COAL AGE

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

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Auxiliary Ventilation

AN IMPROVEMENT having the great possibilities that auxiliary ventilation affords should not be condemned, as it is by many, because of its abuses. The need is that these evils be remedied, and so far no one has seen fit to set down in writing just what those abuses are and how they should be corrected. In non-gaseous mines, recirculation of air must be carefully avoided, and that will not be done, if the fan is placed beyond or even at the last crosscut. Just how far back it should be placed is problematical and depends, of course, on the speed of the air current from which the auxiliary fan draws its air. If it is a sluggish stream that is to be drawn on, the return air from the duct may be forced some distance back along the airway to the intake of the fan. If it is rapid, the fan will drink its fill from the main air current as it should.

Where there is gas the danger from recirculation is increased and still greater care should be taken. Some indications of the possibility of such recirculation could be drawn from watching the swirling powder smoke as it leaves the airway that the fan is ventilating. If no smoke can be seen near the fan intake and the clouds are heavy at the last crosscut, some assurance may be felt that the fan does not draw from the effluent of its own duct.

There are great dangers in a gassy mine if the fan is permitted to stop overnight and the place normally ventilated with auxiliary ventilation becomes filled with gas. When the fan starts, a large volume of gas mingled with air pours forth. If any of this comes in contact with the auxiliary fan, a commutator spark may set it on fire. Or again the gas may come in contact with some other source of flame.

It is a necessary rule that such accumulations be swept out only on the off-shift when no men are in the mine. In a gassy mine there should be no fan running in a return of such a character and where auxiliary fans are provided it is well to have all the places ventilated by fans set so that the air from one will not approach the commutator of another. This limits the number of places and must continue to do so until the industry gets the small permissible motors it needs for operation.

But with several ducts from one fan comes the danger of unequal distribution of air and of inadequacy of the air current received by them, one or all. This is a matter on which care must be exercised.

In gassy mines auxiliary fans like mine fans should run every hour of the day, every day of the year, though some would stop them temporarily for shooting.

Unfortunately, men will start fans when they should not do so and sometimes will move them into unsafe places and as a preventive for this padlocks seem essential with keys in the hands of the proper authority.

But if there are these dangers, why, say some, should the presence of auxiliary fans in mines be permitted? The answer is that there are dangers with our present equipment. Only the other day a broken door was declared the cause of an explosion. One authority declared he believed that not only was one door broken down but that another was left open. An opened or a demolished door has frequently resulted in disaster. The systems adopted hitherto of ventilating places have repeatedly been found defective and most of them postulate that doors and curtains be kept closed whereas travel requires them to be opened frequently.

Line brattices are often imperfectly erected. Stoppings in cross cuts frequently leak badly and sometimes are not promptly built or are swept down by a fall of rock. Our system of ventilation today is neither foolproof nor accident proof any more than the system of auxiliary ventilation. But with regard to the latter, there is at times a lack of general comprehension of the proper technique and too great a disposition to take a chance.

Cashing In on Public Education

TWO FACTORS tend to make any product of the anthracite mines readily burnable—purity and sizing. The manner in which the purity—that is, the freedom from ash—will affect the utility of a coal is readily apparent to everyone. The sizing, however, also exerts an influence that is almost equally potent and important.

Any material that is equally or uniformly sized contains a greater percentage of voids than one that is made up of both large and small pieces indiscriminately mixed. In burning the smaller or steam sizes of anthracite, draft is an important consideration, for if the fuel bed is so dense that the draft is unable to force sufficient air for combustion through it, the fire is unduly sluggish or may go out altogether. One of the chief difficulties heretofore encountered in attempting to use buckwheat as a domestic fuel has been the fact that it was not uniformly sized, with the result that the smaller pieces partially filled the interstitial openings between the larger ones and thus impeded the draft. In other words the fuel bed packed to such an extent as to render this grade of coal ill-adapted to house heating in severe weather unless some kind of power blower was used to augment natural draft.

Still another difficulty resulted from the large amount of undersized material that normally accompanied buckwheat. The ordinary or standard opening in the grates of house furnaces is ½ in. in width. Full-sized buckwheat will bridge across this opening with fair certainty, but the smaller pieces go through without much difficulty. The result is that in order to hold the material on the grates it is necessary to carry a fairly

thick bed of ashes. This still further impedes the draft.

For years the anthracite operators have been endeavoring to induce the public to use the smaller or steam sizes of their product in domestic or house heating. The results have not been altogether satisfactory, probably because of the reasons above outlined. Recently one of the larger companies tried the experiment of making a buckwheat that was sized with unusual care and which therefore contained little undersize material. The product finally evolved was merely ordinary buckwheat that was run over the screens twice.

This new product was given a tryout in the domestic furnaces of various officials of the company and, proving eminently successful there, was placed on the market. It is now being sold as "Special Domestic Buckwheat" and brings a substantial premium over the ordinary variety. Those who have tried this fuel report that no particular difficulty is experienced in holding it on the grates and that it answers all requirements of a domestic fuel. It has increased the average return realized from the three steam sizes by a margin reported as exceeding 50c. per ton.

When it is considered that approximately 9¼ million tons of buckwheat is produced annually the significance of this figure to the region as a whole becomes immediately apparent. The public has long been urged to use the small grades of hard coal, but in order to do this with the least inconvenience it must have available a product that will burn without difficulty and one that will not be wasted through the grates.

Scrapping the Obsolete

AS A RULE, coal companies install equipment with the intention of keeping it in service for a good many years. In the case of certain classes of equipment—that developed to a point closely approximating the ultimate in refinement—long-time operation is justifiable, provided the equipment continues to function about as efficiently and with about the same freedom from breakdown as when new.

It can be proved that much more is spent during a period of, say, five years for maintaining a worn-out cutting machine, the depreciation charge of which has been wiped out, than is incurred in the operation of a new machine during an equal period, including a legitimate charge for depreciation. This is explained by the fact that parts must be replaced much more frequently in an old than in a new machine; furthermore, the cost of all parts, when purchased as components or spares is considerably higher than that of identically the same parts when assembled.

The merit of equipment is not necessarily based upon its newness or the excellence of its condition—its true value should be determined by comparing it with the best devices available for the same use. A machine may be the best obtainable when purchased and yet, in a strict sense, be "obsolete" within a short time because of the development or perfection of some vastly superior device. This leads to the question of when should equipment be replaced. Broadly speaking, any piece of equipment should be replaced immediately whenever another type becomes available that is sufficiently better, as measured by its ability to make savings, to warrant the replacement from a financial standpoint.

The same line of reasoning applies to supply-, as well as to machinery equipment, such, for instance, as track rails and accessories. Only recently a new man with a certain coal producer recommended that the 40-lb. rails on the main haulways in one of the company's mines be replaced with 60-lb. rails. The higher officials refused to follow his suggestion, arguing that the rails already installed had been in service for less than a year. With figures involving the investment loss that would be incurred from the elimination of the old installation and the cost of the new one, this man showed conclusively to what extent the cost of production could be lowered. But this was all of no avail. The company was wed, even to the point of obstinacy, to the old idea that equipment should be kept in service either until it has paid for itself through the customary channel of depreciation, or until it wears out.

No firm that adopts this attitude as a broad policy can expect to survive the present and coming days of keen competition. Coal producers in this respect must adopt the policy of other basic industries—that of steel, for instance. Simply stated, this is: Replace equipment, even though comparatively new whenever the change will reflect a saving. The present economic situation must always govern and not any other earlier consideration.

Sturdier Equipment Is Coming

NEVER BEFORE was there a keener consciousness of the desirability of sturdy electrical equipment for use around the mines. Throughout almost the whole industry there has lately developed a desire to obtain apparatus which will reduce accident hazards and give more nearly continuous service.

In the years gone by steam equipment met the adverse conditions of mining in an admirable way for those days. Steam engines because of their very nature of construction, design and operation continued to perform their various functions even when given much inexpert attention. Lost motion, wear and imperfect regulation seldom completely prevented a steam engine from functioning, at least after a fashion, and this is why some old steam men have clung to them in preference to electrical apparatus.

In line with this greater demand for sturdier machines, even electrical shovels, which in many instances have shown operating savings large enough to pay for themselves in two years, have lately gone through a period of reconstruction. Changes of design have been made primarily with the idea of making them withstand those severe shocks and vibrations which are liable to be experienced even under the most ordinary mine stripping conditions.

Greater dependence upon machinery and less dependence upon human labor to perform the various operations of loading, transporting, hoisting, etc., has necessitated high capital investments. Each piece of equipment is so directly dependent upon others that a weak machine in any part of the system soon destroys the whole plan of operation.

In some instances a poorly constructed machine today will quickly and completely wipe out all the expected savings of a newly projected plan. The insistence of some of the leading operators in the field upon stronger and sturdier equipment is therefore well founded.

Tubing for auxiliary ventilation suspended from gangway roof supplies fresh air to faces of three breasts

By hanging the duct from staples it is protected from injury and is out of the way of trips and travelers

Ancient Versus New Methods of Ventilation

By R. Dawson Hall
Engineering Editor, *Coal Age*

Imperfect methods of supplying mine faces with air have troubled us for years. Auxiliary ventilation and tubing have recently been introduced, and they promise better air, improved mining methods and greater safety if properly planned and installed, but like many safety devices they may themselves be sources of danger if due precautions are not taken.

METHODS of mine ventilation have changed but little in the last seventy-five years. Fans have been greatly improved, it is true, new types being invented, but the *system* of ventilation has received little modification. Air continues to be circulated almost everywhere solely by means of double entries and crosscuts, a system so expensive that at no time did the metal mines see fit to adopt it. In recent years, however, the heat and humidity of some of the metal mines, the extensive use of explosives that on detonation emit poisonous fumes, the quantity of fine siliceous rock dust made by the drills and an increased knowledge of the hygiene of mine operation caused metal-mine companies to look for an improved form of localized ventilation that would make their mines more healthful, their men more happy and efficient and their costs lower. Consequently, many of them introduced small blowers and canvas tubing. These blowers developed for use with boiler furnaces had by that time reached a high degree of perfection. Soon after this development coal-mining engineers began to follow the lead thus shown, and fans with canvas ducts were introduced into their mines also.

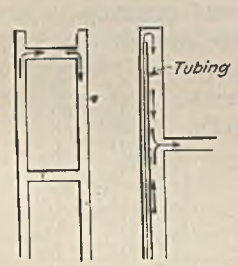


Fig.1 Double Entry and Crosscuts

Fig.2 Metal Mine Methods

Engineers had noted that the use of brattice cloth to direct air to the face of dead ends between crosscuts added considerably to the resistance of the air current. These brattice cloths interfered with haulage, were frequently torn down, were never tight, could not be carried close to the face and were subject to damage from shooting.

The roadway also was narrowed by the erection of the brattice cloth. This might be unobjectionable where the heading was wide and cars were narrow, but unfortunately where the roof was weak it was not always practicable to carry a wide roadway, and also the demand for big cars to provide for large tonnage made it essential that the small roadway available should not be further reduced.

The work of erecting such cloths was considerable, and their short life was such as to make their replacement expensive. In fact brattice cloth, its maintenance, installation and interference with gathering operations entailed so much expense that it was used only where the emission of gas occurred in such quantity as to make the use of line brattice, in the absence of any other provision, obligatory and inescapable. Nor was the use of such brattice cloth entirely devoid of fire risk in a dry mine where the material used was of a flammable type. Incombustible cloths were introduced but not without increased cost.

With the advent of the duct the resistance imposed by the ventilation of dead-ends was thrown on a blower provided specially for that purpose thus relieving the main fan. It became no longer necessary to increase the water gage of that ventilator in order to provide for the excessive resistance of any one split. The haulageway became unobstructed. The means of providing ventilation was less subject to injury. A tight, readily repairable, tube replaced the uncertain brattice. The tube could be easily withdrawn prior to shooting and replaced rapidly. Should a roof fall occur the tubing could be broken at some point and new lengths attached, laid over the fall, restoring ventilation promptly with little or no damage. The

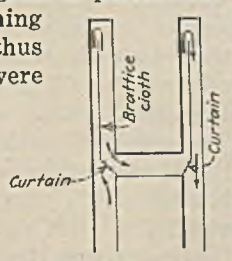


Fig.3 Ventilating by Brattice Cloth

Fig.4 Ventilation by Auxiliary Fan and Tubing

roadway was no longer narrowed, for the tubing was either hung from the roof or laid on the floor, preferably the former. Cars could be used as large as the roadway would accommodate.

It became clear, however, that the blower capacity was such that the distance the air could be carried far exceeded the distance between crosscuts. Consequently, wherever the law allowed the driving of the single entry and wherever a second airway would not be needed for permanent ventilation that airway with its crosscuts could be eliminated at a considerable reduction in cost. It thus permitted of driving relatively long airways by single entry through faults for investigatory purposes. It made it possible to drive connecting roadways between two airways wherever no permanent return airways were needed. It also gave a means of driving longer distances without crosscuts, even in normal operation, this being not only an economy of dead work but also a saving in air, for crosscuts are never perfectly stopped by brattices.

It has been found that under pressure air will pass through most stoppings, will pass around the edges of more and will leak through the roof and rib near the stopping with almost any form of construction. Where a stopping is not permanent or a door is provided, a fall of rock may occur, breaking it down and short-circuiting the current. Reducing the number of stoppings is therefore an economy of air, a saving in costs of construction and maintenance and an aid to safety wherever the failure of a stopping may be a menace.

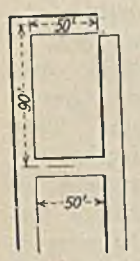


Fig. 5
No Air for 140 Ft.

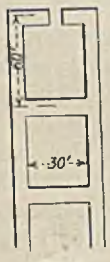


Fig. 6
No Air for 75 Ft.

A movement is on foot, sponsored by mining men men themselves, to make permissible the elimination of many of the crosscuts, now required by legislation in the development of working places. They realize that the laws were passed before the new method of conducting air to the worker by tubing and small blowers had been conceived. When the statutes were written the miners had none too good air at the face, especially while driving the crosscuts at the prescribed distance. But with bette appliances available, new legis...tion would be justified. Most crosscuts are disused shortly after being driven; they weaken the roadway and often are the cause of roof falls; as stated they leak and waste the main air current; they collect fine coal dust to feed the flame in an explosion and they increase the resistance of the passageway to currents of air. Only in narrow roadways, where they serve as refuge holes, have they any value whatsoever, and even then they are deeper than is desirable and of no value if room necks are available for the purpose.

Not only are they costly but they seriously delay entry driving. Many a mine is restricted in production solely because it cannot drive entries speedily enough to replace old with new workings. Mines have been shut down, as far as normal production is concerned, solely in order that the required development may be made. Where the number of crosscuts is reduced the speed of development can be greatly increased.

Where the old system of ventilation is used without brattice cloths, the air when a crosscut is being driven, does not come within 140 ft. of the working face, if the crosscuts are set at 90-ft. centers, are 50 ft. long and driven entirely from one direction. The air does not come within 75 ft. of the working face where crosscuts are 60 ft. apart, 30 ft. long and are driven from both directions. Compare this with the condition where the blower is used. The air is led by the tubing within 10, 15 or 20 ft. of the face and being directed in a stream of some force in the direction of the entry actually impinges on the working face and thus ventilates the whole of the section of the entry that the main ventilating current is unable to reach.

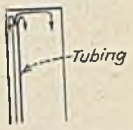


Fig. 7
Air from Tubing Scours Face

Who shall deny the value of this to the working man? It not only gives him fresh air to breathe, but by driving away smoke it gives him a good opportunity to see the condition of his roof and to avoid other dangers. The operator is aided not only by the greater contentment and safety of his men but also by the fact that they can return to their work more speedily and can use more discrimination in the preparation of their coal at the face. Thus the blower and tubing system provides a permissible means of driving entries with a minimum of crosscut requirements.

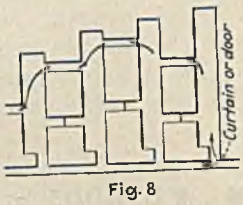


Fig. 8
Room and Pillar with Ventilation System

Recent developments in the operation of coal mines have made the introduction of auxiliary fans and tubing a necessity. In fact, if they had not been made available they would inevitably have been invented for the purpose which they so efficiently serve. A review of this development is, therefore, permissible.

It has been found that the introduction of loading machinery or conveyors or both was greatly hampered by the practice of driving rooms and drawing pillars which could not be made wide enough to give adequate tonnage for the operation of mechanical devices. Experiment showed that, by driving development roadways into the coal at greater distances than was customary in operation by the room-and-pillar system, it was possible to provide longwall faces which could be brought back with greater safety than was attained with the room-and-pillar method.

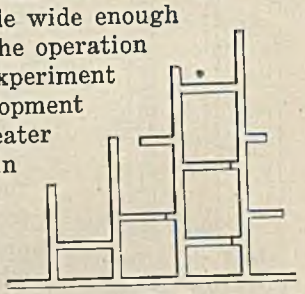


Fig. 9
Development Roadways

If, however, these development roadways had to be provided with crosscuts every 60 or 90 ft., the length of the crosscuts would lay a prohibitive burden on the operator. The system, moreover, would not conduce to the health of the men or their safety in gas, because, in the driving of these long crosscuts from the end of roadways 60 or 90 ft. ahead of the air, the men would be supplied with but little ventilation where brattice cloth was provided and with no ventilation where the erection of such cloth was omitted. Where brattice cloth would be used the

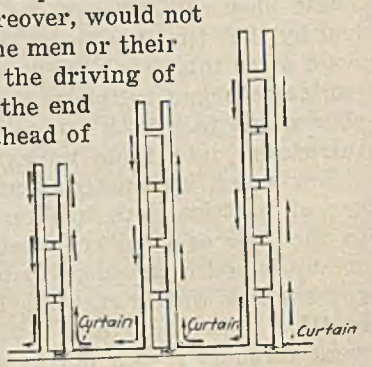


Fig. 10
Pairs of Development Headings

development entries and crosscuts would have to be wide and therefore in some mines would be dangerous.

However, the development headings could be, and usually are, driven in pairs with crosscuts between them. In that event the same, or approximately the same, heading yardage would have to be driven, but a saving would be made in the length of the crosscuts which would merely connect the two development headings in each pair and would not have to pierce the big pillars left between pairs. This provision although it has merit has many drawbacks. The crosscuts have to be provided with stoppings, and the air has to traverse every foot of all the development headings, going up the first of each pair and down the second to the entry, entering each pair in turn.

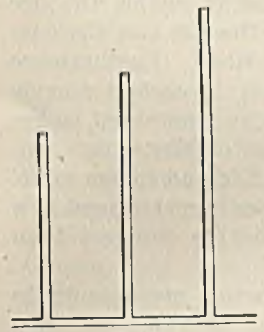


Fig. 11
Tubing-Ventilated Development Headings

This greatly increases the frictional resistance and puts an increased burden on the fan which must provide such a water gage for the whole mine that this resistance may be overcome. It also makes it necessary to put doors or curtains in the entry between each pair of development headings in order to compel the air to travel these instead of taking the direct route. Such doors or curtains are not without their own hazards. Trips run into doors with injury to motormen and trip riders, and men are likely to be swept from their seats by curtains and injured by the trip or the mine rib.

With auxiliary fans and tubing, the problem takes a new aspect. The roadways can be driven without necessity for crosscuts and yet with continuous and sufficient ventilation. Thus without excessive expense all the advantages of longwall can be attained—the use of modern machinery, better supervision and greater safety. The development roadways in gassy mines, no longer needing brattices at the face, can be made narrower, if necessary, and hence freer from roof falls.

The possibility of driving single development roadways also increases the speed with which they can be driven. As it has been found that one big objection to the retreating systems of longwall has been the difficulty in keeping development in step with coal extraction, it is obvious that it is a big advantage to have the men who are driving the development headings relieved of the necessity of making crosscuts, whether long or short, and unhampered in their work by the presence of smoke.

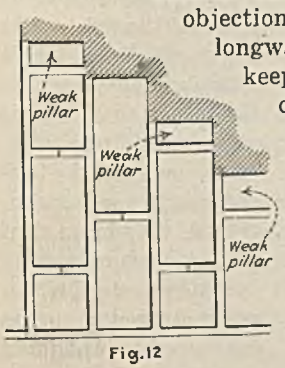


Fig. 12
Bringing Back Pillars

Nor is that all, operations at the longwall face are most obviously made more dangerous where the pillar on which the retreat is being made has been weakened to a dangerous extent by the extraction of coal in crosscuts and in paired development headings. At such points crushing may result; the face may be lost and the lives of the miners working at it imperiled.

It may be taken for granted that fewer development roadways will be driven when the places are ventilated by tubing rather than by the use of the mine current and crosscuts. It is obvious, therefore, that, in the opening up of a panel there will be fewer places to be ventilated and therefore fewer faces on a split than where the coal is mined by rooms or by development headings with crosscuts between them. The air will, consequently, be less polluted by smoke and, if the mine is gassy, less explosive.

Nor is that all. The old methods of ventilating by cross-cuts between rooms have never been satisfactory. It has been well understood at all times by mining men that not all the air in a split finds its way to the men at the working face. The entry is such a much more inviting path for it to travel than the rooms with their intricate detours. With pairs of development headings, as has been seen, the condition is still more unfavorable.

Where owing to the presence of gas or excessive smoke, curtains are hung over the entryway to compel the air reluctantly to take the more tortuous, more encumbered, less smooth and longer course, they are found always in the way of haulage, always leaky, and frequently torn down. Every time a trip comes by they have to be lifted either by a man or the trip. Meantime, the air, grateful for the opportunity, travels the roadway and short-circuits the rooms.

This fact is not to be regarded with indifference, but

Fig. 13—Line Brattice at Side of Haulway
It will be seen how such bratticing narrows the roadway even though the space provided for the travel of air behind the line brattice may be quite restricted. Boards nailed to posts and dirt thrown against the boards give a fair degree of tightness at the foot of the line brattice.

what, in the past, could the superintendent or the foreman do? He knew that the ventilation was arrested, but he had in earlier days no auxiliary fan to drive air to the tubing and no tubing to carry the air to the face. Sometimes a door was used, but this again introduced danger. It might be left open and often was, and then for a long time the air current avoided the rooms and coursed down the entry. Even if the door was kept closed except during the passage of a trip, the air, when the trip was passing, went merrily and menacingly up the entry, less impeded than it would have been by a lifted curtain.

It has been said by mining engineers that with an auxiliary fan there is danger of recirculation of air, that is, that the air is liable to go to the end of a room or development roadway and to return to the fan to be recirculated. That is quite possible if the fan is not properly placed, but it is a matter that can easily be remedied and readily be observed by the management or inspectors, for the relative location of the fan to the room or development roadway can be noted on the most cursory inspection. If the fan, however, is properly placed the risk of recirculation does not exist.

It is true the air may be used again in some other place mixed with air from the main current, but how is it with the old system? If there were twenty-five places in the split, whatever air was forced to the faces entered them one after another and gathered, from each, smoke or gas or both and returned to the aircourse laden with the fumes or explosive gases contained in them all. With tubing there should be fewer places and an assurance that all the air would be used in their ventilation. This, surely, is an argument in favor of the use of the air duct.

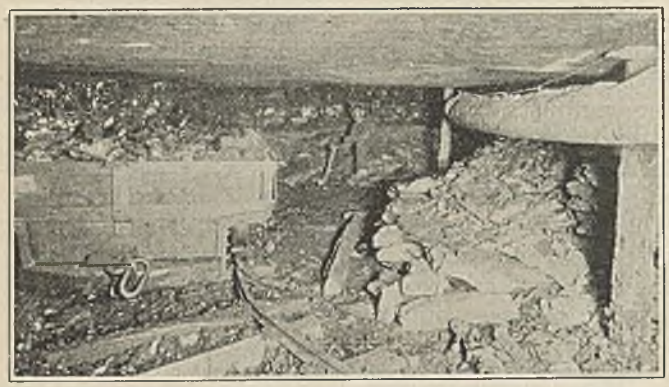


Fig. 14—Air Duct in a Low-Coal Operation

Where bottom has to be lifted and consequently heavy shots must be fired, a good volume of air at the face of the working makes a rapid return to the working places after a shot possible and safe. The tubing can be hung from cap pieces. It serves indeed as a subtle suggestion to the miner that he should erect a prop near the face.

Mining is progressively becoming deeper and percentages of extraction on development that at one time were considered conservative may hereafter be regarded as dangerous, and that with reason. The risk of a sudden collapse of the roof over areas insufficiently supported by pillars has been known in Europe for years and has had frequent exemplification of late in the United States. Unless care is taken to reduce the quantity of coal removed in "first mining," air blasts are likely to take heavy toll of life—a risk which did not exist when the present laws were framed because all the mines of that day were relatively shallow. Where auxiliary fans and tubing have been introduced, it is possible to reduce greatly the quantity of coal taken in primary development and thus provide a degree of safety that in too many mines is lacking. The old fretwork of headings, rooms and crosscuts that made the mine a honeycomb is destined to be modified. It is true that the return airway and the crosscut will always have their undoubted uses. They will still serve all the permanent demands of the mine, but modern conditions will cause them to be constructed in lessened numbers as soon as the technique of the auxiliary fan and tubing is more clearly understood and appreciated.

Fig. 15—Preparing to Hang Ventilating Tubing

The miner either uses the cap pieces of props already in place or erects new props and hangs the air duct from the lids of these. In a room as little filled with gob as this the air without auxiliary ventilation would go direct from crosscut to crosscut across the room often without the men at the face or the fumes of their explosives being apprised of that fact.

Tubing also is being used as a means of conveying rock dust to return airways, long distances from the rock-dusting machine by which the dust is blown. It also can be used in fire fighting. It has been found best to fight fires directly with water, rock dust or sand rather than to extinguish them by sealing. At first sight it would seem that to give them air would be undesirable, but only by providing enough air to clear away smoke and irrespirable gases so as to enable the fire fighters to advance to the seat of the fire can the conflagration be expeditiously extinguished. Furthermore a brisk fire burns its own methane to carbon dioxide and water, whereas one that is partly smothered makes methane in quantity that a flicker of flame may unfortunately ignite, with danger to life and to the mine. With air supplied by a fan, work can be performed in a gas mask which encumbers the bearer far less than oxygen-breathing apparatus.

Good air at the face means a better opportunity to note the condition of the roof, and in this connection the auxiliary blower and air duct are of great value for they afford assurance that the air will not only go to the last crosscut but will reach the working face where it is needed. They also make possible the introduction of modern methods of long-face mining, and this has been found to be an assurance of greater concentration, hence of better inspection and of greater safety. The new methods to which tubing is such a valuable adjunct, reduces the number of men employed and thus decreases the total hazard for any given production. They also reduce the size of the mine, which is highly important where there is gas, for every open place is a pocket for gas and a menace to safety.

Economically, blowers and tubing are such an important contribution to operation that it seems needless to emphasize their value. They save in stoppings and in crosscuts. They economize air; they reduce the resistance to the air current; they make it unnecessary to use a high pressure at the fan in order to overcome the higher resistances of some of the splits. By the good air that this provides, they enable the miner to clean his coal more perfectly. They permit the operator to use concentrated systems of mining thus obtaining increased production per man, reducing the area to be ventilated and drained, increasing the rapidity with which a mine is brought to maximum production, lowering the investment in mine housing and equipment, economizing in rail, ties, trolley wire, bonds and timbering, reducing the number of headings to be maintained and rock-dusted and making other savings. Tubing also speeds up development. All these advantages inure not only to the operator but to mine worker and public as well.

It is preferable to suspend the tubing from messenger wire (1) because it is thereby likely to have a longer life, (2) because the firedamp, if there be any, collects near the roof and is thereby dislodged and (3) because the current of air will not disturb the fine coal near the floor and so raise a dust that might be ignited should a shot of black powder or an overcharge of permissible blow out on being fired. In all mines, especially those that are gassy, the fan should be put sufficiently far back from the point at which the return air from the tubing travels back to the main current that there will be no possibility of this return re-entering the fan and being recirculated at the face. This is especially important in gassy workings. In all mines the heading should be kept rock-dusted, at least up to the point where the return air re-enters the main current. The safety and well-being to the workers, which the blower and tubing afford should not be jeopardized by failing to provide these conditions. In fact it would be well to erect a few rock-dust barriers above the fan where gas is encountered so as to make assurance doubly sure. The provision of such rock-dust, however, will not justify overlooking the requirement that the fan be located properly so as to make recirculation of air impossible.

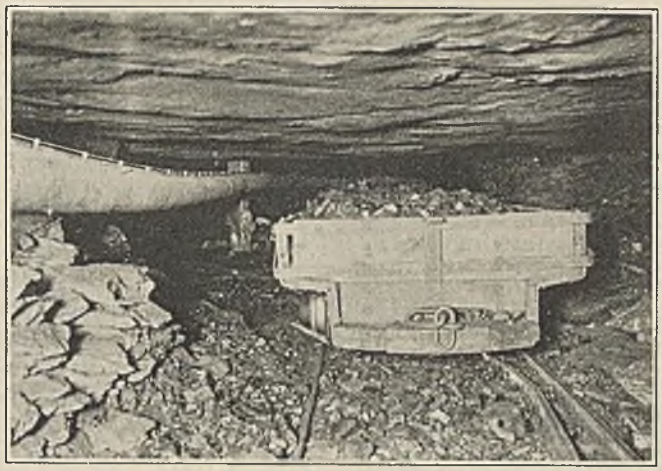


Fig. 16—Suppose Line Brattice Were Used Here

The brattice could not be put on the left because it would interfere with gobbing rock. If put on the right in such a low seam it would either have to be put a long way from the pillar to give an adequate airway, making pillar drawing difficult or it would give a grievously restricted cross-section for air. The air duct meets the problem nicely.

It is well to remember that all safety devices—and the auxiliary fan and tubing are no exception—must be safeguarded as carefully as the equipment or operations they protect. This is a recognized principle of safety which applies equally to every safety device.

Another precaution that is mandatory is that in gassy mines the fans should be started so long before the men enter that the air in the working places will be cleared of explosive gas. Accumulations should never be removed while men are in the mine. It is also necessary to arrange that the blowers be started in such a manner that no explosive or near-explosive percentage of methane shall be found in the return and that no air that contains a quantity of gas that a mine lamp will detect shall pass a blower in operation. The most desirable method of auxiliary ventilation is by the use of continuously operating blowers, and in gassy mines they should run as steadily as the mine fan, the more so because caution may not always be exercised in removing gas accumulations.

Fig. 17—Blower Fan Ventilating Workings at Anthracite Mine

The installation is one that can be moved only with the aid of some facilities. Consequently its location is readily subject to the supervision of the operating force and of the state inspection department. If wrongly located it is easy to note that fact and to order its reinstallation in a safe position.

In conclusion it should be said that the baffling problem of the safe operation of gassy mines is ventilation. We may exclude open lamps, we may use flameproof motors, we may examine miners for matches, tobacco and cigarettes, we may use safe explosives in permissible quantities, we may shoot electrically and yet have methane fired by mechanical sparks or by stray current. Then again our safety precautions may fail to protect us. Our flameproof motors may be allowed to get out of condition, thus causing an explosion; our explosives may be used in excessive quantities by careless miners and methane be thereby ignited. Mine workers may get their matches and smoking materials past the inspector. So the safest place is one in which there is no gas, and how can we get a face without gas except by good ventilation? This desirable condition, auxiliary ventilation will give if properly installed so as to free us from the possibility of recirculating the same air undiluted by a due proportion of air from the main current of the split. It is unnecessary to add, of course, that equipment that will give the necessary volume of air to each place should be installed.

We may look forward to further refinement of auxiliary ventilation. The time will come doubtless when fans will be driven by flameproof motors. Everyone realizes that this is a consummation, not only to be hoped, but to be expected and that soon we may have them driven by batteries so that they will run continuously whether the electric circuits in the mine are alive or dead, whether the wires in the mine fall and short-circuit or the current is cut off from overload. But even now, with such provisions as we have, we can make safety more certain by providing auxiliary ventilation and putting the auxiliary fans where they will not be approachable by the return from their own ducts. By the use of auxiliary ventilation we shall rid ourselves of many uncertain and dangerous curtains and doors; by the elimination of unnecessary stoppings we shall preserve our air currents from short circuits and leakages; we shall attain closer supervision and favorable conditions for operating by the use of concentration methods which auxiliary ventilation makes possible; we shall reduce the number of

men exposed to hazard by these same methods; we shall limit the number of places using the same air by reducing the number of development entries; we shall give the miner the opportunity to protect his own life by enabling him to see, in a clear atmosphere, the hazards of the roof to which he is exposed; we shall strengthen the roof of the entries by eliminating the many crosscuts that remove support from the roof and by driving the headings only of such width as are needed for haulage and effective permanent ventilation; we shall have pillars that can be safely drawn because they are not riddled by crosscuts; we shall, by strengthening the roof support, eliminate timbering by which men are trapped when trips are passing, and which is too often torn down when trips are derailed; by making unnecessary the use of many doors and curtains, we shall avoid the hazard of having them left open or torn down by passing trips and travelers and we shall, in deep mines, eliminate the air blasts due to insufficient roof support. These seem to be inviting avenues for attaining safety despite many not inconsiderable hazards.

Hazards Incidental to Bad Practice

Auxiliary ventilation is surely too valuable a feature of safety and economy to be brushed aside lightly just because forsooth, we are afraid that some mine managers and foremen will, by careless installation, involve the mine in hazards resulting from that defect.

Hazards are always the outcome of mismanagement or neglect. Steam boilers for instance, blow up, if wrongly designed and erected, if the water in them is allowed to get too low, if the safety valve sticks or is overloaded or weighted down, if the tubes and shell become pitted, if a heavy scale is allowed to form and so forth. But steam boilers are not discarded for this reason. Care is taken to see that the unfavorable conditions that result in explosions shall not exist.

It should be borne in mind that the fan and tubing installation is of such a relatively permanent character that it can always be inspected and if not safe its defects can be immediately corrected. Safety rules can readily be determined and without difficulty enforced. Let us not give up a good opportunity, without a consideration of the advantages it offers. Every new development has been hazardous at first. The railroad locomotive was one of these, yet now the railroad is one of the safest means of travel. Automobiles are and may still remain an unsolved hazard, but we nevertheless continue to use them. Auxiliary ventilation seems to be of the railroad locomotive rather than of an automobile class, a hazard, if you may so term it, that bids fair to eliminate so many other hazards as to fit it to be regarded as an aid to safety.

If the shoe were on the other foot and the auxiliary fan and blowers had been used for generations and some were trying to establish the practice of driving 75 to 140 ft. without air or with the aid of curtains and line brattices, one can readily see how many would be the objections, how reasonable and forceful would be the opposition. The old methods are well-known to be defective! No one declares that fact, however, as it is true to triteness. Evidence is not lacking that under former conditions many violations of good practices, many burnings and explosions have occurred and with them men have been afforded inadequate ventilation. The new method is not perfection but a step toward it.

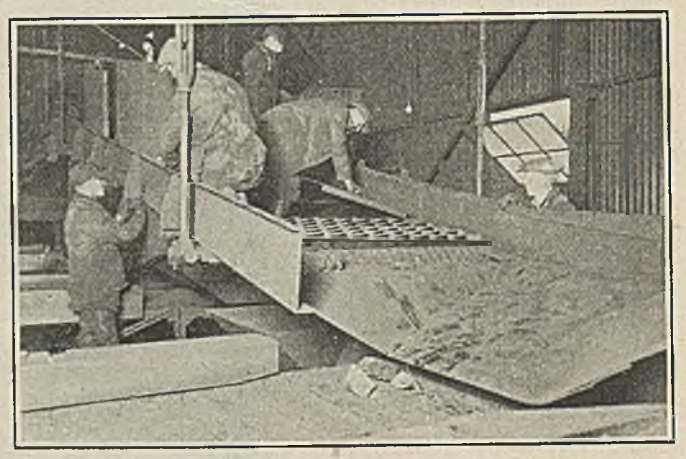
Oil Nears Its End; More Is Gasolinized; Making Coal Future Bright

For the greater part of the work of the world there is no substitute for bituminous coal. Considerable attention is being attracted at the present time to the extent to which petroleum and its products on the one hand, and hydro-generated electricity on the other, have been displacing coal as fuel. In view of the increase in the use of these sources of power during the last few years, it has been easy to acquire an exaggerated idea of their relative importance.

So far as the use of petroleum and its products for general industrial purposes is concerned, two facts are conclusive evidence of the shortness of the time during which much dependence can be put upon this source of power. First, we have the recent statement of the Federal Oil Conservation Board calling attention to the rapidly approaching exhaustion of the known resources of petroleum in our country. Discoveries of new fields and a higher percentage of recovery will add to the supply but the inevitable advance in price will check consumption. With all allowances for these considerations, it is evident that the time is near at hand when this fuel will no longer be a possible substitute for bituminous coal.

The second fact referred to is the growing demand for the lighter products of the distillation of petroleum for use in internal combustion engines, and especially in automotive vehicles. The consumption of gasoline in this country increased from about 3,000,000,000 gallons in 1918 to nearly 9,500,000,000 in 1925. This demand is so insistent that it will continue, even in the face of an advancing price, which eventually will remove petroleum from heating and steam-fuel use.—*From the address of Walter Barnum, president, the National Coal Association, delivered before the International Conference on Bituminous Coal.*

High Cost of Custom-Made Coal



Changing Screens Before the Day's Start

Sales departments are not always aware of the trouble and expense involved in changing screen plates in suit the whims of some overly particular customer. The photograph here reproduced was taken in the new tipple serving the No. 6 mine of the Elkhorn Piney Coal Mining Co., at Stanaford, W. Va. It took four men approximately 45 min. to make the necessary change. But this is not all. This work had to be done before the day shift began in the morning, and inasmuch as notification of the desired change was not received until about 9:00 p.m. on the previous evening it required night work on somebody's part in order to get the men out before the usual start. In mining as in many other industrial operations any departure from usual routine has a detrimental effect upon the morale of the organization. They should, therefore, be avoided whenever possible.

Anthracite Region Prey to Labor Unsettlement In Fabulous Forties and Fifties*

Vicious Cycles of Expansion and Contraction in Hard-Coal Demand Took Toll of Labor and Increased Unrest of Workers—Leasing and Speculative Developments Sharply Assailed by Trade Union Leaders

By Myron D. Edmonds

FROM A WAGE STANDPOINT conditions in the anthracite region improved after the strike of 1842. The feeling of Schuylkill industrial leaders was that the coal trade had been expanded too greatly for the requirements of ordinary business, and they sought a new outlet in the iron industry. That anthracite was a satisfactory smelting fuel had been shown many years before, and every effort was made to increase the American iron trade. To this end Benjamin Bannan, editor of the *Miners' Journal*, had organized the first tariff league in the United States, and with the help of Henry Clay the tariff act of 1842 was passed. This afforded protection to American iron, and greatly stimulated the erection and operation of furnaces which used lump anthracite for fuel.

That the workers received some benefit is shown in the table of daily wages paid in the Schuylkill mines:

Year	Miners	Laborers
1831	$1.00	$0.82
1840	1.00	.80
1842	0.875	.70
1844	1.10	.76
1845	1.13	.80
1846	1.25	.83

These figures are from the records of the Delaware Coal Co., which paid in cash. It had been chartered outside of Pennsylvania, and early in the '50s ceased operating, leasing its lands. It is still a part of the Philadelphia & Reading Coal & Iron Corporation.

That conditions improved among workers other than miners was shown by a table of wages for two foundry and machine shop concerns in Pottsville. Average weekly payments rose from $6@$7 in 1842 to $9.50@$12 in 1846. The low wages paid in 1842 are apparent from the tables, and there seems little wonder there had been unrest. While wages increased after that year, other grievances persisted, and at the end of 1848 it was publicly announced that the miners and laborers were about to ask for legislation to secure wages in case an employer failed. This led to a meeting of miners, laborers and mechanics on Jan. 1, 1849, in Clayton's Hall, Pottsville, with Andrew G. Jackson in the chair and with Owen Murrin as chief speaker. This meeting was described as "favorable to the passage of a lien law and opposed to the present order system as existing between employer and employed in this region."

Another meeting was held Jan. 13. Owen Murrin, Thomas McCamant, John C. Clayton and D. G. McGowan were appointed a committee to take a petition to the legislature. This petition stated:

(1) That ever since 1828 wage earners had suffered from speculation in coal mining by men without adequate finances;

(2) That landowners and speculators had united since the boom years of 1832 and 1833, to the detriment of the workers;

(3) That the store order system was then introduced, with prices often 100 per cent higher than cash prices elsewhere. It was specifically noted that $14 had been asked for flour on store orders when the going cash price was $6.

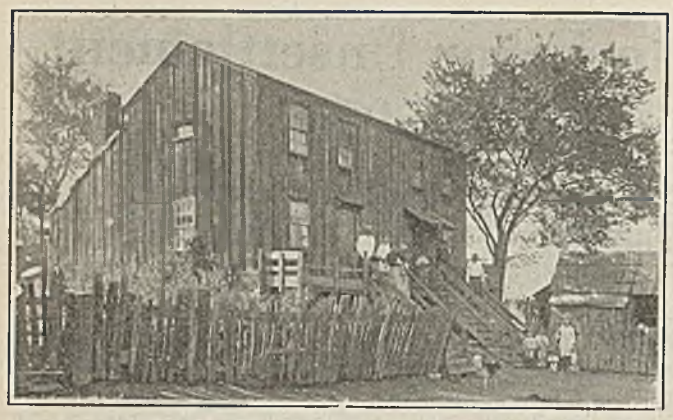
Benjamin Bannan

At the age of 22 years this man started the *Miners' Journal* of Pottsville in 1829, retaining practical control of it until his death in 1873. But his activities and influence extended far beyond the boundaries of the anthracite region. Thus he organized the first tariff league in America and with the aid of such men as Henry Clay succeeded in getting important protective measures enacted. These affected the industrial activities and the destinies of the entire nation.

(4) That the remedy for non-payment of wages, or unsatisfactory payment, was a lien law, applying to the land worked by the indebted employer whether he owned it or not, as well as a lien on all leases, improvements and personal property.

Whatever may be said about the remedy proposed, there is no doubt that the grievances stated were real, and when no relief was afforded, a genuine labor union, which would be recognized as such today, was formed. This was the work of John Bates, an Englishman, who successfully undertook to organize the men at St. Clair. This made a deep impression, and he was invited to a meeting of about 2,000 mine workers, held at Minersville on May 2, 1849, with Samuel Kauffman presiding. Bates told of the St. Clair movement, and advised a

*Second of a series of four articles describing the rise of unionism in the anthracite region. The first article appeared in *Coal Age* in the issue of Jan. 6, 1927.



Double House of the Early Days

Housing was an acute bone of contention in the 50's. The double residence here shown probably does not date back anywhere near that far, but may serve to guide the imagination in picturing what must have been. By comparison with modern dwellings in the same region these quarters seem squalid indeed. Such a comparison, however, is hardly fair for at that time the old one-room log cabin was still popular in many places.

general union of mine workers. The meeting decided that pay should be higher, and voted to go on strike for one week to impress the employers.

The following day Bates, who naturally assumed leadership of the whole movement, addressed another meeting at Deer Park. This meeting adopted resolutions demanding:

(1) That a central committee be formed, with two representatives from each mine;

(2) That work be resumed May 7 at such mines as met the wage demands;

(3) That all gangway, slope and tunnel contracts be by the yard only, and binding only from yard to yard, and no greater distance;

(4) That wages be paid monthly, and in cash only;

(5) That each colliery committee fix the rates for its own mine, subject to approval by the central committee.

Bates's idea of the central committee, representing a group of mines, is an outstanding feature of the existing union organization, and the way he tied up colliery affairs, to put them under control of that committee, which he himself headed, speaks well for his organizing ability. It is interesting to note that the first genuine union on modern lines demanded that contract work be based on yardage only, while in recent years the union has invariably included a demand for a tonnage basis.

Response to the strike call was general, but some men quickly returned at Trenton, where it was proposed to pay partly in store orders. A mob armed with clubs drove these workers away on May 10. At Tamaqua the operators acceded to the wage demands, provided they applied only to good workers. By this arrangement they were able to get rid of a lot of deadwood.

Men began trickling back to work, and by the end of May resumption was widespread. The ugly mob spirit then appeared. Men working at John B. Douty's mine were waylaid and one was fatally injured. One of his assailants was arrested, and got three months and a $25 fine. Three others, involved in attacks on other mines, got similar fines and sentences of 30 to 90 days. These outbreaks caused a revulsion of feeling, which Bates endeavored to meet. He held another meeting at Deer Park early in July. Resolutions adopted covered these points.

(1) The union to be maintained, but with hostility to nobody.

(2) The union never intended lawlessness, would countenance no interference with individual rights, and would expel any member so encroaching, or using intimidation, threats or violence.

(3) That the discharge of union men merely as such was to be deprecated.

(4) That all work be suspended until July 9 "for our own good and for the good of our employers."

The soft words of the first three resolutions indicated that all was not going as well as desired with the union, and it would seem that the strike as authorized had not amounted to much. People began to talk out in meeting, and on July 14 the *Miners' Journal* printed a communication, purporting to come from "A miner who does not want to be humbugged." This letter charged party politics in union affairs, and said "this man Bates makes a good business out of it—he is in the employ of the miners and receives $12 a week and a horse, feed and all, to keep us out of work," and suggested further that Bates "is probably in the employ of Democratic politicians as well . . . he pockets the money and we are the dupes."

The Leader Absconds

The union seems to have rolled down hill rapidly after the July meeting, and it got a body blow when Bates himself left quietly for parts unknown. There is a legend that the union treasury was found depleted, too.

Though the highly centralized organization established by Bates had collapsed, the union spirit persisted sufficiently to form loose, temporary organizations at different mines, and to stage strikes. There was such a strike in the Minersville neighborhood in May, 1850 on a demand for higher wages and cash payments. A slight advance was granted, with the promise of more when coal prices improved. Men were getting out of the Schuylkill region, a good many going to new anthracite workings at Pittston and Carbondale, others migrating to the Cumberland soft coal mines, and the more adventurous ones going to join the California gold rush.

Output and Wages Were Low

There were basic reasons for the chaos in Schuylkill affairs, and some of them may be gleaned from statistics of the Schuylkill coal trade published by the *Miners' Journal* in 1851 covering the whole county, save Branch Township, for the preceding year:

Number of operators	94
Number using steam power	70
Number using horse power	15
Number using hand power	9
Number of employees	6,541
Invested capital	$2,527,862
Monthly wages	$ 149,813
Annual output, tons	1,598,549
Annual output, value	$2,856,784

From this it would appear that the average monthly wage was under $23, that the annual output per employee was only 243 tons approximately, and that the operating investment per ton of yearly output was $1.58. This investment was exclusive of the land. According to published statements in 1847, the royalties paid on Schuylkill coal averaged 30c. a ton. As the average prices of coal ranged, at this time, from about $1.85 to approximately $2.50, royalties were as much as 12½ to 16 per cent of selling price. Capitalizing the average royalty at 6 per cent, it would represent a land

investment of about $5 a ton, or a total investment in land and improvements of $6.58 a ton. Under the conditions of that early time this was a tremendous capital outlay, especially in a region where more than 25 per cent of the operators were so poor or so unprogressive that they did not use steam engines, and 10 per cent were so backward that they still relied on handpower exclusively.

The operating end of the Schuylkill coal industry was poorly organized, and to make up the losses due to poor organization it dabbled in company stores and adopted a policy of trying to make up by keeping down wages, or transportation rates, or both. The operators admitted poor organization, but they could not be brought into co-operation sufficient to correct conditions, though a sincere effort was made by an able man, John Tucker, former president of the Reading R.R., even before the Civil War. The miners had one stroke of fortune in 1851, though, for early that year a Common Pleas decision in a wage lien case exempted the wages of "laborers mining coal by the ton or wagon," thus reversing "the generally received opinion" that such wages could be attached for debt.

Housing Becomes an Issue

Early in 1853 there was a good deal of interest aroused in housing conditions. The *Miners' Journal* said that in the colliery patches the usual habitation of a miner was a shanty with one room on the ground floor and a half-story attic. It used a good deal of type to show that there ought to be at least four rooms. The housing situation was a logical outcome of the leasing system. The mine operator, with scanty capital and no assurance he would not go down in the first market depression, was chary about sinking money in good houses on another man's land. The landowner, on the other hand, had no incentive to spend money on houses. His interest was in his royalties. The net result of the housing conditions, though, was not conducive to contentment among workers.

When the season opened in March, 1853, there were several strikes for higher wages, and the Mine Hill R.R. was tied up by a strike of its 51 employees, who demanded the wages of 1852. This line was the longest and most important of the gathering railroads, and was one of the most prosperous carriers in the country. The railroaders had misunderstood a published statement to mean their wages would be lower, and they returned when their error was pointed out. An inspection of the total payroll shows that railroad wages were averaging about as follows: Engineers, $3 a day; firemen, $1.79; conductors, $1.96; brakemen, $1.89.

High Wages Were Earned

Wages as a whole seem to have advanced in 1853, but coal demand fell off very early. By the end of May the *Miners' Journal* said shipments were declining, adding that "the increase of wages and consequent irregularity on the part of many miners has a tendency also to reduce the supply furnished by the existing collieries." That paper also asserted that the abundance of liquor and its inordinate consumption helped to cut down production. It advocated a prohibition law, which was not new, but gave it a new twist by advocating it as an economic measure rather than a moral one.

Things moved along rather evenly, and in 1854 the regular miner seems to have averaged about $2 a day. The following naïve statement in the *Miners' Journal* of April 29, 1854, is illumiating:

"A coal operator has just informed us that he has two miners in his employ who are earning $3 a day cutting coal—it is true they work from 12 to 13 hours a day, but it only shows what can be done by steady men, who understand the business of mining."

But in 1855 there would have been a different story. With the coming of spring coal was down from $1@ $1.25 a ton. The old remedy of cutting wages was applied, and in March workers at New Mine and other openings on the West Branch went out. Unfortunately, mob violence and hooliganism flared up. John Beveridge, foreman at Beury & Brooke's Branchdale mine, was attacked by a mob, and the militia, hurriedly called out, arrested 28 men. In April, strikers at the Murphy mine put the torch to a block of colliery houses, and in May a gang of ruffians beat the men who remained at work in the Woodville mine. Then a peace was patched up, and production was resumed at such a rate that when the season closed Schuylkill had hung up a new record, with shipments considerably over 3,500,000 tons, or nearly 54 per cent of all the anthracite shipped that year.

It is surprising to read that, after establishing a new record and having its biggest year, the Schuylkill trade

Modern Mine Village Near Pottsville

These are modern 7-room-and-bath dwellings provided with central heat, electric light, hot and cold water, concrete foundations and walks and each house is erected on a sizable plot of ground affording room for gardening. The old shack of former days has now practically disappeared from the coal regions.

was shrouded in gloom. It was publicly said that despite heavy shipments, nobody had made any money, and that the winter months would see a total cessation of activity, save for deadwork such as repairs or gangway and tunnel driving. It was freely predicted that want and even misery were to be the consequences of this record-breaking season.

It was things like this which, from today's view, justified the complaints of the workers. Aside from the lien law and company store issues, it seems that most of the troubles started by the mine workers to this date had to do with wages—not so much demands for increases as demands that there be no reduction or that there be a return to the wages of some favorable year. Many fanciful notions have been read into the history of these early labor struggles by modern theorists, but it seems perfectly clear that, up to that time, the mine workers never started a fight as an exhibition of "class consciousness," nor for the purpose of gaining "industrial status" or "recognition" for any organization or set of men. What they were really after in a majority of cases, if the contemporary records can be trusted, was stabilized wages, fixed on a satisfactory basis. But an industry which could not stabilize itself could not stabilize wages, and the struggles continued.

Pulverized Coal Burners Soon May Be Used on Steamships

Recent preliminary tests, at the Philadelphia Navy Yard, on pulverized coal-burning equipment are said to have proved unusually successful and members of the Fuel Conservation Committee of the U. S. Shipping Board believe that a method finally has been found by which this type of burner can be adapted to Scotch marine boilers. Plans now are being made to install the equipment on a Shipping Board freighter operating in the North Atlantic service.

It is believed that this vessel will be so equipped within the next six months. The burner also is to be installed on a tugboat now in operation on the Mississippi River. Complete tests of the apparatus to determine the exact efficiency possible under varying loads, and its reliability over the long periods of time that would be encountered in actual service, will be made early this month.

The Fuel Conservation Committee of the Shipping Board long has been endeavoring to find a cheap substitute for the relatively expensive fuel at present used on government vessels. Several pulverized coal burners have been tested at the Philadelphia Navy Yard and the results obtained by the use of the Peabody Engineering Co.'s apparatus are the most gratifying. The coal which can be satisfactorily used in this type of burner is said to be of the poorest and cheapest quality. One indication of the savings which can be effected, if the equipment proves practicable, lies in the fact that the coal used in the Philadelphia tests cost approximately 90c. per ton. This would represent a saving of $2 or more per ton at the present cost of bunker coal.

Pulverized Coal Rivals Oil

If successful, the pulverized coal apparatus may revolutionize the fuel-burning systems now used on shipboard. The tendency in recent years has been to use oil because of its cleanliness and ease of handling. Fuel-oil prices recently have advanced to such an extent, however, that many men of prominence in the shipping industry have stated that they would revert to the use of coal if a more efficient means of handling and burning it could be devised.

Across-the-Line Starters Require Care

For a long time it was generally conceded that polyphase alternating-current motors larger than 5 hp. should be equipped with some type of reduced-voltage starter. A state of development has been reached where many engineers consider that such a rule is not generally justified, when the size of the average motor is compared with the capacity of the modern power system and distribution lines. According to *Power* experience has shown that this conclusion is based on sound engineering. However, it is not advisable to attempt connecting alternating-current motors directly across the line at starting unless the factors influencing such applications are thoroughly understood.

System capacity has generally been considered one of the factors determining how large a motor can be connected directly to the line without causing an objectionable disturbance. Of equal importance is regulation. A comparatively small system with good regulating characteristics might be less disturbed by starting a given motor than a much larger one that has poor regulation. On one system of about four thousand kilowatts capacity, 2,200-volt motors of 500 hp. rating have been started by connecting them directly across the line. There is not sufficient experience to warrant the conclusion that this is good practice in all cases.

Not only the motor's speed, but also the condition of its windings, must be considered. Slow-speed alternating-current motors have high internal reactance, which tends to limit the starting current to reasonable values. A synchronous motor that operates at 100 r.p.m. takes no more current at starting, when connected directly across the line, than a motor having a speed of 1,000 when started on 60 per cent normal valtage. When starting on full voltage, the inrush current in the windings sets up magnetic forces that tend to distort the coils. Unless the end windings are properly supported, as they are in many of the modern machines, these magnetic forces may permanently distort the coils or cause insulation failures.

Many Factors Influence Connection

The load connected to the motor and the methods of connecting have an influence upon the success attained with starting an alternating-current motor by connecting it directly across the line. A lightly loaded direct-connected motor might start with little distress to the power system or the driven machine. On the other hand, if the motor is connected to a high-inertia load, through a chain drive, the results may be objectionable to the power source and to the drive or machine.

Connecting the motor directly across the line simplifies the starting process, reduces the cost of starting equipment and, when properly applied, cuts down the maintenance costs. But care must be exercised in making these applications, or serious trouble may occur costing more than any saving in the price of starting equipment. Reduced costs and simplification are desirable qualities, but not at the price of increased maintenance.

Locomotive Smoke Control

During the past 10 years standardized equipment has been designed to reduce the discharge of smoke from locomotives. This includes multiple-tip blowers, quick-opening blower valves, and induction tubes in the sides of the fire box to supply the air necessary for complete combustion. Such equipment is simple, is easily added by ordinary boiler makers, and has been discussed in detail in the proceedings of the various railway associations.

According to the U. S. Bureau of Mines, any locomotive, properly equipped with standardized smoke-abatement devices, can do its required work without making dense smoke. Experience over a number of years has shown that passenger, freight, suburban, transfer, and switching engines can operate successfully with minimum smoke production and are doing so in the Middle West. Locomotives can be and are operated in all classes of service with smoke densities below 7½ per cent, which generally reduces this type of smoke to a negligible quantity. Many railroads have found that the savings resulting from the reduction in smoke discharge more than offset the cost of the necessary equipment and instruction to the engine crews.

Does Pneumatic Separation Oxidize the Coal?

Spontaneous Oxidation of Coal Not Attributable to a Single Factor—Pneumatic Separation Does Not Oxidize the Coal or Affect Its Coking Properties — Air-Cleaned Coal Specially Suited to Byproduct Coking

By Frank J. G. Duck
Assistant Editor, *Coal Age*, New York, N. Y.

IN THE EARLY DAYS of the pneumatic separator, the opinion was expressed that chemical action might possibly result from cleaning coal by this process. Oxidation of the fuel with a consequent reduction in its thermal content and, perhaps the destruction of its coking properties, were among the possibilities mentioned most prominently. Rumors that such effects might logically be anticipated were at once given fairly broad circulation by some of the advocates of wet washing and in many quarters such beliefs still persist. Certain original data on the effect of oxygen on coal during pneumatic separation will here be presented.

All chemical reactions require either the application or extraction of heat for their initiation and completion. Therefore, the statement that certain constituents of a coal are, or may be, oxidized solely by dry air under slight pressure as in the pneumatic separator does not seem to be a logical one from the chemical viewpoint. Furthermore, the various volatile constituents of the coal, usually hydrocarbons of more than one series, do not exist in appreciable quantities at normal temperatures. Therefore, they are not present in sufficient amount, in a bed of coal on an air concentrator, to make possible any serious decrease in the heating value of the coal through their oxidation.

The exact natures of the chemical changes, if any, produced by oxygen in coal are not yet clearly understood although these changes have been the subject of extensive and extended research for some years. For instance, it is not yet definitely known just how the oxygen associates itself with the coal—whether a chemical reaction occurs or whether it is merely a physical attraction, the oxygen being either absorbed (taken into the pores of the coal) or adsorbed (held on the surface), without chemical change of any sort. It is known, however, that temperature and time are factors of primary importance in the spontaneous oxidation of coal.

COALS VARY IN OXYGEN ABSORBTION

There is a wide variation in the rate of oxygen absorption by coal, for this depends upon the kind, size and temperature of the material, the amount of moisture and also to some extent, upon the percentage of pyrite present. The high-oxygen coals of the West absorb oxygen more readily than do the fuels produced in the Eastern fields. Fine particles, because of the greater active surface presented by them are more quickly oxidizable than lumps. Furthermore they oxidize at much lower temperatures. At temperatures below 100 deg. F., the oxygen absorption by dry coal is slow, but proceeds rapidly at higher temperatures.* Moisture, whether textural (in the pores of the coal) or surface, tends to increase the rate of oxygen absorption and also the oxidation of pyrites, but this latter process requires the presence of water as a catalytic agent.

It is evident, therefore, that the problem of coal oxidation is highly complicated and one that cannot be directly attributed to any one factor or agency. It would further appear that air or oxygen, of and by itself, exerts no appreciable harmful chemical or physical effect on coal during pneumatic separation. The question as to whether or not coal subjected to pneumatic flotation is oxidized during this process was submitted to the manufacturers of apparatus utilizing this principle. Their opinions, substantiated in one instance by data from actual tests, confirm the statements just made.

Figures presented in the following tables were furnished by J. E. Machamer, engineer of the Roberts & Schaefer Co., manufacturers of the Arms air concentrator, and are representative of results obtained on this machine under actual operating conditions.

Table I—Heat Content of Raw and Air-Cleaned Coals

Steam	Size	Raw Coal B.t.u. per Lb.	Air-Cleaned Coal per Lb.
Pittsburgh No. 8.....	2 in. screening.....	13,400	13,867
Illinois No. 6.....	3 in. screening.....	11,045	12,084
Illinois No. 6.....	3 in. screening (Unit coal)	14,150	14,279
Illinois No. 6.....	3 in. screening.....	10,652	11,868
Illinois No. 6.....	3 in. screening (Unit coal)	14,129	14,113
Miller "B".....	2½ in. screening.....	14,100	14,300
C'-Upper Kittanning.	2½ in. screening.....	13,300	14,000

In Table I is given the thermal content of several coals in the raw state and after air cleaning. It will be noticed that, in every case, the heating value of the cleaned coal is higher than that of the raw product. This is naturally attributable to the reduction of the ash content in the cleaned fuel with a corresponding increase in the combustible matter. The only true comparison is on a "unit coal" basis. "Unit coal" is a comparatively recent designation and refers to the pure coal substance contained in a representative sample. It is obtained from the ordinary proximate analysis by allowing for ash, moisture and sulphur as well as the inert portion of the volatile matter. Unfortunately, the proximate analyses of all the coals in Table I were not determined. But in those cases where this was done, the B.t.u. content of the "unit coal" shows but little advantage in favor of either the raw or the cleaned material. This would seem to confirm the belief that there is no perceptible change in the basic thermal content of coals cleaned on the pneumatic separator.

Recently, a company coking a high-volatile coal became interested in the Arms air concentrator. Because of the nature of the coal, this firm was afraid that shipment of a carload to the experimental plant for cleaning, and its subsequent return for coking, would result in so much exposure that the value of any facts determined at the experimental plant would be obscured or

*For further information with reference to the effect of oxygen on coal, the reader is referred to the article "Coal and Oxygen," by S. W. Parr and F. B. Hobart, Transactions of the A.I.M.M.E., 1925, Vol. LXXI, p. 216.

nullified. A test unit was therefore erected at the mine, and the coal cleaned by it when carbonized gave an increase in coke of blast-furnace size amounting to 1 per cent with a corresponding decrease in domestic coke and breeze. Furthermore, the coke made from the cleaned coal was slightly harder than that from the raw material.

For purposes of comparison, a complete byproduct and coking test was run a short time ago on large samples of a raw coal and the same material cleaned on the pneumatic separator. To make certain that any

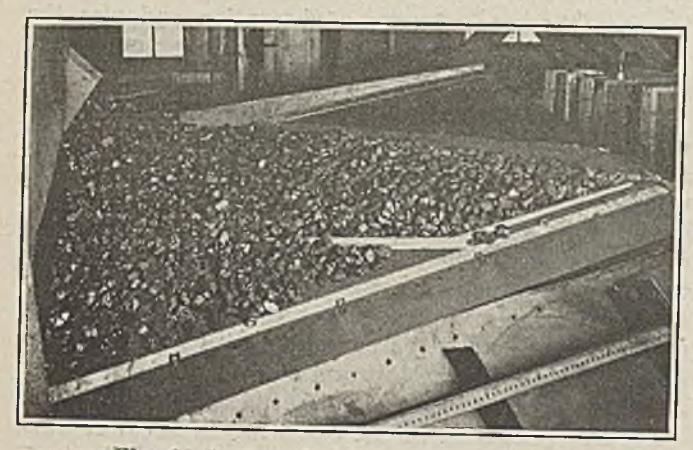


Fig. 1—Action of a Pneumatic Separator

This view shows the deck of the Arms air concentrator cleaning 2x1½-in. bituminous nut coal. To obtain this photograph it was of course necessary to stop the separator, but the pieces of coal and slate are in the same positions they had assumed when the table was in operation. The "refuse end," at the right, is readily distinguishable from the "coal end" at the left.

oxygen which might unite with the coal would have ample opportunity to do so, the material was run over the separator six or seven times. Under normal operating conditions, the coal is subjected to the action of the air on the table for such a short time that appreciable oxidation is impossible. Actual tests have shown that with nut coal the pieces are on the concentrator only from 6 to 10 seconds. With fine coal, the time on the table varies from 20 to 30 seconds.

The proximate and ultimate analyses of the raw and cleaned coals are given in Tables II and III respectively.

Table II—Proximate Analysis of Raw and Air-Cleaned Coals

Constituent	Raw Coal	Air-Cleaned Coal
Volatile matter, per cent	34.75	35.59
Fixed carbon, per cent	55.54	57.42
Ash, per cent	9.71	6.99
Sulphur, per cent	2.37	1.82
B.t.u. per lb	13,925	14,421

Table III—Ultimate Analysis of Raw and Air-Cleaned Coals

Constituent	Raw Coal	Air-Cleaned Coal
Carbon, per cent	76.23	79.09
Hydrogen, per cent	5.04	5.24
Oxygen, per cent	5.15	5.36
Nitrogen, per cent	1.50	1.50
Sulphur, per cent	2.37	1.82
Phosphorus, per cent	0.009	0.009
Ash, per cent	9.71	6.99
Fusion point of ash	2,405 deg. F.	2,465 deg. F.

The cleaned coal is obviously superior in every respect. Attention is particularly called, in Table III, to the fact that the increase in the hydrogen and oxygen content of the cleaned product is nearly the same, and that there is no change in the nitrogen content. This is a seeming indication of the complete absence of oxidation or oxygen absorption, since the increase in oxygen and other constituents can properly be attributed to ash reduction in the cleaned coal.

The analyses of the coke produced from the raw and cleaned coals are given in Table IV, and the gases resulting from the coking process are shown in Table V. As might be expected, the data favored the cleaned coal and there is nothing in the analysis of the coke and gas resulting from the coking of the cleaned coal to indicate oxygen effects of any kind.

Table IV—Proximate Analysis of Coke Made from Raw and Air-Cleaned Coal

Constituent	Raw Coal	Air-Cleaned Coal
Volatile matter, per cent	2.38	2.50
Fixed carbon, per cent	83.67	86.95
Ash, per cent	13.95	10.55
Sulphur, per cent	0.75	0.78
B.t.u. per lb	12,727	13,171

Table V—Analysis of Gas Resulting from the Coking of Raw and Air-Cleaned Coal*

Constituent	Raw Coal	Air-Cleaned Coal
Illuminants (C_nH_m), per cent	4.4	4.8
Hydrogen, per cent	54.7	54.5
Carbon monoxide, per cent	7.5	7.7
Methane, per cent	32.8	33.0
Nitrogen, per cent	0.6	0.0
Specific gravity	0.362	0.365
Cu.ft. per lb	5.062	5.333
B.t.u. per cu.ft. of gas	644.0	656.2

*Not including light oil. Calculated to oxygen-free basis.

Table VI shows additional products, not included in preceding tables, resulting from the coking process, while Table VII gives the practical yield of the various products per net ton of coal coked. There is an appreci-

Table VI—Additional Products Obtained from Raw and Air-Cleaned Coal by Distillation

Constituent	Raw Coal	Air-Cleaned Coal
Water, per cent	4.490	3.375
Carbon dioxide, per cent	0.380	0.325
Hydrogen sulphide, per cent	1.445	1.350
Naphthalene, per cent	0.415	0.415

able decrease in the "impurities" such as water, carbon dioxide and hydrogen sulphide, resulting from distillation of the air-cleaned coal. It is true that the yield of coke from the cleaned product is 0.5 per cent less

Table VII—Practical Yield of Various Products, per Net Ton of Coal Coked

Constituent	Raw Coal	Air-Cleaned Coal
Coke, lb	1,439	1,420
Gas, cu.ft.*	10,123	10,666
Ammonium sulphate, lb	23.34	23.34
Tar, gal	10.20	12.39
Light oil gal	4.40	4.71

*Including carbon dioxide and hydrogen sulphite at 60 deg. F. and 30 in. mercury

than that from the raw coal, the yields being 71 and 71.5 per cent respectively. However, as shown in Table IV, the fixed carbon content of the coke made from the pneumatically cleaned coal is 86.95 per cent, while the coke from the raw coal contains only 83.67 per cent of this constituent. In the present instance, these latter figures are of more practical significance than the difference in yield. All other data in Table VII favor coking of the air-cleaned coal.

Only one conclusion is possible as a result of a careful study of the foregoing tables—that there is no impairment of the coking properties and no apparent

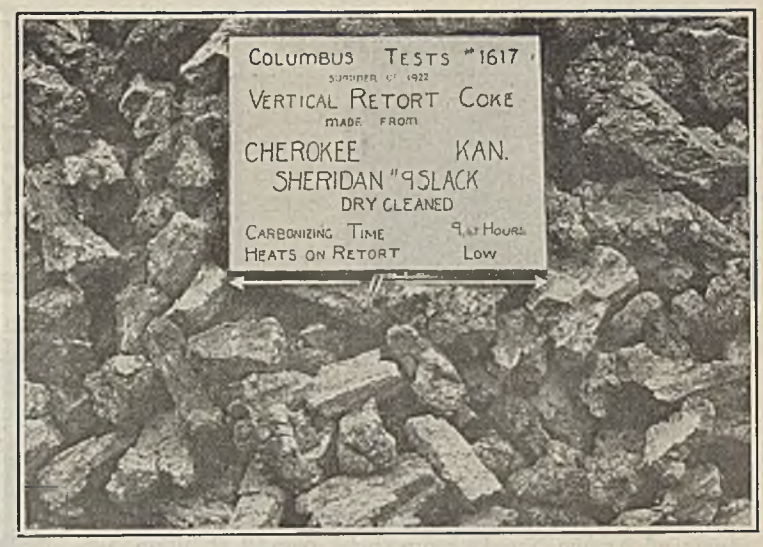


Fig. 2—Vertical Retort Coke Made from Untreated and from Air-Cleaned Coal

As indicated on the cards in the above illustration, this coke was made from Cherokee, Kansas, Sheridan No. 9 slack. These tests were conducted in vertical coking retorts at the pneumatic coal separation laboratory of the Ohio State University at Columbus. The coke on the left was made from uncleaned coal while that on the right was obtained from the same coal cleaned on the American pneumatic separator. Compare the structures of the two cokes and note the temperatures in each case.

oxidation of the more readily volatile constituents of coals cleaned on pneumatic separators.

William J. O'Toole, general manager of the American Coal Cleaning Corp., manufacturers of the American pneumatic coal separator, confirms the conclusions drawn from the above data. His opinions with regard to the oxygen absorption of coals during pneumatic separation may be summarized as follows:

Coal may be considered as a non-porous carbonaceous substance, for its porosity is extremely low. Air is a gaseous mixture containing about 21 per cent of oxygen by volume. The air that comes in contact with the coal during pneumatic cleaning is no different, chemically, from that which we breathe, and furthermore, except during the time that it is under pressure, its physical characteristics are the same.

Air Acts on Surface Only

During pneumatic flotation, the air passes through the bed of material being treated and simply acts on the surface of the coal to lift it over the riffles on the table. After the coal has left the machine, and returned to a condition of normal atmospheric pressure, the quality and quantity of the air coming in contact with it is exactly the same as before it was treated. The coal, being practically nonporous, could not have absorbed any appreciable amount of oxygen and will, therefore, contain no more of this element than was originally present.

Treatment of coal by air is a mechanical and not a chemical action. If coal is heated and while in this condition certain gases are brought in contact with it, its chemical composition will undoubtedly be changed. But in air flotation the coal is not heated nor is it subjected to the action of heated air, and no chemical reaction is possible unless attended by the absorption or evolution of heat. Except for the impurities removed, the chemical and physical characteristics of the material are identical before and after treatment. Surface moisture, when present, is often reduced in amount because of the drying action of the air. This, however, is a physical action.

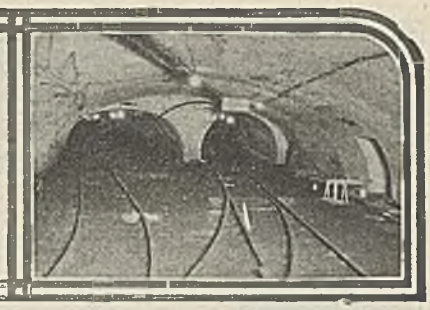
For the above reasons, Mr. O'Toole is of the belief that there is absolutely no basis for the statement that coal is oxidized, or its oxygen content increased, when it is pneumatically cleaned. With reference to the coking of coal cleaned pnuematically, and the advantages resulting from this method of preparation, he says in substance:

Moisture Is on the Surface

The pneumatic process was primarily developed in order to prepare coal in a dry state. It has long been recognized by coke manufacturers, particularly those using byproduct ovens, that nothing is quite so objectionable in its production as water in the coal. Extraneous moisture is not absorbed by the coal, as is water by a sponge, but is held on the surface. This adsorption is a physical molecular attraction between the coal and the water, and not a chemical reaction. Therefore, the reason that fine coal, after immersion in water, will contain a higher percentage of moisture than large pieces similarly treated is because the fine material presents a greater surface area to the water. The moisture content of the larger sizes of coal can be readily reduced by draining. But in the smaller sizes this can be partly accomplished only on long standing in drainage pits or bins, and complete elimination can be obtained only by the application of heat, because the fine pieces of coal are so intimately associated that they do not have an opportunity to drain readily. In practice, coal prepared by wet processes is usually shipped at once and its only chance to dry is by drainage in transit. Although the ovens are usually located at a point some distance from the mines and washeries, the rapid transportation of the coal does not permit of sufficient time for any appreciable drainage. Since the majority of coking plants do not have the necessary coal-drying facilities, the coal is usually charged with an excess of moisture.

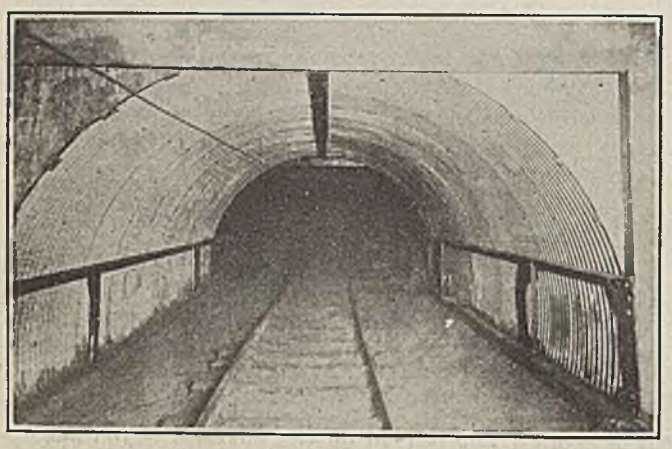
In conclusion, it may be said with certainty that there is no evidence of harmful chemical or physical effects produced in coal during the process of air flotation. It can also be stated that pneumatic separation does not in any way affect the coking properties of coals cleaned by this process. Furthormore the coals so cleaned are apparently preferable, at least for use in byproduct ovens, to those prepared by the various "wet" processes.

Underground Operation



Overcast Built of Corrugated Iron; Material Recoverable

A new type of overcast has been devised by the Standard Coal Co., of Standardville, Utah, with headquarters in Salt Lake City. The overcast is 14 ft. long and the roadway is arched with seven galvanized corrugated sheets of Armco No. 14 gage ingot iron, 2 ft. wide, set side by side. Each sheet is 12 ft. long and curved on a 6-ft. radius. The height of the overcast is 9 ft. and



Overcast Constructed Like a Culvert

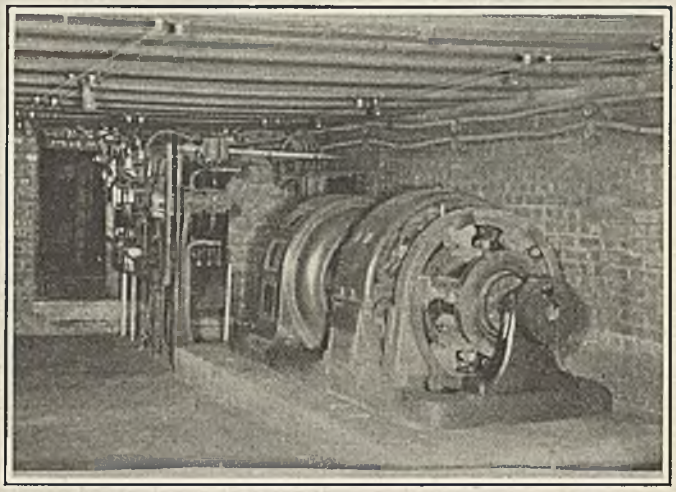
Seven strips of pure iron, corrugated and galvanized, form a common arch over the roadway. The end walls are of concrete. When the overcast has served its purpose it can be moved to another location.

its greatest width 12 ft. As the arch is in the shape of a horseshoe for a few inches above the bottom the width is a little less, but the base of the arch is hidden by the filling material. This overcast is fireproof and is said to be one-third as costly as the construction it replaced.

The corrugations make the metal strong enough to serve as a good support for overlying material and are a protection against falling rock. Such an overcast can be erected in much shorter time than is required for building one of concrete and after it has served its purpose it can be taken down and moved to another location without difficulty. As the material is corrugated it stands transportation well. The designers have applied for a patent.

Substations Distribute Load at Valier

In the Valier mine of the Valier Coal Co., in southern Illinois, three underground substations with a combined normal load capacity of 1,100 kw., have been installed. The load is thus distributed because the mine is a comparatively big producer (in excess of 6,000 tons daily) and the workings are consequently extensive. The three stations are tied together, and the direct-current end of the system is automatic inasmuch as the several stations



Interior of Substation

This is one of three substations in the Valier mine. The three stations are manually started and for this reason telephones are provided to assist in the balancing of the respective loads. And since the voice is at best poorly transmitted over underground telephone lines, booths are provided to shut out much of the noise arising from the operation of the generator equipment.

are sectionalized through the agency of automatic reclosing circuit breakers. Each branch power line is similarly sectionalized also.

The interior of one of these stations is seen in the accompanying illustration. This particular motor-generator set, of 300 kw. capacity, runs continuously at a 25-per cent overload and for short periods carries an overload of 100 per cent. As originally installed, the switchboard was located against the wall. It was moved to its present position for the sake of accessibility.

Because the converting units are started manually, each of the three stations is provided with a telephone for the exchange of information during the process of balancing the respective loads. These telephones are housed in a booth—they must be for this service.

Mine Locomotives Deserve Fair Treatment

Providing a motor with three-point suspension to increase its flexibility so as to counteract poor track conditions is an excellent provision but it is not the final consideration. The one point of lug support must be properly adjusted, states *Electrical Mining*.

If the one lug as in Fig. 1 were bolted into tight contact with the support bar, rocking of this lug on the bar would be resisted. On the other hand, undue looseness would allow the motor to rise violently when starting in one direction, and to pound down on the bar with equal violence when reversed. Such hammer blows by a heavy motor would cause weakening and final breakage of the bolt, if not of the bar. The bolt should therefore be so adjusted as to allow only the maximum rocking movement corresponding to the maximum tilting range of the axles in the frames, and no more. Usually

this adjustment can be had by first tightening the bolt snugly; then backing off the nut about one-quarter turn. The nut should then be locked with a pin which should be securely fastened.

Locking the nut in this manner is important, not only because it is positive—for safety—but also because the

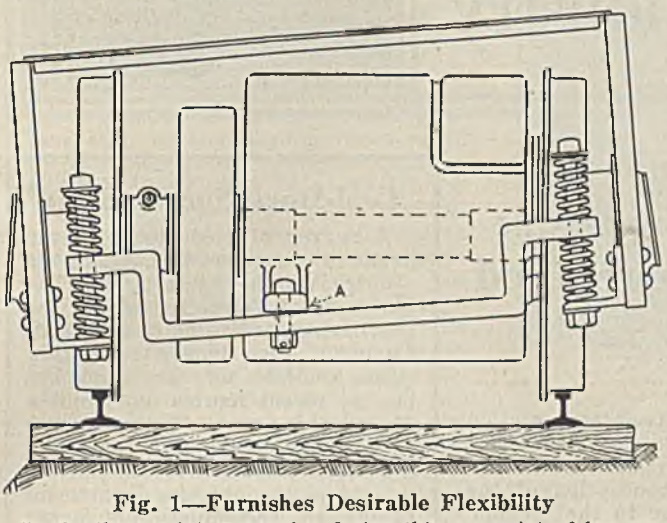


Fig. 1—Furnishes Desirable Flexibility

In the three-point suspension design this one point of lug support must be properly adjusted. If too loose the continual pounding of the motor when starting, stopping and changing speeds during travel will cause weakening and finally breakage of the bolt and possibly of the suspension bar.

use of a lock washer is not satisfactory, since in time the hardened sharp edges which make the washer effective will cut their way into the parts with which they are in contact, thus causing a weakening that may permit breakage at a time of heavy stress.

The bolt for this purpose, subjected as it is to frequent and sudden stresses, should be made of the steel best adapted to this use. And in service it should be annealed at regular intervals—every four to six months

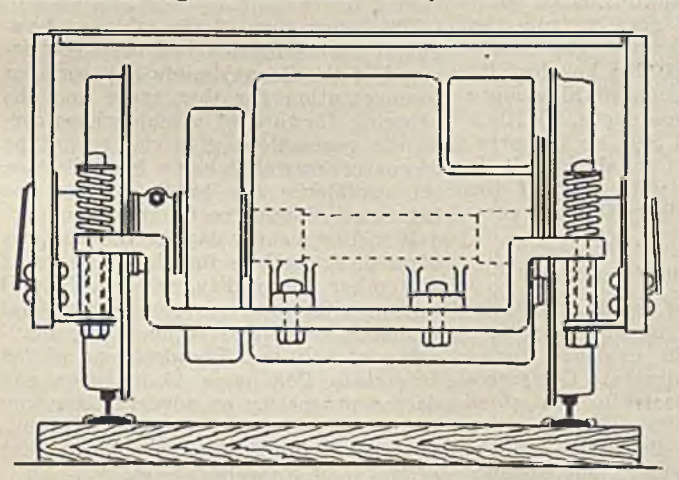


Fig. 2—Pipe Is a Poor Substitute for Springs

Springs were intended to cushion the heavy starting and stopping loads to relieve the gear teeth of hammer-like blows. Locomotives are expensive pieces of equipment and deserve better repair parts than pieces of pipe in place of springs.

—to counteract the effects of possible crystallization. Such treatment may prove to be the cure for a chronic case of bolt breakage.

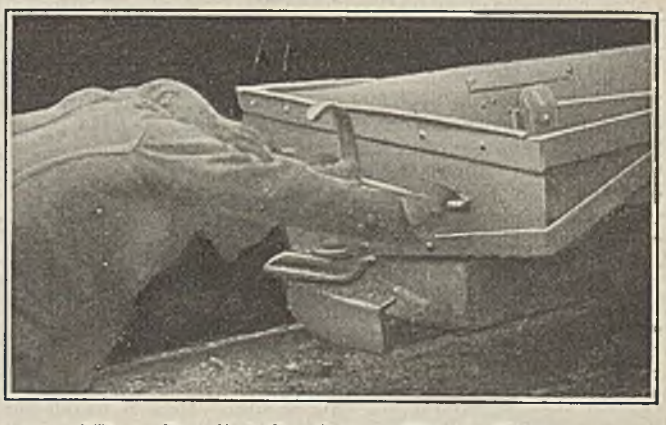
Motor support springs should never be replaced by pieces of pipe, as has been done in some mines, after the manner shown in Fig. 2. The purpose of the springs is two-fold. They cushion the heavy starting and stopping loads, thus relieving the gear teeth of hammer-like blows. They also permit the necessary flexibility for operation over the average mine track. By substituting pipe for springs the cushioning and flexibility are eliminated and gear breakages may result, as well as derailments and other troubles.

Except in case of an emergency, pipe should never be substituted for springs. And such an emergency repair should be corrected as soon as possible. Furthermore, if two or more pipes are used, they should be so placed that the motor will be free to swing with the axle as the locomotive travels over irregular or uneven track.

It is only fair to expensive mine equipment that parts be kept as nearly as possible in their original condition. And to do this well it is best to make repair replacements with parts duplicating the ones originally supplied by the manufacturer.

To Protect Car Pushers' Fingers and Head from Injury*

When cars are derailed, the rear end is tilted up, and in low coal the fingers of the man pushing the car are jammed against the roof if he has his hands on the car top. Where the roof or timbers are unduly low, it may happen that a man's hands will be crowded between roof or timber and car without any derailment whatsoever. Moreover pushers are inclined to grasp



Where Derailed Car Spares Miner's Fingers

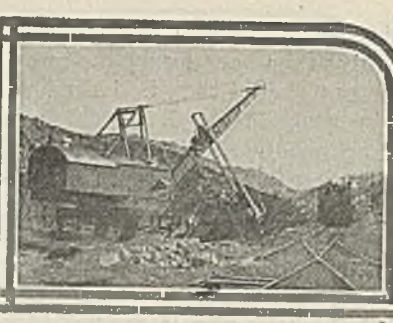
The crossbar gives the miner a grip hold at a point so low and so far from the car edges that he is protected from squeezes and abrasions with the roof and sides.

the corner of the car and in consequence on a sharp turn they may jam their fingers against a post. To eliminate, or at least reduce, these accidents the Consolidation Coal Co., of Fairmont, W. Va., has provided a short crossbar on the rear of the car for the use of those who have to push it and low enough so that the man who is crowding the car along will not be likely to hit his head in his progress. This grip thus protects not only the workman's hand from bruises but his head as well.

THE VOLUME OF ELECTROLYTE in a storage battery cell, and therefore its specific gravity, varies with the temperature, the volume increasing and the specific gravity decreasing with a rise in temperature and vice versa. When determining the true value of specific gravity readings taken with a plain hydrometer, temperature corrections must be made by adding 0.001 to the readings for each 3 deg. F. above 70 deg. and by subtracting 0.001 from the readings for each 3 deg. below 70 deg.

*A suggestion of J. J. Forbes at the National Safety Congress, Detroit.

News Of the Industry



Senate Hearing on Woods Nomination Causes Big Turnout of Coal Interests; Regional Representation Condemned

By Paul Wooton
Washington Correspondent of *Coal Age*

As this is written it seems practically certain that the Senate Committee on Interstate and Foreign Commerce will report adversely on the nomination of Cyrus E. Woods for membership on the Interstate Commerce Commission. The committee room during the hearings took on the aspect of a coal convention. Large numbers of operators from West Virginia, Virginia, Kentucky and Tennessee were in attendance.

While on the stand Mr. Woods revealed that he held $100,000 of railroad bonds, 500 shares of Pennsylvania R.R. stock, 107 shares of Pittsburgh Coal Co. stock and "about the same number of shares in the Westmoreland Coal Co." He announced that he is ready to comply with the law and divest himself of those holdings if he should be confirmed as a member of the Commission.

Senator Goff, of West Virginia, asked Mr. Woods if the Pittsburgh Coal Co. has not been "denominated as the coal trust of the United States." Mr. Woods replied that he would not call it that. Senator Reed, of Pennsylvania, who is not a member of the committee, asked Senator Goff if he would inquire of the witness if the Pittsburgh Coal Co. produces even as much as 10 per cent of the bituminous output of the country. Mr. Woods had no idea as to how much the company produces or its relationship to the total bituminous output.

See Danger in Sectional Aims

This episode, in the opinion of numerous Senators, without regard to party, is strikingly illustrative of the danger of constituting a semi-judicial commission of regional representatives. These Senators recognize that it is the most natural impulse which actuates the South, for instance, to urge the appointment of a man from that section when the Commission for years has been composed of Northern men, some of whom had little conception of the rate problems peculiar to that region, but nevertheless they believe that the usefulness of the federal rate-making body will be largely lost if the idea of sectional interest is injected further into the Commission's makeup.

The decline in the confidence and trust placed by the public in the independent boards and commissions of the federal government, these Senators believe, has come about largely through efforts to have a certain section or a certain interest represented. They point to the Shipping Board as an example of how not to select the members for such a body. Putting a dirt farmer on the Federal Reserve Board, some think, has detracted greatly from the prestige of that agency. The International Joint Commission has lost its standing and has become nothing more than a haven for lame ducks. With a couple of exceptions, who on the present Federal Trade Commission, it is asked, can compare with men of the Hurley type, who made up the first commission.

Political Pressure Deplored

The evil results of loading commissions with political mediocrities have been increasingly in evidence for a long time, but the Interstate Commerce Commission until recently has stood out as an exception. Since its creation in 1887 it has been distinctive, on the whole, for the character, independence and ability of its members. The very importance of its work has deterred every President from yielding to political pressure in making nominations for those positions. A member once appointed was reappointed as a matter of course. Tenure of office took on the sureness of the federal judiciary. Until lately there was only one case of a refusal to make a reappointment. That was when President Wilson declined to reappoint Commissioner Harlan. That action, however, was taken on the ground that his health was such as to preclude the carrying out of his duties.

Since the war, however, ominous signs of political jobbery have made their appearance, in the opinion of some, at least. The precedent of reappointment was broken. Ugly rumors of political trading attended the appointment of Commissioner Woodlock. Certain Senators, it is asserted, were adamant against his confirmation until certain understandings could be had as to the filling of the next vacancy.

Public Confidence at Stake

The latest turn of the scheme of regional representation has been the demand of the Pennsylvania Senators for representation for that state and the bringing forward of a man whose corporate connections give rise to a type of controversy that has a bad effect on the confidence the public has in the Interstate Commerce Commission.

It will be a sorry day for the shippers of coal, as well as for the shippers of any other commodity, when a federal agency with such power over national economic conditions is made the plaything of politics. The decisions of the Interstate Commerce Commission can decree prosperity or adversity for any industry or for any section. Its importance is entirely comparable to that of the U. S. Supreme Court.

It is just as important to have the Interstate Commerce Commission above the special interests of any one business or any one section as it is to have the Supreme Court above the special interest of any one litigant. The usefulness of the Commission depends upon public confidence. The only way that it can be maintained is to turn a deaf ear to the demands of politicians and to select its membership from those whom everyone recognizes as being above the influence of section or industry. Thus argue Senators of high standing and it is obvious that they are reflecting widely held views.

Mr. Woods is recognized as an honorable and able man. He displayed un-

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.*

Coal-Stock Survey Soon

A survey of coal stocks in the hands of consumers throughout the country will be made by the Department of Commerce within the next month, according to Secretary Hoover. Mr. Hoover feels that stocks available now are ample but has no recent figures on supplies. Should the survey disclose an unsatisfactory distribution of existing stocks Mr. Hoover intends to take steps through the department to urge the accumulation of larger stocks by consumers before the Jacksonville wage agreement expires on March 31.

usual intelligence and capacity at the court of the Mikado. There are many ways that the Republican Party can use him, but the general opinion is that the Interstate Commerce Commission is not the place for him.

Reading Lease of L. & N. E. Argued Before I.C.C.

Arguments for and against the proposed lease of the Lehigh & New England R.R. by the Reading were heard by the Interstate Commerce Commission at Washington, Jan. 7. Henry Wolf Bikle, appearing for the Pennsylvania, said the lease was opposed to the public interest because it tends to suppress competition between the Lehigh & New England and the Lehigh & Hudson, an almost parallel line. The proposed lease, he said, would tend to concentrate on the Reading and affiliated companies approximately 33 per cent of the anthracite traffic of the country.

Mr. Bikle pointed out that the Reading in addition to its stock ownership in the Lehigh & Hudson combined with the stock interests in the Central Railroad of New Jersey will, together with stock interests of the Lehigh Coal & Navigation Co., give it substantial control of the Lehigh & Hudson.

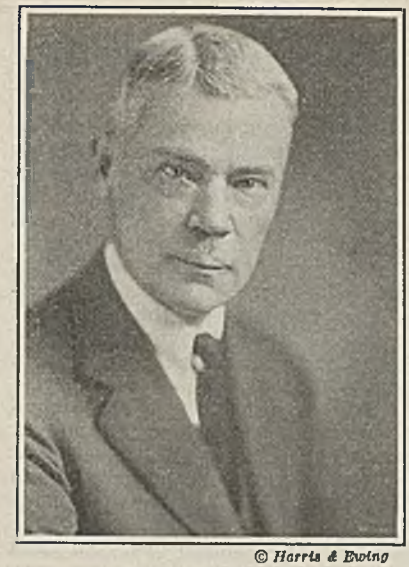
"It will thus have control of these two important links in the trunk line and New England territory, and since the Reading itself is controlled through stock ownership by the Baltimore & Ohio and the New York Central, the most important competitors of the Pennsylvania, the interests of the latter will be seriously prejudiced by the proposed lease, since the controlling interests in the Reading would probably be unwilling to allow the Pennsylvania to use the route except on very onerous terms," Mr. Bikle declared.

Joint Ownership Urged

He said that the Eastern railroad executives who submitted a so-called four-system plan to the Commission had recommended that the Lehigh & New England should be jointly owned by the four systems, thus preserving its neutrality.

W. L. Kinter, general solicitor of the Reading company, supporting the lease, told the Commission that no public body had intervened in the case; that the Western Maryland Ry. had withdrawn its opposition when the proposed development of through routes was explained; that the New Haven railroad apparently was satisfied with assurances given the Commission as to the maintenance of open routes on the leased line, and that the record justified the statement that there is no opposition to the lease from any community public body, shipping interests or railroad except only the Pennsylvania R.R.

Mr. Kinter pointed to great economies which he claimed would result from common operation of the Reading and the Lehigh & New England. He said there would be direct saving to the carriers and to the public of $476,987, and that in addition there would be other economies.



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Cyrus E. Woods

On account of his railroad and coal-company affiliations in Pennsylvania, the nomination of the former Ambassador to Japan for membership on the Interstate Commerce Commission aroused a storm of protest from Southern operators.

Barnum to Address A.I.M.E.

Walter Barnum, president of the National Coal Association, will address the annual meeting of the American Institute of Mining and Metallurgical Engineers, to be held in New York City, Feb. 14-17. The address of Mr. Barnum is programmed as one of the five "high lights" of the gathering.

Another interesting number of the program is the report of the Coal and Coke Committee, headed by Howard N. Eavenson, on the effect of trends in gas manufacture on the coal industry. This report will deal with the use of coal for the manufacture of water gas, the suitability of Western coals for gas manufacture, mixing coals for gas manufacture and the manufacturing of gas for house heating.

Among those who are listed for discussion of this report are C. A. Lemn, chief chemist of the Consolidated Gas Co., New York; W. H. Fulweiler, chief chemist of the United Gas Improvement Co., Philadelphia; R. B. Harper, chief chemist of the Peoples Gas & Coke Co., Chicago, and a number of college professors, including R. T. Haslam, of Massachusetts "Tech."

Remits Contempt Penalty

Relying upon their pledges not to violate orders of the court in the future, Judge I. Grant Lazelle has remitted the sentences of Sanford Snyder, Ish Barnes and Porter Bennett, local organizers and leaders of the United Mine Workers in Monongalia County, West Virginia, which he had imposed last spring for contempt of court.

Snyder and Barnes were under sentence of thirty days in jail with a fine of $200. Bennett had been sentenced to serve ten days in jail and to pay a fine of $50. All three men had been found guilty of violating the provisions of an injunction order granted by Judge Lazelle to the Monongahela Valley Coal Co., which leased the plants of the Gilbert-Davis coal interests.

Siler Coal Properties Sold To Drennen Interests

Five mines in the Dorothy seam on Big Coal River in West Virginia and a sales agency, comprising the entire coal interests of T. E. B. Siler, of Charleston, W. Va., have been taken over by the Southern West Virginia Coal Co. at a price of $2,400,000, according to an announcement by J. L. Siler, son of the president of the Coal River mines. It is understood that other mines in the Coal River region will be taken over by the Southern West Virginia company.

The Southern West Virginia Coal Co. was recently organized, with Everett Drennen, of Huntington, as president. It was said that the company was organized for the purpose of purchasing the Siler interests and of combining them with other large mines working the Dorothy seam. Approximately $7,000,000 will be involved in financing the new organization.

The sale of the Siler interests includes the Seng Creek mine, the Marsh Fork and Birch Fork mines, the Silush mine and the Vandale mine, together with the Siler & Siler Coal Sales Agency. All of the coal sold from the Big Coal River mines has been handled by the Siler & Siler agency.

The new concern has approximately $600,000 with which to develop and improve the properties acquired, and developments to increase capacity are planned. The Siler mines previously had a monthly payroll of approximately $150,000.

Sale of the property was negotiated in New York. All of the mines sold were organized by T. E. B. Siler, who has been actively connected with the coal business for the past 14 years, and have an annual output of 500,000 tons. The elder Siler was president of all of the mines while J. L. Siler was sales manager.

It is the intention of Mr. Siler and his son to remain with the new organization and continue to handle the sales for the Siler mines only.

Oral Argument in Lake Case To Be Heard Feb. 9

Oral arguments in the lake cargo case will be heard by the Interstate Commerce Commission in Washington on Feb. 9 and 10. These dates for the arguments were set to accord with the extension of time granted by the Commission for the filing of briefs. Originally Jan. 17 had been fixed as the date for filing of the initial briefs. Counsel for the Southern carriers and the Southern operators, however, asked that more time be allowed.

Initial briefs in the case now are to be filed Jan. 25, while reply briefs by the Pittsburgh operators and others in the western Pennsylvania and eastern Ohio districts are to be filed by Feb. 5, or four days before the oral arguments begin.

The assumption is that if Cyrus E. Woods of Pennsylvania is confirmed as a member of the Interstate Commerce Commission, he will not participate in the decision in the lake cargo coal case.

Recent Economic Progress Gives Hope for New Year, Says Secretary Hoover

"Opinion on the new year's economic prospects," says Herbert Hoover, Secretary of Commerce, "can only be based on the economic currents already born of the old year. New and unknown currents will enter in the new year, so there is no such thing as assured economic prophecy.

"No one will deny that 1926 has shown the highest total production and consumption of industrial commodities of any year in the history of the United States. Except in the textile industry and parts of the coal industry, it has been a year of high degree of employment, which has been accompanied by the highest peak in real wages, because wage income for the country as a whole has slightly increased and cost of living slightly decreased during the year.

"Manufacturing, the service industries, and commerce generally have continued to improve their methods, to reduce costs, and to improve services. In aggregate each industry appears to show substantial profits except the textile and some parts of the coal industry. . . .

"Taking the foreign field as a whole, it shows continued progress toward balance of budgets; reduction of floating debt; greater stability in currency; and somewhat diminished unemployment. The most important exception has been the results of the British coal strike, which left the world poorer by its interruption to the progress of that country, but this is now happily over. Russia shows some economic improvement; and China, due to international trade relations, still continues below normal.

No Inflation of Commodities

"Combining all foreign and domestic tendencies with which we enter the new year, while some of them are not so good as we could wish, others are most hopeful. To those who are interested in the movement of the business cycle, it is worth remarking that we have had no inflation in commodities, as prices have decreased rather than increased during the year. Moreover, the elasticity of credit through the Federal Reserve System, the absence of undue stocks of commodities, the greatly enlarged information services of the country and wider understanding (and thus better common judgment and caution) are all protections against violent movements, such as we experienced in former times.

"The nation is making economic progress. Some areas lag behind others, and discontent with the lag is an assurance of a lively sense of initiative and the best promise of remedy. Each individual tests the question of prosperity by his own setting and naturally applies his own test to his views of the economic state of the nation. If we use the more precise term 'economic progress' we find we have per capita as the result of the year 1926 more and better homes, more electric lights and power, more transportation, more roads, more substantial buildings, more radios and more automobiles, more savings, more life insurance and more of a lot of things.

"Altogether we enter the new year with a job in prospect for most everybody, with the whole nation better fed, better housed, and better clothed than any other nation. The large disappearance of poverty in the chronic sense should make us more sensible to the remedy of misfortune in the individual sense, and the high recovery of industry and commerce from the losses of the war should make us more sensible of the needs of agriculture."

Extinguish 30-Year Fire In Ohio Mine

The fire in a portion of Mine No. 3 of the Sunday Creek Coal Co., near Corning, Ohio, which had been burning for 30 years, has been extinguished, according to a statement given out by O. S. Newton, superintendent of mining of the company. The first serious attempt to control the fire was started four years ago when a wall was built around the burning area and it was sealed.

For the last two years it was believed that the fire had burned out, but the sealed portions were not disturbed until recently, when an exploration of the mine was made and it was found that the fire was completely extinguished. An area of approximately 150 acres was burned.

Operations at Mine No. 8, which adjoins the property, will be pushed in the direction of the burned area. The seam destroyed was about 8 ft. thick and the loss cannot be estimated. A considerable amount of coke was found on entering the mine. Mr. Newton reports that the fire was not started during a strike of 30 years ago, as was that at the New Straitsville mine, but was purely accidental.

Urges Coal-Mine Safety

The twentieth annual meeting of the American Association for Labor Legislation, held at the Statler Hotel, St. Louis, Dec. 28-30, was devoted almost entirely to the discussion of safety and welfare of labor. "Present Needs in Coal Mine Safety," was given by Daniel Harrington, Chief Engineer, Mine Safety Division, Bureau of Mines.

In his address Mr. Harrington recommended the installation of permissible mining machinery of all kinds, closed lights, and surface fans for ventilation through bratticing methods. He also recommended that shotfirers, firebosses, foremen and superintendents be required to have a certificate of competency after having passed an examination as to knowledge of up-to-date practice as to safety in coal mining. There also was a recommendation that those using flame safety lamps for testing purposes should have their eyes examined at least once in six months to ascertain whether they are able to detect non-explosive mixtures of methane in air.

Hoover Disclaims Connection With Parker Coal Bill

Regarding the Parker coal control measure, which is before the House Committee on Interstate and Foreign Commerce, Secretary Hoover told Congressmen Kendall, Phillips and Swope, of Pennsylvania, and Strother, of West Virginia: "I have never read the bill." He stated that neither he nor the President was promoting a movement to unionize the bituminous industry. However, Mr. Hoover stated that both he and the President favored an agreement, similar to that which prevails in the anthracite industry, in that section of the bituminous industry which is now unionized.

The Congressmen discussed with the Secretary of Commerce the potential capacity of the non-union fields of the country, with particular reference to increased utilization of that capacity to fuel the entire nation should an emergency ever arise.

Secretary Hoover's statement that he is unfamiliar with the provisions of the Parker bill is proving a bit troublesome to proponents of coal legislation who have based their advocacy of the Parker control bill on the ground that the measure was the handiwork of Mr. Hoover.

The House Committee on Foreign and Interstate Commerce was to vote on the bill this week, and Chairman Parker has been making an eleventh-hour appeal to his colleagues to support the bill which bears his name. He even went so far as to ask members of the committee who decline to support coal legislation to be absent from the committee meeting; in other words, if they wouldn't support the bill by their vote, to make it possible, by their absence, for proponents of the measure to gain a majority, so the bill could be reported to the House.

Railroad Fuel Consumption Lower; Price Rises

Class 1 railroads of the United States consumed 8,973,390 net tons of coal in train locomotives in October, 1926, according to the monthly report of the Interstate Commerce Commission. This is a decrease of 16,350 tons from the total for the corresponding month of last year.

The average cost per net ton, including freight, of such fuel in October, last, was: Eastern district, $2.63; Southern district, $2.12; Western district, $2.95; United States, $2.62. The difference in the average for the country as a whole from the preceding month was 3c. increase, and from October, 1925, 3c. decrease.

Orders 39 Byproduct Ovens

The Koppers Co., Pittsburgh, Pa., has received a contract from the Michigan Alkaline Co. to construct 39 Becker type byproduct coke ovens with complete equipment for recovery of benzol and other byproducts and for handling coal and coke. The plant will be built at Wyandotte, Mich., and will have a capacity of 350,000 tons of coal a year.

Ohio Operators Demand Competitive Scale; Seek Parley in Northern City

The Ohio Coal Operators' Association, at an extended session held in the Neil House, Columbus, on Jan. 6, outlined the policy that will be followed in the wage negotiations with the United Mine Workers, which will begin Feb. 14. The meeting was attended by about 70 operators representing approximately 80 per cent of the tonnage in the Buckeye State. S. H. Robbins, of Cleveland, president of the association, presided and took a prominent part in the deliberations.

Much opposition was expressed to the plan of John L. Lewis, president of the United Mine Workers, for holding the wage conferences at Miami, Fla. There will be a strong movement to have the conference held in a Northern city and many of the operators favor Columbus as the logical location.

Opposition also developed to meeting with the operators from the other three states in the Central Competitive Field and it was openly stated that Ohio could accomplish more by negotiating with the miners as a state and refraining from co-operating in the competitive district.

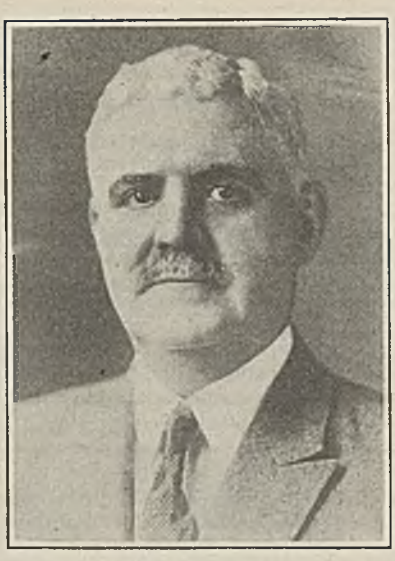
The policy as agreed upon is expressed in the following resolution: "If the mines of Ohio are to be operated after April 1, 1927, under contract with the United Mine Workers of America, any scale negotiated with them at the coming joint conference, Feb. 14, must necessarily be entirely competitive and permit of the production of coal in the mines of Ohio at a cost which will allow the Ohio industry to sell its coal in competition with coal from other districts which have captured markets formerly enjoyed by and properly belonging to Ohio. Co-operation on the part of the mine workers looking toward greater efficiency is altogether essential."

Would Modify Jacksonville Pact

Speakers at the meeting stressed the necessity of obtaining concessions from the Jacksonville scale if the Ohio industry is to survive. One speaker asserted that Ohio had lost approximately 30,000,000 tons of lake coal through the lower prices set by West Virginia and Kentucky operators, favored by non-union scales.

Members of the committee to meet with similar committees of operators in Chicago the week of Jan. 17 were named as follows: Southern Ohio field, John S. Jones, president of the Sunday Creek Coal Co., and George S. Jones, president of the George S. Jones Coal Co., of Toledo; in the middle field, William H. Haskins of Coshocton; in the Cambridge field, A. A. Augustus, of the Cambridge Collieries Co., Cleveland. Members from the eastern Ohio district will be named by the Eastern Ohio Coal Operators' Association in a short time.

Some operators pointed out that the course of action which looked the most feasible at this time was to meet with the other operator committees at Chicago and in case their proposition was not satisfactory, withdraw and seek to negotiate with the miners as a state.



Michael Gallagher
New chairman of Pennsylvania Coal Co.

Sentiment was expressed that John L. Lewis should be impressed with the fact that the four-state competitive district has passed out of existence. It was pointed out that western Pennsylvania operators withdrew from the group more than a year ago and that Illinois operators also followed that example, preferring to make their own scale arrangements with the miners. It is known, however, that John L. Lewis and other officials of the miners' union will insist that the provision of the Jacksonville scale calling for the scale meeting Feb. 14 be carried out.

Gallagher Made Chairman Of Penna. Coal Co.

Michael Gallagher, recently appointed to supervise all the coal properties acquired by O. P. and M. J. Van Sweringen in their purchases of a controlling interest in a group of railroads, has been placed at the head of the Pennsylvania Coal Co., chief mining subsidiary of the Erie R.R., it was announced Jan. 6. He succeeds the late G. A. Richardson as chairman of the board of directors of the company.

The Pennsylvania Coal Co., largest of the Erie's group of coal subsidiaries which hold extensive coal lands, both bituminous and anthracite, in eight counties of Pennsylvania, is capitalized at $5,000,000.

This is the latest move in the plans of the Van Sweringens to group other railroads with the Chesapeake & Ohio to form a trunk-line system, and it is expected that in a few weeks they will ask the Interstate Commerce Commission for approval of the plans.

Mr. Gallagher had been general manager of the bituminous coal mining department of the M. A. Hanna Co., Cleveland, Ohio, for eighteen years, when he handed in his resignation, to take effect Aug. 1 last and became associated with the Van Sweringen brothers. It was reported at that time that Mr. Gallagher would retain his interest in the Hanna company and continue as a member of its board of directors.

Open-Shop Mine Wages Still Slipping

A reduction of 20 per cent in wages went into effect Jan. 3 at the mine of the Ben Franklin Coal Co., Moundsville, W. Va., which is an open-shop operation. More than 200 employees are affected. John E. McQuade, an official of the company, said that the price of coal would be cut at the same time. This company was among those that advanced wages in November, when the demand for export coal due to the British strike caused a flurry in the market.

Rather than accept the wage cut more than 150 miners employed at the Panama mine of the Ben Franklin Company went on strike. Less than 20 miners entered the mine Jan. 3, but Mr. McQuade said that most of the others had returned to work before the end of the week. The reduction meant a cut of 20c. per ton for loaders, the day workers being reduced to the extent of $2.50 per day.

The McKeefry Coal Co., operating a mine at McKeefry, W. Va., which adopted a 20 per cent reduction on Jan. 3, reported that none of its men had refused to work.

All operations of the New River company in Raleigh and Fayette counties, West Virginia, are again working under the wage scale in effect prior to Nov. 1. The reduced wage went into effect on Jan. 3 with a full force of men on hand. There was no friction in any quarter, it is stated, the men accepting the reduction with good grace. When wages were advanced in November the employees were informed that there was no assurance that the higher rate would be continued but that so long as practicable the higher wage rate would remain in effect.

Confirming recent reports that a wage decrease was feared in southwest Virginia, C. B. Neel, secretary of the Virginia Coal Operators' Association, announced, at Bristol, Va., last week that "it is understood that all large coal companies in the southwest Virginia field have reduced wages to the scale in effect prior to Nov. 1."

Among the large coal companies in this field are the Stonega Coke & Coal Co., Blackwood Coal & Coke Co., Virginia Iron, Coal & Coke Co., Clinchfield Coal Corporation, Norton Coal & Coke Co. and the Wise Coal & Coke Co. A number of the smaller coal companies in this section reduced wages Dec. 1, one month after advancing them.

A 30 per cent voluntary increase in wages was granted by southwest Virginia operators on Nov. 1 because of the sudden huge demand for coal. The decrease, said Mr. Neel, was effective Jan. 1.

The Wakenva Coal Co. announced a reduction in wages for all classes of employees, effective the first of the year. The wage decrease will put the scale back to that in effect before the increase of last summer and will be felt by some 1,200 miners.

Southeastern Kentucky coal operators, in the face of a declining market, have taken no steps to reduce wages, which were boosted 20 to 30 per cent Nov. 1 following the advance in the coal market.

To Study Mechanical Loading And Conveyor Equipment

At the instance of the National Coal Association, there will be a discussion on mechanical loading and conveyor equipment at a joint meeting of the American Society of Mechanical Engineers, the American Institute of Mining and Metallurgical Engineers and the National, in Birmingham, Ala., Jan. 21. The meeting will be held in the auditorium of the Alabama Power Co. building.

S. W. Farnham, mining engineer of the Goodman Manufacturing Co., Chicago, and a representative of the Jeffrey Manufacturing Co. will be the two principal speakers. These addresses will be on mechanical loading and conveyor equipment. "The Story of a Rock-Dusted Mine," the film of the New Orient mine of the Chicago, Wilmington & Franklin Coal Co., will be shown. An engineer of this company will be on hand to answer any queries that may arise as to the operation and different methods used by the company.

Association Men Named

S. L. Yerkes, vice-president of the Grider Coal Sales Agency, Birmingham, assisted by J. L. Davidson, secretary of the Alabama Mining Institute, will represent the National Coal Association. Frank H. Crockard, president of the Woodward Iron Co., will represent the American Institute, and Paul Wright will represent the American Society of Mechanical Engineers.

The meeting that was to have been held in Chicago on Jan. 20 on mechanical loading has been postponed for several months.

Coal Production in Canada Exceeds October Average

Coal output by Canadian mines in October last was 1,699,594 tons, as against 1,406,879 tons in the preceding month and an October average of 1,556,968 tons in the preceding five years. All the coal-producing provinces except New Brunswick showed a gain over September, and the totals for Nova Scotia and British Columbia were above the average for the month in the preceding five years.

Imports Below Average

Imports of coal into Canada during October totaled 1,837,420 tons, as compared with 1,811,484 tons in September and a five-year average for October of 1,850,922 tons. Of this year's October receipts, 1,814,276 tons came from the United States and 39 tons from Great Britain. In the first ten months of 1926 the total quantity of coal imported into Canada was 14,375,659 tons, which is practically the same as the five-year average for the period.

Exports of Canadian coal in October were 119,936 tons, an increase of 40,409 tons over the preceding month but 15 per cent below the preceding five-year average for the month. Total exports for the first ten months of the year were 700,866 tons, or 40 per cent less than the five-year average.

Hampton Roads Dumpings Set New Mark in 1926

The Hampton Roads coal piers dumped 27,431,632 tons of coal in 1926, establishing a new high record for aggressive annual dumpings and incidentally breaking several other pier records. The Norfolk & Western Ry., dumping 1,244,006 tons in December set a new mark for dumpings in a month. The year's totals by piers follow: Norfolk & Western, 10,996,543 tons; Cheseapeake & Ohio, 9,627,360 tons; Virginian, 6,807,729 tons.

Call for Bids Ignored.—No bids were received Dec. 30 by the Columbus (Ohio) Board of Purchase for 29,500 tons of coal for city departments for the period ending June 30, 1927. It is asserted that the unsettled condition of the coal trade was the cause for the lack of bids. City Council therefore has adopted a resolution authorizing the Board of Purchase to buy on the open market until such time as the bids can be re-advertised. H. C. Cain, secretary of the board, has asked for bids Jan. 27 on 7,500 tons of Ohio nut, pea and slack for the municipal light plant; 5,000 tons of the same grade of coal for the Scioto River pumping station; 1,600 tons of Ohio nut, pea and slack, and 700 tons of West Virginia nut, pea and slack for the garbage-disposal plant.

Electrical West New Name Of Journal of Electricity

The *Journal of Electricity* changed its name to *Electrical West* on Jan. 1. Serving as it does the electrical industry of the eleven Western States, the new name will more closely define the field and the function of the paper. Beginning with the January, 1927, issue, *Electrical West* will be published monthly, on the first of the month, instead of semi-monthly as in the past.

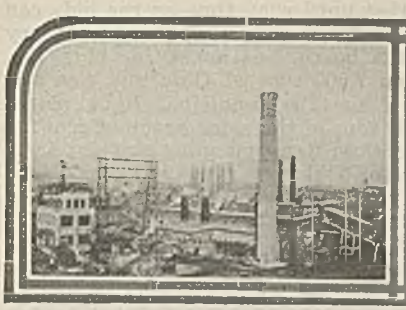
The *Journal of Electricity* was founded in 1887 and has now served the special needs of the electrical industry of the West for almost 40 years. It has been the medium for the development and the interchange of ideas and plans through every period of the outstanding engineering and commercial achievements of that section. Under its new name, *Electrical West*, the publisher says that this tradition of service will be faithfully upheld and that editorial plans call for even more particularized attention to the special needs of this great electrical empire of the West.

Bureau to Make Labor Survey

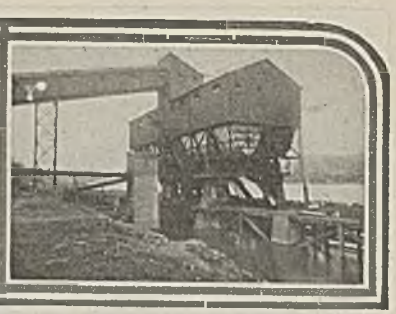
The U. S. Bureau of Labor Statistics is making a survey of wages and hours of employment in the bituminous coal industry. A preliminary report will be made before the exploration of the Jacksonville wage agreement on March 31. The survey, however, is one of the department's regular biennial studies.

Six Members Trade Information Committee National Coal Association 1926-27

Top row, left to right: Irvin Davis, president, Hatfield-Reliance Coal Co., Cincinnati, Ohio; C. C. Dickinson, president, Dry Branch Coal Co., Charleston, W. Va.; C. C. Dovey, president, Cambria Fuel Co., Johnstown, Pa. Bottom row: C. W. Henderson, president, Cambria Coal Mining Co., Knoxville, Tenn.; L. C. Madeira, 3d, assistant to president, Madeira, Hill & Co., Philadelphia, Pa.; W. L. Robison, vice-president, Youghiogheny & Ohio Coal Co., Cleveland, Ohio.



News Items From Field and Trade



COLORADO

Annual Output Climbs.—Although no new mines were opened last year, coal output by Colorado mines totaled 10,483,464 tons, an increase of 43,077 tons over the preceding year, according to James Dalrymple, state coal mine inspector. An average of more than 11,000 men daily was employed in the mines during the year.

ILLINOIS

The Roosevelt Coal & Coke Co., Chicago, has increased its capital stock from $25,000 to $30,000 and has changed its name to Arenberg-Roosevelt Coal. Co.

To Reopen Coffeen Mine.—Work of repairing the shaft and tipple at the Coffeen coal mine, at Coffeen, near Hillsboro, has been begun by the Cosgrove-Meighan Coal Co., owner of the mine. It is stated that as soon as the work is completed the hoisting of coal will be resumed at the mine. The property formerly was operated by the Clover Leaf Coal Co. and has been closed for several years.

Mrs. William Hale, of Sawyerville, has taken over the Henrietta mine, on the Hillsboro road near Edwardsville. Her husband, an engineer, will have charge of the hoisting of the coal. The mine was opened by David Young, of Edwardsville, and he surrendered his lease to Mrs. Hale. William Green, of Edwardsville, will assist in the management of the mine.

The Tazewell and Champion mines, near Pekin, will be ready to hoist coal by Jan. 15. A new escape shaft is being built in the Champion mine. About 50 men will be employed at the opening of the Tazewell mine and when both are running at capacity it is expected that between 150 and 200 will be employed.

Machine Loader Scale Hangs Fire.—A joint group meeting of the Coal Operators' Association of Illinois and the United Mine Workers, District 12, was held at the Great Northern Hotel, Chicago, last week. Routine labor questions were considered. Renewed attempts of the operators to obtain an agreement on the question of wage rates for loading machines in the mines failed. It is hoped the problem will be solved when the new scale is under discussion next month.

The Chicago Coal Merchants' Association has added eighteen new members to its membership roll. The total membership now is 190—the largest on record. Approximately 85 per cent of the tonnage distributed in Chicago is represented.

Mayor William E. Dever of Chicago, will welcome the visitors to the annual coal trade banquet of the Chicago Coal Merchants Association to be held in Chicago at the Hotel Sherman, Jan. 20. Notables in the coal industry from all parts of the country are expected to attend.

INDIANA

Honor Heroic Nurse.—Tribute to the heroism of Miss Lucia Andrews, a graduate nurse and daughter of Tyler L. Andrews, vice-president of the Francisco Mining Co., was paid by miners of Francisco Local at its last meeting. Miss Andrews lies critically ill in a hospital at Vincennes, suffering from infection contracted while nursing victims of the Francisco mine explosion, Dec. 9. The union voted resolutions of sympathy and flowers were sent by them to the bedside. A hitherto unrecorded story was told of how Miss Andrews sought twice to be lowered into the mine that she might administer to the suffering men. Her request was refused because of the danger. She then went to the Vincennes hospital and worked night and day until her right arm became infected from a cut on the finger.

Union Backs Rock-Dusting Bill.—A bill requiring the use of rock dust in mines of Indiana in order to prevent mine fires and dust explosions is expected to be introduced in the Indiana Legislature, backed by the United Mine Workers. The bill was urged at a conference Jan. 5 in the office of the State Department of Mines and Mining, attended by representatives of the department, the union and the mining industry of the state. A similar bill was lost during the 1925 Legislature.

To Probe Francisco Disaster.—Members of the State Mining Board at its last meeting with Governor Jackson promised the state executive that a thorough investigation would be made of the Francisco mine disaster which recently took a toll of 37 lives. The board also discussed proposed mining legislation that likely will be brought before the next General Assembly. Mention was made of a bill to require the use of rock dust in all mines as a safeguard against explosions. A number of miners who were made idle by the Francisco explosion have found employment in the mine of the Pike Coal Co. The mines in that vicinity are working regularly and some new shafts are being opened up. Coal operators are taking leases on coal lands south and east of Petersburg.

KENTUCKY

J. W. Owens, formerly Kentucky sales manager of the Carrs Fork Coal Co., has joined the sales force of the C. L. Ryley Coal Co., at Lexington.

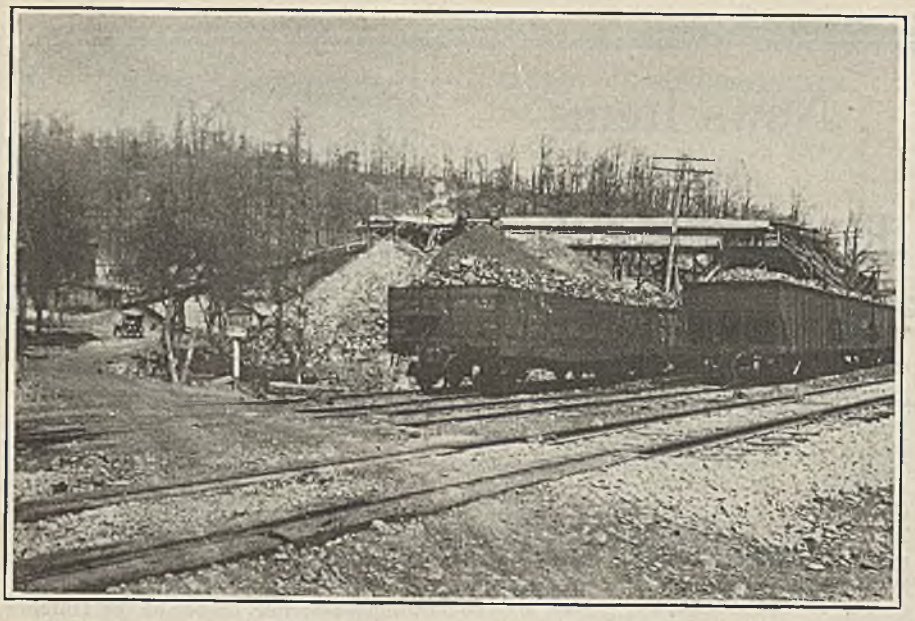
James Hatcher, owner of the Hatcher Coal Co., at Big Shoal four miles from Pikeville, recently purchased a bluegrass farm near Winchester, for $65,600. The tract consists of 363 acres of land, on the Paris-Winchester pike. He is planning a commercial experiment in poultry raising, and has installed a hot water brood house to accommodate 3,500 chickens. Mr. Hatcher recently brought in a big oil well in a test on property in the county.

Abandoned Mine Afire.—It is reported from Pikeville that the abandoned mine of the Big Hollow Coal Co., one mile from the city, is afire. According to revenue agents, attracted by the smoke, and who expected to find a large still operating, it probably was started by moonshiners using the deserted mine as a distillery. It is reported that the mine has been burning for some months. Recently an effort was made to extinguish it by barricading the mine and flooding it with water, but it generated so much steam when in contact with live coals that the makeshift barrier was blown out.

Ford Balks at Higher Taxes.—Attorneys for the Fordson Coal Co., owning 27,000 acres of coal land in the Pond Creek region of Pike County, have filed suit in the federal court at Lexington asking an injunction against the Sheriff of Pike County to restrain collection of taxes on an increase of $510,000 in assessed valuation of the property. The valuation was advanced from $2,440,000 by the State Tax Commission, which went over the head of the County Assessor. There are eleven operations on the property. The state is resisting the motion, claiming that it is a matter within the jurisdiction of the state courts alone.

NORTH DAKOTA

Deep Lignite Mine Soon to Produce.—North Dakota's deepest lignite mine, owned by the Northern Lignite Coal Co., near Benedict, will be producing soon. The shaft is 230 ft. deep and touches one of three beds of coal on the 330 acres owned by the company. C. C. Stee is supervising engineer for the company.



Has Been Shut Down Indefinitely

Only those mines with modern equipment, high quality coal, and in favorable locations have endured the past few years of competition. The mine pictured is in the Southern Appalachian field of Kentucky.

NEW YORK

The Hedstrom-Spaulding interests, of Buffalo, have issued a statement as to what has lately been done by them in reorganization of the companies. Nothing is said of Hedstrom-Spaulding, Inc., which was one of the companies first announced, but it is stated that the merged companies will be the Spaulding, Hedstrom & Spaulding Corporation and the S. & H. Corporation. The first company will be made up of 200 shares and the latter of 150, no par value being given. The former will deal in coal and the latter will be a trucking concern. Directors of the former company are E. G. Spaulding, S. V. R. Spaulding, A. E. Hedstrom, G. A. T. Hagen, E. L. Hedstrom, and E. C. Roberts. Directors of the latter are the same, except that J. T. Lewis is named in place of E. C. Roberts. The interests as a whole ran into millions of dollars.

So many varying reports have been sent out about shipments of anthracite from Buffalo to the upper lakes during the past season that an authoritative statement as to the amount has been made. The total from all four Buffalo docks was 2,342,376 net tons. It is believed that with an ordinary winter this amount will just about take care of the trade it was intended for. The greater part of this coal was consigned to Duluth and Superior on Lake Superior and to Chicago and Milwaukee on Lake Michigan.

John Adema, vice-president of the Montour Coal Co. till it was discontinued and salesman with E. L. Hedstrom, Buffalo, for some years, has taken a position with the Yates Lehigh Coal Co. in that city.

OHIO

Preparing Rock-Dust Bill.—A bill is being prepared by Jerome Watson, chief deputy of the Ohio Mines Department, assisted by his deputies, to codify many of the state laws pertaining to the operation of coal mines. This bill will be whipped into shape soon and will be presented to the Legislature, now in session. In addition to dropping a large number of obsolete features of the law, which are now entirely inoperative, a section will be prepared compelling operators working mines which are filled with coal dust to mix approximately 75 per cent of rock dust in order to avoid dangerous explosions. A number of Ohio operators are voluntarily using this preventive. Other provisions having to do with safety in mines will be included in the bill. It is reported that the entire Ohio Mines Department will be behind the bill.

Fatality Rate Low.—Ohio's coal-mine fatality record in 1926 was the lowest in 20 years. With output in excess of 30,000,000 tons, there were 78 deaths, but there was not a single major disaster—that is, one causing as many as 5 fatalities. In the preceding year the output was approximately 28,000,000 tons, with 83 fatalities.

Richardson Suits Discussed.—Holding that the defendant company had been adjudged bankrupt and the assets distributed to the various creditors, including the plaintiffs, Judge Hickenlooper, in the U. S. District Court at Cincinnati, on Jan. 4 dismissed two suits against the Richardson Coal Co. with costs to the plaintiffs. The Norwood Coal Co., Huntington, W. Va., sought $6,924, said to be due for the purchase of coal. The Guyan Eagle Coal Co., also of Huntington, sought to recover $6,923 on the purchase of coal.

Call for Bids Ignored.—No bids were received Dec. 30 by the Columbus Board of Purchase for 29,500 tons of coal for the various city departments for the period ending June 30, 1927. It is asserted that the unsettled condition of the coal trade was the cause for the lack of bids. City Council therefore has adopted a resolution authorizing the Board of Purchase to buy on the open market until such time as the bids can be re-advertised. H. C. Cain, secretary of the board, has asked for bids Jan. 27 on 7,500 tons of Ohio nut, pea and slack for the municipal light plant; 5,000 tons of the same grade of coal for the Scioto River pumping station; 1,600 tons of Ohio nut, pea and slack, and 700 tons of West Virginia nut, pea and slack for the garbage-disposal plant.

To Fix Convention Date.—The board of directors of the Michigan-Ohio-Indiana Coal Association, composed of dealers in the three states and having headquarters in Columbus, will meet in February to fix the time and place for the 1927 convention of the organization. So far no cities have extended an invitation to entertain the convention, which usually attracts about 1,000 dealers, wholesalers and operators.

Avent Conviction Upheld.—The mandate of the U. S. Circuit Court of Appeals, affirming the lower court in its action fining Edward P. Avent, Jr., Cincinnati coal dealer, $2,000 for violating the priority order of the Interstate Commerce Commission during the coal strike of 1922, was received in federal court Jan. 4. It was charged that Avent wilfully misrepresented the use for which a carload of coal was intended during the strike. The Appellate Court affirmed the conviction on Nov. 9, 1926.

Short Creek Store Burns.—Fire of unknown origin, early in the morning Jan. 4, destroyed the Short Creek Coal Co.'s general store at Duncanwood, six miles east of Cadiz, causing a loss of $45,000, of which $35,000 was on stock.

PENNSYLVANIA

Hillman Buys Oil Well Supply Control.—Control of the common stock of the Oil Well Supply Co., a Pittsburgh corporation engaged in the manufacture of machinery and supplies for drilling and operating oil and gas wells, has been sold to a group headed by James H. Hillman, Jr., of Pittsburgh, chairman of the board of the Hillman Coal & Coke Co. The deal involved $15,000,000, according to rumors, but no accurate figures were made public by officers of the company. Because Mr. Hillman is a director of the A. M. Byers Co. it was rumored that the Oil Well Supply Co. had been bought for that firm, but this was denied by A. H. Beale, president of the Byers company. The capital stock of the Oil Well Supply Co. is listed at $22,000,000.

Oliphant Sale Postponed.—Sale of the Oliphant Coal & Coke Co. property in Fayette County by the receivers, J. W. Abraham, W. W. Parshall and W. L. Byers, advertised for Jan. 8, has been postponed until Feb. 12. At that time necessary arrangements will have been completed and the sale will be held by the receivers.

Bell to Resume Jail Term.—John A. Bell, aged banker, coal operator and former Pittsburgh political leader, will be brought into court and remanded to jail on Jan. 17, according to District Attorney Samuel H. Gardner of Pittsburgh, who said that the papers in the case would be received from the Pennsylvania Supreme Court about Jan. 14.

The regular procedure calls for the surrender of Bell by his bondsmen and his resumption of his sentence of six and one-half years in the Allegheny County jail, according to Gardner. The question of caring for Bell on account of his infirmities will be decided by the court. The former president of the Carnegie Coal Co. is suffering from paralysis and if he is unable to remain in a cell he will be confined in the jail infirmary unless other provision is made by order of court.

Revenue shipments of bituminous coal by the Reading Co. during October totaled 1,866,530 gross tons, a decrease of 882 tons from the corresponding month of last year.

Joseph H. Horner, coal operator of Washington, Pa., who died recently, left $75,000 to the Brownsville General Hospital, of Brownsville. His estate is valued at $100,000.

Benjamin H. Throop has sold to the Penn Anthracite Corporation 136.81 acres of coal land in West Scranton. The deed was executed in New York, by Mr. Throop and his wife, Rubye Burkhardt Throop. The price paid was not disclosed. The sale includes only all coal in the smallest top seam.

UTAH

Park Bill Raises Storm.—The Utah Associated Industries has sent communications to Utah's delegation in Congress expressing strong disapproval of the Park bill before Congress, which would give a government commission power to investigate and, if they saw fit, take over control of coal-mining operations in a district affected by strikes or other disturbances. The association—a powerful organization in Utah—expressed the belief that such a law would have the tendency to *create* a disturbance, the enemies of the operators being able to start a disturbance for the sole purpose of having the control of the mines taken from them.

Castle Gate Fuel in New Hands.—A. Donnelly and A. H. Jenkinson have taken over the Castle Gate Fuel Co., the former as president and the latter as secretary. The property is near Mine No. 2 of the Utah Fuel Co. on Willow Creek. The coal is at present delivered by truck at Price, but a little later, according to present plans, a spur track is to be constructed and shipments made to outside points. The headquarters of the company are in Helper. Mr. Jenkinson was connected with the chief office of the Carbon Fuel Co., in Salt Lake City, until a short time ago.

VIRGINIA

Plans Third Underground Plant.—The Dawson Daylight Mining Co., Dawson Springs, expects to have the third opening of its underground operations on a steady production basis soon after the first of the coming year. The company, which operates the largest stripping plant in the state, started underground mining during the last year, having started four openings, of which two are now running. Much new equipment, including machinery and mine cars, will be installed. All the output goes over a single large, well-equipped tipple.

The West Virginia Coal & Coke Co. has opened a branch office in Norfolk with N. A. Lewis, Jr., as manager.

WEST VIRGINIA

Study of Mining Methods Begun.—The mining engineering department of West Virginia University is making a study of coal-mining methods of West Virginia for a bulletin which will be published when the study is completed. The field work is being done by Ivan A. Given and Harry G. Kennedy, who were graduated from the Mining Engineering Department of West Virginia University last year. Mr. Kennedy is the son of D. C. Kennedy, secretary of the Kanawha Operators' Association. At present these men are in Logan County. The operators are co-operating to make the study as complete as possible.

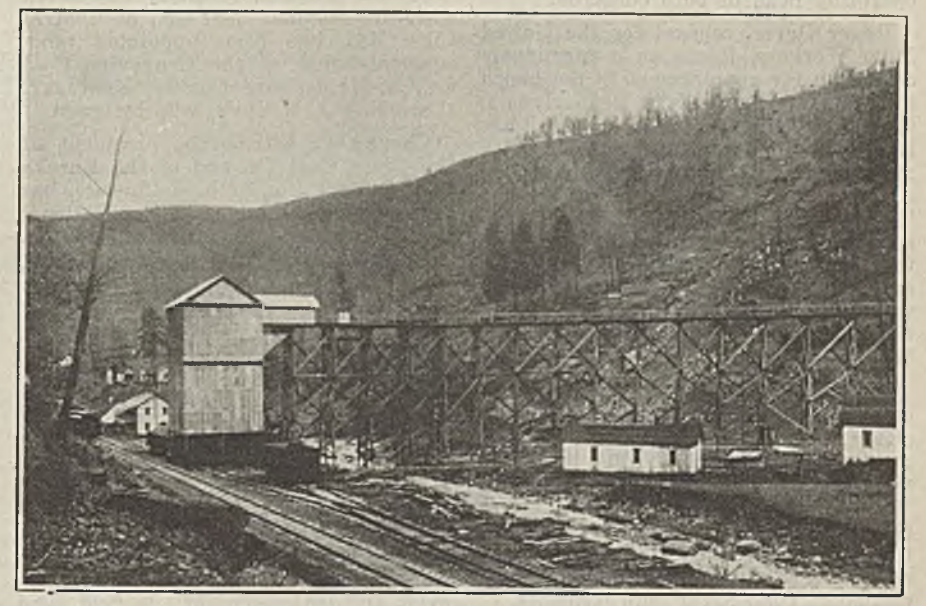
New River Dividends Resumed.—Resumption of dividends on the senior shares of the New River Co. was authorized Jan. 4 when directors declared $1.50, payable Feb. 1, to stockholders of record Jan. 15. The preferred is cumulative to 6 per cent and up to Sept. 30 accumulations amounted to 36 per cent. The last payment of $1.50 was made on March 28, 1924.

Merger Completed.—The C. C. B. Smokeless Coal Co., recently organized with an authorized capital of $12,000,000, represents the consummation of the merger of the P. M. Snyder interests announced about a year ago. The consolidation became effective as of Jan. 1. It is stated by Mr. Snyder that the formation of the new company in no way affects the operating personnel of the respective mines. The mines included in the consolidation are the Stotesbury and Glen White mines of the E. E. White Coal Co., East Gulf Coal Co., operating at Helen; Pincewick Coal Co., Pemberton Fuel Co., Long Branch Coal Co. and the Glencoe Coal Co. The officials of the new company are Robert Grant, of Boston and New York, also head of the New England Fuel & Transportation Co., president; P. M. Snyder, of Mount Hope, vice-president; E. C. Melville, of Boston, auditor; G. A. Wood, of Boston, treasurer; H. S. Lyons, of Boston, assistant treasurer.

The Davis Coal & Coke Co. has declared a dividend of $3, payable Jan. 15, to stockholders of record Dec. 31.

CANADA

Besco Has Big Year.—"Not since the war has there been a year so productive as this," said J. E. McLurg, vice-president of the British Empire Steel Corporation, when speaking of the year's production of the Dominion Coal Co.'s collieries. He remarked that in the week ending Dec. 12 there had been the biggest production in the Dominion collieries of any week during the year, with a total of 104,000 tons of coal. The Dominion Coal Co., he said, felt safe on production until Feb. 20. From that date there might be some curtailment of operations, but, he added, "there will certainly be no necessity for relief to the colliery districts of the Dominion this winter as has hitherto been the necessity."



Small Mine on Yellow Creek in Tennessee

Now the Beech Fork Blue Gem Coal Co., formerly the Beech Fork Coal Co. The mine is in the Jellico seam and loads about one car per day.

Cape Breton Shipments Heavy.—Bituminous coal shipments from Cape Breton to Montreal totaled 1,429,194 tons during the season of navigation that has just come to a close. This is said to constitute a record for the port, being greater than the total for 1924 by 6,990 tons.

Coal is believed to occur in Prince township, about 10 miles from Sault Ste. Marie, Ont., where Captain Asa. R. Johnston and associates have staked claims covering 154 acres. Camps are being erected on the property and diamond drilling will be begun immediately.

Among the Coal Men

Russell Fry recently was elected secretary of the South Chicago Coal & Dock Co., which he joined as auditor soon after it was organized last summer. Mr. Fry formerly was associated with John D. Silk.

Announcement has been made by the Paisley interests, of Cleveland, of the appointment of **Joseph Arkwright** as general manager of the Glendale Gas Coal Co., with headquarters at Elm Grove, W. Va. He occupies the same position with the Elm Grove Mining Co. and will continue to act as the operating head of both concerns.

Roger Dever, counsel for the United Mine Workers, looms as a formidable candidate for appointment to the bench in Luzerne County, Pennsylvania. Governor Gifford Pinchot, who has favored the miners' organization with many political plums, will be asked by a delegation of union men, headed by Thomas J. Kennedy, international secretary-treasurer of the miners' union, to name Mr. Dever a judge. The vacancy he seeks to fill was created by the death of the late Judge John M. Garman. Mr. Dever is a resident of Wilkes-Barre.

Captain R. P. Gillham, vice-president of the Campbell's Creek Coal Co., with offices in Cincinnati, who is an active member of the Ohio Valley Improvement Association, left recently for Washington to serve on a committee of the Cincinnati Chamber of Commerce to ask President Coolidge for consideration of a plan for more speedy completion of Ohio River improvements.

George Kisker, for the last four years first assistant to John Glaser, of the Midland Coal Sales Co., resigned effective Jan. 1 to become assistant to L. R. Disney, general sales manager of the Southern Coal & Coke Co. at Cincinnati.

Henry P. King, for 16 years chief deputy coal mine inspector of Colorado, has resigned, effective Jan. 1. James Dalrymple, chief inspector, announced that King will be succeeded by **Finley McCallum**, superintendent of the Empire Coal Co. at Aguilar, Colo.

Jay Short, formerly superintendent and purchasing agent for the Hugh Shirkie Coal Co. at Terre Haute, Ind., has resigned his position with that company and has purchased a half interest in an insurance company in Terre Haute. Mr. Short had been identified with the coal industry in Terre Haute many years, fourteen of which were spent with the Shirkie company.

Otis Bledsoe and **William Youngblood**, engineers for the Sunlight Coal Co. at Boonville, Ind., have been transferred by the company to Waverly, Ky.

George P. Bagwell, of Harrisburg, Ill., has been appointed state mine inspector for the Harrisburg district by Governor Len Small. The district is composed of Saline, Gallatin and White Counties. Mr. Bagwell takes the place of Thomas English, who has been transferred to the Springfield district.

W. G. Warden, chairman of the board of the Pittsburgh Coal Co., was elected a director of the Studebaker Corporation last week.

Frank M. Weisenfleder, manager of the Ogle Coal Co.'s Cincinnati office, and **C. H. Hughes**, president of the Hughes Coal Co., were recently elected to membership in the Cincinnati Chamber of Commerce.

Samuel Hughes, formerly associated with the Midland Coal Co., at Central City, Ky., has been appointed mine superintendent of the Grapevine Coal Co., in Muhlenburg County, Kentucky, succeeding J. N. Hale, who resigned.

Charles C. Fitzmorris, president of the Globe Coal Co. and of the Eureka Coal & Dock Co., both of Chicago, has been elected a director of the National Bank of the Republic, also of Chicago.

The Empire Coal Sales Corporation, 17 Battery Place, New York City, announces the appointment on Jan. 1 of **A. M. Stevens**, formerly with E. L. Hedstrom, Buffalo, as manager of sales.

Obituary

Judge William A. Wickliffe, one of the most prominent operators in the western Kentucky field, and a man who worked hard and long for the development and betterment of the field, died at Greenville, Ky., Jan. 1, following a weeks illness of pneumonia. He was 67 years old. Judge Wickliffe was head of the Greenville Coal Co., operating two mines, and of the W. A. Wickliffe Coal Co., operating one mine. He was president of the West Kentucky Coal Operators' Association and a member of the executive committee of the West Kentucky Coal Bureau. He was a lawyer, banker and all-around business man, and had a broad knowledge of labor matters in the coal fields, having devoted considerable time and study to this branch of the industry. During his years in the coal industry Judge Wickliffe had been a fighter for better preparation of coal and prices that would allow a margin for profit. He was one of the largest operators in the field and had well equipped and operated plants.

James H. Strachan, formerly superintendent of the Sonman mine, at Portage, Pa., died in St. Francis Hospital, Pittsburgh, Pa., late in December. He was 55 years old and resided in Portage.

James E. Crass, Jr., prominent independent hard-coal operator, died at his home in Scranton, Pa., on Dec. 22, following a brief illness. He was a graduate in medicine but had never practiced that profession. Though only 35 years old he had attained a place of prominence in the coal industry in the short space of ten years. At the time of his death he was president of the following companies: Archbald Coal Co., Suffolk Anthracite Collieries, Carbondale Anthracite Collieries, Winton Coal Co., Glen Dale Coal Co. and Spring Brook Coal Co. These companies have an annual output of approximately 1,000,000 tons.

Henry C. Martin, connected with the sales department of the De Bardeeben Coal Co., Birmingham Ala., for many years, died late in December. He is survived by his wife, four sons and three daughters.

T. S. Lackey, formerly well known in Uniontown and throughout western Pennsylvania as a successful lawyer, banker and dealer in coal lands, died in Riverside, Calif., Jan. 6, at the age of 71. Mr. Lackey, who was known to his many friends as "Steve," was born in Washington County, Pennsylvania, but spent most of his life in Pittsburgh. He retired from active business life about four years ago and moved to California.

Death has claimed **Mark Pomeroy Braffett**, 56 years of age, prominent Salt Lake City lawyer, who died at Price, Utah, a few days ago from pneumonia. He will be remembered throughout the nation for his connection, 20 years ago, with the case of the United States vs. the Utah Fuel Co., a land-fraud case involving millions of dollars and in which the company was accused of obtaining property through misrepresentation. Mr. Braffett effected a settlement which was regarded as favorable to the coal company. Mr. Braffet, who was born in Pawpaw, Ill., was himself directly interested in coal mining and coal lands. He had a quarter interest in the Willow Creek Coal mine, Carbon County, and at one time was president of the Salt Lake Mining Exchange.

Henry T. Cochran, aged 70, of Dawson, Pa., one of the best known business men of the upper part of Fayette County, died suddenly Dec. 28. Mr. Cochran was a large stockholder and director in the Washington Coal & Coke Co., and also its general manager, director of the First National Bank of Dawson and president and owner of the Dawson Fair. He was a man of wide acquaintance and varied interests.

Charles H. Hurst, of Springfield, Ill., president of the West End Coal Co. for many years, died a few days ago following an illness of a number of months. The West End Coal Co. was founded by his father, Charles R. Hurst, who also sunk the first mine in the Springfield district.

Timothy H. Holdman, 52 years old, well known coal man of Elkhart, Ind., and Republican state Senator from his county, died recently of heart disease and complications, following a long illness. At eighteen years of age he became a school teacher and continued that profession until 1901, when he entered the coal business. He is survived by his wife and one son.

Production And the Market

Market Tone Firmer Following Holiday Dip; Storage Buying in Evidence

Although the bituminous coal industry of the United States was still under the holiday influence last week, on the whole the situation in the primary markets of the country registered a slight improvement. Prices were uneven but the net changes left the averages a fraction higher. Production continued upon a healthy basis and more buying which was plainly labeled "storage" made its appearance in different parts of the country.

Unquestionably the labor situation is now the question which overshadows all others in the bituminous industry. What the districts which remain under the domination of the United Mine Workers will demand will not be known definitely, of course, until after the convention of the union delegates is well under way at Indianapolis later this month. Presumably, with the Lewis organization strongly in control, the demand will be for an extension of the expiring agreement.

Non-Union Situation Complicated

The non-union wage situation is no less interesting and its future trend apparently no less mysterious. At the present time there seems to be neither unanimity of opinion nor unanimity of action among the non-union operators. Many of them have put wages back to the levels which prevailed prior to Nov. 1, 1926; some have made reductions which leave rates hanging between the 1917 and Jacksonville scales and others still deny that they contemplate any action disturbing wages before the end of the coal year.

Coal Age Index of spot bituminous prices on Jan. 10 was 194 and the corresponding weighted average price was $2.34. Compared with the figures for Jan. 3 this was an increase of 1 point and 1c. Advances in quotations on smokeless coal in several markets was primarily responsible for the change. The gains made by low-volatile West Virginia and central Pennsylvania districts were big enough to offset the downward tendencies in quotations on high-volatiles from the Appalachian Region and in Indiana.

Production Plays Part

In some quarters, particularly in the New England markets, there was a disposition to attribute firmer prices to curtailed production rather than to any real increase in consumer demand. This assumption would seem to be fortified by conditions at certain other markets where forced shipments caused spot prices to slide. While some weight must be given this contention, it is hardly the complete explanation because the reduction in output the past month has been far less than the reduction in immediate requirements.

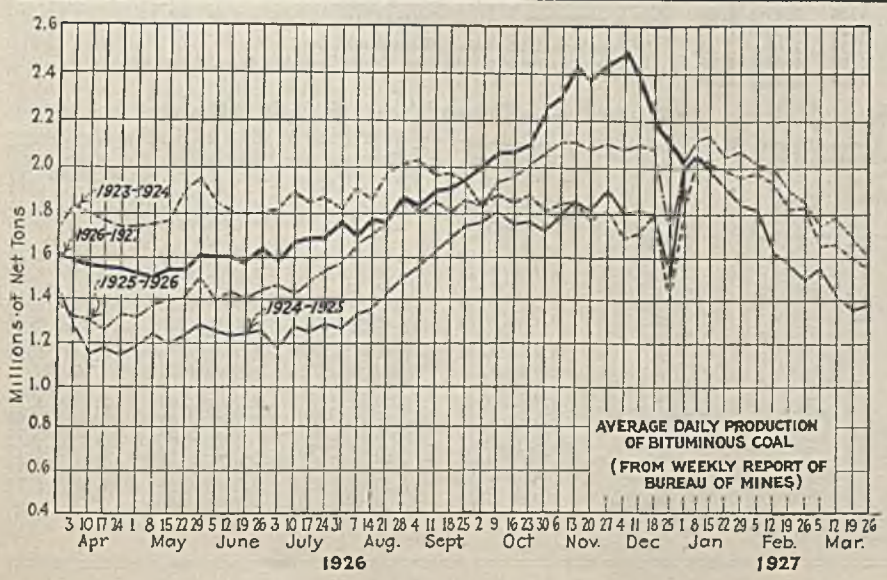
During the week ended Jan. 1 the total bituminous output was estimated by the U. S. Bureau of Mines at 10,709,000 net tons, or 5,000 tons more than for the week ended Jan. 2, 1926, when the soft-coal operators were trying to take care of the deficit created by the anthracite strike. Total output last year, according to preliminary estimates, was less than 1,250,000 tons behind the banner year of 1918, when 579,386,000 tons were mined.

Storage Buying Heavier

With lake movement out of the picture and with tidewater exports averaging less than 825,000 net tons weekly—and that average falling—it is plain that storage buying is the controlling factor in the market at the present time. Much of this buying is being done so quietly that it escapes popular attention. Nevertheless its presence is making itself felt in all the major producing districts. At the present rate of stock accumulation, industry will face April 1 with the largest stockpile in its history.

Domestic anthracite trade still is in the doldrums. Independent prices are weaker and company movement slower. A greater softness is checked only by the declining rate of production, which for the week ended Jan. 1 was 1,128,000 net tons. Steam sizes, particularly the generally despised No. 1 buckwheat, are showing unusual strength and it is not uncommon for independent tonnage to command full company circular. Rice and barley, too, are moving well.

The Connellsville coke industry appears to have found solid ground. Practically all of the first-quarter contract business has been closed at prices which average the ovens $4.25 and so take care of the higher wages granted



Estimates of Production

(Net Tons)

BITUMINOUS

	1925-1926	1926-1927
Dec. 18	12,684,000	13,477,000
Dec. 25 (a)	8,421,000	10,480,000
Jan. 1 (b)	10,704,000	10,709,000
Daily average	2,020,000	2,021,000
Total for cal. year	520,053,000	578,290,000
Daily average	1,692,000	1,880,000

ANTHRACITE

Dec. 18	56,000	1,794,000
Dec. 25	33,000	1,503,000
Jan. 1	28,000	1,128,000
Coal year to date (c)	40,408,000	73,976,000

BEEHIVE COKE

Dec. 18	313,000	176,000
Dec. 25	261,000	146,000
Jan. 1	299,000	166,000

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

the workers last November. Spot business is limited, with good furnace grades $3.50@$4, and foundry coke, $4.75@$5.25.

Midwest Operators Optimistic

Illinois and Indiana operators maintain an optimistic outlook in the face of a steadily increasing accumulation of "no bills" on the larger sizes. For the most part they refrain from attempting to force sales by price concessions although some weakness has developed in the Indiana districts. Fifth Vein mines are not averaging better than three days a week.

Because production has been shaved down over the holidays the Chicago market on screenings is firm and procrastinating industrials find some difficulty in covering their requirements. The situation is further helped by the scarcity in offerings of slack tonnage from western Kentucky. Nevertheless the volume of business as a whole is disappointing to Chicago traders, who expected a rush of orders after the first of the year.

Wage reductions in the West Virginia high-volatile fields last week have been followed by offers of coal at substantial cuts under the pre-holiday prices. The situation with respect to eastern Kentucky coal, on the other hand, is badly mixed as labor has not always docilely accepted a reduction in pay. Smokeless coal seems to have recovered its stability after several days of unsettlement. Some cuts have been made on transit tonnage, but these are the exception.

Weather Cuts Running Time

The warm weather which slowed up the domestic market at Chicago naturally cut sharply into running time in the Illinois-Indiana mining fields. In southern Illinois a number of operations were suspended and others were cut down to three and four days a week. All sizes except screenings are dragging. Railroads are helping out somewhat by taking in storage coal. This buying movement is proving a lifesaver to the strip pits, which now find the general market less receptive to their offerings.

Conditions in the Jackson County-Duquoin area are on all fours with those in southern Illinois proper. Railroad and general steam buying is the mainstay of the movement out of the Mt. Olive district. There has been no improvement in the situation in the Standard field. No. 2 nut and screenings are in fair demand but all other sizes are backward. Mines are working less than half-time—and even that would be impossible without railroad storage orders.

As at Chicago, the warm weather has held back domestic buying in the St. Louis local market. Retail yards are well stocked up. What little buying existed favored the cheaper grades. Quiet storage buying by industrial plants kept up the carload movement of steam sizes both locally and in tribu-

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

Low-Volatile, Eastern	Market Quoted	Jan. 11 1926	Dec. 27 1926	Jan. 3 1927	Jan. 10 1927†
Smokeless lump	Columbus	$3.85	$3.75	$3.85	$3.75@$4.00
Smokeless mine run	Columbus	2.95	2.60	2.50	2.25@ 2.75
Smokeless screenings	Columbus	2.60	2.10	1.85	1.75@ 2.00
Smokeless lump	Chicago	3.85	3.50	3.50	**3.50@ 3.75**
Smokeless mine run	Chicago	2.10	2.75	2.75	*2.40@ 2.60*
Smokeless lump	Cincinnati	4.10	3.50	3.35	**3.75**
Smokeless mine run	Cincinnati	2.35	2.75	2.75	**3.00**
Smokeless screenings	Cincinnati	2.00	2.50	2.25	**2.25@ 2.50**
*Smokeless mine run	Boston	4.85	5.25	5.10	**5.15@ 5.40**
Clearfield mine run	Boston	1.90	2.60	2.30	**2.25@ 2.70**
Cambria mine run	Boston	2.25	2.90	2.60	**2.65@ 3.00**
Somerset mine run	Boston	2.05	2.75	2.45	**2.35@ 2.80**
Pool 1 (Navy Standard)	New York	2.95	3.70	3.60	*3.00@ 3.50*
Pool 1 (Navy Standard)	Philadelphia	2.95	3.35	3.20	*3.00@ 3.30*
Pool 1 (Navy Standard)	Baltimore	2.30	2.60	2.60	2.50@ 2.75
Pool 9 (Super. Low Vol.)	New York	2.30	2.60	2.60	2.50@ 2.75
Pool 9 (Super. Low Vol.)	Philadelphia	2.30	2.95	2.95	*2.60@ 2.80*
Pool 9 (Super. Low Vol.)	Baltimore	2.15	2.10	2.10	**2.05@ 2.25**
Pool 10 (H.Gr.Low Vol.)	New York	2.05	2.35	2.35	*2.15@ 2.50*
Pool 10 (H.Gr.Low Vol.)	Philadelphia	2.05	2.70	2.65	*2.35@ 2.45*
Pool 10 (H.Gr.Low Vol.)	Baltimore	1.95	1.85	1.85	**1.85@ 2.00**
Pool 11 (Low Vol.)	New York	1.80	2.10	2.05	1.90@ 2.25
Pool 11 (Low Vol.)	Philadelphia	1.90	2.50	2.50	*2.10@ 2.30*
Pool 11 (Low Vol.)	Baltimore	1.70	1.75	1.75	1.75@ 1.80
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.60	1.80	1.75	*1.50@ 1.75*
Pool 54-64 (Gas and St.)	Philadelphia	1.60	1.90	1.85	*1.50@ 1.70*
Pool 54-64 (Gas and St.)	Baltimore	1.65	1.50	1.50	**1.50@ 1.60**
Pittsburgh sc'd gas	Pittsburgh	2.65	2.60	2.60	2.50@ 2.75
Pittsburgh gas mine run	Pittsburgh	2.10	2.20	2.20	2.15@ 2.30
Pittsburgh mine run (St.)	Pittsburgh	2.05	2.10	2.10	2.00@ 2.25
Pittsburgh slack (Gas)	Pittsburgh	1.55	1.75	1.65	1.60@ 1.70
Kanawha lump	Columbus	2.25	2.35	2.50	2.25@ 2.75
Kanawha mine run	Columbus	1.70	1.85	1.85	1.75@ 2.00
Kanawha screenings	Columbus	1.05	1.35	1.35	*1.25@ 1.45*
W. Va. lump	Cincinnati	3.00	2.50	2.75	*2.50@ 2.75*
W. Va. gas mine run	Cincinnati	1.60	1.85	1.85	1.75@ 2.00
W. Va. steam mine run	Cincinnati	1.50	2.10	1.65	1.60@ 1.75
W. Va. screenings	Cincinnati	1.10	1.60	1.40	*1.25@ 1.50*
Hocking lump	Columbus	2.35	2.75	2.50	**2.25@ 2.85**
Hocking mine run	Columbus	1.85	1.85	1.85	1.75@ 2.00
Hocking screenings	Columbus	1.20	1.45	1.40	1.35@ 1.50
Pitts No. 8 lump	Cleveland	2.30	2.50	2.35	2.00@ 2.75
Pitts. No. 8 mine run	Cleveland	1.80	1.95	1.90	1.85@ 1.95
Pitts. No. 8 screenings	Cleveland	1.45	1.65	1.65	1.60@ 1.70

Midwest	Market Quoted	Jan. 11 1926	Dec. 27 1926	Jan. 3 1927	Jan. 10 1927†
Franklin, Ill. lump	Chicago	$3.50	$4.00	$4.00	$4.00
Franklin, Ill. mine run	Chicago	2.50	2.60	2.60	2.50@ 2.75
Franklin, Ill. screenings	Chicago	1.85	1.75	1.85	1.75@ 2.00
Central, Ill. lump	Chicago	3.10	2.75	2.75	2.50@ 3.00
Central, Ill. mine run	Chicago	2.30	2.10	2.10	2.00@ 2.25
Central, Ill. screenings	Chicago	1.40	1.35	1.40	1.35@ 1.50
Ind. 4th Vein lump	Chicago	3.00	3.35	3.35	*3.25*
Ind. 4th Vein mine run	Chicago	2.30	2.35	2.35	2.25@ 2.50
Ind. 4th Vein screenings	Chicago	1.85	2.00	2.00	2.00
Ind. 5th Vein lump	Chicago	2.50	2.75	2.75	*2.40@ 2.60*
Ind. 5th Vein mine run	Chicago	1.95	2.10	2.10	2.00@ 2.25
Ind. 5th Vein screenings	Chicago	1.50	1.40	1.50	1.40@ 1.60
Mt. Olive lump	St. Louis	2.85	2.85	2.85	2.75@ 3.00
Mt. Olive mine run	St. Louis	2.00	2.50	2.50	2.50
Mt. Olive screenings	St. Louis	1.75	1.50	1.50	1.50
Standard lump	St. Louis	2.40	2.35	2.35	2.25@ 2.50
Standard mine run	St. Louis	1.80	1.80	1.80	1.75@ 1.90
Standard screenings	St. Louis	.85	1.20	1.20	1.15@ 1.25
West Ky. block	Louisville	2.00	2.60	2.60	2.50@ 2.75
West Ky. mine run	Louisville	1.35	1.50	1.55	1.35@ 1.75
West Ky. screenings	Louisville	1.00	1.25	1.25	1.10@ 1.40
West Ky. block	Chicago	2.25	2.50	2.50	*2.00@ 2.25*
West Ky. mine run	Chicago	1.50	1.85	1.85	1.75@ 2.00
South and Southwest					
Big Seam lump	Birmingham	2.75	2.85	2.85	*2.50@ 2.75*
Big Seam mine run	Birmingham	2.10	1.85	1.85	1.75@ 2.00
Big Seam (washed)	Birmingham	2.30	2.10	2.10	*1.75@ 2.25*
S. E. Ky. block	Chicago	3.10	2.85	2.85	2.50@ 3.25
S. E. Ky. mine run	Chicago	1.85	1.95	1.95	1.80@ 2.15
S. E. Ky. block	Louisville	3.00	2.75	2.75	*2.50@ 2.75*
S. E. Ky. mine run	Louisville	1.55	1.85	1.85	1.75@ 2.00
S. E. Ky. screenings	Louisville	1.00	1.45	1.80	*1.40@ 1.75*
S. E. Ky. block	Cincinnati	3.10	2.60	3.00	*2.50@ 3.00*
S. E. Ky. mine run	Cincinnati	1.60	2.00	1.60	**1.60@ 2.00**
S. E. Ky. screenings	Cincinnati	1.05	1.60	1.50	*1.25@ 1.40*
Kansas lump	Kansas City	5.00	4.60	4.60	4.50@ 4.75
Kansas mine run	Kansas City	3.10	3.00	3.00	3.00
Kansas screenings	Kansas City	2.35	2.30	2.35	2.35

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

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

	Market Quoted	Freight Rates	January 11, 1926 Independent	January 11, 1926 Company	January 3, 1927 Independent	January 3, 1927 Company	January 10, 1927† Independent	January 10, 1927† Company
Broken	New York	$2.34	.....	‡	.....	$8.50@$9.25	.....	$8.50@$9.25
Broken	Philadelphia	2.39	‡	‡	$9.25	8.50@ 9.15	$9.25	8.50@ 9.15
Egg	New York	2.34	‡	‡	8.25@ 9.00	8.75@ 9.25	*8.50@ 8.75*	8.75@ 9.25
Egg	Philadelphia	2.39	‡	‡	8.50@ 9.50	9.00@ 9.15	*8.40@ 9.50*	9.00@ 9.15
Egg	Chicago*	5.06	$9.50@10.00	$8.03@$8.25	8.26	8.13	8.26	8.13
Stove	New York	2.34	‡	‡	9.00@ 9.50	9.25@ 9.50	9.00@ 9.50	9.25@ 9.50
Stove	Philadelphia	2.39	‡	‡	9.40@10.25	9.25@ 9.50	*9.35@ 9.75*	9.25@ 9.50
Stove	Chicago*	5.06	10.00@11.00	8.48@ 8.80	8.71	8.58	8.71	8.58
Chestnut	New York	2.34	‡	‡	8.75@ 9.25	8.75@ 9.15	8.75@ 9.25	8.75@ 9.15
Chestnut	Philadelphia	2.39	‡	‡	9.15@ 9.75	9.00@ 9.15	*8.75@ 9.40*	9.00@ 9.15
Chestnut	Chicago*	5.06	10.00@11.00	8.50@ 8.75	8.48	8.53	8.48	8.53
Pea	New York	2.22	‡	‡	5.75@ 6.50	6.00@ 6.50	5.75@ 6.50	6.00@ 6.50
Pea	Philadelphia	2.14	‡	‡	6.00@ 6.75	6.50	6.00@ 6.75	6.50
Pea	Chicago*	4.79	5.50@ 6.00	5.50@ 6.00	6.03	6.10	6.03	6.10
Buckwheat No. 1	New York	2.22	‡	‡	2.75@ 3.00	2.50@ 3.50	**2.75@ 3.15**	2.50@ 3.50
Buckwheat No. 1	Philadelphia	2.14	‡	2.50@ 3.00	2.50@ 2.75	2.50@ 3.00	**2.75@ 3.00**	2.50@ 3.00
Rice	New York	2.22	‡	‡	1.85@ 2.15	2.00@ 2.25	**1.85@ 2.25**	2.00@ 2.25
Rice	Philadelphia	2.14	‡	‡	1.90@ 2.00	1.75@ 2.25	1.90@ 2.00	1.75@ 2.25
Barley	New York	2.22	‡	‡	1.35@ 1.50	1.50@ 1.75	**1.40@ 1.50**	1.50@ 1.75
Barley	Philadelphia	2.14	‡	‡	1.25@ 1.50	1.50@ 1.75	1.25@ 1.50	1.50@ 1.75
Birdeye	New York	2.22	‡	‡	1.35@ 1.65	2.00	1.35@ 1.65	2.00

* Net tons, f.o.b. mines. † Advances over previous week shown in **heavy type**; declines in *italics*.
‡ Quotations withdrawn because of strike which started Sept. 1, 1925.

tary consuming territory. The country domestic market was slow.

Kentucky Slack Up

Seasonable demand and small production have served to give eastern Kentucky producers a firm market for slack, which commands $1.40@$1.75. Block is $2.50@$2.75; egg and lump, $2.25@$2.50; nut, $2@$2.25; mine-run, $1.75@$2. Demand for the larger sizes is inactive. In the western part of the state, prepared prices closely approximate those quoted in the eastern section. Mine-run is $1.35@$1.75, and screenings, $1.10@$1.40.

Louisville reactions to the labor situation are not in line with those reported from Chicago. Kentucky operators, says Louisville, oppose any general wage reduction at this time and for that reason look with disfavor upon the cuts which have been made in West Virginia and, presumably, at some of the eastern Kentucky mines.

At the Head-of-the-Lakes business continues very brisk. Docks are running close to capacity to take care of contract and spot business which has poured in upon them in a steady stream for several weeks. Unless there should be a sudden letup or weather interference with transportation, dock men believe the movement the next ten weeks will clean up most of the bituminous coal in storage at Duluth and Superior.

Spot Buying Controls

Reports of lower prices at the Eastern mines have dulled consumer interest in further contract commitments—especially since dock salesmen are still canvassing for orders on all bituminous grades except smokeless. Dock quotations, however, are firmly maintained all along the line and the market in screenings at $5 is described as tight. Shipments of anthracite over dock territory continue on a satisfactory basis.

The spell of mild weather has left a little surplus coal in retail yards at the Twin Cities, but the reserves are not of troublesome proportions. Prices are unchanged on all grades. At Milwaukee the trade has settled down for a routine business until spring.

Normal demand for domestic sizes in the Kansas City market has been held in check by a high mercury. Curtailed production over the holidays, however, aided the situation by preventing a more rapid accumulation of unbilled loads at the Southwestern mines. Prices were firm despite weakness farther east. Screenings were in short supply last week and Kansas offerings moved steadily at $2.35, with Arkansas, Oklahoma and Missouri slack commanding $1.75@$2.

Weather Helps Colorado

A slight change for the better, as the result of a drop in the mercury, stimulated demand for Colorado lump and nut in Denver territory early last week. Southwestern buying generally, however, was backward. Steam movement was fairly active. Southern Colorado mines are carrying about 180 "no bills" and the northern lignite field about 20. Colorado slack is selling at $1.30@$1.60. Walsenburg and Canon City domestic lump is quoted at $6; nut, $5. Rock Springs-Kemmerer lump is $4.50; nut, $4; slack, $1@$1.25.

Utah mines are averaging about three and one-half days per week. Retail yards in Salt Lake City territory are carrying fairly heavy stocks despite the fact that some retailers practice hand-to-mouth buying. The slack situation is a little easier, but there still is a surplus of fine coal. Prices are steady. One interesting feature is the increased demand from California.

The holiday closing down of mines in southern West Virginia and southeastern Kentucky has had a favorable influence upon the Cincinnati market. Prices no longer fluctuate over a wide range. Some genuine replacement buying of larger sizes is making its appearance. Sellers have abandoned—temporarily at least—their efforts to crowd the buyers. Wages for the most part have sunk back to the 1917 levels.

Smokeless Prices Firm

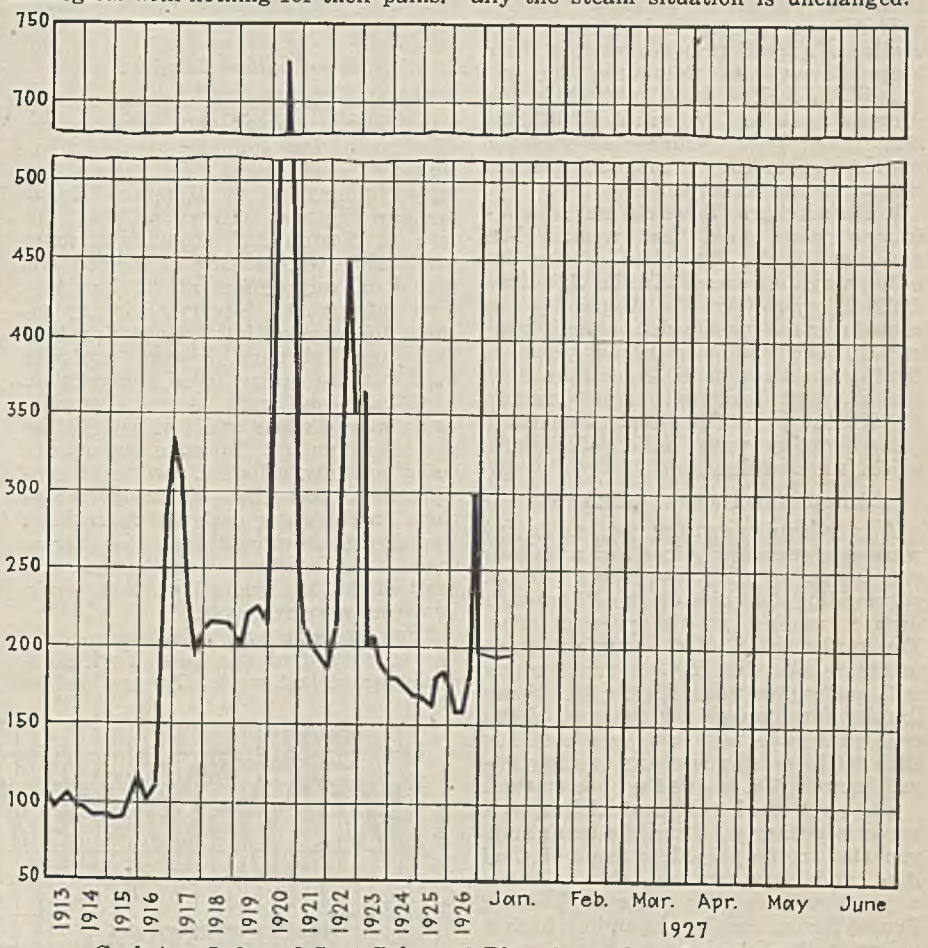
Buyers who thought they could hammer down the January circular on smokeless lump and egg from $3.75 and upset the $3 price on mine-run have been unsuccessful in their "bear" tactics. Stronger Eastern demand pushed up spot quotations to the circular levels and left the Western strategists with nothing for their pains.

High-volatile producers have been less fortunate than their low-volatile brethren. Slack has weakened until the best grades do not bring over $1.40 @$1.50 in the open market and some southeastern Kentucky coal has sold down to $1.15. Egg wavers between $2 and $2.25, although some specialty coals bring as high as $2.75. Specialty blocks are quoted at $3@$3.75, with the general run of coal $2.50@$3.

Movement through the Cincinnati gateway increased over 56 per cent last week. The total number of loads interchanged was 10,370, as compared with 6,607 cars the week preceding. Louisville & Nashville interchange gained 1,868 cars; Chesapeake & Ohio, 1,680; Norfolk & Western, 164. The number of empties en route to the mines dropped from 11,593 to 9,465 cars. The decrease was almost equally divided between the Louisville & Nashville and the Chesapeake & Ohio railways.

Central Ohio Outlook Murky

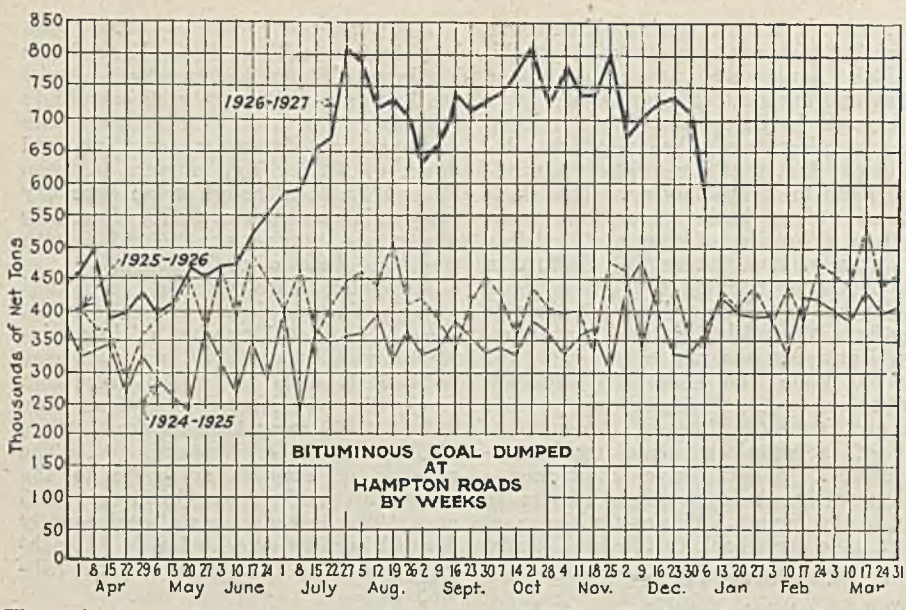
Although there was a fairly steady demand for all grades of coal in the Columbus market last week, underlying conditions are soft. Despite holiday reductions in output, offerings are too heavy for ready absorption. Basically the steam situation is unchanged.



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

	1927		1926			1925
	Jan. 10	Jan. 3	Dec. 27	Dec. 20	Jan. 11	Jan. 12
Index	194	193	198	200	180	175
Weighted average price	$2.34	$2.33	$2.40	$2.42	$2.18	$2.12

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.



There is some storage movement but not enough to keep the market clear of unsold coal. Screenings have held their position because of lessened lump output. The southern Ohio field is running 45 to 50 per cent of capacity.

For the time being, domestic trade in central Ohio shows more activity than the industrial market. Householders are placing orders more liberally, but retail prices have lost their boom flavor. At Columbus, for example, smokeless lump at retail has dropped back to $9; splints, $7.50@$8; Ohio coals, $6.75. Unless the weather man comes to the rescue, still further recessions are anticipated.

In the northern Ohio field market conditions were quiet last week. The nearness of the expiration of the existing wage agreement in the unionized districts, however, is beginning to cause some apprehension among consumers and inquiries are increasing. During the week ended Jan. 1 the Ohio No. 8 field produced approximately 276,000 tons, or 47 per cent of capacity on a five-day week basis. Cleveland prices were unchanged.

Pittsburgh Demand Broadens

A broader demand for coal, no downward movement in prices and a halt to suspension of mine operations are the outstanding features of the Pittsburgh district market at the present time. The major part of the current shipments is absorbed by contracts which will not expire until March 31. Some inquiry for tonnage for the rest of the coal year also has developed and for such business shippers are quoting approximately 10c. above the spot market.

The spot market in central Pennsylvania is unchanged from the quotations reported in the preceding issue of *Coal Age*, and operators are able to move a large volume of tonnage. Western Pennsylvania coals brought higher prices in the Buffalo market last week, with Youghiogheny gas lump back to $2.75@$3; Pittsburgh and No. 8 steam lump, $2.25@$2.50; slack, $1.65@$1.80. Allegheny Valley mine-run dropped to $2@$2.25. The market, however, is none too strong.

In the low-volatile market at Buffalo, quotations on lump coal have eased off 25c. Prices now range from a minimum of $3 on Indiana County (Pennsylvania) lump to a maximum of $4.25 on Pocahontas lump. Mine-run is $2@$2.25. Weather has kept the Toronto market in check, both in anthracite and bituminous. Retail prices on anthracite are: Stove, $16; egg or nut, $15.50; pea, $12.75. Smokeless lump is $12@$13; bituminous, $9.50@$9.75; coke, $13.

New England Brighter

The New England bituminous market was firmer last week—but only because offerings of free tonnage were smaller. Holiday curtailment in production raised quotations at Hampton Roads for New England delivery 20@30c. On cars at Boston and Providence most wholesalers were asking $7 for coal for inland delivery; offers at $6.75 or less were infrequent. Nevertheless any inquiry for substantial tonnage for January and February delivery probably would create active price competition.

All-rail coal from central Pennsylvania attracts less and less interest as the weeks go by. Possible buyers are being actively solicited, but it is considered certain that declining quotations on tidewater coal will force back the all-rail movement into the narrow limits which confined it during the early part of 1926. Quotations last week, however, were stronger.

"Buy at your own price" seemed to be the slogan of the New York soft-coal market last week. Buyers, sad to relate, were little moved by the invitation and even the better grades of coal weakened. In view of the many reports of wage reductions some purchasing agents are looking for still lower prices. Shippers, on the other hand, are hoping that a heavier buying movement will set in after the Indianapolis convention of the union miners.

Philadelphia Market Colorless

The Philadelphia bituminous market displayed moderate activity last week but there were no developments far from the routine. Storage buying still is held in abeyance. Buyers and sellers are dickering over contracts which expired with the end of 1926. One large producer has announced a contract basis of $3.10, but there is so much talk of business renewed at $2.40@$2.75, according to grade, that it is questionable whether the $3.10 basis will be adopted generally.

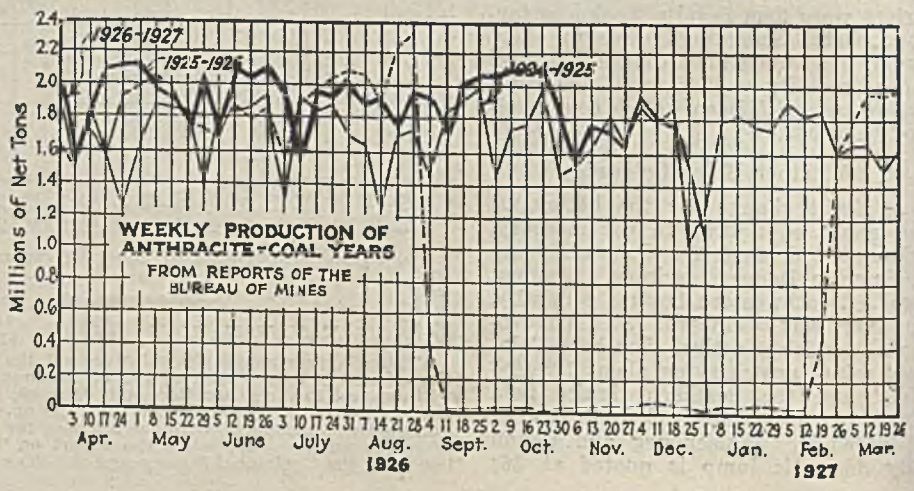
Spot quotations are soft. Efforts of producers to lower wages to the bases in effect prior to Nov. 1, 1926, are as much a factor in the unsettlement as the pressure of the buyers. In a number of cases the posting of notices of wage reductions have been followed by brief strikes. Aside from the bunkering business, the tide trade is discouraging. The few remaining unfilled foreign orders are being shifted to the Southern piers.

Baltimore started the new year in a sluggish mood. Export movement is limited to shipments on old orders. Many charters are being canceled to release bottoms to the grain trade. Industries buying coal in the Baltimore market are not overly active and most of the orders placed are for short-term deliveries. There is considerable competition among shippers to corral this business, but prices are firmer.

Birmingham Marks Time

The Birmingham market has not yet emerged from the holiday letdown. Spot demand is light, but shipments on contract are rapidly approaching the pre-holiday levels. Railroads are taking liberal quantities and bunker trade is unusually good. The domestic end of the market is weak because of continued warm weather. Even some of the better grades are in oversupply. Spot quotations show an average decline of 25c.

In the opinion of traders at New York, more wintry temperatures are



Car Loadings and Supply

	Cars Loaded All Cars	Cars Loaded Coal Cars
Week ended Dec. 25, 1926	772,590	179,195
Week ended Dec. 18, 1926	950,575	230,753
Week ended Dec. 26, 1925	701,079	122,350
Week ended Dec. 19, 1926	967,886	187,398

	Surplus Cars All Cars	Surplus Cars Coal Cars	Car Shortages All Cars	Car Shortages Coal Cars
Dec. 15, 1926	180,140	22,397	.....	.....
Dec. 8, 1926	164,580	13,335	.....	.....
Dec. 14, 1925	172,577	60,245	.....	.....

needed to bolster up the local market in domestic anthracite. A few shippers reported a better movement of egg last week, but complaint was general that stove and nut were slipping. Pea is steady. Some relief is expected as the result of the curtailment in mining operations the past three weeks.

If the larger sizes are backward, the situation is reversed in the juniors—particularly in No. 1 buckwheat. That size has reached a position of scarcity and independent producers are able to get full company circular for their product. The activity in No. 1 buckwheat also is reflected in a slightly stronger demand for rice and barley.

Anthracite Dull at Philadelphia

All hard-coal producers, reports Philadelphia, have unbilled domestic sizes on cars at the mines. Independent prices have broken down and the individual shippers now are eager to book orders at prices comparable to company circulars. As at New York, demand for buckwheat is swamping the producers. Following the lead of one of the company shippers, all the independents have increased buckwheat prices to a minimum of $2.75 and in some cases they are asking $3. Rice and barley are well sold up.

The Connellsville coke situation is fairly well lined up although the spot market is in rather an anomalous position. The large merchant operators have held to their decision to make no reductions in wages. Smaller ovens, which did not follow the lead of some of their fellows in cutting several weeks ago, are now content to stick to the higher basis. First-quarter contract business is over; most agreements were made at prices averaging $4.25.

Spot Coke Market Uneven

The larger ovens are asking $4 for spot furnace coke, while some ovens with lower wage scales are quoting $3.50 and have accepted as low as $3.25. Spot demand, however, is light. Spot foundry coke is dull, with standard grades $4.75@$5.25. Little is heard of the raw coal market now. Some coal is moving out of the district on contracts which will expire March 31.

Beehive coke production in the Connellsville and Lower Connellsville region during the week ended Jan. 1 was 116,700 net tons, according to the Connellsville *Courier*. Merchant-oven output for the week was 64,300 tons, an increase of 2,040 tons when compared with the week ended Dec. 25, 1926. Furnace-oven output was 52,400 tons, an increase of 1,300 tons.

Utilities Consume More Fuel; Power Output Soars

Public utility power plants in the United States consumed 3,600,282 net tons of coal in November, 1926, according to a report by the U. S. Geological Survey. This compares with 3,699,342 tons in the preceding month, revised figures show. The smaller total for November was due to the shorter month, as the average daily consumption rose from 119,000 to 120,000 tons. Fuel-oil consumption by these plants in November totaled 955,646 barrels, against 911,770 barrels in October.

The average daily production of electricity by public-utility power plants in November, 214,900,000 kw.-hr., surpassed all previous records. The previous maximum rate, established in October, was exceeded by about 1.5 per cent. Based on the figure for eleven months, the total output of electricity in 1926 was about 73,300,000,000 kw.-hr.

Hopeful Uncertainty Marks Year's End to Operators In Central Pennsylvania

One of the most eventful and unusual years in the coal industry central Pennsylvania came to a close on Dec. 31. The year started strong, with the anthracite strike stimulating both production and prices. Throughout the mid-year there was a decline until the latter part of August, when the effects of the British strike began to be felt and caused a big increase in demand, with corresponding increases in prices. This continued until Nov. 15, when prices began to decline, largely due to the resumption of mining in the British mines. Domestic demand, however, kept output at about the same level.

The district produced 48,700,000 tons of coal during the year, which is 5,000,000 tons over 1925 and approximately 9,000,000 tons over 1923. As a result of the rise in prices and the increased demand toward the close of the year practically all mines operating under the 1917 scale had to increase wages to the 1924 scale in order to keep miners. With the slump following Nov. 15, most of these mines went back to the 1917 scale around Dec. 1.

It is difficult to predict what the future will be in the district. Prior to Nov. 1 over 65 per cent of the central Pennsylvania tonnage was produced in non-union mines. The ability of the non-union operators to produce coal in large quantities is now unquestioned, so that, regardless of a possible strike, in case of a disagreement at Miami, there is little doubt that the non-union mines will continue to produce coal in large quantities. Coal operators give it as their opinion that central Pennsylvania will contract for a substantial share of the business of Eastern markets for the coming year and that, all things being equal, 1927 ought to show a substantial increase over 1926. This view will be heightened if Pennsylvania operators get the desired relief in freight rates.

Final Estimates of Monthly Production of Soft Coal By States in 1925

(In Thousands of Net Tons)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	1,906	1,512	1,435	1,364	1,406	1,436	1,553	1,762	1,827	1,937	1,868	1,998	20,004
Arkansas	149	93	73	63	68	70	92	105	113	129	133	132	1,220
Colorado	1,220	830	622	565	605	600	603	763	933	1,147	1,170	1,253	10,311
Illinois	8,340	5,157	4,949	3,755	3,966	3,908	4,431	5,431	5,518	7,048	6,745	7,661	66,909
Indiana	2,638	1,633	1,697	1,384	1,349	1,355	1,440	1,625	1,671	2,104	1,992	2,337	21,225
Iowa	612	392	362	278	293	292	303	370	372	480	466	495	4,715
Kansas	537	365	309	278	278	270	315	373	386	467	461	485	4,524
Kentucky:													
Eastern	3,625	2,902	2,677	2,833	3,345	3,501	3,710	4,039	4,104	4,231	3,835	4,080	42,882
Western	1,144	753	754	669	663	768	862	1,176	1,177	1,310	1,385	1,526	12,187
Maryland	251	203	185	162	167	179	224	245	251	259	274	295	2,695
Michigan	96	74	63	48	34	32	48	60	71	87	84	111	808
Missouri	321	207	182	162	160	162	187	217	228	288	282	298	2,694
Montana	376	215	214	153	156	158	176	243	274	396	381	302	3,044
New Mexico	296	206	190	169	184	183	173	194	208	251	244	259	2,557
North Dakota	157	105	104	70	65	69	68	80	110	185	182	130	1,325
Ohio	2,819	2,180	2,143	1,840	1,903	1,889	1,989	2,293	2,470	2,858	2,851	2,799	28,034
Oklahoma	303	175	157	139	144	147	171	197	192	226	239	236	2,326
Pennsylvania	13,336	11,294	10,963	9,514	9,280	9,748	9,995	11,084	11,818	13,497	12,879	13,520	136,928
Tennessee	497	444	393	375	373	388	437	486	507	520	500	534	5,454
Texas	105	74	63	66	69	75	82	95	95	96	90	98	1,008
Utah	582	308	294	282	257	291	306	413	498	533	467	459	4,690
Virginia	1,146	929	971	922	958	1,031	1,054	1,128	1,174	1,209	1,137	1,141	12,800
Washington	256	194	222	203	170	180	170	212	226	236	234	235	2,538
West Virginia	10,135	8,026	7,911	7,872	9,017	9,861	10,580	11,529	11,674	12,541	11,828	11,407	122,381
Wyoming	766	477	464	328	352	352	377	495	639	850	747	706	6,553
Other States a	27	22	19	20	14	15	16	18	20	22	23	25	2413
Total bituminous output	51,640	38,770	37,416	33,514	35,276	36,960	39,362	44,633	46,556	52,907	50,497	52,522	520,05

a Includes Alaska, California, Georgia, Idaho, North Carolina, Oregon and South Dakota. Estimates by U. S. Bureau of Mines.

Foreign Market And Export News

France Marks Time Waiting Rush of British Coal

Paris, France, Dec. 23.—The French coal trade is still marking time, awaiting the influx of British offerings which are sure to come as soon as the pits in the United Kingdom are back on a prestrike basis of production. As a forerunner of what French collieries may expect when competition is renewed it is reported that inquiries at the French mines are falling off, particularly inquiries from sources normally served by the British producers. Offers of flaming DCB at attractive prices also have been made.

So serious is the outlook regarded here that some of the French collieries have been trying to persuade their competitors to agree to a reduction in mine prices on Jan. 1, 1927. There are many operators, however, who decline to consider any downward change in pithead prices at the present time. The only real promise of change is in quotations on patent fuel and here the reduction will follow lowering in the cost of pitch binder.

Import and export figures for November show that France imported 1,109,835 metric tons of coal, 446,990 tons of coke and 45,858 tons of patent fuel. For October the figures were 1,075,035 tons of coal, 444,451 tons of coke and 91,569 tons of patent fuel. November exports were 231,496 tons of coal, 23,309 tons of coke and 13,105 tons of patent fuel. In October the exports were 334,050 tons of coal, 31,672 tons of coke and 27,266 tons of patent fuel.

Belgian markets, too, according to a report from Brussels, are marking time. Spot industrial demand for Belgian coal still is strong, but consumers decline to enter into contracts for future deliveries, preferring to wait for British offers.

British Orders Disappointing

A feature of the present British coal situation is a shortage of orders, both domestic and export, the demand being generally below expectations, according to cabled advices from London. Export demand is affected by contracts which were placed elsewhere before the end of the strike and domestic consumption is increasing more slowly than was anticipated, while all classes of buyers are awaiting further price reductions. No large contracts have been reported recently.

Production for the week ended Dec. 25 amounted to 4,651,500 gross tons, showing a slight decrease in comparison with the preceding week, due to the holiday. There was an increase in the daily output, as well as a large increase over the corresponding week of 1925, due to an extra working day. There were 945,000 miners employed, an increase of 20,000 in the week.

Best Admiralty Welsh steam is quoted at 26/— to 27/— ($6.31@$6.55) f.o.b.; best household coal, about 31/—. Pithead prices for all grades are weak. There is some friction still over the strike settlement terms, especially the reinstatement of old employees.

A joint coal export committee is proposed for South Wales, chiefly for publicity purposes abroad. It would include coal owners, exporters shipping and railway interests.

Weekly Exports Increase

Exports of bituminous coal from the North Atlantic ports during the week ended Jan. 1 showed a sharp increase over the revised totals for the week preceding. The total, with Charleston figures missing, was 735,548 gross tons.

Detailed figures for the three weeks ended Jan. 1 were as follows:

Port	Week ended Dec. 18	Week ended Dec. 25	Week ended Jan. 1, 1927
	Gross Tons		
New York	5,600	.....	.....
Philadelphia	112,050	86,092	34,318
Baltimore	262,818	145,477	467,889
Norfolk	344,077	302,654	233,341
Charleston	15,745	23,317	.....
Total	740,290	558,040	735,548

Bunker Coal Dutiable

The customs regulations permitting duty-free bunkerage of coal at Canadian ports have been modified by an amendment of Jan. 1, 1927, which provides that ships bunkering at Montreal and other ports east must pay duty at the rate of 50c. per ton on bituminous coal imported from the United States.

The new regulation gives Canadian mines protection on bunker coal in eastern Canadian ports, the duty-free privilege remaining in force west of Montreal. Bituminous coal is regularly du' able at 50c. per ton but duty-free entry of bunker coal has heretofore been permitted at Canadian ports.

Korean Grant Raises Storm

Tokyo, Japan, Dec. 15. — A small political storm has been raised here because of an alleged grant by the Government General of Korea of right to work an anthracite mine near Pyongyang, Korea. The grant was made, it is said, to a new mining company connected with the large Mitsubishi interests.

Export Clearances, Week Ended Jan. 6

FROM HAMPTON ROADS

	Tons
For United Kingdom:	
Br. Str. Pentwyn	6,704
Nor. Star. Suderoy	10,044
Nor. Str. Johanne Dybwad	3,986
For Argentine:	
Br. Str. Glenbridge, for Buenos Aires	4,953
Grk. Str. Despiana, for Buenos Aires	4,573
Grk. Str. Marion J. Goulandris, for Buenos Aires	5,657
Port. Str. Lusa, for Puerto La Plata	7,398
For British West Indies:	
Dan. Str. Nordkap, for Port of Spain	5,078
For Portugal:	
Port. Str. Gaza, for Lisbon	6,016
For Brazil:	
Nor. Str. Poljana, for Rio Janeiro	6,036
Br. Str. Pencarrow, for Santos	6,504
Br. Str. Dovenby Hall, for Rio Janeiro	5,573
For Bermuda:	
Nor. Str. Sneford, for St. Georges	2,261
For Cuba:	
Nor. Str. Askeladden, for Havana	3,708

FROM BALTIMORE

For England (to Queenstown for orders unless otherwise specified):	
Br. Str. Asiatic	5,514
Dut. Str. Alderamin	10,661
Br. Str. Clearton	7,385
Br. Str. Glofield	6,769
Br. Str. Westborough	5,529
Br. Str. Rossey	6,199
Ital. Str. Pratemagna	7,691
Span. Str. Emilia S. de Perez	4,443
Span. Str. Eretza Mendi, for Hull	5,799
Br. Str. Clarissa Radcliffe	8,468
Br. Str. Hopeland	6,963
Br. Str. Dunoff Head	7,150
Br. Str. Ardenhall	7,136
Dut. Str. Aldebaran	10,563
Br. Str. Rhode Island	8,021
Br. Str. Incemore	5,224
Grk. Str. Eleni G. Embiricos	5,912
Br. Str. Netanda	4,582
Grk. Str. Percus	7,390
For France:	
Br. Str. Bedecrag, for Havre	5,500
Ital. Str. Giglio, for Havre	4,163
Ital. Str. Numidia, for Brest	7,030
Ital. Str. Aquitania, for Havre	6,530
Ital. Str. Nasco for, Havre	7,839
Ital. Str. Roana for, Havre	9,215
For Brazil:	
Br. Str. Trenegles, for Rio de Janeiro	6,132
Braz. Str. Uru, for Rio do Sul	5,427
Br. Str. Treherbert, for Santos	6,787
For Italy:	
Ital. Str. Spes, for Genoa	5,385
Nor. Str. Jacob Christensen for Civitavecchi	5,687
Ital. Str. Ansaldo Quarto, for Genoa	6,575
Ital. Str. Angelo Toso, for Genoa	7,468
For Argentine:	
Br. Str. Goldenway, for Rosario	3,928
Br. Str. Craig for Buenos Aires	5,597
Br. Str. Carnac, for Buenos Aires	4,614
For Egypt:	
Br. Str. Mortlake, for Alexandria	4,163
For Ireland:	
Br. Str. Vittorio, for Belfast	3,881
For Malta:	
Span. Str. Mar del Norte, for Malta	3,386

FROM PHILADELPHIA

For Brazil:	
Br. Str. Ingola, for Rio Janeiro	.....
For France:	
Grk. Str. Meropi, for Marseilles	....
For Italy:	
Grk. Str. Ansaldo Secondo, for Genoa	

Hampton Road Coal Dumpings*

(In Gross Tons)

	Dec. 30	Jan. 6
N. & W. Piers, Lamberts Pt.:		
Tons dumped for week	274,657	195,120
Virginian Piers, Sewalls Pt.:		
Tons dumped for week	149,777	125,420
C. & O. Piers, Newport News:		
Tons dumped for week	202,599	199,802

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

Pier and Bunker Prices, Gross Tons

PIERS

	Dec. 30	Jan. 6†
Pool 1, New York	$6.35@$6.75	$5.75@*$6.15*
Pool 9, New York	5.50@ 5.75	*5.25@ 5.50*
Pool 10, New York	5.25@ 5.50	*5.00@ 5.25*
Pool 11, New York	4.75@ 5.25	*4.50@ 5.00*
Pool 9, Philadelphia	5.55@ 6.05	*5.40@ 5.90*
Pool 10, Philadelphia	5.40@ 5.50	*5.15@ 5.25*
Pool 11, Philadelphia	4.95@ 5.20	*4.65@ 4.90*
Pool 1, Hamp. Roads	5.25	*5.00*
Pool 2, Hamp. Roads	5.00	*4.85*
Pool 3, Hamp. Roads	4.75@ 4.85	**4.85@ 4.95**
Pools 5-6-7, Hamp. Rds.	4.75	**4.75@ 4.85**

BUNKERS

Pool 1, New York	$6.60@$7.00	*$6.00@$6.40*
Pool 9, New York	5.75@ 6.00	*5.50@ 5.75*
Pool 10, New York	5.50@ 5.75	*5.25@ 5.50*
Pool 11, New York	5.00@ 5.50	*4.75@ 5.25*
Pool 9, Philadelphia	5.80@ 6.30	*5.65@ 6.15*
Pool 10, Philadelphia	5.65@ 5.75	*5.40@ 5.50*
Pool 11, Philadelphia	5.20@ 5.40	*4.90@ 5.15*
Pool 1, Hamp. Roads	5.35	*5.13*
Pool 2, Hamp. Roads	5.15	*5.00*
Pools 5-6-7, Hamp. Rds.	4.85	4.85

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

Coming Meetings

American Society of Civil Engineers. Annual meeting, Jan. 19-21, 1927, at Engineering Societies Bldg., New York City. Secretary, George T. Seabury, 29 West 39th St., New York City.

American Wood Preservers' Association. Annual meeting, Jan. 25-27, 1927, at Nashville, Tenn. Secretary, E. J. Stocking, 111 W. Washington St., Chicago, Ill.

Philadelphia Coal Club. Annual meeting, Jan. 27, 1927, at the Bellevue-Stratford Hotel, Philadelphia, Pa. Secretary, Charles K. Scull, Philadelphia, Pa.

Northeast Kentucky Coal Association. Annual meeting, Jan. 27, 1927, at Ventura Hotel, Ashland, Ky., Secretary, C. J. Neekamp, Ashland, Ky.

American Institute of Electrical Engineers. Midwinter convention, Feb. 7-10, Engineering Societies Bldg., New York. Secretary, F. L. Hutchinson, 33 W. 39th St., New York City.

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.

New Companies

The Acorn Coal Co., Nelsonville, Ohio, has been incorporated with a capital of $15,000 to own, lease and operate coal lands in the Hocking Valley district of Ohio. Incorporators are Glenn Smith, Thomas Raine, Charles Deer, William L. Lash and A. C. Dow.

The Gus Blair Muddy Creek Coal Co., 300 East 20th Street, Murphysboro, Ill., has been incorporated with a capital of $20,000 to own and operate coal mining properties. The incorporators are Gus Blair, Millard Baker and Daniel A. Blair.

The Edgar Parks Coal Co., of 8015 Aetna Road, Cleveland, Ohio, has been incorporated with a capital of $30,000 to mine and sell coal. Incorporators are Edgar M. Parks, Joseph Stepanski, Mamie Parks, Bernadette Stepanski and George O. Clarke.

A new coal company has been formed under the name of the Pacific Coal Co., capitalized for $500,000, with headquarters at Walsenburg, Colo. Caddell & Sons, who have been operating mines in the Walsenburg field, for a long period of years, are identified with the new company. It is their intention to open up a new mine near McNally, in the Walsenburg field.

The Phoenix Fuel & Mining Co. has been incorporated in Columbia, Tenn., with a capital stock of $100,000, by F. A. Berry, J. S. Arnold and others.

The Cumberland Coal Co. was incorporated early in December in Crossville, Tenn., with a capital of $25,000, by Lucien Clark, Christine McCormac and others.

New Equipment

Removal of Steam Chest Peps Up "Old Timer"

ALMOST at the very beginning of the steel industry it was necessary for heavy weights of material to be moved from place to place, and to provide something more powerful than man-power or the horse. The steam locomotive was early adopted, but modified as to gage to suit the conditions imposed (as to load and ability) in reaching the required points throughout the plant. The growth of the steel mill, mines, and other metallurgical concerns developed to such an extent that the industrial locomotive became of greater importance and developed into a large and extensive manufacturing business of itself.

During the early stages, these locomotives of 24-, 30-, and 36-in. gage ranged in weight from 2 to 8 tons, but the demands in large plants grew to such an extent that weights increased from 15 to even 30 tons for a 23-in. gage. Most of the plants in the early days would have but one or two locomotives, whereas there are large ones today having fifty or more in operation.

It may be generally stated that until within recent years there were no changes in the principles or designs of industrial locomotives. They followed, in general, standard railway practice of frame, boiler, cylinder construction, and Stephenson link motion, although in later years some few industrial locomotives have been equipped with the Welchart outside valve gear instead of the Stephenson.

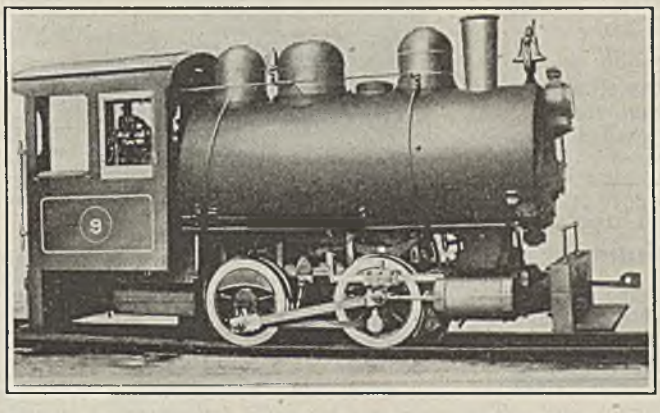
Those who have been responsible for the operation and maintenance of industrial locomotives in steel plants, mines, and other industries where they are kept in continual service, know the enormous amount of repairs due to the arduous work they perform and the grimy conditions through which they travel.

It can be generally stated that one of the largest items of such repairs is the wearing out and replacing of parts of the Stephenson valve gear, as well as the dropping off in pulling power due to the lost motion. This is not quite so much the case with the outside valve gear, although it has an element of injury from "side swiping" or upsetting, which is not a very uncommon occurrence with industrial locomotives.

Both the Stephenson and Welchart gear permit of economies by "hook-up," but it is safe to say that this practice is never carried out in industrial locomotive service, owing to the extremely short distance moved and the fact that loads are stopped and started, requiring the full travel of the valve.

Two years ago a prominent industrial locomotive builder constructed for a large copper interest three 30-in. gage 15-ton locomotives of an entirely new design, although based on an old principle. These locomotives dispensed with any mechanical means for reversing, the steam for each cylinder being distributed by a piston valve operated through a single eccentric, the valves being situated between the cylinders under the saddle. Between these valves and directly under the center of the exhaust nozzle is a piston valve connected to the reverse lever. The steam from the boiler to this valve is controlled from the throttle in the usual manner, as is also its passage through valves, exhaust port, and cylinder. In principle the distribution and operation of the engine is similar to the "Crane" engine, familiar to old-time steel engineers, only that in the case of the locomotive the throttling is not done by the reverse valve but by an independent throttle, the reversed valve being in the maximum forward or backward position. No cut-off economies are possible with this arrangement, but, as stated before, this practice is not in use on industrial locomotives, and seldom in railway yard service; and is therefore not necessarily to be considered.

Two eccentrics of extra wide face and a pin connecting the rod to the valve stem constitute the entire moving parts, compared with the great number required for the present type. The three locomotives thus equipped have been found ideal for industrial purposes, as after a year and a half of the severest service, no repairs or replacements of the valve gear have been required, and, there being no lost motion, the maximum pulling power has



Old Valve Gear Gone

The elimination of the old valve gear and steam chest has, it is claimed, increased the simplicity of this plant locomotive.

been maintained at all times; and, in addition, the piston valves have remained absolutely tight.

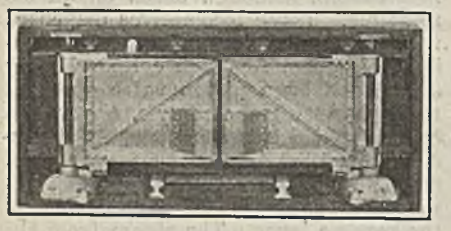
A most carefully conducted test extending over a month was made between two new locomotives of identically the same weight, one fitted with the new valve gear and one with the Stephenson, to determine what, if any, difference there was in their performance under the same condition. The attached tabulation shows what a small difference there was. Indicator cards from both engines were taken at frequent intervals on various loads and were almost identical.

	Stephenson Locomotive No. 8	New Type Locomotive No. 9
Total tons hauled	57,770	56,905
Total cars moved	9,825	8,790
Total miles	499.3	498.8
Total pounds fuel	22,955	23,996
Total tank fillings	69	67
Total gallons water	26,392.5	25,627.5
Total hours working	278.5	275
Tons per mile	115.70	114.08
Pounds of coal per ton	.397	.421

The illustration plainly shows the great simplicity and the elimination of the old valve gear and steam chest. This arrangement, as applied to a locomotive, has been patented.

New Automatic Door Saves Air and Money

The doors shown in the accompanying illustration were designed and developed by Bennett & Meyer, Inc., West Jefferson, Ohio, with a view of giving efficient service with this class of equipment at a minimum cost. The doors when shipped are complete with



Door Is Automatic and Airtight

Opening with and closing after a passing trip, made up of a minimum number of moving parts the manufacturer claims this door to be reliable and economical. It is portable because there are few parts to move.

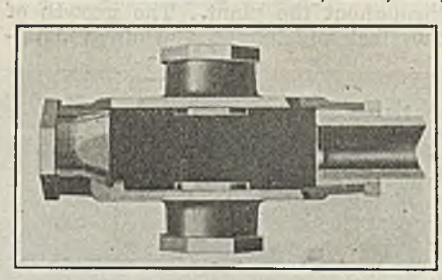
bumpers, springs, all bracing, bearings, shafts, roller bearing rollers and bratticing around the shafts. The lower sill has the base castings and gravity planes attached for immediate assembly, all of which, it is claimed, requires but little time to install. The illustration shows the doors in a closed position, when all air leaks are closed, the doors being opened as the locomotive strikes the bumpers and instantly shut as the last car of the trip passes through.

As the doors open the small rollers at the heel of each door traverse the gravity plane causing the doors to rise and at the same time, causing the upper seal board to close against the upper sill to which it is attached with hinges. As the trip passes through, the doors automatically close because of their weight and the small rollers traveling the gravity planes. The seal board in like manner closes as shown in the illustration. When the doors are shut the small rollers settle in a pocket and keep the doors closed and in alignment.

It is claimed that the gravity planes can be adjusted to keep the doors in perfect alignment by means of the adjusting screws which are shown in the lower right and left hand corners of the planes, but this adjustment is made at the factory and according to the manufacturer seldom needs attention.

New Box Saves Labor In Conduit Erection

Threading of conduit, a tedious and costly operation, is eliminated on a job where the new Kondu-Box fittings, of the Erie Malleable Iron Co., Erie, Pa.,



Details of the Kondu-Box

A wrench, hacksaw and reamer are the only tools necessary in installing conduit with these fittings. The conduit is not threaded but is held securely by a steel bushing having sharp concentric rings on the inside.

are used. The accompanying illustration of a type XB fitting with ends cut away, shows the construction.

A slotted and tapered steel bushing with sharp concentric rings on the inside is pulled into position by a lock nut. The sharp rings of the bushing cut through the enamel and into the metal forming the necessary continuous ground connection and holding the conduit securely.

The fittings are made of malleable iron and therefore are practically unbreakable. The manufacturer claims this grip on the conduit stands 50 per cent more tensile stress than does a threaded fitting. Another distinct advantage of the Kondu-Box fitting is that every joint is virtually a union. Any sort of bend and any desired type of fitting can be inserted without recourse to unions or running threads.

Other merits claimed for the design are that the openings are large and unobstructed, that the cover-screw lugs are so located it is impossible to cause a ground or short circuit, and that the cover screws are so arranged they cannot loose from the cover. The lack of exposed threads next to the fitting adds life and strength to an installation.

Trade Literature

The International Nickel Co., New York City, has published nine bulletins, under one cover, containing data on and applications of nickel steel.

Buff & Buff Mfg. Co., Boston, Mass., has published a bulletin describing and illustrating its **Triangulation Transit**, and also one on its new Model 7 Transit.

Industrial Notes

W. M. Bastable, until recently general sales manager of the Wilson Welder & Metals Co., has been appointed manager of the New York office of the Electric Welder Controller Co., Pittsburgh, Pa., with offices at 26 Cortlandt St., New York City.

The General Electric Co. announces that prices on railway motors and car equipments have been reduced approximately 5 per cent, effective Dec. 1. Prices on general purpose motors also have been cut, the reductions amounting to 5 per cent on most lines and 10 per cent on commonly used sizes of squirrel-cage induction motors. The motors affected by the new price levels include both a.-c. and d.-c., constant and variable-speed general-purpose motors, from 1 to 200 hp. An average 5 per cent cut in the prices of distribution and small power transformers, 500 kva. and less, 73,000 volts and below, became effective Nov. 8.

Joseph T. Ryerson & Sons, Inc., one of the largest independent steel warehousing interests in the country, has purchased the warehouse division and property of the Bourne-Fuller Co. at Cleveland. The property consists of a group of large modern warehouses, with 200,000 sq.ft. of ground area. The plant is stocked with a complete line of bars, shapes, plates, sheets and steel products, totaling about 18,000 tons in all. This will be the ninth Ryerson plant. The others are located at Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Buffalo, Boston and New York.

J. W. McCoy has been appointed assistant general manager of the explosives department of E. I. du Pont De Nemours & Co. For the past year he has been director of the manufacturing division of the department. Announcement also is made of the appointment of J. H. Wellford as director of high explosives manufacture in charge of all high-explosives works. He has been engaged at various plants of the company as chemist and in executive positions. H. K. Babbitt has been named as director of special products manufacture in charge of the works at Pompton Lakes, N. J., and the box and pulp operations in Maine. C. M. Turner, who has been a special assistant in the administrative department, has been appointed special assistant to Mr. Wellford. Ralph Assheton, who has been handling special work at the home office, has been appointed special assistant to Mr. McCoy. J. P. Lunsford has been named manager of the Pompton Lakes works vice John McIver, retired.

The American Brown Boveri Electric Corporation, 165 Broadway, New York, announces that W. L. Foster, formerly sales engineer with the Bridgeport Brass Co., Bridgeport, Conn., has joined its organization and will engage in sales promotion activities.

S. K. Yarrington, of Carbondale, Pa., has been appointed manager of the Hendrick Manufacturing Co. office located at 705 Markle Bank Bldg., Hazleton, Pa.