been made within a large area of the bituminous industry toward creation of voluntary machinery by which greater assurance can be given to the public of peaceful adjustment of wage difficulties such as has been accomplished in the anthracite industry.

At the White House last week it was said that the situation seems to be that when there is no dispute in the coal industry it is difficult to get any action at the hands of Congress, and when there is a dispute, then the action of Congress is not likely to be helpful. It was pointed out that it is, of course, very difficult to pass legislation affecting an industry when there is a strike on in that industry.

As the Jacksonville wage agreement expires at the end of next month, when a conflict may result, the President favors the passage of legislation which would give him authority to deal with a possible emergency in the fuel situation. It was said officially, however, that President Coolidge looks for no legislation for coal control at this session.

Three Big Roads Buy Control Of Two Small Lines

Control of the Wheeling & Lake Erie has passed to the New York Central, the Baltimore & Ohio and the Nickel Plate railroads. A. H. Harris, vice-president of the New York Central, said on Monday afternoon that his company has acquired something more than 95,000 shares of Wheeling & Lake Erie stock, partly common and partly in the prior preference stock, held by the Rockefeller interests.

The Baltimore & Ohio, according to Vice-President George M. Shriver, has acquired about one-sixth interest in the shares of the Wheeling.

While the Van Sweringens were not ready to state their position, it is assumed that they have acquired one-third of the former Rockefeller holdings.

Baltimore & Ohio, in addition to its Wheeling purchases, has acquired about 144,000 Western Maryland preferred shares from the Rockefellers, making, with the common shares purchased in the market, something over 35 per cent of the shares of Western Maryland, with which it has a large interchange of traffic.

The Wheeling & Lake Erie, therefore, will become, subject to the approval of the Interstate Commerce Commission, a joint facility of the B. & O., the New York Central and the Nickel Plate, following out the Eastern consolidation program adopted by these three roads three years ago.

In railroad circles the sudden and somewhat dramatic move of the New York Central, the Baltimore & Ohio and the Nickel Plate, the purchasing roads, was considered a retaliatory thrust at L. F. Loree of the Delaware & Hudson, who is engaged in building a fifth trunk line and who had planned to include these two terminal roads in his system.

Recommends L. & N. Connect With Clinchfield

Examiner Bowles of the Interstate Commerce Commission recommends that the Commission grant a certificate authorizing the Louisville & Nashville R.R. to construct a new line from Chevrolet, Harlan County, Ky., to a point near Hagans, Lee County, Va. He also recommends that the L. & N.'s petition seeking relief from full compliance with the condition imposed by the Commission's order in the Clinchfield case be dismissed. This latter phase of the case involves the Commission's order to the L. & N. to construct a line from the Eastern Kentucky division across the mountain to Elkhorn City, Ky.

The examiner, after a lengthy discussion of the entire geographical and topographical features of the case, agrees with the L. & N. that it will be more economical and practicable to construct the line from Chevrolet to Hagans, which is about 14 miles in length, and would connect the Martins Fork branch in Harlan County with the Cumberland Valley division and then trackage rights would be secured over

Decries Federal Meddling In Business Life

The ability of the American people for self-government is being undermined by the government's increasing regulation of and interference with private and business life, says Senator William E. Borah, in *Nation's Business*. Unless a halt is called, he predicts that in the light of past experiences it will be only a matter of comparatively short time before "there will be an officer for every ten persons in the Republic. Every conceivable activity of mind and body will be under the direction and surveillance of a bureau. Inspectors and spies will leer upon the citizen from every street and corner and accompany him hourly in his daily avocation. Taxes will be \$100 per capita. Forty per cent of the national income will be demanded for the public expenses.

"We will still have a republic in name, but a bureaucracy in fact—the most wasteful, the most extravagant, the most demoralizing and deadly form of government which God has ever permitted to torture the human family."

the Interstate R.R. from a point near Norton to Miller Yard, a distance of approximately 18 miles, and then connect with the Carolina, Clinchfield & Ohio. This proposed construction would cost slightly more than five million dollars.

Rate Hearing Postponed

A hearing announced for Feb 10 by the Central Freight Association coal and iron ore committee to consider equalization of rates from mines on the Pittsburgh, Shawmut & Northern with those from mines on the Pittsburgh & Shawmut to points on the Bradford division of the Erie R.R., via Hyde, Pa., has been postponed until Feb. 24 at 10 a.m. in the Chamber of Commerce Building, Pittsburgh, Pa. Rates of \$1.72 per net ton to stations Tuna to Ridersville, Pa., inclusive, and of \$1.46 to stations Mt. Jewett to Johnsonburg, Pa., inclusive, are proposed.

Rates West from Illinois Unjust

The Interstate Commerce Commission has decided that present rates on bituminous coal from Elkhorn, Ill., to points in Missouri, Iowa, Kansas, Arkansas, Colorado, Montana, Oklahoma, South Dakota and Wyoming are unreasonable and unduly prejudicial to the complainant and unduly preferential to operators in the Duquoin group to the extent that they exceed the corresponding rates from Dowell, Ill., and other points in that group. The railroads in the territory affected are ordered to establish new rates by April 5 next.

Indian Creek Line Control Goes to B. & O.

The Baltimore & Ohio Railroad Co. has been authorized by the Interstate Commerce Commission to acquire control of the Indian Creek Valley Ry., a twenty-seven-mile coal line in Pennsylvania, under an operating contract. The Commission found that the unified operation of the lines of the two companies will make it possible to render better service to the shippers in the tributary territory, giving them the benefit of a one-line haul, and that when occasion demands the Baltimore & Ohio will be in a position to develop and extend the Indian Creek's line. The acquisition becomes effective as of Jan. 1, 1927.

Attacks Rates from Tidewater To Fitchburg, Mass.

Complaint has been filed with the Interstate Commerce Commission by the Fitchburg Gas & Electric Light Co. against the Boston & Maine and New Haven railroads, attacking the rates on coal from tidewater points in Massachusetts to Fitchburg. The complainant points out that it receives large quantities of coal through Hampton Roads which is transshipped by rail inland. The point of delivery by water is Salem, Mass. The B. & M. charges \$1.55 per gross ton for cargo from Salem to Fitchburg, and the New Haven charges 38c. for switching. The complainant alleges that such rates are unjust and unreasonable and seeks relief.

Cut C. C. & O. Coal Rate To Lamberts Point

The Interstate Commerce Commission finds in Docket 17135, Clinchfield Corp., vs. Carolina, Clinchfield & Ohio Ry. et al., that the rates on bituminous coal from Dante and Clinchfield to Lamberts Point for transshipment are and for the future will be unduly prejudicial to the complainant to the extent that they exceed the contemporaneous rate from Carbo and St. Paul to Lamberts Point for transshipment. This decision has the effect of extending to the Clinchfield mines at Dante and Clinchfield the base rate of \$2.52 per gross ton to tidewater.

McCulloch Is Confirmed

Taking up consideration of his case out of the regular order, the Senate at Washington on Feb. 7 confirmed the nomination of Edgar A. McCulloch of Arkansas to the Federal Trade Commission.

Would Equalize Demurrage

The Coal and Coke Committee, Trunk Line Territory, will hold a public hearing in room 401, 143 Liberty St., New York City, on Feb. 17 at noon to consider the establishment of the same track storage charges on coal and coke at New York City and Brooklyn terminals as are applicable on other commodities.

Chance Seen for Union Operators To Regain Their Natural Markets Under Proposed Sliding Wage Scale

By Paul Wooton

Washington Correspondent of Coal Age

If a differential of 15 per cent above wages in non-union territory could be agreed upon between union operators and workers it is believed that the union fields could win back their natural markets and the industry in the North be put on a more promising basis than ever before. That some such plan as this can be worked out to the great advantage of the coal-producing industry and to the general public is an opinion held here in responsible quarters.

The plan would run against a difficulty in ascertaining what wages are being paid in the non-union fields. It is said in defense of the plan that every workman knows what he gets and that the non-union operators could not prevent this information from becoming known, even if they should attempt to do so.

It is recognized, however, that many non-union rates vary for the same job from mine to mine. This is especially true of the tonnage rates. They vary with the condition of the seam and with the tasks required of the man at the face. Sometimes he is paid extra for setting props. In other instances that service is performed without extra pay. In some cases the miners shoot their own coal. In others special shotfirers are employed. It would require, it is believed, more information than was gathered by the Hammond Coal Commission as to wage rates, and even that proved to be quite a task, to establish the level of non-union wages in a way likely to be satisfactory to both operator and miner. It is apparent that considerable machinery would be required as well as the will to agree.

Engineer Outlines Plan

In this connection attention has been given in Washington to the plan put forward by Franklin A. Ray, a mining engineer who is consulting director of mine engineering at the Ohio State University. His proposals are presented in careful detail in Bulletin No. 33 of that institution.

The kernel of Mr. Ray's idea is that the rate of wages shall be determined on the basis of the preceding month's financial showing. The determination of the wages is to be made by districts.

EDITOR'S NOTE—The foregoing Washington letter reflects certain views of official Washington. Due to the fact that policy as a rule prevents government officials from permitting their views being quoted directly, the authority for these reports is necessarily somewhat vaguely referred to. The views reflected are not those of any one group of officials, but of different men, in the legislative and executive departments. There is no necessary connection between their views and COAL AGE editorial policy; neither do they necessarily represent Mr. Wooton's personal views. It is felt that the opinions thus faithfully reflected will be of great interest to the industry. Where opinions are cited from sources outside of the government, the source will be specifically stated.

He summarizes his scheme as follows:

"The writer fully realizes that there is much more work to be done on this plan of co-operative sliding wage scale before all questions that will arise concerning it can be satisfactorily answered and the mine owners and miners convinced that this plan of wage-making is sound and possesses sufficient merit to justify a trial.

"To make this co-operative sliding scale function satisfactorily, it is necessary for both mine owners and miners to agree on the principles of the plan; provide the necessary organization to work out all of the details of a definite plan; define how the plan shall be administered; both contracting parties should bind themselves to carry out the plan when a definite plan is agreed upon and a contract is executed.

Base Rate Lower Than Union Scale

"It is necessary, in order for union coal fields to meet the competition of non-union coal fields, that the 'basing scale' of wages for each of the union coal-mining districts shall be much lower than the Jacksonville scale. The basing scale adopted to be the minimum wage.

"The principal elements of this plan of co-operative sliding scale of wages are: (1) Basing scale one that is lower than the Jacksonville scale. (2) Average cost of producing and marketing coal from all of the commercial mines in the district, computing the labor at basing scale rates, all items of cost in producing and marketing coal to be the average cost as shown by the books of the companies within the district. (3) The proportion due labor each month to be the percentage of the average selling price of the coal for the district applied to the total coal produced at the mine during the month that the total average labor cost is of the total average cost of producing and marketing the coal for the district. The labor cost will be found to be about 60 per cent and all other costs will be about 40 per cent of the total average cost. (4) Each miner's portion for the month will be the per cent his work is of the total labor performed at the mine that month at the basing scale rates. (5) The pay-rolls to be kept as at present at the basing rates. The pay days to be as at present and payments made at the basing rates. The succeeding month, when the average selling price of coal is known, labor shall be paid the difference between what is due him under the plan and what has been paid to him, plus the amount of his labor performed the succeeding month at the basing scale rates.

"In my opinion a carefully worked out co-operative sliding wage scale of this character would have a very beneficial effect on the bituminous coal industry. The influence on the operators



Still in the Mud but Coming Fast

The tipple at the new Faraday mine of the Pocahontas Fuel Co., in Tazewell County, Virginia, is now preparing 3,000 tons a day. Its capacity eventually will be 6,000 tons daily. Coal comes to the tipple from a dump on the hill by a long conveyor.

would be to maintain good prices. The influence on the workmen should be to stimulate efficiency and a co-operative interest in the care of the mining plant for the reason that under this wage plan, they would have a large working interest in the mining property."

It will be seen that the plan is very like the arrangement which was in force in the United Kingdom from 1921 to the beginning of the great strike. It is not a simple sliding scale based on price alone but on labor cost in relation to total cost.

Data Difficult to Obtain

One of the difficulties of these schemes is the lack of information about costs and the lack of machinery for obtaining it. The determination of costs must be made in such a way that the mine workers will have confidence in the result. This has been accomplished in the United Kingdom by the two parties to the agreement appointing independent auditors who see the cost returns from each company and agree on the result.

While any sliding scale plan presents many difficult problems, it would be better for the union operators and mine workers, it is held, to work out some such plan rather than attempt to go ahead without reckoning with non-union competition. When, under the stimulus of the recent upturn in demand, coal production went as high as 14,676,000 tons, only 40 per cent of the total came from union mines. In that week the non-union mines produced 9,000,000 tons. This is a very different story than that of 1919, when the union was at the height of its power. When the strike of that year was called non-union production was barely 4,000,000 tons a week.



News Items From Field and Trade



ALABAMA

Burned Plant Replaced.—The Black Diamond Coal Mining Co. has completed and placed in operation its new washery, tipple and other mining structures at Johns, replacing the plant destroyed by fire several months ago. The washery is of 1,000 tons capacity and preparation equipment has been installed of sufficient capacity to take care of the output from both the Johns and Adger mines, which are located in close proximity. The Blue Creek seam is mined at these operations, the greater part of the output being coked or sold to the blacksmith trade.

A coal washery has been built at the Dixie mine of the Moffat Coal Co., Moffat, Bibb County, and modern equipment installed for the preparation and handling of the output. This mine is opened on the Woodstock seam and is served by the Mobile & Ohio R.R.

Thomas Chalmers, who has been superintendent of the byproduct division of the Tennessee Coal, Iron & Railroad Co., near Birmingham, Ala., has had his jurisdiction enlarged and has been made general superintendent of the Fairfield sheet and jobbing mills and the coke works at that point.

ARKANSAS

Mine Long Idle to Reopen.—Mine No. 2 of the Eastern Coal & Mining Co., at Denning, will be reopened as soon as a clean-up is completed, according to notices posted on the mine property. The mine was closed in May, 1924. Last summer a new tipple and shaft casing were installed following a cave-in which destroyed the old tipple. Shakers also were added to the new tipple. It is reported that operations will be resumed under the 1917 wage scale. Former employees of the mine have agreed to return to work under these conditions. Approximately 80 men were employed.

The Scranton Coal Co., Prairie View, has been placed in the hands of a receiver. The secretary of the Clarksville Mercantile Co., of Clarksville, has been placed in charge of the firm.

COLORADO

Among important bills before the Legislature, now in session, are some proposing to exempt small coal mines from certain requirements of the coal mining law.

Wage Dispute Settled.—The State Industrial Commission has dismissed the case of the Ross Coal Co., operat-

ing the Horace mine at Crested Butte. The company recently filed notice with the Commission that a wage reduction for its miners would become effective Feb. 1. The employees filed a formal protest but before the Commission could set the controversy for hearing, the company and the employees ironed out their differences in conference.

ILLINOIS

Big Roll for Safety.—The 5,000 employees of the various mines of the Old Ben Coal Corporation in Franklin County will take a course of safety-first and mine-rescue work at the Benton mine rescue station according to J. E. Jones, safety engineer for the coal company. They will be drilled in the proper way to act after an explosion and what steps to take to prolong life or effect an escape. The students also will be schooled in first-aid methods, including how to stop the flow of blood from a severed artery and how to set a broken limb.

Peabody Mines Speed Up.—Smashing all existing records in central Illinois, four Peabody coal mines on Jan. 21 loaded 23,665 tons of coal in a single eight-hour day. The average daily pay of the men was \$11.

The Star Mine property, Freeburg, has been taken over by C. A. Gent, of Chicago, who has opened the mine for production. It is being operated under the name of the Freeburg Coal Co.

INDIANA

Would Re-enact Old Law.—Re-enactment of a section of the 1917 mining law, which was repealed in 1923, when the codified mining law was passed, requiring the closing of airways in unused parts of coal mines, is provided in a measure introduced in the Indiana House of Representatives by Representative Ollis G. Jamison, of Linton. The purpose of the measure is to force air circulation in parts of mines being worked and to improve the general ventilation of mines. Such airways, or "breakthroughs," would have to be placed between rooms or entries at intervals of 45 ft. or less. Under the 1923 law, Mr. Jamison said, it is possible for airways to be left open in closed parts of the mines, thus impairing the circulation in parts being worked. The measure was referred to the Committee on Mines and Mining.

Fire that has raged in the depths of Francisco mine No. 2, in Gibson County, since early in December, when 30 men

were killed in an explosion, has been smothered. The bodies of five of the victims still remain in the workings, but it is thought that in a short time these bodies will be removed. Mine inspectors and officials of the company went into the mine Jan. 27, and, after an all-day inspection reported that the blaze had subsided and that the pits would be reopened shortly. Brattices that were torn away by the blast are being rebuilt and damaged machinery is in course of repair. The fire was confined to an abandoned section of the mine and this will be sealed off if it is found necessary.

High Water Floods Mines.—High water in the last two weeks has resulted in damage to many mines in southern Indiana as well as western and northern Kentucky. The mine of the Possum Ridge Coal Co. near Boonville has been pumped out and will be able to operate in a short time, it was announced by the Hayden Coal Co., owners. Several other mines were reported flooded and it is expected the property damage will run into many thousands of dollars. Quite a number of the mines have been forced to close down because of the high water. The Ohio River at Evansville passed a stage of more than 45 ft., the highest reached since the 1913 flood.

The Deep Vein Coal Co., which was recently organized and took over the old Bosse mine at Buckskin, is installing modern machinery. The mine will be in operation again in two or three weeks.

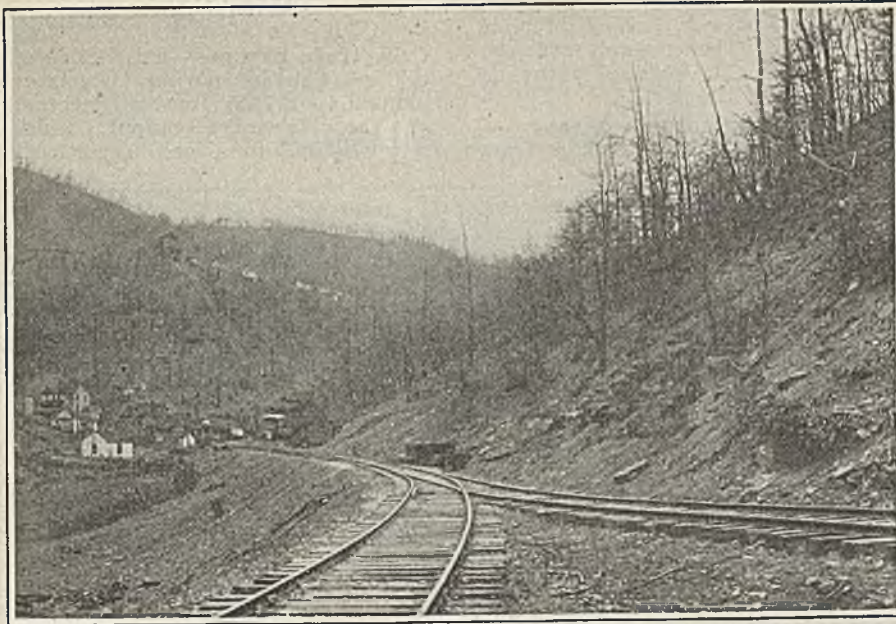
Fire of unknown origin recently threatened the destruction of the Ayrshire No. 8 mine, at Arthur. The fire originated at the bottom of the mine in the motor room and had gained considerable headway when discovered. The mine was able to resume operations almost immediately.

Zeller-McClellan & Co., Inc., coal operators of Brazil, have filed a preliminary certificate of dissolution with the secretary of state.

KENTUCKY

The Middle West Coal Co., Ashland, has filed amended articles increasing its capital stock from \$10,000 to \$300,000.

Fire on Feb. 1 at Whitsett, near Hazard, destroyed a commissary and five dwellings of the Kentucky River Coal Co., the loss being \$25,000. The concern has been in receivership, with John P. Gorman, of Lexington, experienced coal operator, as receiver.



Looking Toward the Tipple of the Sterling Coal & Coke Co.

This plant is located about nine miles from Middlesboro, Ky. It is a drift in the Sterling seam, which at this point runs approximately 48 in. in thickness. The mine rating is 700 tons per day.

The Keyser Coal Co. has completed withdrawal of coal from a lease near Pikeville, and has dismantled the plant and withdrawn the machinery.

MISSOURI

Big Stripping Nearly Ready.—Steady progress is being made in the construction of buildings at the mine of the Howard County Coal Mining Co. at Russell. James Haley, of Moberly, who has the contract for the erection of the buildings, is now constructing a blacksmith shop. The superintendent's home has been completed. The big steam shovel has been installed and work has been started on the tipple. Actual operations are expected to be under way within six weeks.

OHIO

To Abandon Franklin Mine?—Franklin mine, located at Stewartsville and one of the oldest in Pittsburgh No. 8 field, may be abandoned soon. The mine was opened about 35 years ago by a number of residents of Richland township, Belmont County, headed by the late J. Meehan and has been a steady producer since that time. Attempts to produce coal farther back in the workings have proved a failure commercially and the 25 miners now employed are removing the pillars. The mine is owned by the Cambria Collieries Co.

Vandals Hound Co-operatives.—An attempt recently was made to wreck the tipple and machinery of the Lick Run Mining Co., a co-operative concern leased by about 50 union miners. Bloodhounds were pressed into service to trace the culprits. The tipple was burned about two years ago and was rebuilt by the miners.

Columbus Again Gets No Bids.—For the second time in a month, no bids were received by the Columbus Board

of Purchase on Jan. 27 when tenders were scheduled to be received for approximately 15,000 tons of Ohio-mined nut, pea and slack for various city departments. A resolution has been adopted by the City Council to permit H. C. Cain, secretary of the Board of Purchase, to continue to buy on the open market. He also is authorized to increase his purchases in view of an expected suspension in Ohio fields on April 1.

The Lake & Export Coal Co., of Huntington, W. Va., and operating in the Logan County field, has opened a general Western sales office in room 837 Dixie Terminal Building, Cincinnati. In charge as Western agent is Dorrington Cave, for many years representative on the Cincinnati market for the Norfolk & Chesapeake Coal Co.

Fire of undetermined origin recently damaged the tipple of the High Shaft mine of the Steubenville Coal & Mining Co., causing loss estimated at \$5,000. Fifty-five men working three miles from the foot of the shaft left through another exit. This was the third fire in the Wheeling-Steubenville district in one week. All are open-shop workings.

PENNSYLVANIA

Compensation Board Reorganized.—Reorganization of the State Workmen's Compensation Board has been effected by Governor Fisher who has named Paul W. Houck, Shenandoah; John L. Morrison, Greenville, Mercer County, and Joseph E. Fleitz, Wilkes-Barre, as members of that body. Mr. Houck and Mr. Morrison were reappointed, Mr. Houck being designated by the Governor as chairman in place of T. Henry Walnut, Philadelphia, who has been displaced by Mr. Fleitz. Four referees of the Compensation Board were also named by the Governor. They are Herman H. Mattman, Philadelphia, a former referee, succeeding Howard

Shertz; John R. Keefer, Monessen, a new appointment; Harvey B. Lutz, Lancaster, to fill a vacancy that has existed for several years, and David B. Johns, Crafton, a former Allegheny County chairman and former member of the House of Representatives at Harrisburg.

The Seventh Pool Coal & Coke Co. of Greensboro has been sold to the Penn-Pitt Coal & Coke Co. The holdings of the company include a mining plant located along the Monongahela River at Greensboro and a tract of 55 acres of coal.

Enjoins Drainage Into Cold Stream.—Atherton & Barnes, Philipsburg coal operators, were permanently enjoined from emptying mine drainage into Cold Stream, near Philipsburg, in a decree filed in the Centre County Court by Judge Harry Keller on Jan. 18. The case originated in 1917 and was first heard by Judge Henry C. Quigley. The Atherton & Barnes company was enjoined at that time from emptying drainage into the stream. The later action was pressed by the Penn Public Service Corporation, the bill of complaint setting forth that the drainage was causing heavy damage to boilers at its power house which was drawing water from Cold Stream.

Hard-Coal Industry Slighted.—Those politically in power in the reorganization of the Pennsylvania Legislature saw to it that few members from the anthracite regions were placed upon either the Senate or House committee on Mines and Mining. The chairman of neither committee comes from an anthracite county. Senator Norman L. Bonbrake, of the Adams-Franklin district, which never produced a ton of anthracite, was named as chairman of the Senate committee. The committee has eighteen members, only one of whom, Senator Charles Steele, of Northumberland County, comes from a hard-coal district. The House committee is headed by Howard F. Rieder as chairman. He lives in Arnold, Westmoreland County, a bituminous coal district. The committee consists of twenty-six members, seven of whom come from the anthracite counties.

Would Harness Lehigh River.—Samuel D. Warriner, president of the Lehigh Coal & Navigation Co., has proposed the harnessing of the Lehigh River between White Haven and Easton for the development of electrical energy for domestic and industrial consumption. There is a drop of 500 ft. in the river between White Haven and Mauch Chunk and 360 ft. between Mauch Chunk and Easton. Mr. Warriner's plan provides for a series of power plants. One of the plants would be located at Long Run, opposite Packer-ton. It was for this reason that the Lehigh Coal & Navigation Co. opposed a state highway via the Lehigh Canal bed between Mauch Chunk and Parryville.

Form Anthracite Bloc.—The "anthracite bloc," composed of representatives in the House at Harrisburg from the hard-coal region was organized at a meeting Feb. 1 following the adjournment of the House. Fourteen repre-

representatives attended the meeting. Representative Christian Miller, Luzerne County, was elected president, and Representative Ray D. Leidich, Schuylkill County, was elected secretary. Mine legislation was not discussed, "bloc" members confining their activities to organization only.

Fire Destroys \$90,000 Tipple.—The tipple of the Maple Run Coal Co., at Olanta, Clearfield County, burned on Jan. 29, with a loss of \$90,000. The cause of the fire was not determined. It was one of the most up-to-date tipples in the central Pennsylvania field.

Less Funds for Mines Bureau.—The state budget sent to the Legislature by Governor Fisher contains a recommendation for the 1927-29 biennium of \$13,000 less than was appropriated to the State Department of Mines for 1925-27. The present state administration appropriation recommended is \$617,800, while the Pinchot administration allowed the department \$630,800. "If the department is expanded," Governor Fisher said in his message to the Legislature, accompanying the budget, "this item must be increased."

Hudson to Drive New Shaft.—The Hudson Coal Co. is making preparations to start drilling next month on a new shaft in the Schuylkill coal fields, where it has large reserves of unmined coal. Surveyors and drillers have been working in the district for two years and are said to have found a thick seam of anthracite at the 700 ft. level.

Cascade Mines Resume.—The mines of the Cascade Coal Co., at Sykesville, controlled by the Rogers-Brown Iron Co., which had been idle on account of labor difficulties since Dec. 20, started up again last week on terms offered by the operators, which are said to be a little above the 1917 scale. The operations will be active only on part time. The coke ovens will not start up now.

UTAH

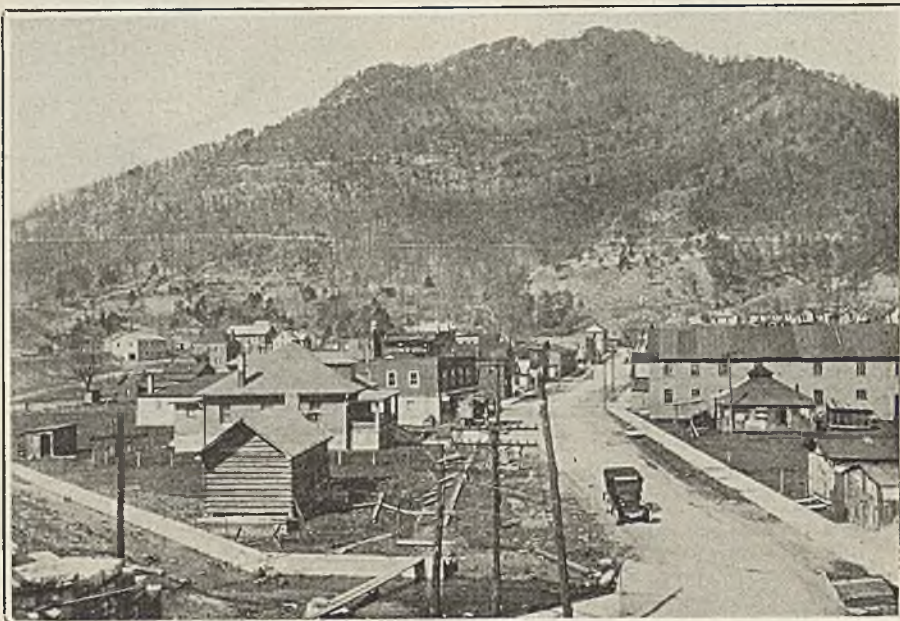
What is probably the last piece of coal land to be purchased outright from the government has been acquired from the local federal land office by Henry M. Wallace and John M. Wallace. It cost approximately \$25,000 and is located in sections 18 and 19, township 13, south of 9 east in Carbon County. The land was acquired under the coal-land leasing act of 1920 when one could purchase coal land. The Wallaces took 197.18 acres. Their claim to the land has been upheld.

WEST VIRGINIA

Flood Burning Paisley Mine.—It was estimated on Feb. 2 that it would require about five more days of steady pumping to fill the burning section of the No. 1 mine of the Connellsville By-Product Co. in the Scott's Run field. Fire has been raging there since Jan. 28 and there have been several explosions as a result. Seven pumps with a capacity of more than 6,000 gallons of water per minute have been at work. Guston Run has been diverted to allow its waters to flow into the mine by

gravity. The mine is owned and operated by the James A. Paisley interests of Cleveland. The general manager, Joseph Arkwright, suffered burns on the first day of the fire.

Guardian Development Advances.—With the removal of its offices from



In the Town of Cumberland Gap, Tenn.

It is located about three miles from Middlesboro, Ky. The fairly straight white streak along the mountainside is the road leading from Virginia up over the pass and into Middlesboro.

Philadelphia to New York City and a general reorganization, the Guardian Coal & Oil Co., operating mines at Removal, Webster County, becomes one of the large operating companies of the country. This company owns several thousand acres of coal lands in the Rolly district and before the year is out expects to be mining 4,000 tons daily. Construction of the power house and tipple incline is now under way. Work on the second unit will be started within a short time. The second unit, on Bear Run, three-quarters of a mile from the present opening, will be developed on a larger scale than the initial unit, it is said.

Fire Stalls Mine.—Fire which destroyed the greater part of the rolling stock at the Summitt Coal Co. property at Metalton recently resulted in a loss of between \$55,000 and \$60,000. The blaze completely destroyed six gathering motors, practically all supplies, a cutting machine, the machine shop and a part of the blacksmith shop. It will be necessary to suspend operations for about 60 days while repairs are being made. The controlling interest in the company is owned by Dr. E. L. Ellison and John Anderson of Beckley.

Reconstruction of the tipple at the No. 2 mine of the Elm Grove Mining Co., near Wheeling, has been started and will be rushed to completion. This tipple burned recently, at a loss of approximately \$75,000. The origin of the fire is unknown.

The Mine Extension Department of West Virginia University has started a series of classes at Anawalt teaching various subjects pertaining to modern coal mining.

CANADA

Coke Trade Expands.—Production of coke in Canada during December amounted to 157,107 tons, an increase over the November output, which totaled 154,462 tons, and 9 per cent

under the record month of the year in October, when the production was 173,592 tons. For the year 1926 the total production was 1,909,578 tons as compared with 1,471,116 tons for the preceding year. Imports of coke into Canada during the year amounted to 988,034 tons, an increase of 16 per cent over the total of 852,427 tons brought in during the previous year. Exports of coke during 1926 amounted to 61,245 tons, an increase of 36 per cent as compared with the 44,992 tons exported in 1925.

The new coke screening plant of the Algoma Steel Corporation of Sault Ste. Marie, Ont., erected at a cost of about \$250,000, is now completed and in operation. General Manager J. D. Jones stated that if the requisite amount of coal could be obtained the company would be able to market 200,000 tons of coke for smelting and domestic use this year.

The Canadian Coke Corporation of Montreal is negotiating with the Toronto city officials with the view of establishing a large coking plant in Toronto. It is proposed to bring Nova Scotia coal by steamer to Montreal and then transship to Lake Ontario boats for delivery in Toronto.

The Advisory Board on Tariff and Taxation in Canada is giving a hearing on the proposed additional tariff on coal. Many interests are represented and a vast amount of argument is making before the Board in Ottawa. The advocates of the tariff increase are led by Roy Wolvin, president of the British Empire Steel Corporation, and the opponents by R. J. Deacham of Ottawa.

Among the Coal Men

Gordon Fletcher, of Huntington, W. Va., has resigned his position with the Pond Creek Coal Co.'s properties located in McDowell County, West Virginia. Mr. Fletcher has been general manager for this company for several years and is one of the best known coal executives in the state.

J. G. Miller, of Norfolk, Va., vice-president of the Raleigh Smokeless Fuel Co., was the representative of Hampton Roads in the Star class yacht races in Havana recently. Mr. Miller's yacht, which has taken many honors in contests in Hampton Roads waters and elsewhere, won in several places in the Havana contests and was near the winners in the finals.

Alex Bonnyman, chairman of the Board of Directors of the Blue Diamond Coal Co., left Knoxville, Tenn., last week to sojourn for the winter in Southern California. James Bonnyman, president of the company, has returned to Cincinnati after two weeks spent on the Mississippi Riviera on the Gulf Coast.

Henry T. DeBardeleben, president of the DeBardeleben Coal Corporation, Birmingham, Ala., has been elected treasurer of the Guaranty Savings, Building and Loan Association of that city.

Jerry M. Moran, sales manager of the Southwestern Fuel Co., Louisville, Ky., and formerly with the Downard Manning Coal Co. and Harlan Coal Co., has resigned. No successor has been named as yet.

Col. Frank D. Rash, of Louisville, Ky., president of the Kentucky Mine Owners' Association, has been elected president of the Reserve Officers Association, Department of Kentucky. Colonel Rash for years was an officer of the St. Bernard Mining Co.

C. H. Murphey, who was formerly in charge of the sales department of the Colorado Fuel & Iron Co., Denver, Colo., has been promoted as assistant to J. B. Marks, executive vice-president.

F. G. Hatton, president of Hatton, Brown & Co., Inc., and William S. Harman, president of the W. S. Harman Coal Co., both of Columbus, Ohio, have booked passage for themselves and families for an extended European trip, to start about May 1.

Benson E. Taylor, lately appointed secretary of property and supplies by Governor Fisher of Pennsylvania, formerly was one of the best known Allegheny Valley coal operators, living in Brocton, Pa.

Dr. T. D. Scales, owner of the Erie Canal coal mine, near Chandler, Ind., has been re-elected president of the Farmers and Merchants' National Bank at Boonville, Ind., also the Newburgh State Bank at Newburgh, Ind. He also has been re-elected a director in the Citizens' National Bank at Evansville.

John M. Carmody, formerly vice-president in charge of industrial relations for the Davis Coal & Coke Co., of Thomas, W. Va., has joined the staff of *Coal Age* as associate editor. Mr. Carmody's early life was spent in coal industry surroundings. He was born and raised near Barclay, Bradford County, Pa. He went from school into



John M. Carmody

the steel business, rising to the position of manager of structural shops. So successful was he as a manager that he was chosen to go into an entirely different industry — manufacture of women's clothing. Here he repeated his former success and soon became manager of production and industrial relations for the H. Black Co., of Cleveland, Ohio. On the retirement of that firm from business he joined the staff of the U. S. Coal Commission, studying industrial relations. It was when that study was completed that he became associated with the Davis Coal & Coke Co.

A. L. Allais, president of the Columbus Mining Co., Chicago, left recently for a month's stay in Los Angeles, Calif.

J. E. Dalrymple, who recently retired from the office of vice-president in charge of traffic of the Canadian National Railways, has been appointed president of Canada Coal, Ltd., which has been operating in Canada for the past six years in a small way but which contemplates extensive operations and plans which involve considerable expansion. The company, which is affiliated with the North American Coal Corporation of Cleveland, Ohio; Pittsburgh, Pa., and New York, has offices at Montreal, Sault Ste. Marie and Toronto, with docks at Sault Ste. Marie, Little Current and Toronto. Present plans include offices and docks at other points extending from Fort William to Halifax.

Obituary

Col. J. W. McCulloch, of Owensboro, Ky., founder of the former Allied Coal Co., a jobbing organization of Louisville, Ky., and the Sun Coal Co., Louisville, a producing concern, both now defunct, died at his home in Owensboro, on Jan. 31, of apoplexy. Col. McCulloch made a fortune from the distilling business, went to Louisville during the period of the war, and lost most of his money in coal, oil and graphite ventures. For years he was a strong politician in the state.

Evan Worthington, 102 years old, living near Ayrshire, Pike County, Ind., died of pneumonia on Jan. 18 after an illness of a few days. Worthington was one of the pioneer residents of Pike County and for more than fifty years was employed by the Ayrshire Coal Co. He is said to have been the oldest coal miner in the State of Indiana. He worked in the old Ayrshire mine until it was abandoned a few years ago. Worthington was a familiar figure at old mass conventions held at Winslow, Ind., where voters formerly met from all parts of Pike County to nominate their political tickets under the old convention system. He voted for Lincoln in 1860 and was prominent in republican politics.

C. P. Ludwig, age 69, well known mining engineer in the Birmingham (Ala.) district for many years, formerly connected with the Sloss-Sheffield Steel & Iron Co. and at one time general manager of the old Alabama Consolidated Coal & Iron Co., died in Birmingham Jan. 17. He is survived by a widow and two sisters.

W. H. Tobin, 56 years old, a well known coal man of Indianapolis, Ind., and prior to its failure two years ago head of the Consumers Coal Co., committed suicide recently by shooting himself through the heart at the Columbia Club, Indianapolis, where he had lived since the building opened. His body was found in the bathroom. One daughter and the widow survive.

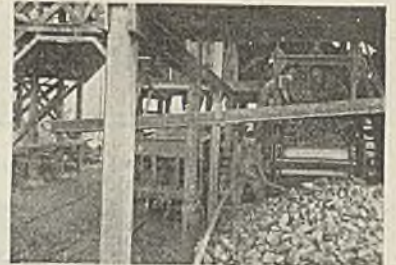
Benjamin Franklin Kelly, 61 years old, who for twenty-seven years owned and operated a coal mine in Perry County, Indiana, died recently at his home in Tell City after an illness of nine months. He was born in Louisville, Ky., but spent most of his life in Indiana. He is survived by the widow and seven children.

S. Nathan Vance, aged 70, a pioneer in the coal industry of northern West Virginia, died Jan. 17. Mr. Vance had been connected with the coal industry in Marion County for more than 30 years, locating in Monongah and acting in various capacities around the mines.

Jack Coleman, 28 years of age, manager of the Burgin (Ky.) branch of the house of Clell Coleman & Sons, operating coal and grain establishments at Burgin and Harrodsburg, Ky., died on Jan. 8, following a week's illness of pneumonia. He is survived by his widow, two daughters, parents, five brothers and three sisters. His father, Clell Coleman, is Kentucky Commissioner of Agriculture.



Production And the Market



Storage Buying of Bituminous Coal Increasing; Anthracite Market Topsyturvy

Gradually the tide of storage buying of bituminous coal in the United States is rising. This accumulation of reserves as insurance against a possible strike in the unionized districts on April 1, however, is still proceeding in a somewhat spotty fashion. Moreover, production expands so readily to meet the additional burden placed upon the mines by such business that the general level of spot prices continues to decline.

In almost every section of the country it is the railroads and the public utilities which are taking the lead in storage buying. Indeed there are some producing districts where orders from such sources are the mainstay of current activities. General industrial consumers exhibit less unanimity of action in the matter of accumulating reserves; even those depending upon union fields for their supply are not always in the market for tonnage to swell their stockpiles.

Retail Trade Indifferent

Still greater indifference is manifested by the rank and file of the retail distributors. For the most part they appear concerned only with keeping enough tonnage flowing to supply the wants of the domestic consumer until the dawn of spring. As a result of this lack of support to the market, prices on coal prepared specially for the household trade are softer. Late last week, for example, Franklin

County, Illinois, operators cut their circular on 6-in. lump and 6x3 furnace egg from \$4 to \$3.15 and other producers in Illinois and Indiana undoubtedly will follow suit.

Coal Age Index of spot bituminous prices on Feb. 7 was 179 and the corresponding weighted average price was \$2.16. Compared with the figures for Jan. 31 this was a decline of 6 points and 8c. Spot prices, in fact, are close to the levels prevailing a year ago, when the index was 177 and the weighted average was \$2.14. Further decreases in central Pennsylvania prices on New England business, softness in Ohio and unsettlement in Kentucky and West Virginia high-volatiles contributed to the losses recorded.

Production Rates Sustained

Every week last month the bituminous mines of the country produced in excess of 13,000,000 tons. The average for the four weeks ended Jan. 29 was 13,456,000 tons. During the week ended Jan. 29 production was estimated by the U. S. Bureau of Mines at 13,535,000 tons. Preliminary reports for the forepart of last week indicated little change. With the United Mine Workers now publicly committed to a stand against any wage reductions, it is very likely that demand will increase rather than diminish.

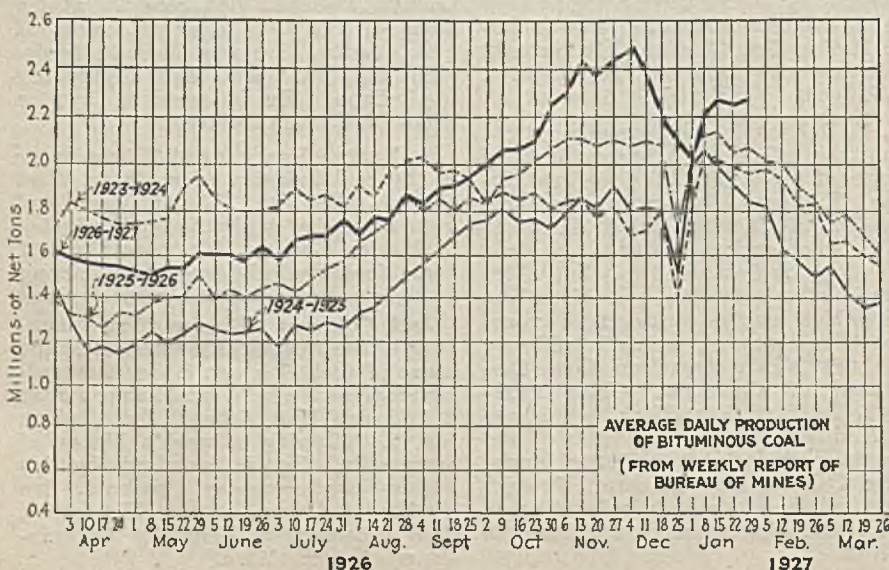
If transportation service continues to prove equal to the demands placed

upon it by the coal buyers, however, it is unlikely that the buying movement will be attended by any marked upswing in prices. There is, of course, always the possibility that such a change may occur in sections which have been backward in making provision for the future, but the general tendency probably will be in the opposite direction. Certainly if there are indications of an early settlement, demand will flatten out.

Anthracite Market Topsyturvy

The situation in the anthracite industry is a topsyturvy one insofar as markets are concerned. No. 1 buckwheat still holds the center of the stage and buyers seem unable to get enough of this size. Demand has overflowed into the fields of rice and barley and these sizes, too, are enjoying an unusual popularity—a popularity increased by the fact that production of anthracite as a whole is subnormal. Independent prices, particularly on buckwheat, reflect this extraordinary interest.

On the domestic side there is little activity. Pea is more eagerly sought after in the New York and Philadelphia markets than stove or chestnut and egg is leading the two sizes last-named in buying favor. There was a temporary weather flurry in Baltimore. Chicago, too, reports a stronger tone to the anthracite trade in that section. On the whole, however, the householder is



Estimates of Production

(Net Tons)

BITUMINOUS

	1926	1927
Jan. 15.....	13,068,000	13,571,000
Jan. 22 (a).....	12,431,000	13,474,000
Jan. 29 (b).....	12,563,000	13,535,000
Daily average.....	2,094,000	2,256,000
Coal year to date (c).....	444,529,000	486,384,000
Daily average.....	1,741,000	1,902,000

ANTHRACITE

Jan. 15.....	37,000	1,834,000
Jan. 22.....	47,000	1,488,000
Jan. 29.....	34,000	1,670,000
Coal year to date (c)...	40,573,000	80,336,000

BEEHIVE COKE

Jan. 15.....	311,000	181,000
Jan. 22 (a).....	343,000	186,000
Jan. 29 (b).....	339,000	190,000
Cal. year to date.....	1,331,000	756,000

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

indifferent. He bought so heavily during the early months of the coal year that he feels no urge to rush into the market every time the snow flies.

There is little to add zest to the Connellsville coke market. Outside of the Frick operations, reductions in wages have been general. Spot buying is limited, with foundry coke showing more life than furnace. The byproduct industry in other parts of the country appears to be moving along nicely.

Midwest Steam Coals Active

Activity in steam coals featured the Chicago market last week. Prices showed no important change; fluctuations were within the ranges previously established. Demand was fairly well distributed over the different Illinois and Indiana districts. On the domestic side, however, buying was so backward that southern Illinois operators cut the circular on lump and furnace egg from \$4 to \$3.15 the end of the week and nut was dropped to \$3. Industrial buying

of mine-run and lump, however, has given some support to the market.

Demand for Eastern coals in Chicago territory is extremely light. Smokeless mine-run in the city and prepared sizes for the country trade lead, with anthracite running a close second. The market in high-volatile West Virginia and eastern Kentucky coals is exceedingly quiet. Local demand for byproduct coke for domestic heating continues fairly satisfactory.

In the southern Illinois mining fields, storage buying is the mainstay of production. Screenings and the smaller sizes of nut move freely, but there are heavy "no bill" accumulations of lump and egg, and some mine tracks are blocked with unbilled loads. Inclement weather has interfered with operations at the stripping pits. The situation in the Duquoin-Jackson County section approximates that prevailing in southern Illinois proper with the exception that railroad buying is light and is confined largely to strip mines.

Railroads Favor Mt. Olive

Railroad buying, on the other hand, is keeping many Mt. Olive collieries running. Domestic demand is light, but general industrial buying for storage is well maintained. Some Standard district mines also are enjoying storage business, but at others "no bills" of all sizes are holding back production. The situation in the field as a whole is unfavorable. Several mines have been selling below cost in order to keep running while wait for storage orders.

Warm weather has taken the edge off the domestic demand in the St. Louis local market. The cheaper grades are the favorites and even these are bought sparingly. Local wagon steam business holds up and there has been an increase in carload buying of industrial coal for storage. The country domestic trade is spotty, but little storage buying is reported.

Firmness in prices is the outstanding

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

	Market Quoted	Feb. 8, 1926	Jan. 24, 1927	Jan. 31, 1927	Feb. 7, 1927†		Market Quoted	Feb. 8, 1926	Jan. 24, 1927	Jan. 31, 1927	Feb. 7, 1927†
Low-Volatile, Eastern						Midwest					
Smokeless lump.....	Columbus....	\$4.35	\$3.60	\$3.60	\$3.25@3.50	Franklin, Ill. lump.....	Chicago.....	\$3.50	\$4.00	\$4.00	\$3.15
Smokeless mine run.....	Columbus....	2.55	2.35	2.35	2.25@ 2.50	Franklin, Ill. mine run.....	Chicago.....	2.50	2.60	2.60	2.50@ 2.75
Smokeless screenings.....	Columbus....	1.85	1.85	1.65	1.60@ 1.75	Franklin, Ill. screenings.....	Chicago.....	1.55	1.85	1.85	1.75@ 2.00
Smokeless lump.....	Chicago.....	4.60	3.50	3.50	3.25@ 3.75	Central, Ill. lump.....	Chicago.....	2.85	2.35	2.35	2.25@ 2.50
Smokeless mine run.....	Chicago.....	2.35	2.60	2.60	2.25@ 3.00	Central, Ill. mine run.....	Chicago.....	2.10	2.10	2.10	2.00@ 2.25
Smokeless lump.....	Cincinnati....	4.60	3.75	3.60	3.25@ 3.75	Central, Ill. screenings.....	Chicago.....	1.10	1.40	1.40	1.35@ 1.50
Smokeless mine run.....	Cincinnati....	2.50	2.60	2.50	2.25@ 2.75	Ind. 4th Vein lump.....	Chicago.....	3.00	3.35	3.35	3.25@ 3.50
Smokeless screenings.....	Cincinnati....	1.25	2.20	2.00	2.00@ 2.25	Ind. 4th Vein mine run.....	Chicago.....	2.30	2.35	2.35	2.25@ 2.50
*Smokeless mine run.....	Boston.....	4.85	5.30	5.05	4.75@ 5.15	Ind. 5th Vein screenings.....	Chicago.....	1.70	2.00	2.00	2.00
Clearfield mine run.....	Boston.....	2.05	2.45	2.35	2.00@ 2.40	Ind. 5th Vein mine run.....	Chicago.....	2.55	2.50	2.50	2.40@ 2.65
Cambria mine run.....	Boston.....	2.35	2.75	2.70	2.25@ 2.60	Ind. 5th Vein screenings.....	Chicago.....	1.95	2.10	2.10	2.00@ 2.25
Bomerset mine run.....	Boston.....	2.15	2.55	2.50	2.10@ 2.50	Ind. 5th Vein mine run.....	Chicago.....	1.10	1.50	1.50	1.40@ 1.60
Pool 1 (Navy Standard).....	New York.....	3.05	3.25	3.10	3.00@ 3.25	Mt. Olive lump.....	St. Louis.....	2.85	2.85	2.85	2.75@ 3.00
Pool 1 (Navy Standard).....	Philadelphia..	3.05	3.10	3.10	3.00@ 3.25	Mt. Olive mine run.....	St. Louis.....	2.05	2.50	2.50	2.50
Pool 1 (Navy Standard).....	Baltimore....	2.30	2.60	2.60	2.50@ 2.75	Mt. Olive screenings.....	St. Louis.....	1.75	1.50	1.50	1.60@ 1.75
Pool 9 (Super. Low Vol.).....	New York.....	2.55	2.55	2.45	2.25@ 2.65	Standard lump.....	St. Louis.....	2.45	2.35	2.45	2.40@ 2.50
Pool 9 (Super. Low Vol.).....	Philadelphia..	2.60	2.55	2.55	2.45@ 2.65	Standard mine run.....	St. Louis.....	1.80	1.80	1.80	1.75@ 1.90
Pool 9 (Super. Low Vol.).....	Baltimore....	2.15	2.15	2.15	2.05@ 2.25	Standard screenings.....	St. Louis.....	1.05	1.20	1.00	1.15@ 1.25
Pool 10 (H.Gr.Low Vol.).....	New York.....	2.25	2.30	2.15	1.80@ 2.25	West Ky. block.....	Louisville....	2.00	2.60	2.60	2.50@ 2.75
Pool 10 (H.Gr.Low Vol.).....	Philadelphia..	2.35	2.35	2.35	2.25@ 2.45	West Ky. mine run.....	Louisville....	1.30	1.40	1.40	1.25@ 1.60
Pool 10 (H.Gr.Low Vol.).....	Baltimore....	1.95	1.90	1.90	1.85@ 2.00	West Ky. screenings.....	Louisville....	.65	1.35	1.35	1.20@ 1.50
Pool 11 (Low Vol.).....	New York.....	2.10	2.00	1.80	1.60@ 2.00	West Ky. block.....	Chicago.....	2.35	2.35	2.35	2.25@ 2.50
Pool 11 (Low Vol.).....	Philadelphia..	2.20	2.10	2.10	2.00@ 2.20	West Ky. mine run.....	Chicago.....	1.50	1.85	1.85	1.75@ 2.00
Pool 11 (Low Vol.).....	Baltimore....	1.70	1.75	1.75	1.75@ 1.80	South and Southwest					
High-Volatile, Eastern						Big Seam lump.....	Birmingham..	2.75	2.60	2.60	2.50@ 2.75
Pool 54-64 (Gas and St.)..	New York....	1.60	1.60	1.55	1.50@ 1.75	Big Seam mine run.....	Birmingham..	2.00	1.75	1.85	1.60@ 2.00
Pool 54-64 (Gas and St.)..	Philadelphia..	1.60	1.60	1.60	1.50@ 1.70	Big Seam (washed).....	Birmingham..	2.25	2.00	2.00	1.75@ 2.25
Pool 54-64 (Gas and St.)..	Baltimore....	1.65	1.55	1.55	1.50@ 1.60	S. E. Ky. block.....	Chicago.....	2.85	2.60	2.60	2.25@ 3.00
Pittsburgh so'd gas.....	Pittsburgh...	2.65	2.55	2.50	2.25@ 2.40	S. E. Ky. mine run.....	Chicago.....	1.85	1.80	1.80	1.60@ 2.00
Pittsburgh gas mine run.....	Pittsburgh...	2.10	2.10	2.05	1.95@ 2.10	S. E. Ky. block.....	Louisville....	2.75	2.60	2.60	2.50@ 2.75
Pittsburgh mine run (St.)	Pittsburgh...	2.05	1.95	1.95	1.90@ 2.00	S. E. Ky. mine run.....	Louisville....	1.55	1.85	1.80	1.60@ 2.00
Pittsburgh slack (Gas)....	Pittsburgh...	1.20	1.55	1.55	1.40@ 1.60	S. E. Ky. screenings.....	Louisville....	.55	1.35	1.30	1.10@ 1.50
Kanawha lump.....	Columbus....	2.25	2.45	2.45	2.25@ 2.70	S. E. Ky. block.....	Cincinnati..	3.00	2.75	2.75	2.25@ 2.75
Kanawha mine run.....	Columbus....	1.60	1.85	1.60	1.40@ 1.75	S. E. Ky. mine run.....	Cincinnati..	1.45	1.65	1.55	1.25@ 1.85
Kanawha screenings.....	Columbus....	.65	1.20	1.20	1.15@ 1.30	S. E. Ky. screenings.....	Cincinnati..	.80	1.25	1.15	1.00@ 1.40
W. Va. lump.....	Cincinnati..	2.75	2.75	2.75	2.25@ 2.75	Kansas lump.....	Kansas City..	5.00	4.60	4.60	4.50@ 4.75
W. Va. gas mine run.....	Cincinnati..	1.50	1.60	1.60	1.40@ 1.85	Kansas mine run.....	Kansas City..	3.10	3.00	3.00	3.00
W. Va. steam mine run.....	Cincinnati..	1.30	1.40	1.40	1.25@ 1.50	Kansas screenings.....	Kansas City..	2.35	2.35	2.35	2.50
W. Va. screenings.....	Cincinnati..	.80	1.20	1.10	1.00@ 1.35	* Gross tons, f.o.b. vessel, Hampton Roads. † Advances over previous week shown in heavy type; declines in italics.					
Hooking lump.....	Columbus....	2.50	2.50	2.50	2.25@ 2.75						
Hooking mine run.....	Columbus....	1.65	1.85	1.85	1.75@ 2.00						
Hooking screenings.....	Columbus....	1.05	1.35	1.35	1.30@ 1.45						
Pitta. No. 8 lump.....	Cleveland....	2.30	2.35	2.35	1.80@ 2.65						
Pitta. No. 8 mine run.....	Cleveland....	1.85	1.85	1.80	1.75@ 1.80						
Pitta. No. 8 screenings....	Cleveland....	1.10	1.35	1.35	1.25@ 1.35						

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

	Market Quoted	Freight Rates	Feb. 8, 1926	Jan. 31, 1927	Feb. 7, 1927†																																																																																																																																				
Broken.....	New York.....	\$2.34																																																																																																																																							
Broken.....	Philadelphia..	2.39																																																																																																																																							
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Stove.....	New York.....	2.34																																																																																																																																							
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Pea.....	Chicago*.....	4.79																																																																																																																																							
Buckwheat No. 1.....	New York.....	2.22																																																																																																																																							
Buckwheat No. 1.....	Philadelphia..	2.14																																																																																																																																							
Rice.....	New York.....	2.22																																																																																																																																							
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Due to suspension of mining in hard-coal fields and practical stoppage of shipments, quotations were nominal and were not printed.																																																																																																																																									
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* Net tons, f.o.b. mines. † Advances over previous week shown in heavy type; declines in italics.

feature of the Kentucky market at the present time. The week saw no changes in quotations at Louisville, although there had been rumors that prices on western Kentucky would be revised on Feb. 1. Inquiries for storage coal are increasing. The position taken by the United Mine Workers at its convention last week is expected to quicken buying interest. General industrial demand is well sustained, but retail buying is light.

Dock Trade Easier

Shipments from the docks at the Head of the Lakes have dropped from the peak figures of a few weeks back. The situation has been weakened further by reductions of 25 to 50c. in prices on prepared smokeless and Kentucky coals. Pocahontas lump, egg and stove now are quoted at \$9@9.25; mine-run, \$6@6.25; Kentucky lump, egg and nut, \$6.75@7.50; dock-run, \$6.25. Slack from all districts is firm at \$5.

Dock men profess to see no justification for the cut in smokeless prices initiated by one factor and followed in by competing docks. Unsold tonnage is said to be negligible. In fact, many believe that there will be no free bituminous at the Head of the Lakes by the opening of navigation. Some storage buying in anticipation of a strike on April 1 is reported. Dock men believe that, if a strike takes place, the Northwest will be well taken care of with non-union shipments.

Demand for domestic grades of Southwestern coal has eased up somewhat with the return of more moderate temperatures. There is little spot Kansas coal seeking a market and nut and slack are really scarce. Few "no bills" are to be found in the Arkansas and Oklahoma fields. Storage buying is adding to the strength of the Kansas market. Slack has advanced to \$2.50 and some sales of nut have been made at \$4.

Far Western Conditions Spotty

"Fair to middling" is the characterization of market conditions in the Colorado field. Cold weather has reduced the number of "no bills" to unimportant proportions. Prices are unchanged. A number of Utah operators are dumping their slack tonnage. Retail demand is unsteady, although mine prices on prepared sizes are firm. Another retail price war, however, has broken out in Ogden between the old line yards and a C. O. D. company.

A tightening up in car supply at loading points south of the Ohio River at the beginning of the month checked declines in prices in the Cincinnati market. Although most of the Pocahontas field announced a \$3.50 circular on lump, some New River continued to sell at \$3.75 last week. Standard mine-run, reduced to \$2.75, was firm at that figure, but some less favored coal sold down to \$2.25. Slack jumped from \$1.75 to \$2.

Some Logan County producers cut lump and block 25c. last week, making their price \$2.25. Other shippers, however, have not followed suit and as high as \$2.75 has been paid for Kanawha coal. Kentucky offerings also held up. Some specialty Elkhorn block

sold up to \$3.50 and some egg brought \$3. There was a stronger tone to slack prices from all high-volatile fields.

Interchange Movement Heavier

Movement through the Cincinnati gateway increased last week. The total number of coal loads interchanged was 12,650, as against 12,065 the preceding week and 13,078 a year ago. Louisville & Nashville interchange increased 430 cars; Chesapeake & Ohio, 343; Norfolk & Western decreased 167 cars and Southern Ry., 21. The number of empties en route to the mines increased from 10,156 to 10,360 cars.

The central Ohio market for the smaller sizes of coal has softened, but southern Ohio lump is maintaining its position in the face of milder weather. Retail distributors, however, are placing storage orders in limited quantities. Smaller industrial plants also show no great concern over the future. Railroads and public utilities are busy building up storage reserves. Southern Ohio production hangs around 25 per cent of capacity.

Current requirements in northern Ohio have been so well taken care of that the spot market at Cleveland is weakening. Reserve stocks in the hands of large consumers, according to coal men, are only moderate. Despite

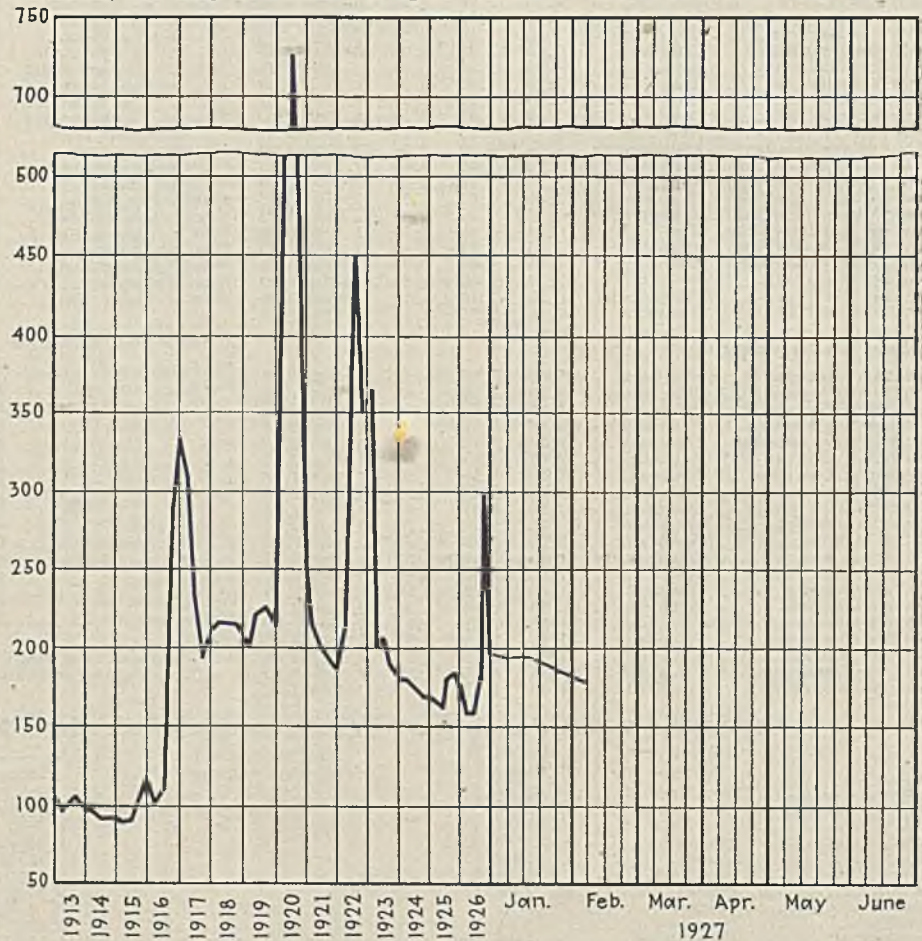
this condition, bargain-counter offers of steam tonnage meet with little response. During the week ended Jan. 29 the Ohio No. 8 field produced approximately 359,000 tons, or 51 per cent of potential capacity.

Demands Fall Faster Than Tonnage

Curtailed production is not keeping pace with the curtailment in demand in the Pittsburgh district. Prices are sagging and most of the union mines have retired from the spot market. Slack is off 10 to 15c.; three-quarter gas is down to \$2.25@2.40, with most of the sales at the lower figure. Gas mine-run is within 5 to 10c. of the quotations on steam coal. Independent steel interests in the Connellsville region have reduced wages to the basis established by the merchant coke operators.

Central Pennsylvania quotations were steady last week. From the standpoint of production the district is in good shape. January output was only 2,103 cars behind that of a year ago when the operators were busy shipping to retailers normally selling anthracite coal. Storage buying is probably the chief factor in sustaining a high rate of production at the present time.

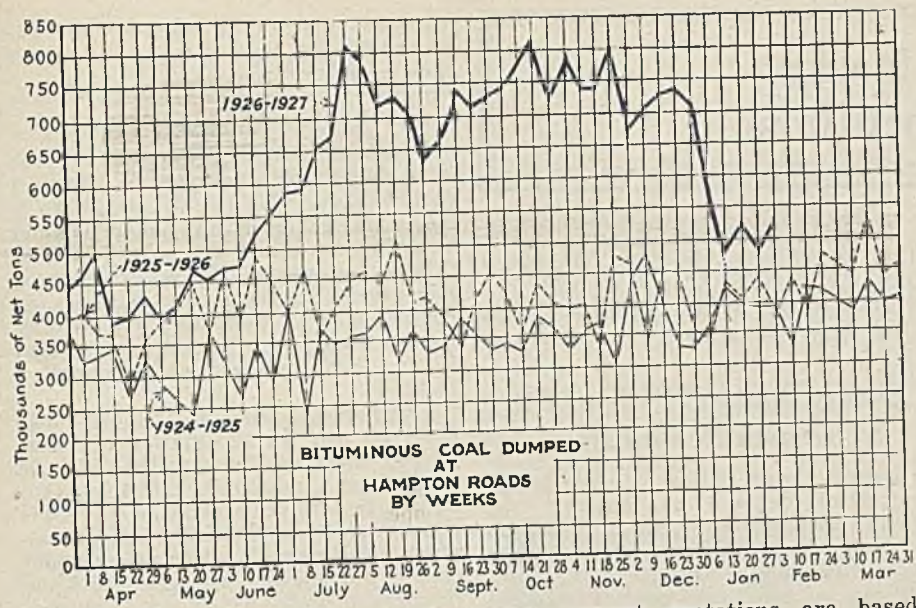
Lamentations still rend the Buffalo market. The best traders hope for is



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

	1927	1926	1925
	Feb. 7	Jan. 31	Jan. 24
Index	179	185	188
Weighted average price.....	\$2.16	\$2.24	\$2.28
			Jan. 17
			192
			\$2.33
			Feb. 8
			177
			\$2.14
			Feb. 9
			166
			\$2.03

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



a short flurry before April 1 and a decided setback after that time. Low-volatile lump still ranges from \$2.75 to \$4; mine-run, \$2@ \$3.25, with central Pennsylvania at the low end and West Virginia and Maryland at the high end of the scale. High-volatile quotations are: Fairmont lump, \$2@ \$2.25; mine-run, \$1.75@ \$2; slack, \$1.25@ \$1.50; Youghiogheny gas lump, \$2.25@ \$2.40; slack, \$1.50@ \$1.75; Pittsburgh and No. 8 steam lump, \$2@ \$2.25; slack, \$1.25@ \$1.50; Allegheny Valley mine-run, \$1.75@ \$2.

New England Listless

The New England steam coal market is listless. Active buying is practically non-existent and quotations drag along from week to week with very little change—and that change downward. Coastwise marine freights are firm because of the bad weather, but that seems to be the only element of strength in the situation. Hampton Roads quotations on Navy Standard vary from \$4.75 for the general run of coal to \$5.15 for selected shipments.

Inquiry at Boston and Providence is light. Temporary storage of bottoms at Newport News, however, is supporting the price of \$6.75 per gross ton on cars at the New England ports named. The effort to place all-rail Pennsylvania coal is unremitting and prices have been shaded to whet the desire of the reluctant consumers. As a result the best grades can be had at approximately \$2.50 per net ton, mines.

More inquiries and an increased number of weekly orders were noted in the New York bituminous market. Prices, however, show no improvement, but it is plain that the labor situation is stirring sluggish consumers to action; even New England placed some new orders. There was some inquiry for contracts to expire March 31, 1928, with quotations as low as \$2.35 on non-union coal and \$3.25 on union tonnage.

Philadelphia Buying Expands

The decision of the union to accept no reduction in wages next April has jarred some Philadelphia buyers out of their long complacency and inquiries for tonnage showed a healthy increase last week. More anxiety is expressed over prices than over supply. In most

cases, current quotations are based upon low wage scales and this handicaps the producers operating under contract with the union. Stockpiles at industrial plants are growing.

Strike talk is stirring up the sluggish undercurrent of the Baltimore market, but prices have not reacted although some factors in the trade predict that the walkout in the union fields will be the longest in the history of the industry. Railroads are taking the lead in storage accumulations. The larger industrial consumers, however, do not appear to have carried their storage programs beyond the inquiry stage.

There is no great uplift to the Birmingham market at this time. Steam buying has shown no marked increase and consumers without contracts are buying only in limited quantities and for short periods. Mild weather has so weakened the domestic side of the market that it is difficult to move even the best grades of coal on spot sales. Prices, however, are fairly well maintained and curtailment of production probably will be resorted to to check the accumulation of "no bills."

Buckwheat Holds Lead

No. 1 buckwheat continues to dominate the anthracite situation in the New York market. Domestic coals moved so slowly that some buyers took on tonnage to induce shippers to speed up deliveries of steam coal. Pea is the

Car Loadings and Supply

	Cars Loaded	
	All Cars	Coal Cars
Week ended Jan. 29, 1927.....	950,969	225,459
Week ended Jan. 22, 1927.....	942,587	224,715
Week ended Jan. 30, 1926.....	925,263	183,071
Week ended Jan. 23, 1926.....	921,734	180,293

	Surplus Cars		Car Shortages	
	All Cars	Coal Cars	All Cars	Coal Cars
Jan. 23, 1927.....	275,544	65,751		
Jan. 15, 1927.....	319,481	94,122		
Jan. 22, 1926.....	264,781	96,255		

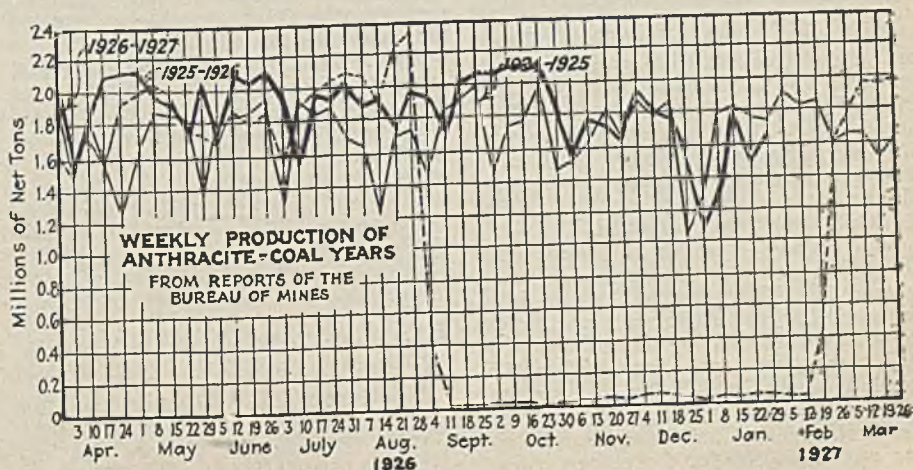
strongest member of the domestic group at the present time and egg is moving better than either stove or chestnut. Barring a prolonged cold snap, shippers entertain little hope of a revival in demand this coal season.

Buckwheat is also the leader in the Philadelphia market. There has been little, if any, increase in the tonnage turned out and demand has hardened. Buyers also are pressing shippers for deliveries of rice and barley. Between mild weather with its consequent reduction in actual consumption and widespread general consumer indifference the domestic sizes are suffering badly. Production at the mines has been sharply curtailed and there seems to be little immediate prospect of any increase. As at New York pea is the favorite among the domestics and egg comes next in demand.

Spot Connellsville beehive furnace coke, freely offered at \$3.25 a fortnight ago, is much less plentiful. Orders for fair-sized tonnages can still be placed at that figure, but more has been demanded on small lots. Spot foundry coke is \$4.25@ \$4.75, with demand slightly stronger.

Production of beehive coke in the Connellsville and Lower Connellsville region during the week ended Jan. 29 was 135,400 tons, according to the Connellsville Courier. Furnace-oven output was 60,400 tons, an increase of 2,100 tons over the figures for the preceding week. Merchant-oven production was 75,000 tons, an increase of 280 tons.

The National Coal Association will hold its next annual convention in Chicago at the Edgewater Beach Hotel, probably early in June. It will be the third consecutive year that Chicago has been chosen for the "big operators" meet.



Foreign Market And Export News

Buying Lags as Prices Fall In British Market

London, England, Jan. 25.—Buyers are placing orders very sparingly at the present time. The rapid and sharp fall in prices appears to have shaken their confidence in the future of the market and contracting for forward deliveries has become conspicuous by its absence. Practically no orders have been placed for future export deliveries and there is very little demand from domestic consumers. Many of the mines have accumulated large stocks and in several cases collieries have suspended operations until the market situation improves.

There is a slightly better inquiry for future business, but such a wide difference between producers and prospective buyers over the matter of price that negotiations hang fire. The demand from France is very much below normal. Italy and South America, all things considered, are buying fairly well and the movement to Spain holds up. Coaling depots, however, prefer to clear off their stocks before placing new orders with the mines.

During the week ended Jan. 14 Wales exported 366,950 gross tons, or 3,000 tons less than during the preceding week. France took 102,625 tons; Italy, 65,870; South America, 76,404; Spain, 43,076; Portugal, 10,532; Greece, 6,264; coaling depots, 31,956; Belgium, 2,395; Irish Free State, 5,167; United States, 4,015; Canada, 804 tons.

Inquiry for North Country coals is slack although the better qualities are selling fairly well in the home markets. The only important business upon which tenders have been asked is an order of 70,000 tons for the Swedish railways.

Current prices are as follows: Best Admiralty large, 25/— @ 26/—; best steam smalls, 15/—; best Blyth steams, 17/— @ 18/—; best gas, 18/—; best Durham bunkers, 18/—.

Hampton Roads Coal Piers Made Record in 1926

Coal piers of the Norfolk & Western, Chesapeake & Ohio and Virginian railroads at Hampton Roads dumped 27,308,507 tons of coal during 1926, according to figures compiled by the Hampton Roads Maritime Exchange. This sets a record in yearly total, supplanting the mark set in 1920, when 21,644,328 tons were dumped.

The highest monthly tonnage ever dumped from the piers was in October, when 3,047,333 tons were dumped into ships. This was during the month of the British coal strike and most of the ships carrying coal from Hampton Roads bore the British flag. Dumpings for the last two months of the year were estimated at 2,877,460 for November and 2,750,000 for December.

Dumpings for recent years were: 1925, 18,856,643 tons; 1924, 16,144,880 tons; 1923, 15,531,643 tons; 1922, 15,310,022 tons; 1920, 21,644,328 tons; 1919, 12,653,987 tons.

Steady Demand Fails to Kill French Pessimism

Paris, France, Jan. 20.—Although industrial demand is keeping the French collieries busy, general opinion on the outlook is gloomy because of the increasing flow of imports from Great Britain and other countries. Pessimists believe that as soon as the mines have cleaned up their back orders it will be difficult to place new tonnage.

The situation in domestic coals is far from satisfactory. Consumers are indifferent and many distributors have been compelled to beg their shippers to reduce or suspend further deliveries until some of the stocks still in storage in the retail yards have been moved. Household consumers seem firmly convinced that reductions in prices are inevitable and distributors are fearful that both French and British mines may take such action.

The agreement for the commercialization of German coal imports went into effect the first of the year. Under this arrangement, a buyer placing an order with a member of the Kohlensyndikat will make his terms directly with the mine and will not be required to bother about the 26 per cent deduction for account of the French government. Neither will he be concerned with whether the fuel he receives is indemnity or prestation coal. All these details will be left to the O. H. S. If, however, a contract is made with a mine not a member of the Kohlensyndikat, the 26 per cent tax for the benefit of the French treasury will be levied directly by the customs authorities.

During 1926 deliveries of indemnity fuels from the Ruhr totaled 7,161,500 metric tons. Of this quantity, 4,233,000 tons were coal; 2,675,300 tons were coke, including approximately 2,600,000 tons for the O. R. C. A., and 253,200 tons were lignite briquets.

As a result of the prolonged British strike, Germany took first place in shipments of coal to France last year. Imports, as compared with 1925, were as follows:

From	1926 Metric tons	1925 Metric tons
United States	259,219	204,199
Great Britain	4,175,382	9,936,764
Belgium-Luxemburg	2,356,393	1,897,713
Spain	19,095
Germany	7,643,869	5,517,944
Holland	747,225	563,677
Poland	136,896
Other countries	64,749	176,120
Totals	15,403,328	18,295,417

Exports for the year were 4,205,193 tons, as compared with 4,606,443 tons in 1925. During 1926 France also imported 5,554,955 tons of coke and

1,118,044 tons of patent fuel and exported 471,753 tons of coke and 247,109 tons of patent fuel.

Belgian Market Easier

Brussels, Belgium, Jan. 20.—There is a softer undertone to the Belgian coal market. For the present, this is more noticeable in an easier demand than in any actual reductions in quotations, but these latter are considered inevitable. In fact, some business on household coals recently was closed at figures which represented a decline of 10 fr. from previous prices on sized coals.

Unscreened semi-bituminous still holds its own in the matter of price. As yet, there has been no break in the market on industrial offerings, but British factors are seeking business via Hainault. Some British contracts already have been closed at prices under those demanded by the Belgian shippers.

Export Clearances, Week Ended Feb. 3

FROM HAMPTON ROADS	
For United Kingdom:	Tons
Br. Str. Gothic Prince	9,203
Br. Str. Dorellan	8,102
For Italy:	
Ital. Str. Valrossa, for Genoa	6,317
Ital. Str. Colaba, for Portovecchio di Piombino	7,671
Ital. Str. Artena, for Porto Ferrajo	7,943
Br. Str. Rothley, for Palermo	5,388
For Dominican Republic:	
Amer. Schr. Wellington, for Sanchez	1,605
For Cuba:	
Nor. Str. Thomas Haaland, for Havana	3,318
Br. Str. Berwindmoor, for Havana	9,333
For Colombia:	
Br. Str. Almogro, for Cartagena	478
For Brazil:	
Grk. Str. Dionysios, for Pernambuco	6,805
FROM BALTIMORE	
For England:	
Br. Str. Norwegian, for Queenstown, for orders	8,317
For Chile:	
Jap. Str. Victoria Maru, for San Antonio	4,009
For Italy:	
Ital. Str. Aster for Genoa	8,816
Ital. Str. Ansaldo San Giorgio Secondo, for Genoa	6,577
FROM PHILADELPHIA	
For Cuba:	
Br. Str. Briarpark, for Antilla

Hampton Roads Coal Dumpings*

(In Gross Tons)			
	Jan. 27	Feb. 3	
N. & W. Piers, Lamberts Pt.	184,213	204,233	Tons dumped for week
Virginian Piers, Sewalls Pt.	116,461	109,805	Tons dumped for week
C. & O. Piers, Newport News:	135,538	154,551	Tons dumped for week

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

Pier and Bunker Prices, Gross Tons PIERS

	Jan. 27	Feb. 3†
Pool 1, New York	\$6.00@6.25	\$5.75@6.25
Pool 9, New York	5.25@5.60	5.10@6.60
Pool 10, New York	5.00@5.25	4.90@6.25
Pool 11, New York	4.50@5.00	4.50@5.00
Pool 9, Philadelphia	5.25@5.45	5.25@5.45
Pool 10, Philadelphia	5.00@5.20	5.00@5.20
Pool 11, Philadelphia	4.50@4.90	4.50@4.90
Pool 1, Hamp. Roads	4.85@5.00	4.85@5.00
Pool 2, Hamp. Roads	4.65@4.75	4.80@4.75
Pool 3, Hamp. Roads	4.00@4.15	3.90@4.00
Pools 5-6-7, Hamp. Rds.	4.35@4.50	4.30@4.60

BUNKERS

Pool 1, New York	\$6.25@6.50	\$6.00@6.60
Pool 9, New York	5.50@5.85	5.36@6.75
Pool 10, New York	5.25@5.50	5.15@6.50
Pool 11, New York	4.75@5.25	4.75@5.25
Pool 9, Philadelphia	5.50@5.70	5.50@5.70
Pool 10, Philadelphia	5.25@5.45	5.25@5.45
Pool 11, Philadelphia	4.75@5.15	4.75@5.15
Pool 1, Hamp. Roads	5.00	5.00
Pool 2, Hamp. Roads	4.75	4.75
Pools 5-6-7, Hamp. Rds.	4.50	4.30@4.60

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

Coming Meetings

American Institute of Mining and Metallurgical Engineers. Annual meeting, Feb. 14-17, 1927, Engineering Societies Bldg., New York City. Secretary, H. Foster Bain, 29 West 39th St., New York City.

Rocky Mountain Coal Mining Institute. Winter meeting Feb. 23 to 25, at the Cosmopolitan Hotel, Denver, Colo. Secretary, Benedict Shubart, 521 Boston Bldg., Denver, Colo.

New Companies

Certificate of authority has been issued by the Virginia State Corporation Commission to the Delparen Anthracite Briquet Co., incorporated under the laws of West Virginia. The principal office of the corporation in Virginia is to be located at Parrott, with Joel Asberry in charge. The corporation is capitalized at \$100,000 and will manufacture, prepare, sell and otherwise dispose of briquets.

Articles of incorporation have been filed by the Allen Coal Co., Birmingham, Ala., with a capital of \$10,000. M. J. Harper is president and treasurer; C. T. DeLoach, vice-president, and T. F. Shepherd, secretary.

Articles of incorporation have been filed by the Central West Coal Mining Co., with headquarters at Terre Haute, Ind. The company has an initial capital stock of \$50,000 and will do a general coal mining business. The incorporators are Lloyd L. Lehman, Fred V. Beal and Rice R. Pennington.

Papers have been filed chartering the Bernard Clay Products Co., Greenford, Ohio, with an authorized capital of \$50,000 to lease, own and operate clay, shale and coal properties. One of the important parts of the business will be the mining of coal. Incorporators are B. S. Bernard, H. L. McCarthy, P. A. Chisholm, Charles McCorkhill and Lewis P. Metzger.

Dakin, Sayce & Co., 332 South Michigan Avenue, Chicago, has been incorporated with capital of \$40,000 to own and operate coal mines. The incorporators are Walter Dakin, A. H. Sayce and H. I. Holton.

The Reliance Coal Corporation, Clinton, Mo., with a capital of \$100,000, has been incorporated. The company will mine, buy, sell and deal in coal. The incorporators are W. W. Patterson, Carthage, Mo.; W. C. Shank and J. R. Robinson, both of Pittsburg, Kan., and Norton Schuyler.

The Walton Coal Co., 910 South Michigan Avenue, Chicago, has been incorporated with capital of \$20,000 to mine coal. The incorporators are Harry S. Stevenson, Harold A. Smith and C. J. Calderini.

The Associated Fuel Co. has been incorporated in Denver, Colo., with a capital stock of \$1,000,000, by R. M. Crane, E. B. Dill and C. T. Flynn.

New Equipment

Megohm Meter Effectively Registers Insulation

The megohm insulation meter shown in the illustration has recently been placed on the market by the Martindale Electric Co., Cleveland, Ohio. This meter weighs only 11 lb. and the readings obtained in testing equipment are said to be independent of the speed at which the generator in the meter is driven. The scale of the instrument,



Shows Conditions Quickly

Knowing actual insulation conditions often saves much time and labor over guessing in doubtful cases.

which is graduated to read directly in ohms or megohms, has a range from 200 ohms to 100 megohms. It is claimed that readings can be obtained instantaneously.

New Welding Controller Has Wide Current Range

In announcing the Mann master controller it is the intention of the Electric Welder Controller Co., Pittsburgh, Pa., to eliminate some of the difficulties of electric-arc welding. From the operator's standpoint, the company states, this new device relieves the physical effort necessary in maintaining a correct welding arc under all conditions, especially those that arise in overhead, corner and gap welding. This is accomplished by means of increasing the flexibility of the arc a possible 15 to 30 per cent depending upon the character of the arc produced by the machine in question.

From the quality standpoint it is claimed that the device enables the operator to produce a clean smooth weld and in addition to this characteristic it eliminates a large majority of the globules of metal being thrown

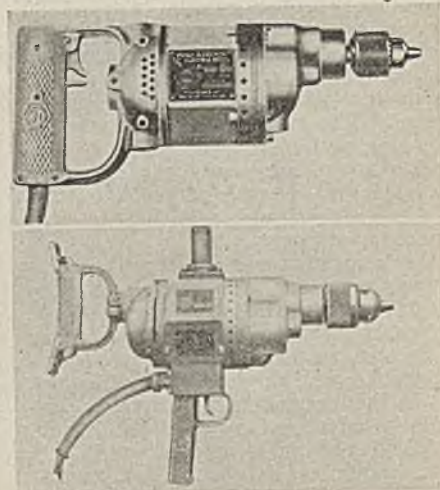
from the arc to the surrounding plate. It also is effective in preventing pores and pinholes.

Another merit claimed for this controller is its current range which makes it possible to decrease the current at will from the maximum that the device will take to as low as 10 amp. without decreasing the voltage which is necessary in maintaining a flexible arc. The design of this controller is such that in numerous instances it is possible to eliminate control apparatus such as grids and resistance wire and still obtain a more flexible arc by means of the combined choke reactor than is usually possible with higher voltage. This, in brief, means that it will decrease the load on the welding generator by cutting down the voltage and raise the current thereby to a value equal in total watts to the higher voltage system. This also means that it raises the current capacity of the welder.

Two New Electric Drills

Improvements on the 1/2-in standard ball bearing electric drill have been announced by the Black & Decker Mfg. Co., Towson, Md. This drill, shown at the top in the accompanying illustration, is intended to replace the light 3/8-in. drill made by this company. The new machine is provided with an improved universal motor that drives the chuck through a double reduction gear unit at a no-load speed of 2,000 r.p.m. All rotating shafts are mounted upon ball bearings. The tool is capable of drilling holes up to 1/2 in. in diameter in steel, it is said, and weighs 6 lb.

The other drill shown is portable and designed to drill holes up to 5/8 in. in steel or up to 2 in. in wood. A universal motor, designed for this type of service, is used. Normal open-type ball bearings are used on the armature shaft.



Time Savers in Shop and Mine

Having a universal motor these drills will use either alternating or direct current of the proper voltage, which gives them a wide field of usefulness.

Special Metal Counteracts Faulty Lubrication

At the Power Show which was held in the Grand Central Palace during the week of Dec. 6, 1926, Bearium Bearings, Inc., 29 Broadway, New York, N. Y., gave demonstrations of its bearium bearing metals.

These bearings are intended for high speed and light or medium pressures where lubrication is likely to be interrupted or faulty. The makers recommend this metal for use in electric motors, pumps, loose pulleys, light machine tools and the like. Several grades of the metal are made, intended for different classes of service.

The demonstrations given at the Power Show were on motors in which these bearings were run without oil to show their reliability under faulty lubrication.

New Shovel for Heavy Duty

The Moffat Tunnel in Colorado will, when completed, help to develop a valuable coal district in the western part of the state. But totally aside from this fact its operating methods have been of interest to the coal mining industry. With a view of a possible adaptation by coal-mining officials to their equally difficult problems, the tunnel-driving and timbering methods followed in the Moffat project have already been described in the pages of *Coal Age*. Recently a loading machine has been there employed which works under conditions that are quite severe.

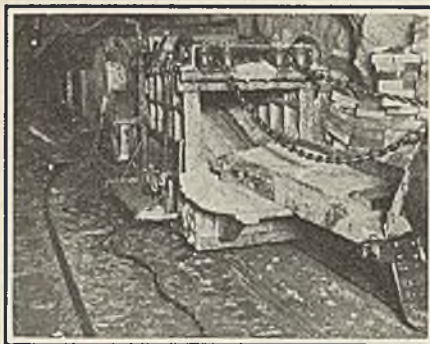
The contractors driving the Moffat Tunnel are using a Conway shovel made by the St. Louis Power Shovel Co., of St. Louis, Mo. Machines of this kind use from 20 to 30 hp. motors depending upon the size of shovel. The machine is designed so that the powerful "rooting" action of its scoop in heavy material will not derail the shovel.

The digging mechanism is actuated by twin hoist drums that are clutch operated; heavy chains control the dig and swing of the dipper. This latter element is attached to the boom by means of a hinge in such a way that the dipper proper can be rotated 90 deg. in a vertical plane. Dipper and boom are swung in both horizontal and vertical planes around a king bolt to which the other end of the boom is hinged. The swing of the dipper, the crowding action and the selective digging element are easily controlled by the operator. Length of boom and design of dipper are modified to suit headroom requirements.

The manufacturer claims that the Conway is a one man shovel. At the beginning of a shift the operator oils up, starts his motor and runs the loader on its own power up to the face, cleaning track and sides of dirt as he goes in. In this operation the shovel is particularly effective due to its ability to rapidly load thin, scattered muck.

An empty car is coupled behind the shovel and runs on the same track with it. The machine crowds forward by its own powerful traction until the dipper starts to get its load. The operator standing on the running board

on the right side of the machine, raises the dipper to a horizontal position by means of the hand levers, picking up the load as the dipper swings through its digging arc. From this position continued hoistings on the load chains elevate the dipper and boom to an angle sufficient for the material to slide out of the dipper and down the troughed boom, to the inclined conveyor belt which carries it to the car. The operator can feel his way when working with large pieces or lumps by elevating or lowering the digging lip. This is accomplished by means of a slight pres-



Designed for Heavy Duty

The dipper discharges its load to a belt conveyor. The frame on which are mounted the dipper, boom, belt conveyor and motor runs on the regular mine or tunnel track. All controls are within easy reach of the driver and the machine's operation is quite flexible.

sure on the hand levers. The crowding distance and the moment of digging are optional with the operator.

While placing the dipper load on the belt, the operator, by foot pressure on the reverse lever can move the shovel a few feet back from the rock pile. The operator now lowers the dipper to a digging position by slacking off the hoist chains. The direction of the next digging operation is determined by the relative degree to which the chains are released; the dipper and boom swinging to the side of the chain which is retarded. Thus it is possible to dig nearly at right angles to the center line of track. With sufficient headroom a wide clean-up may be effected.

Industrial Notes

Fred S. Doran has just been appointed manager of the Cleveland plant of Joseph T. Ryerson & Son, Inc. This new warehouse plant of the Ryerson company was purchased from the Bourne-Fuller Co., of Cleveland, on Jan. 3, 1927. Mr. Doran has been associated with Joseph T. Ryerson & Son for 21 years. Beginning in the office he travelled the Wisconsin territory for five years, then covered the Chicago city territory for some time, until he was made assistant to A. M. Mueller, general manager of sales.

The L. B. Foster Co. recently opened a Chicago office in the Illinois Merchants Bank Building, 231 La Salle Street. This office will be in charge of R. A. Foster, vice-president of the company.

Publications Received

Diamond Drilling, with Special Reference to Oil-Field Prospecting and Development, by Frank A. Edson. Bureau of Mines, Washington, D. C. Bulletin 243. Price 35c. Pp. 170; 6x9 in.; illustrated.

Annual Report of the State Department of Mines of Kentucky for the Year Ending December, 1925, by W. H. Jones, Chief Inspector of Mines. Pp. 294; 6x9 in.; tables.

Lubrication in Colliery Practice, by N. Simpkin and A. Dawe. The Colliery Guardian Co., Ltd., 30 Furnival St., Holborn, London E. C. 4, England. Price 10s. Pp. 167; 4½x7¼ in.; illustrated. Chapters are included giving details of methods of analyzing oils and greases, which should prove of interest to the colliery chemist.

Manual of Testing Methods for Oil Shale and Shale Oil, by Lewis C. Karrick. Bureau of Mines, Washington, D. C. Bulletin 249. Price 20c. Pp. 70; 6x9 in.; illustrated.

Sullivan All-Hammer, Light Drill Steel Sharpener, Type C. Sullivan Machinery Co., Chicago, Ill. Bulletin No. 72-I. (Second edition) Pp. 15; 6x9 in.; illustrated. Describes in detail this sharpener, which is operated by compressed air.

The Climax Engineering Co., Clinton, Iowa, has issued the following two bulletins covering the application of its engines to various types of power: K describes power units for driving sand pumps and rock crushers, while C covers the use of power units for portable saw mills. Both are illustrated.

Association Activities

The Central Pennsylvania Coal Producers' Association reaffiliated itself with the National Coal Association by formal action at a recent meeting of the board of directors at Altoona. Rembrandt Peale, of Peale, Peacock & Kerr, presided at the directors' meeting in the absence of B. M. Clark, president of the Rochester & Pittsburgh Coal & Iron Co. and president of the association, who was ill. J. W. Searles, president of the Pennsylvania Coal & Coke Corp., was elected to fill a vacancy on the board of directors. Charles O'Neill is secretary of the association. Following the meeting the Central Pennsylvania Coal Operators' Association held a session to discuss wage matters and policies, but no announcement was made as to any action taken.

The Montana Coal Operators' Association, at its recent annual meeting, held at Billings, elected the following officers for the ensuing year: F. W. C. Whyte, Anaconda, president; E. C. Matson, Roundup, vice-president; M. F. Purcell, Billings, secretary-treasurer. Executive board members named were C. C. Andersen, Seattle, Wash.; James Needham, Chicago; H. F. Tilton, Stockett, and J. M. Freeman, Red Lodge.