

COAL AGE

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Peace by Submission

SPEAKING at the round-table discussion held by the National Civic Federation, William Green, president of the American Federation of Labor, declared that much waste in industry would be avoided by capital ending its warfare against the union. This peace by submission would remove, indeed, all quarrels about the unionization of labor, but it would create an entirely new series of troubles just as wasteful as those that preceded recognition. It has been noted that since the workman became unionized strikes have been more frequent and longer in duration than ever.

New forms of contention have been discovered: Strikes to compel men to pay dues, strikes because organization workers quarreled as to who should control the union, strikes as to what work should fall to one class of employees and what to another class, strikes to compel increases of wages, to grant improved housing at inadequate rents, to prevent discharges for inefficiency and incompetency, to make impossible the imposition of safety provisions and to forbid the introduction of labor-saving machines and labor-recording devices. When labor is unionized it strikes no longer for the right to unionize or for recognition, but having gained that power it strikes for a number of further privileges.

The boy who is given a gun ceases indeed to plague his parent to buy him one, but thus armed he is far more likely to do damage to the donor than ever before. The wastes of striking are not cured but increased by unionization, as we all know. The gas, coke and power industries have sought mines in non-union areas confident that thereby they will avoid strikes which jeopardized production, and they have found that their choice was well made. One hundred per cent union means frequent strikes and anything but one hundred per cent operation. Mr. Green knows that, but he trusts the public will forget it, and some, at least, do. If unionism is to be defended, other and better reasons should be cited.

Use Safe Motors for Ventilation

MANY NEW and different types of motors have lately been suggested, and sometimes used, to drive mine ventilating fans, the purpose being, usually, to correct power factor or provide variable-speed adjustment.

These new types of motors are untried; true, they often have quite desirable characteristics, but if they are not entirely reliable they should not be considered for service under dangerous conditions. It would be better to test them on pumps and compressors.

A safe fan motor should operate sparklessly; it should be rugged and simple. Self-starting characteristics are also desirable in fan installations. This may mean a self-starting motor or one which, with a suit-

able, simple and efficient starter, will start automatically. With such an outfit no special device or skilled attendant would be necessary.

A fan motor which will start automatically when power is restored to a line that has been temporarily out of service has definite advantages, for it, without the action of an attendant, will restore ventilation as soon as power is available. The prevention of gas explosions begins with good ventilation.

Sunflower Court Withers in the Blast

THE OUTSPOKEN ENEMIES of the system or regulation set up by the law creating the Court of Industrial Relations of Kansas are ordering gay funeral wreaths as a result of the latest decision of the United States Supreme Court construing the validity of the Kansas statute. Possibly the staunchest friends of the industrial court are not yet ready to admit that this decision is the *coup de grace* finishing the work which Chief Justice Taft begun when he blasted the specious defense of the act with cold, common sense, but the proponents of more government in business at least weep at the low state to which one of their pet measures has been brought. By the terms of the court's decision, the Kansas body cannot fix wages; it cannot determine hours of labor; it cannot, under the guise of protecting the public interest, establish and enforce a system of compulsory arbitration.

The plight of the Kansas court illustrates the danger that may come from attempting to impose a general control to prevent the repetition of a particular evil. If a red-headed man commit murder, the legislative mind seizes upon a prohibition of the growth of sunset locks upon any human pate within the jurisdiction as the most effective check upon future crimes of violence. The Kansas act had its genesis in the natural resentment the Sunflower state felt over the bituminous coal strike in the winter of 1919. The "to-hell-with-the-public" attitude of the union rankled in the breasts of Governor Allen and his advisers, and the laudable desire to curb such callous disregard of public necessities was conceived. But, in seeking to check what seemed unwarranted license, the legislature made the too common mistake of infringing upon Constitutional liberties.

By reaffirming the conclusions reached in the earlier proceedings in this case, the Supreme Court emphasizes anew the fact—which politicians so like to ignore—that it takes something more than mere legislative fiat to clothe a business with such a measure of public interest that it properly becomes a subject for government regulation. "The power of a legislature to compel continuity in a business," remarked the court in the earlier opinion, "can only arise where the obligation of continued service by the owners and its em-

ployees is direct and assumed when the business is entered upon. A common carrier which accepts a railroad franchise is not free to withdraw the use of that which it has granted to the public," except where it is impossible to operate without continuous loss. "Not so the owner (in another field) when by mere changed conditions his business becomes clothed with a public interest. He may stop at will, whether the business be losing or profitable." To this the court now adds: "On further reflection we regard the principles so stated and applied as entirely sound. They are as applicable now as they were then."

It is to be hoped that state and national law-makers will give heed to the sound doctrine enunciated. But the chances are that they will not.

Who Says We Are Backward?

A FRIENDLY CRITIC writing from central Pennsylvania finds much for rebuke in our attitude toward modernization of mines. We take the censure the more seriously because the mine at which this writer has charge was, just a few years back, an example of extreme modernism, a challenge to mining engineers elsewhere. He says that if we assert that mining can be done much more cheaply than it is at the better grade of present-day mines we shall make the miner and consumer disposed to assert that the operator and not the high wage scale is responsible for the high costs of mining.

As a matter of fact, the statement that coal mining is not progressive has always annoyed us and would have vexed us still more had it not been alleged of nearly every industry in turn. We do not believe that mining lacks initiative. When we see an office that does not avail itself of modern equipment—calculators, mailing machines, appropriate files, card indexes, etc.—we are prepared to say it is behind the times and has no excuse for its archaic methods. Why? Simply because these aids are equally useful for all kinds of office work. What will record the sale of pork will keep a record of the sale of coal. What will add up a column of gallons will total a file of figures representing tons.

But as regards instruments which are specific to an industry, it is particularly invidious to make comparisons. Who knows till they are tried how readily cutting, shearing, snubbing, loading and drilling machines might adapt themselves to the needs of the coal industry? The problem is a specific one, not readily solved; certainly not by those who have never entered a mine nor operated one. Perhaps the coal industry is remiss, but we are not sure with all our knowledge of coal mining that such criticism is just, especially as the industry is so specific that it has always to devise its own instruments and its own methods.

Only just lately have new means of loading and transporting suited to our industry been discovered. The wonder is how fast they are being adopted and how many are the new devices being created to meet the demand. A revolutionary spirit is in the mine air. We believe, though we may be wrong, that the mining fraternity is proving unexpectedly favorable to advancement. True we are not achieving the cost reductions that have been observed in regard to, say, automobile manufacture, but that is because we cannot bring the work to the mechanism but have to move the mechanism

to the work, a much more difficult operation, and because we have a factory which is always demolishing its own walls and is faced with the herculean task of supporting the load of some hundreds of feet of overburden. In fact as we have said before, if the structural engineer were asked how much coal could be removed under the pressure of several hundred feet of strata, he would take a pencil and make a few rapid calculations and say that according to the rules he has adopted for the building of airy skyscrapers and cathedrals resting on clay, not a cubic foot of coal could safely be removed.

But still we see opportunities for progress. Examples of such development have recently shown the way. Engineers should take heart, *are* actually taking heart, from them. If the industry, thus shown the way, fails to follow, it will prove itself incompetent and decadent. But there is no evidence that the coal industry is not following the lead taken by pioneers. The advances surprise us. The only drawbacks are lack of funds, which make men cautious, and the lack of support from the unions, which in some cases, have shown a retrogressive spirit. No one is justified in being unduly critical and unappreciative of the progress of coal mining. Its advances have been, and are still, remarkable. There are mossbacks, it is true, although our correspondent is certainly not one of them, but there are not lacking the needed number of enterprising spirits, and consequently the industry can meet all critics with composure. The coal-mining profession is not asleep. It is contributing its share to the progress of mankind.

Reliability More Important than Efficiency

IN MOST MINING equipment reliability within obvious limits is of more importance than any other consideration. Efficiency is an excellent attribute and should never be overlooked in the design of any machine intended for use in or about the mines, but from the standpoint of dollars and cents extreme mechanical or electrical efficiency should never be purchased at the cost of thorough dependability.

Probably few pieces of equipment illustrate this point better than the hoist. The mine shaft and its furnishings, in perhaps most cases, represents a bottle neck through which the mine output flows. Any obstruction at this point ties up the whole operation. Such a tie-up, even though it be of short duration, is so extremely expensive through loss of output that it far overshadows a saving of a small per cent of energy consumed in hoisting. A few pounds of steam or a few kilowatt hours of current, more or less, are of small importance compared to reliability.

What the coal operator most desires in a mine hoist, therefore, is the assurance that, when the hoist-man pulls the throttle or throws the controller, the machine under his care will unfailingly respond to his touch. High reliability costs money just as does high efficiency. It is a sore temptation to the inexperienced buyer of machinery to give ear to the siren allurements of low price. In a machine of this kind, however, a few dollars or even hundreds or thousands of dollars added to the first cost of a mine hoist is money well invested, provided it represents a proportionate increment in reliability. Dollars-and-cents efficiency is what primarily interests the coal producer. Financial return must take precedence over mechanical or electrical efficiency.



"Paint Up" Has Cash Meaning in Mine Towns

Oils and Pigments Save Most When Applied to Prevent Rather than Correct Decay—Hand Brush Superior to Air Spray—Grey and Brown Best Colors in House Maintenance

By Frank L. Adams*
Pittsburgh, Pa.



Frank L. Adams

IN THEIR anxiety concerning wage scales, freight rates and markets many coal mining companies have forgotten maintenance problems. In coal mining communities deterioration of town and plant structures costing millions of dollars is going on for want of paint whose cost is a fraction of that. And now it is spring again — the season when "save the surface and you save all"

is a thought uppermost in the minds of wise property owners. Now seems a good time to explain how to "save the surface."

The fact that most of the largest mine owners are doing it by prosecuting their property maintenance religiously, is a fact worthy of attention throughout the whole industry. They understand painting to mean the covering of exposed surfaces by skillful brushing or spraying with one or more applications of proper mixtures of pigments and oils. The paints are made to adhere to the surfaces so as not to stimulate rust or decay. Only in this way is provided protection from the oxidizing and abrasive action of the elements, not to mention the attack of acid fumes. At the same time the property's appearance is improved.

"We paint regularly and methodically," said an official of a large successful company, "because we consider it good business. We have spent a large sum of money

in building our houses and plant structures. We expect to use these for a great many years. Because maintenance cost is far less than depreciation loss we have found that painting pays, even though our painting costs are large.

"For example, a standard double eight-room mine dwelling costs \$4,000 to build. Without maintenance it will depreciate 10 to 15 per cent in five years. To protect that house over a like period by proper painting costs less than \$100 or about 2 per cent of the capital investment. The saving is easy to figure.

"And it pays to paint well while we are about it. Poor paint and careless methods, will protect a property at most for only three years. Our painting jobs last five to six years, and sometimes longer, so that we save on the actual maintenance cost by doing the work well."

His calculations are based on maintenance by two-coat painting. If maintenance is always kept in the "preventive" class, the re-paint work will call for only one coat, applied at slightly shorter intervals than two-coat, at a cost less than 2 per cent of the capital investment.

Maintenance may be divided into two classes—preventive and corrective. "Preventive maintenance" means continuous protection of surfaces by the application of paint a short time before deterioration sets in. In the case of wood it requires painting at a time when one coat will liven up the old paint, freshen the color and protect the undercoats from rapid deterioration. In the case of iron and steel it necessitates the application of paint before the original primer paint has worn off and before the metal itself starts to rust. By painting iron and steel surfaces just before they reach this condition the costly operations of scraping, hammering and wire brushing in preparation for the application of a primer coat are avoided.

"Corrective maintenance," which, I am sorry to say, predominates in spite of its much greater cost, means waiting until depreciation has already set in. Under

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Note—One good coat of paint will save the houses shown in the headpiece from too-swift depreciation. This is "preventive maintenance" and is far less expensive than "corrective maintenance" which attempts to restore houses after decay has already set in.

this policy it is necessary to scrape or burn off old, chalked, blistered or rock-hardened paint to get the surface ready. This is an expense the "preventive maintenance" company does not meet.

I have seen jobs in the corrective stage in which the cost of scraping and preparing the surface was greater than the cost of applying two good coats of paint. By allowing the stage of maintenance to pass from preventive to corrective, four dollars are spent to do the work which one dollar would have accomplished earlier. Although it is important to paint before the corrective stage is reached, it is still more important to do meticulously what corrective work is required. Otherwise, even the four dollars will be wasted.

Whether it be preventive or corrective, building maintenance is successful only when a fundamentally correct program is skillfully directed. Guess work and hit-or-miss methods must be replaced by science and system. Interesting progress has been made in the last few years in the paint and painting fields.

It is still too much of a common practice for industrialists, mine owners included, to buy barrels of paint on price, giving this "stuff" and cheap brushes to laborers, with orders to go ahead and paint up. If this is good practice the maintenance engineer has no field and his years in study have been wasted.

But it is not good practice, as illustrated by the following experience of one coal company. This company bought on price a considerable quantity of paint. Without much thought or study the company applied the paint itself as best it could on about 200 houses at a cost for material and labor of over \$10,000. Six months later the paint on all these houses began to blister, chip off and discolor. The paints, their color and the methods of applying them were such as to result in a general distrust on the part of that company of all paints and painters. A measurable loss of at least \$8,000 was suffered. Under the direction of paint specialists the work would have been done correctly with paints selected for color and composition to meet the particular conditions at hand, and the cost would not have exceeded the \$10,000.

It may be of interest to know that the Consolidation Coal Co. employs a maintenance engineer to maintain its huge properties in four states. It has been his policy to put his painting jobs into the hands of paint specialists. As an outcome, the painting jobs of this company are long lived and their unit cost is low. This is because the work is done according to modern methods.

DIFFERENT TREATMENTS REQUIRED

The technique of paint maintenance on wooden structures is altogether different from that on steel. And just as there is a wide difference in the technique required for wood as against that for steel, so there is likely to be a marked variance in the proper procedure for one wood structure job as compared with another. Recently I looked over some work in three mining towns owned by the same company. It was obvious that each of the three jobs would require somewhat different treatment.

One of the differences of repaint jobs on wood, which was outstandingly noticeable in the three towns, is the variable condition of the house surfaces. On the houses of one town the paint was almost all off the wood. The wood is thirsty for paint and will absorb

large quantities of it. Consequently, the primer must be mixed to take care of this condition. The old paint on the houses of another town is hard and flinty. These surfaces will require much scraping and brushing; also the oil content in the primer must be fixed to meet this particular condition.

In general, wood surfaces covered with old paint should be mechanically prepared before new paint is applied. All loose paint and dry dust should be scraped and brushed from the surface. The first coat of oil applied to old, blistered, flinty paint will soften up the edges of the blisters and cause them to curl up before the second coat is applied. These edges must be scraped off or otherwise the surface will be rough and later may even peel, taking with it the recently applied coats of paint.

After pains have been taken to obtain the proper pigments, it would be folly indeed to adulterate a perfectly good paint by brushing in a quantity of loose dry dust and dirt with the oil of the primer coat. Manifestly, the preparation of the surface is important.

APPLY ONLY ON DRY SURFACES

Paint should never be applied on wet or even damp wood surfaces. When this warning is disregarded, the paint will come off. Of course it is permissible on rainy days to paint porch ceilings or the side walls within porches, provided the wood is dry.

The priming coat of paint used in corrective maintenance must be "built" especially for the particular surface it is intended to protect. It must contain oils that will penetrate into bare wood and even through the old dry and almost lifeless chalky paint so as to anchor the film securely to the old surface. Its oil must impart new life to the old paint, and must dry with a rough finish so that the succeeding coat of paint will adhere to it.

The quantity and character of the oils in the primer coat will vary somewhat depending upon the degree of bareness of the surface to be repainted. Surfaces of dry wood and chalky paint exposed to the weather require unusual quantities of oil which must penetrate deeply if the paint film is to be sufficiently bound to the wood. Not only should the oil in the primer coat penetrate but it should also form a protective film over the surface. This oil should be quick drying.

The color of the primer coat should be consistent with that of the succeeding coat. The choice of the color depends upon the covering or hiding capacity of the paint. The darker greys, chocolate browns and even barn reds are the best as far as coverage and hiding qualities are concerned. With these colors it is possible to cover with a gallon of primer 500 sq.ft. of surface in fair condition. If the surface is quite dry and chalky or bare of paint, the wood will absorb more oil and the coverage will drop to 350 or 400 sq.ft. per gal.

The hiding qualities of white paint as a primer are not as pronounced as those of darker paints and, therefore, it is difficult to do a satisfactory white job with less than three coats. The most important element in good painting is the skillful application of the proper primer.

The priming coat on wood surfaces should invariably be brushed on by hand. This may arouse a storm of protest but, in my judgment, it is the best method available for painting exteriors of mine dwellings. I have tried sprays of many makes and have observed



These Have Waited Too Long

The group of double houses, shown on the right, because of neglect are no longer in the state where preventive measures can be taken to save them by the application of one coat of paint. They are in the corrective stage which calls for laborious preparation of the surfaces and at least two coats of paint.



Dark Paints Not Unattractive

A good dark paint can be had at less cost than a light colored paint of equal quality and it will prove more serviceable.

work performed by others in a similar manner. The hand brushed job stands up the best. The brush bristles force the paint into the indentations and fissures of the wood surface affording better anchoring.

And as to labor cost I have found that on a good-sized job the differential between the cost of hand brushing and that of spraying is trivial when the difference in the quality of the two jobs is considered. The superior quality of hand brushed work more than offsets the advantage of sprays in the saving of labor.

When one considers the investment tied up in spray equipment and portable air compressors, the wages of good spray men, the loss of time due to clogging, mechanical trouble with the engine drive and the compressor, the number of men in a spray crew, the spillage of paint, the trouble on windy days, the spraying of windows and other surfaces which must be cleaned off, the cost of moving the equipment from place to place and the scarcity of skilled spray men, the advantages must be far reaching to make spraying profitable. If it were more profitable to use sprays on mine house work and the chance of giving quality workmanship equalled that of hand work, I would naturally be partial to the spray.

But, let it be understood, the spray has its place. It is rapidly displacing hand brushing methods in the painting of iron and steel structures and objects, and it is being used almost exclusively for the painting of factory and shop interiors. Its greatest merit lies in its ability to reach with paint all points on a rough surface such as is offered by unfinished concrete, plaster or brick. The spray has the distinct advantage of placing paint on areas inaccessible to the hand brush. Houses, however, had better be hand painted.

BETTER JOB DONE BY HAND

One large operator who tried sprays on mine dwellings gave up the attempt after the first year. Last year his company let a contract for the painting in three months of 600 houses by hand brushing methods. By so doing, this company admitted that it saved money and that the job was done better. Another large coal company, after a great deal of experimentation, requires the contractor to brush on the first coat, but permits the spraying on of the second coat, providing the paint is brushed out afterwards.

There is a difference in the quality of hand brushing methods. Painters should be trained in the use of

best-quality, fine bristle and long staple brushes. These are expensive in first cost but they pay for themselves in the quality and the quantity of work which they permit a man to do in a day, and they certainly provide a smooth painted surface.

It has been found economical to entrust to the contractor who is to do the painting, the minor carpentry repairs and the reglazing or reputting of windows. It is false economy to paint a window sash where the putty is nearly all out. A few months after the painting these must be reputtied, leaving a messy looking window sash. Whatever repairs are needed, be they even so trivial as the reputting of windows, should be made in advance so that the painting program advances without interruption.

SECOND COAT HAS DOUBLE FUNCTION

The second coat in corrective maintenance, which is the only coat in preventive maintenance, is somewhat different from the primer coat because it has a different function to perform. It provides the body or heavy film to resist the weather, sunlight and fumes of the atmosphere. It also serves the function of supplying the color which must stand up and remain attractive even under the dirtiest conditions.

It is my belief that a good heavy bodied paint, either dark grey or brown, made of zinc oxide and titanium oxide and mixed in a reinforced linseed oil (one that will dry with a good gloss) represents the ideal paint for exterior painting of mine houses. To relieve the monotony of the color these houses can be trimmed in cream or dark green, with black window sashes.

These greys and browns show the dirt least; they do not fade; they are among the lower price paints of quality; they spread and cover well, and lend themselves to low labor cost. And while these paints afford an excellent protective coating, I am not saying they are the equal in decorative qualities of the average light-colored paints used in individual residence painting. But the job will stand up longer than the fancy job and will be rated highest in the classification of industrial painting. The best is cheapest in the long run.

The second coat should be slightly darker in color than the primer coat so that the inspector can check the workmen, making sure that they have covered all of the surfaces with the second coat. This slight difference in shades also makes it easier for the workmen to check up on themselves.

Second coat work in towns where smoke from coke ovens or burning mine refuse dumps prevails, or where the dust from tipples is thick, is required to withstand the effects of acid in the smoke and dust. Sulphur fumes when united with the moisture in the air are corrosive and break down the ordinary paint oil in a short time, destroying the paint film.

In coke towns where smoke is heavy, houses should be protected with a paint containing ingredients known to render the linseed oil base impervious to the attack of the acid content of the smoke. Paint oils for use in the coke regions and near burning gob piles should contain china wood oils and gums. These resist the acids, enabling the paint oil to last its full life of six or seven years.

Second coat work on wood surfaces may be either sprayed or hand brushed, whichever proves to be more economical in the labor cost of application. In view of the fact that the second coat is the finishing coat on mine houses and the trim is applied in different colors, it is my opinion that the spray does not save enough in labor cost to offset the inconveniences of the spray method. Hand brushing is necessary for the trim and cutting-in, anyway. In the long run hand brushing is more economical. Above all, it results in a smooth surface free from laps.

Next in importance to the selection of a reliable contractor, if the coal company is not prepared to do the work properly itself—and few coal companies are—is checking of the contractor's work by inspection.

Inspection should be rigid but intelligent. Most serious misunderstandings arising on a painting job are due to a lack of knowledge of painting on the part of the inspector. The coal company should choose from its men someone who has been a painter—the nearer he has been to the rank of master painter, the better. This type of man recognizes good and bad practices and, consequently, is of material help to the contractor as well as to the coal company. He forces the contractor's men to do their utmost in securing satisfactory results.

The inspector should see that the surfaces are carefully cleaned of old paint scale and blisters. These

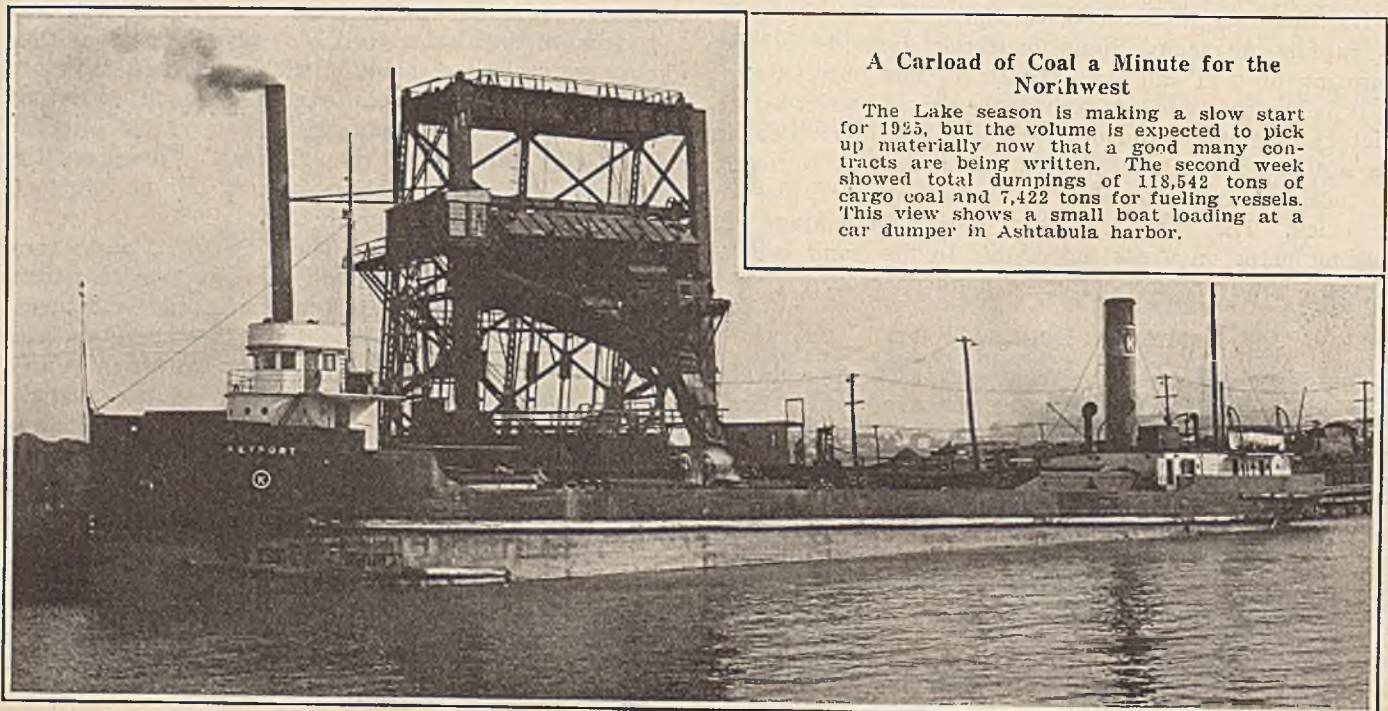
should be scraped and wire brushed. Dry dust and soot should be brushed off with a whisk broom or dust brush.

He should insist that the primer coat be well brushed out and should check the covering capacity of this first coat, by which means he is able to determine whether the paint is too thick or too thin. Laps in the first coat are permissible; they evidence the fact that the paint is penetrating the wood. The absence of laps in the first coat is a sign that all the paint is remaining on the surface. During the time the painter takes in working to the end of his area, the oil remains on the surface and is moist enough to be picked up on the end of a brush and may be blended into one homogeneous coating, which is proof that the primer coat has not been sufficiently brushed.

In the applying of the finishing coat, however, a lap-free homogeneous covering is desirable. By thorough brushing all traces of laps are covered over. White work on a dark or dirty surface is an exception to this rule. It is almost impossible, to apply to such surfaces white paint with oil enough in the first coat and pigment enough in the second to provide a white, lap-free job. In such cases a second finishing coat, or three in all, should be applied. For this reason the applying of paints of lighter shades on houses near coke plants is not advised.

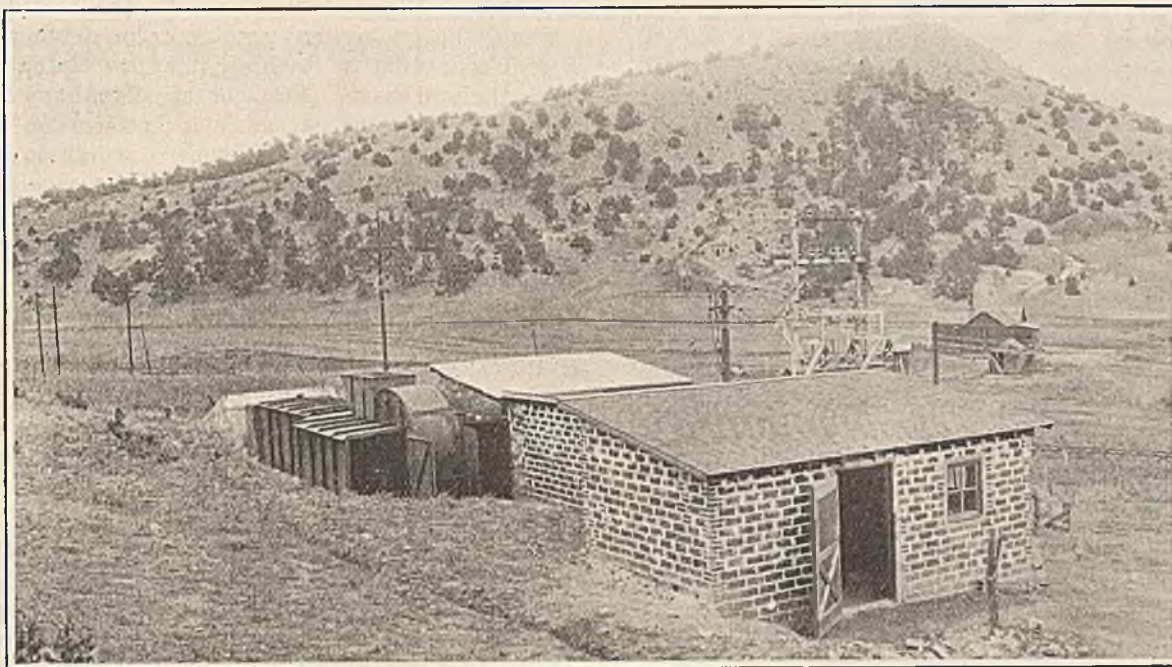
The inspector should inspect the puttying of windows and other incidental repairs, keeping a careful account of this work for future cost purposes and for checking invoices. He should see that the trim is neatly applied and not allowed to spill or be brushed on the base color. Window sashes should be cut in with a minimum of paint on the glass. As the job nears completion, the painters should be asked to clean up any debris from old barrels, paint cans, crates and the like.

It is a good plan to have the inspector pass upon the work completed by the crews each day. Let each day's work stand on its own merit. Point out each day what mistakes, if any, were made. Have them corrected on the same day, allowing no complaint to be carried over to the next. Then the work progresses smoothly.



A Carload of Coal a Minute for the Northwest

The Lake season is making a slow start for 1925, but the volume is expected to pick up materially now that a good many contracts are being written. The second week showed total dumpings of 118,542 tons of cargo coal and 7,422 tons for fueling vessels. This view shows a small boat loading at a car dumper in Ashtabula harbor.



Gassy Mine Triply Safeguards Its Ventilation

One Regular and Two Emergency Drives Provided—
Two Motors and a Gasoline Engine Make Continued
Stoppage of the Air Current Extremely Improbable

By Charles M. Schloss
Denver, Colo.

INSURING CONTINUITY of fan operation at any mine that gives off gas in quantity is a serious problem. The Empire Coal Mining Co.'s development at Aguilar, Colo., is a heavy gas producer. If its fan should for any reason stop, even for a short time, it would be necessary to withdraw the men from the pit promptly.

In order to forestall any such contingency, the company has provided an effective array of regular and emergency power units, any one of which may be quickly connected to the fan shaft. In this case, the electric motor ordinarily used for driving the fan has been supplemented by both an auxiliary gasoline engine and a second motor. Either of these machines will function if all the others fail. This equipment, on the whole, has not proved expensive and officials of the company feel that the outlay involved is amply justified by the greater reliability of service insured.

The fan itself is of the double-inlet type, 5 ft. in diameter and 2 ft. wide. Originally it was driven at 300 r.p.m. by a 20-hp. motor operating at 1,145 r.p.m. This was connected to the fan shaft by means of a silent chain operating within an oil-tight casing and in an oil bath. Current for this motor is furnished from the line of the power company that serves the Aguilar district.

About a year ago it was decided that more air should be circulated through the mine workings. At the same

time it was agreed that a multiple drive for the fan would be advantageous. The use of a steam engine was considered, but this would require an installation of boilers and a fireman for each of the three eight-hour shifts. This would prove expensive and a gasoline engine was suggested. At first, some doubt was expressed as to the dependability of such a machine, but after thorough investigation it was decided that a well-built unit of this kind was reliable in operation. Such an engine was, accordingly, purchased.

This engine is a 5½x7-in. four-cylinder machine, with inclosed fly wheel. It is completely equipped with all necessary manifolds, a water pump, magneto, a starter

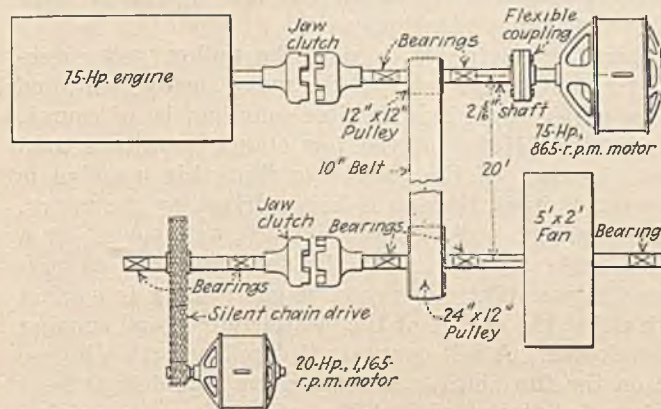


Fig. 1—Layout of Fan Drives

The headpiece shows the fan and fan house at Aguilar. The building in the foreground with the shingle roof houses both the electric fan motor and the gasoline engine employed in emergencies. The white-roofed brick building, beside the fan casing, houses a smaller motor connected to the fan shaft by a silent chain drive. A covered brick passageway connects the two buildings and protects the belt from the weather.

The fan may be driven by any one of three machines. Connection between the fan and gasoline engine, however, is such that when the engine is in operation it ordinarily spins the armature of the larger motor. This does no particular harm. If this motor requires repairs the flexible coupling joining it to the pulley shaft may be unbolted, thus allowing either the engine or the small motor to drive the fan without rotating the larger motor's armature.

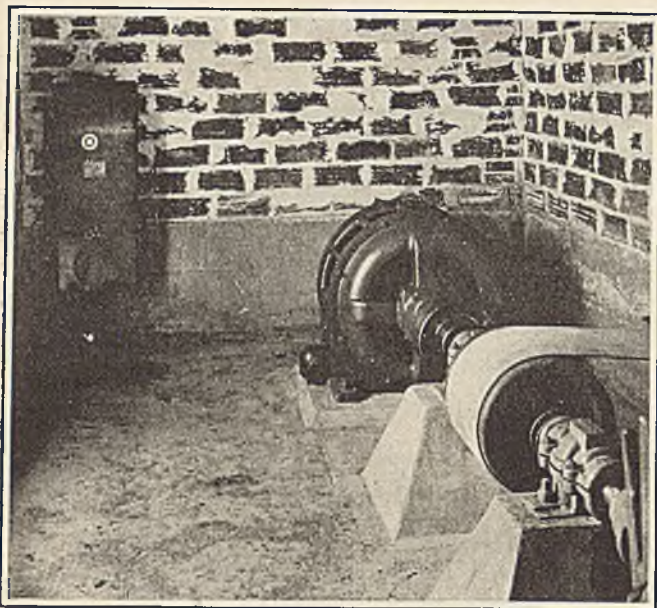


Fig. 2—Motor End of the Drive Shaft

In any regular fan drive reliability is of paramount importance. In this respect few machines employed about the mines are more dependable than the induction motor. Conduit below the floor connects the motor here shown with its starter at the left.

energized from 12-volt storage battery, carburetor, gear driven fan, radiator and a power take-off consisting of a twin disk clutch and an operating lever. A fuel tank also is provided. A mercury-arc rectifier, purchased separately, was employed to keep the starting battery always fully charged.

Soon after installation, it was found that the radiator was too small to keep the circulating water cool during hot weather. A $\frac{3}{4}$ -in. pipe line was installed, discharging into the radiator through an adjustable cock, thus supplying a stream of cold water for the engine.

The primary drive is, of course, an electric motor. This is of the squirrel-cage induction type, of 75 hp. and operates at 865 r.p.m. As may be seen in Fig. 1, the belt pulley, keyed to its shaft, is supported between independent bearings. Either the motor or the engine can drive this pulley, but the motor is connected to the pulley shaft by means of a flexible coupling, while the engine shaft is provided with a jaw clutch. The engine is also fitted with a friction clutch, so that the jaw clutch can be connected, the engine started under no load, and the friction clutch put into operation after it has been brought up to speed.

When the engine is driving the pulley, and consequently the fan, the rotor of the motor, being connected to the pulley shaft by a flexible coupling, is, of course, driven also. However, the jaw clutch permits a total disengagement of the engine so that this machine is inoperative when the fan is being driven by the motor.

The driving pulley and its shaft are placed at a considerable distance from the fan, in order to preclude the possibility of any mine gas coming in contact with either the engine or the electric motor and causing an explosion. A belt connects this pulley with a larger one on the fan shaft. A chain drive would have been preferred, but the advisability of keeping the driving machines at a distance from the fan shaft would have made the cost of such a drive prohibitive.

Five gallons of gasoline, constituting the immediate fuel storage for this engine, is kept in a tank mounted on the wall of the fan house. This is filled by a pipe

line from a 50-gal. tank placed on the hillside above.

The 20-hp. motor first employed for driving the fan is still connected to it through a jaw clutch and the original chain drive. An elaborate signal system rings bells in the hoist house and lamp house when the electric power fails. If the fan stops, a switch on its shaft rings a number of gongs and energizes several incandescent lamps placed around the surface plant, thereby calling the attention of all outside employees to the stoppage of the fan.

The power units at present installed permit driving the fan at full speed by the engine in case of either power failure or difficulty with the large motor. Also they provide for driving it at reduced speed by means of the small motor, in the event of failure of both the large motor and the engine. Cost of the gasoline unit, including auxiliary driving connections, completely installed, amounted to about \$2,000.

Considering that three or four power failures sometimes occur in the course of a day, during the summer months when electric storms are common, company officials feel that this installation has more than paid for itself in the year that it has been in operation. This equipment has been passed on and recommended by the state mine inspector and the inspector for the Employees Mutual Insurance Co.

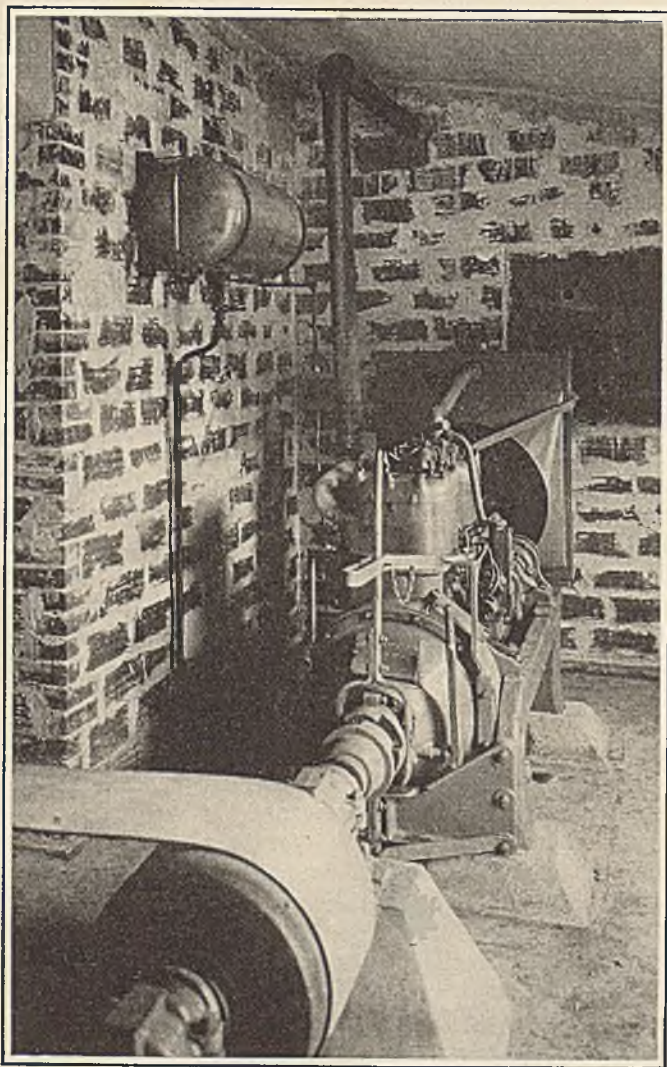


Fig. 3—The Auxiliary Engine Drive

Looking from the fan house door toward the engine. This machine is fitted with both jaw and friction clutches, gear driven magneto, starter, fan and radiator. In hot weather a stream of cold water is delivered to the radiator assuring that the engine will run cool.

Illinois Experience Helps Make Mine Haulage Safer

Madison Coal Corporation Uses Extra Size Locomotive Cabs, Hose Guards on Trolley Wire, Shields on Section Line Switches, Etc.—Large Trolley Wheels and Grease on Wire Help Lessen Flashing

By H. T. Bannister
Glen Carbon, Ill.

EXPERIENCE TEACHES a great many valuable lessons in the art of making haulage safe in coal mines. Out of such experience grew many safe practices and devices such as those used by the Madison Coal Corporation.

Any discussion of the use of locomotives in underground transportation in Illinois coal mines, from the standpoint of safety or otherwise, naturally resolves itself into separate considerations of the gathering and main line haulage, each of which presents its own problems.

For main line haulage three types of locomotives have been used with more or less success. Gasoline and compressed air locomotives have such distinct limitations in Illinois that they practically are eliminated. This leaves us with the various types of trolley locomotives, coupled with the limited use of storage battery locomotives, as the only machines to consider.

When we consider that some locomotives weight from 15 to 20 tons and haul trains that easily can have a gross weight of 150 tons, the problem is one of real railroading under unusually difficult and hazardous conditions. Situations can and do arise, that call for just as quick thinking, capable judgment, prompt decision and effective action as ever could be demanded of a surface railroad locomotive crew. The crews of underground locomotives are under the further handicap, as compared with the surface crews, of being hemmed in on all sides with very little chance to save themselves by jumping in case of accident. Prevention of accident, under these unfavorable circumstances, is, therefore, of more than ordinary importance.

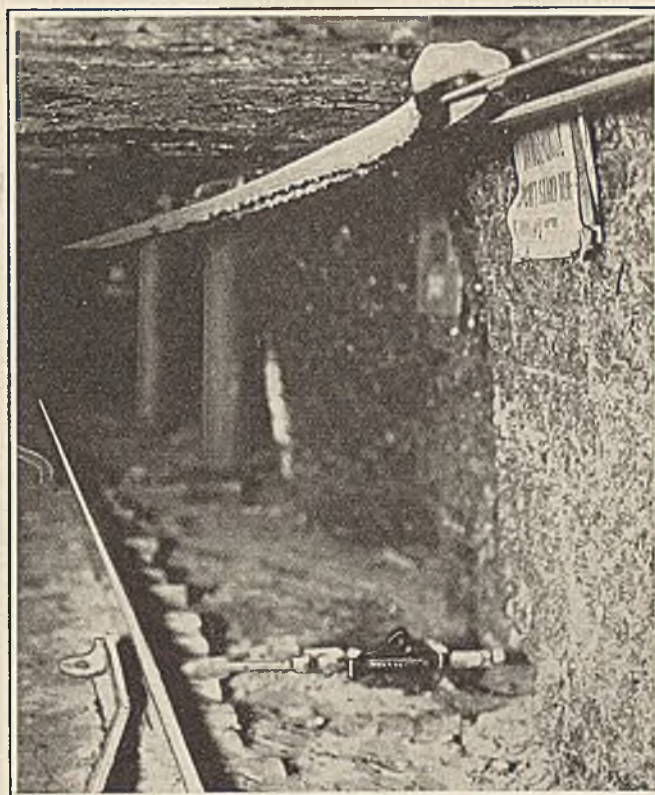
Considering the matter first from the standpoint of safety to the locomotive crew, the following points have all demonstrated their importance in our experience with mine haulage:

SHOULD HAVE AMPLE CAB ROOM

All locomotives should have ample cab room at each end so that the motorman and triprider can each have a secure seat, reasonably safe from injury in case of collision, and in no danger of being thrown off the motor by a sudden bump or jerk. Handholds should also be bolted firmly to the locomotive frame and within easy reach of both the motorman and triprider when they are seated in their cabs.

In our experience we have traced several accidents to insufficient cab room on the older types of locomotives and we now require the manufacturers to arrange for cabs with ample space at each end, even if the unit price be higher, which in some purchases has been the case.

Having met this particular requirement so far as the



Hose Plays a Safety Role Here

Along this entry, where men sometimes have to walk, the trolley wire runs through a long guard made of discarded fire hose split lengthwise. Feeder cable, which is here shown running parallel to the trolley, is carried inside of small hose and is thus protected against contacts. The sign says: "Dangerous! Don't Stand Here. Derailments Often Occur at Switches."

equipment is concerned, the men must be instructed and required to use the protection so offered them and under no circumstances should they be permitted to move a locomotive without being seated in the operator's cab. We had a man seriously injured while attempting to switch a few cars because he tried to walk along beside the locomotive with his hand on the controller. It would have taken only a second to get on his regular seat but he did not take the trouble, with the result that he got severely squeezed at a door.

The custom, unfortunately too prevalent everywhere, of the triprider jumping off the moving locomotive and running ahead to throw a switch, should be positively forbidden under penalty of discharge. This practice is bad enough in gathering work, but in main line haulage, with the heavy locomotives and trips now so common, it is frequently suicidal. If its necessity cannot be avoided by the installation of automatic doors and switches, there are only two things left from a safety standpoint—trappers and switch throwers must be put on the job, or trips must be required to come to a stop before the triprider goes ahead.

This paper was read by Mr. Bannister before the Illinois mine safety conference in Springfield, Ill., Jan. 16, 1925.

Another habit that has resulted in a number of injuries, is the practice of a motorman coasting up to a latch or switch point and endeavoring to throw the switch with his feet or hands. We have had cases where motormen have received severe injuries when following this dangerous practice.

Every company should require electric lights to be placed wherever falls of roof have left high places along the entry, so the locomotive crew can plainly see the edges of the fall. It seems to be human nature for men to rise when such a place is reached, and many accidents have occurred through failure to observe the opposite edge of the fall in time to get down again. This is also a safety measure of value to men who are hauled to and from their work.

UNDERGROUND PHONES EFFICIENT

In high tonnage operations the safety of locomotive crews, as well as the efficiency of main line haulage will be augmented by the trips moving under control of a dispatcher located at a central point, preferably near the main bottom, where also he can supervise the general activities at that important place. The universal use of the telephone underground makes this easy. We have found it an important contribution to safety and efficiency.

Each locomotive should have a headlight sufficiently strong to disclose readily a gob-slide, fall, or other obstruction 200 or 300 ft. ahead. This can be accomplished satisfactorily with modern equipment without resorting to the old type of arc lights with their blinding brilliance.

The electrical equipment and wiring of the locomotive should be in the best of condition so the danger of shock will be reduced to a minimum. This can be insured only by systematic inspection, with repairs made promptly under supervision of some one in the electrical department who is held personally responsible for this duty.

Trolley wires, feeder cables and entry circuits in general should be installed as permanently as possible with sufficient clearance to minimize the danger of contact with locomotive crews or other men using the traveling way. Unavoidable conditions in some places limit the clearance that can be obtained, but the importance of this as a safety measure should not be overlooked. Hangers should be of the best type and at short distances apart, depending on conditions.

Definite rules should be prepared by the safety and electrical departments which will govern the installation of all circuits, due consideration, of course, being given in the preparation of such rules to the local conditions in each mine.

RUBBER HOSE USED OVER WIRE

Although the mining law specifies guarding of electric wires only at traveling ways, yet it is equally important to guard wires where the locomotive crews pass under them. After experimenting with wooden troughs, canvas covers, rubber belts, etc., we finally have standardized on a 3-in. rubber hose that is split, placed between the clamps and hangers, so as to hang over and around the wire, and flared open at each end to allow the trolley wheel to enter.

This hose, down the full length of the protected wire, opens easily for the trolley to pass, closes again at once, and thereby affords complete protection. Since

using this method of protection we have had no cases of shock to men or animals, but previously, where other types of protection were in use, there were some serious accidents, one of them fatal.

Section line switches are frequently installed in such manner that the locomotive crew is required to throw them in passing. This generally is done while the motor is moving at a fair rate of speed, and is a prolific producer of minor and occasionally of serious accidents. Where this cannot be avoided by the use of switches automatically controlled by trolley clips, motormen should be compelled to stop their trips to throw the switch, which, itself, should be guarded with fiber shields to prevent burns such as are frequently inflicted by electric arcs. Protective shields of this character can be made readily and installed at the trifling cost of 40 or 50c. each.

We have found that under our conditions the use of as large a trolley wheel as possible reduces arcing and flashing to a marked degree, resulting in less hazard to the eyes of the locomotive crew. We get appreciably better results from the 5-in. wheel than from the ordinary 4-in. size generally used. At points where flashing is troublesome we have found that greasing the wire with medium cup grease greatly reduces this hazard, and one application remains effective a surprisingly long time.

PROTECT ALL USERS OF HAULAGE WAYS

When all possible measures have been taken for the safety of the locomotive crews, attention should be given as carefully to elimination of injury to others who must use the haulage ways. The most effective safety measure is to provide a separate traveling way for the men, but this, unfortunately, is seldom possible. Where this cannot be done the provision of safe clearance between the locomotive and the ribs and timbering, together with free and unobstructed refuge places, of course at the legal distance, is of first importance. The refuge places should be kept well whitewashed, and illuminated with an electric light at each one where restricted clearance or other conditions create a special hazard.

Signs should be placed at switches and curves, warning of the danger of derailments at such places. Special provision should be made for the safety of trappers, switchthrowers, and others whose duties keep them close to the tracks. This can be provided effectively by cutting recesses in the rib. These afford ample protection from a derailed locomotive or car.

USE RED LIGHTS ON REAR

Fatal injuries frequently have been inflicted upon men who have stepped out of refuge places without observing an oncoming broken trip. They get run down. We have had two such occurrences which could have been avoided easily if the men had watched for the rear-end markers. The ordinary markers do not readily attract attention, but we now use storage battery rear-end lamps, showing a red light, and believe the men are acquiring the habit of watching for them as the trips pass. We have had no accidents from this source since putting these markers in use.

Many of the safety measures applicable to main line haulage apply with equal force to the use of locomotives for gathering work, and their enforcement is even more necessary because the modern mine uses many more

machines for this work than for main line haulage. We have three types of gathering locomotives to consider; reel-and-cable, storage battery and the crab type, the latter being of early design and used now only where rooms run to the dip, or where conditions are such that the locomotives cannot be taken to the face. Few of this type, however, have been purchased in recent years for use in Illinois mines, hence we will dismiss them from further consideration.

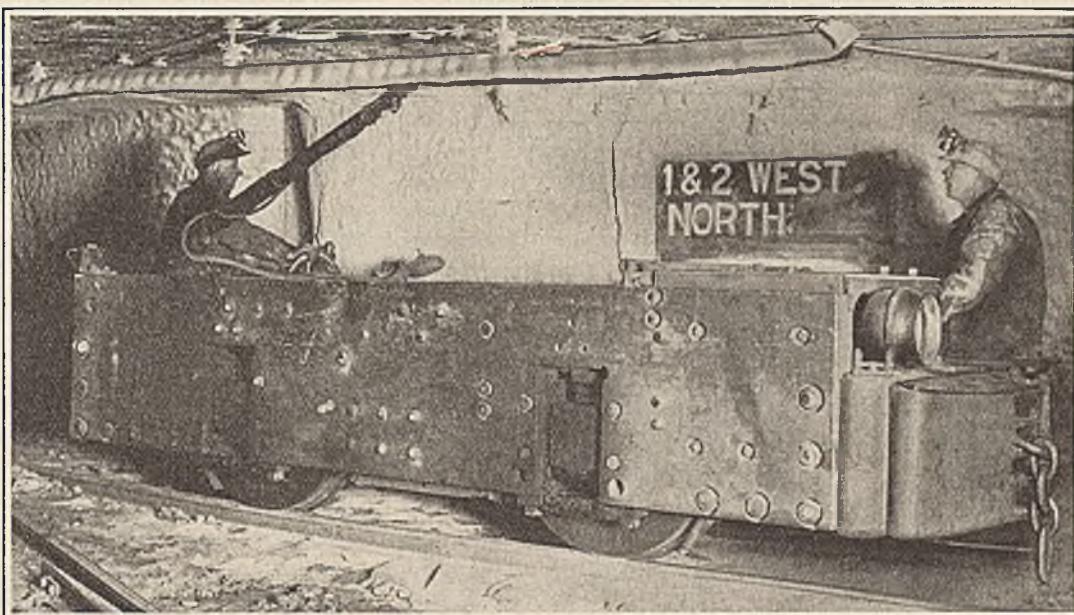
Where reel-and-cable locomotives are used it becomes necessary, of course, to install trolley circuits in the entries of all production areas. Because of the great amount of local travel in such areas the installation of these circuits calls for even more attention to the safety factor than do main line trolley circuits. Effective guards should be placed at all crossing points and a section switch, either automatic or manual, should be placed in the line at a distance of not more than 300 ft. from the first working place in the entry so as to pro-

tial of 90 volts, and inasmuch as practically all parts of the locomotive are carefully protected and inclosed, the danger of shock with this class of equipment is negligible. In fact, all hazards of mechanical and electrical nature are so thoroughly minimized with this type of locomotive that safety in its use depends largely upon good track work, proper clearances along the entries, partings and room necks, and last and most important of all, upon the human equation.

Some men are, by nature, so careless and indifferent that they could not safely operate a wheel barrow on the surface in broad daylight. Such men—and there are many at every mine—should never be put on haulage work of any kind. In our own experience with battery locomotives, extending over a period of eight years with a fleet of machines which now numbers over fifty, there have been remarkably few serious injuries to locomotive crews, and none that could be directly attributed to the equipment itself.

Where a Few Inches Extra Count

Madison Coal Corporation locomotives are equipped with roomier cabs for operator and triprider, even if the initial cost of the machine is greater—which it usually is. The motormen take chances enough, the company thinks, without handicapping them with lack of space.



vide a means to disconnect the power from the working face in case of accident.

With a reel and cable locomotive, no matter how carefully operated, we have always the menace of the cable, which will become worn and frequently damaged by being run over. If it is not properly spliced and the best material used in repairing, there is great danger of shock and of fire starting from a defective cable. Therefore, the cable, as used on the reel-and-cable type machines, should be frequently inspected by a competent man who should be the judge as to when a worn cable must be discarded.

There is also the hazard of the frequent connecting of the cable to the source of power. It is suggested that wherever possible, junction boxes be installed so that the connectors can be attached and the power then thrown on, thus avoiding any chance of flash or shock.

The storage battery locomotive comes nearer being a fool-proof machine from a safety standpoint than any other kind of gathering equipment, and it, therefore, is to be regretted that a storage battery locomotive is not applicable to every form of mine haulage. With its use trolley wires and cables can be abolished, thereby doing away with two big hazards.

Most of the storage battery locomotives now being used in the mines of Illinois work at a maximum poten-

Care should be taken to prevent the use of locomotives on the shift or idle days by unauthorized men. One or two serious accidents caused in this way taught us to require all trolley machines to have their poles locked down to the frame as soon as they come in after the close of the working shift. All battery locomotives are promptly run into the charging station where the battery attendant is held responsible for their care.

There are certain mechanical features that ought to be embodied in every locomotive in order to make haulage safer. Buyers in the market for equipment should watch for them.

The locomotive should have adequate shock absorbing and equalizing features. The method of trunk wiring should be safe and workmanlike. Most companies are using iron conduit or heavy rubber steam hose specially made up with flexible ends well clamped and bolted to the frames. Strong and well designed gear cases should be used, with gearing raised well above the ties so that damage to this part of the equipment will be brought to a minimum. Most locomotive builders are now trying to raise the frames, motors, etc., 2 in. to 6 in. higher from the track than was the case with the older types.

The locomotive ought to have well designed motor suspension. A few accidents have been traced to this cause. When the motor suspension fails the motor

drops and wrecks the locomotive. This is likely to happen when the motor is at full speed and when passing over switch points or cross-overs. Control equipment should be designed to operate practically sparkless, all contacts or contactors to be of extra heavy design. Controller frames should be well braced and grounded to the frames and floor plates of the locomotives.

The controlling handle should be keyed, bolted or locked on so that it will not slip off when in operation. A case came to our attention recently where the motorman was standing up in his cab, and when applying the power he lost his balance and, in falling, pulled the controller wide open. The handle came off in his hand and he landed in the middle of the track. Luckily the locomotive was not connected to any trip, and finally came to a stop crosswise of the track, having derailed at a curve. What a great chance for a serious accident both to man and equipment! And why? Because the operator was standing when he should have been sitting, and depending on the loose controller handle to maintain his balance.

Each locomotive should be equipped with three circuit breakers or fuses (one main protector, and one protector for each motor in the locomotive). The manufacturers, as a rule, supply only one main fuse or breaker. The steel or wooden covers which are placed on the top of the locomotives should be bolted securely in place. Accidents are on record where the covers have jarred crosswise of the locomotive, getting caught in the rib and finally landing in the cab, inflicting severe injuries on the motorman. Accidents of this kind happen quickly and before the locomotive can be brought to a standstill some one gets hurt. Particular attention should be given to storage battery locomotives, where in some cases the battery compartment lids simply rest on the compartment with nothing to hold them securely in place.

After all the safety devices that the manufacturers can provide have been installed, and after all possible safety measures have been taken by the mine management, the human element is still to be contended with. A reasonable degree of safety can be obtained by pressure on the men, constantly and steadily applied by the supervising officers, to enforce all the safety rules.

New Bulletin Covers Coals and Mining Methods of Washington

A discussion of coal-mining problems in the State of Washington is contained in Bulletin 190, by George Watkin Evans consulting mining engineer, just issued by the Bureau of Mines. The character of the coal beds of Washington renders the production of clean coal difficult, and much of the output is washed before it is marketed.

On account of extensive folding and faulting of the coal measures, mining in Washington presents many difficulties; therefore, a description of the methods employed at some of the mines may be useful in planning operations in other regions, and is presented in this bulletin. The coals of Washington differ in quality, ranging from true lignites in Cowlitz County, in the southern part of the state, to anthracites in the Mount Baker district of Whatcom County, in the northern part. Most of the output consists of sub-bituminous coals, the latter including both coking and non-coking varieties.

The U. S. Geological Survey has estimated that the State of Washington contains 11,412,000,000 tons of bituminous coal and 52,442,000,000 tons of sub-bituminous coal in beds more than 14 in. thick.

In Bulletin 190 there are discussed coal mining methods employed in the different counties, taking up such matters as slopes and rooms, pillar drawing, blasting methods, haulage and hoisting, ventilation, timbering, drainage, and preparation of coal.

Copies of Bulletin 190 may be obtained from the Department of the Interior, Bureau of Mines, Washington, D. C.

Cause of Barrackville Blast

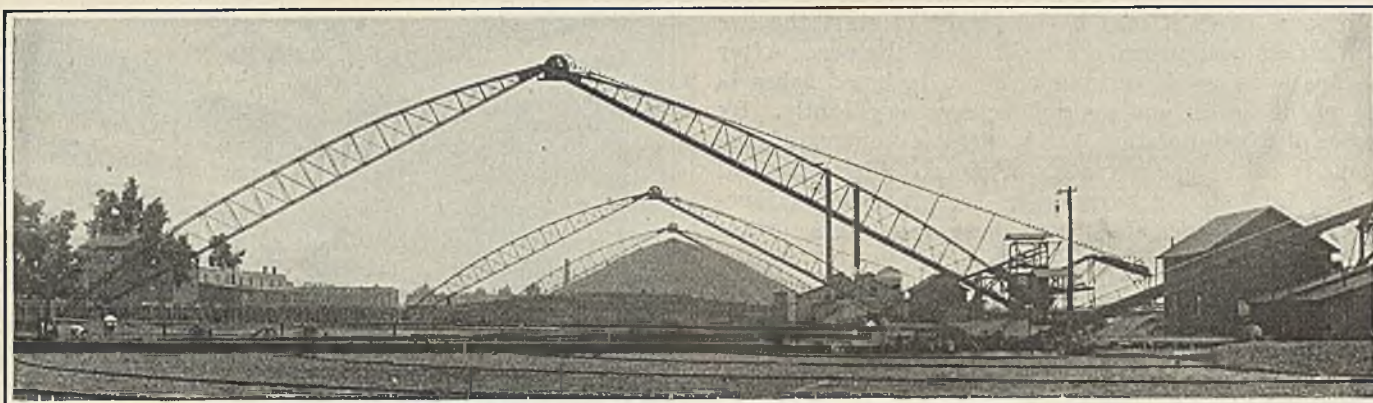
In amplification of the article entitled "Nobody Knows Cause of Barrackville Mine Blast," April 9, pp. 531-534, it may be said that the four men who were held on suspicion—they had not been arrested—were released during the inquest as a result of the testimony.

In this report also, p. 534, Mr. Paul was made to say that the "absence of coal dust is generally an indication of the seat of an explosion." This should have read "the presence of coal dust."

Summer School For Coal Men

Airplane view of Carnegie Institute of Technology in Pittsburgh, Pa. This is one of the American technical schools serving the coal industry. A coal-mining course, comparable to that offered this summer in several other colleges, will be given here from June 15 to July 14, to prepare miners to take Pennsylvania examinations for the positions of firebosses and foremen. This school is offering training in bituminous coal mining for technical graduates.





Bridgeport Transfer, Abrams, Pa.

How to Overcome Consumer Sales Resistance to Purchase of Pea Coal for Domestic Fuel

Only Producers and Distributors Using Pea in Their Own Furnaces Can Fire Householder with Burning Enthusiasm—Persistent Publicity the Remedy for Consumer Prejudice

By Sydney A. Hale

Special Contributor, *Coal Age*
New York City

TWO THINGS become increasingly plain the more comprehensively the merchandising background of anthracite pea is surveyed. On the one hand stands the fact that there is a real place in the domestic market for this much abused size. On the other hand is the fact that the advantages to the householder in the use of this fuel have never been fully capitalized by the coal industry.

Clearly, what is needed is a new set-up that will emphasize the service which pea coal can render to the consumer. The selling of that service should begin with the producer. He should know how to burn pea coal and, if his heating equipment is at all adapted to it, should actually use pea. In no other way can he become so fired with enthusiasm for this size as the most efficient for certain, definite purposes that the service idea will be uppermost in his thoughts.

The producer who has sold himself on the merits of pea is in a position to communicate his enthusiasm to the retailer. The retailer who knows how to use pea—not theoretically, but by actual practice—is in a position to urge its wider use by his customers, firm in the conviction that he is performing a bona fide merchandising service for his patrons. There is nothing abstract about these conclusions. In no case that has come under my observation has success been attained otherwise.

MUST BE CAMPAIGN OF EDUCATION

The merchandising campaign must, of necessity, be a campaign of education. It must be consistent and persistent. Under the old hit-and-miss methods, much of the good work in some communities has been a dead loss as far as other communities have been concerned. Many of the prejudices, much of the common misconception as to the possibilities of pea in the domestic field

have continued to flourish. Obviously, the first steps—once both producer and distributor have been sold upon the value of pea coal—should be to root up the prejudices and misunderstanding and to capitalize, in a broad way, the work done in isolated instances by wide-awake distributors.

The objection most frequently raised when the use of pea coal is advocated is that this size is so small that it will fall through the grates of the average household heating plant. Some enthusiasts have suggested narrow spacing between the grate bars. It is a suggestion worth looking into both from the coal man's standpoint and from the standpoint of the manufacturer of general heating equipment.

Indeed, a share of the responsibility for the sales resistance to the marketing of pea probably should be laid at the door of the furnace manufacturers. The designers of their equipment have given little or no consideration to the possibilities of burning pea and buckwheat coals; so manufacturers' recommendations have favored the larger sizes. This neglect has opened the field to a limited group of companies pushing specially designed grates and other auxiliary devices.

CHANGES IN GRATES NOT ESSENTIAL

Changes in standard furnace design, which would include the installation of grates that could be readily adjusted to hold pea coal without losses to the ash-pit, undoubtedly would go far in breaking down consumer prejudice against the smaller sizes of anthracite.

Such changes, however, cannot be expected overnight. Moreover, desirable as they would be, they are not essential to the immediate marketing of pea coal. It has been established again and again in actual test that pea coal can be burned on practically any grate in use in ordinary domestic heating plants. All that is required is a little care in building the fire and a little care in shaking the grates.

Fourth of a series of articles on the merchandising problems of anthracite. Preceding articles in this series appeared April 2, April 9 and April 16.

In some cases it may be necessary to start the fire with larger coal to make a bed to hold the pea. After the fire is in good working order, a layer of ashes is left on the grates and shaking is done very lightly. By proper draft regulation quick, flexible control of the intensity of the fire is readily attained. Where the coal is used for banking purposes or is burned in conjunction with the larger sizes, even these simple precautions are unnecessary.

One concrete objection that must be overcome by the distributors rises from the householder's cellar. If the householder is to become a consumer of pea or buckwheat as a complementary fuel, he will need another bin in which to store the new size. Once he has been sold on the service idea this objection will lose most of its force. The physical difficulties will not prove insurmountable if the retail distributor has impressed upon the consumer the practical advantages the householder will enjoy in the use of this fuel.

MEETING THE DOUBLE-BIN OBJECTION

A New York State dealer, who increased his 1924 sales of pea 100 per cent over his 1923 tonnage, begins his campaign a year in advance, suggesting, where necessary that the consumer build an extra bin or divide his present one during the months his furnace is not running. Another retail coal merchant, not to be blocked by the householder who advanced the double-bin argument as his last wavering line of defense, has taken boxes to the cellar to serve as pea storage space until the consumer is ready to provide a separate bin.

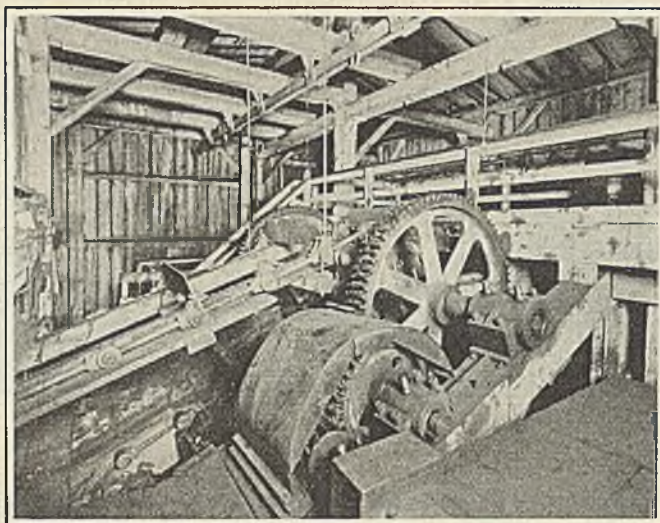
In the opinion of many retail distributors, the merchandising problem would be made easier if there were a substantial reduction in the mine price on pea coal. Some advocate such a reduction as a temporary measure while a concentrated drive to introduce pea to new consumers is on. There are others who feel that a widening in the differential between pea and chestnut should be a permanent part of the anthracite price structure.

A recent meeting of representative retail distributors in New York City declared that the tonnage of pea moving through retail channels in Manhattan and the Bronx was steadily decreasing. The belief was expressed that if prices were cut so that the differential between pea and No. 1 buckwheat would not exceed \$1.75 per ton, the market on the former size could be stabilized and consumption in those boroughs might possibly be increased.

Such a solution, however, would hardly benefit the producers, who are striving to avoid a decreasing return on the smaller sizes of coal. Even as a temporary expedient its value is so extremely doubtful and the chances for misunderstandings, which later would lead to bickerings between the retail distributor and the householder, are so many that there is little to commend the proposal.

EMPHASIZE SERVICE, NOT PRICE

Emphasis upon the service this coal can render will make emphasis upon the price less important. Pea coal should be sold not upon the basis of how cheap it is, but by showing that it will perform a certain service more efficiently and more economically than any other size. With merchandising on that basis, the price will be of secondary interest, but the fact that that price means a dollars-and-cents reduction in total



Where Anthracite Arrives at Top of Breaker

Head of drag scraper. The coal can be seen on the lower part of the illustration. It is still unsized, part large and part small. There is no reason why the public should be asked to buy the small sizes, the pea and the buckwheat, merely because the coal cannot be mined without them. The same argument would require him to take the rock. The reason why he buys it is because it is cheaper than the larger sizes and can be made to render an equal, or even a greater service, if properly prepared and rightly used. It has a legitimate field—pea and buckwheat for banking the fire and for magazine furnaces.

fuel costs increases the attractiveness of the selling plan.

The nomenclature of anthracite sizing may be set down as a minor drawback. To a consumer unfamiliar with the coal, "pea" and "buckwheat" may be meaningless names or may convey an impression that those coals are much smaller than they really are. To the retail dealer, these names still suggest the lowly steam coal and subconsciously, albeit unjustly, there is still a residuum of feeling that these sizes are sailing under false colors when they enter the domestic market.

For this reason, the suggestion has been made that pea coal be marketed under a new name. There are appealing possibilities in this, but the insurmountable objection is the fact that the change would not alter the character of the coal. Enemies of the new movement would be in a position to say: "Oh, yes; they couldn't sell it as pea, so they changed the name—but it's the same old stuff."

A more infrequent objection advanced by the ultra-cautious is that the use of small coal increases the liability of explosion in the household furnace—in effect, robs anthracite of its "fool-proof" character. Upon this point, O. P. Hood, chief mechanical engineer, Bureau of Mines, says:

"It is perfectly true that it is possible to produce gas explosions in a household furnace with the fine sizes of coal more readily than with the larger sizes. I have had the same thing happen in my own furnace, using chestnut coal.

HOW GREAT ARE EXPLOSIVE HAZARDS?

"The conditions favoring an explosion are the complete covering of a hot fuel bed with fresh coal to a depth that smothers all the igniting tongues of flame. Obviously, those coals that ignite most readily will give the greatest trouble in this respect. The finer the coal the greater the surface presented, the more gas generated, and the less thickness of fresh coal that will smother the flame. All these tend to produce explosion phenomena.

Skips at Inclined Shaft

In heavily pitching measures such as at this operation at Lansford, Pa., much coal of fine sizes is inevitably made. For such mines the merchandising of the fine sizes is as important a problem as proper engineering that will reduce the percentage of such coal.



"One good remedy is to be sure that always somewhere on top of the fuel bed there shall be an igniting flame. This is, frankly, rather difficult in banking a fire for the night with fine coal on a thin, hot fuel bed. The remedy is all in the management of the fuel bed. Some of the hot coals can be heaped to one side so that when sufficient weight of fine coal has been placed on the fuel bed, there will still be a small portion of glowing coals to ignite the gas.

"Another way is to place the requisite amount of coal on the fire, and then dig down, perhaps in the center of the fuel bed to make a thin spot that will at once ignite."

If pea coal is to be sold as a *quality* fuel—and that is the only way in which it can be successfully and permanently merchandised—it follows as a matter of course that the preparation of the coal at the breakers must be top-notch and that shipments must be most closely policed to prevent sub-standard carloads from leaving the mines.

PREPARATION MUST BE TOP-NOTCH

Poorly prepared shipments have wrecked more than one dealer campaign and soured distributors. A common complaint from retailers has been: "I would just get nicely started with the trade and then get a rotten car and that would destroy all that I had done." With the adoption of the new standards of sizing (*Coal Age*, March 19, p. 436; March 26, p. 477), the promise is made that pea will be a more uniformly sized and better prepared coal than it has been in the past.

Advertising, of course, must be considered as one of the integral parts of any merchandising campaign. Both producer and distributor need to employ more of the force of publicity. Both want to study the meaning of cumulative effect in advertising. There has been some excellent work done, some mediocre copy published and considerable advertising of a paleolithic character. Some copy has achieved a highly desirable easy informality that encourages friendliness; other copy has been as coldly repellent as a bank statement. Certainly, if any copy should exude a genial warmth it should be copy advertising coal.

If advertising is to play its part in breaking down consumer resistance, the drum-fire of publicity must be continuous. One broadside, one circular letter, one newspaper campaign will not do the job. The story must be told week in and week out by the producer and by the retailer. All adaptable forms of publicity—

newspaper, billboard, direct mail—should be used. And the copy should not be standardized to petrification. Constant dripping of water will wear away the hardest stone, but it is well to remember that it is a fresh drop of water that takes up the burden the moment the force of its predecessor has been spent.

One of the most important jobs that advertising can do is to take up the promotional work at the point where immediate self-interest compels the retail distributor to discontinue his attempts to break down consumer resistance. "We are talking pea to every customer and selling this size where it is at all possible," explains a New York upstate retailer. "But, we are all human and after we have gone into the matter of burning smaller coal with our customers we have to abide by their decisions and deliver to them the kind of fuel they demand. If we were to insist upon selling them sizes which did not meet with their approval, we would be due for a fall."

This reluctance to press personal solicitation too far is real, particularly in communities where competition for business is keen and some distributors are making no special drive to induce householders to try out pea coal. It is in situations like that, and there are many of them, that advertising can do yeoman service. By newspaper copy and by impersonal literature mailed out by the retailer, he can carry on the propaganda without risk of giving offense to his customers.

Finally, in the early stages of the campaign, it would be well for the retail distributor, after a preliminary canvass, to have a selective, rather than a blanket, list of prospects for intensive cultivation. There will be many consumers so firmly convinced in their own minds that they cannot use pea to advantage that they will resent and oppose any direct effort to change their opinions. Others will not want to take the trouble to learn how to handle this size in their furnaces. More headway will be made, therefore, if the intensive cultivation is concentrated upon consumers who are in an open frame of mind. Time, persistent advertising and the use of pea by their neighbors, eventually will bring the stubborn-minded consumers into line.

The domestic market for pea coal is so rich in potentialities that it is well worth an attempt to consolidate the scattered and sporadic efforts that have been made to widen distribution into an unremitting campaign to sell this size to the householder on the basis of service.

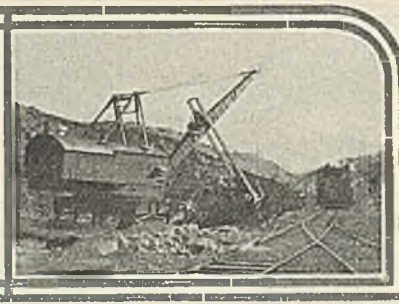


Steel Headframe and Tipple, Cranberry No. 1 Mine

These modern top works are at the Cranberry No. 1 mine of the New River Co., Cranberry, W. Va., where a new Jeffrey entry driver and a longwall loader are being tried out.



News Of the Industry



Has U. S. Supreme Court Paved Way for Unionization of All Industry?

By Paul Wooton

Washington Correspondent of *Coal Age*

Many predict that the day will come when the Supreme Court of the United States will look with alarm on the giant it has unchained as a result of its decisions in the Kansas Industrial Court Law. With immigration restricted, this decision paves the way, some think, for the eventual unionization of all industry.

The Industrial Court law was an outcome of the coal strike of 1919. The legislature influenced by the public anxiety and by the picturesque, but unsuccessful, effort of Governor Allen to mine coal with the state militia, passed the law which has given rise to so much controversy since.

The law provides that disputes in essential industries, including the production of food and fuel, are subject to such arbitration as may be meted out by the special court. The court was given power to fix wages and working conditions. It furnished a clear cut issue in the matter of compulsory arbitration.

Labor viewed this development with alarm. The United Mine Workers were particularly interested in seeing the law overthrown, but were content to let Alexander Howat do the attacking. Coal operators in Kansas also laid low but were glad to see someone take up the cudgels against Howat. At heart they were alarmed over the implied power of the court to compel them to run their mines and fix wages which they realized meant the ultimate fixing of prices. Although the law was directed at strikes, it implied public control over employer as well as employee. The case which went to the Supreme Court was brought by an employer.

In 1923 the Supreme Court held that the fixing of wages constituted interference with the right of contract and, therefore was unconstitutional. It held, in short, that fixing wages, quite as much as fixing prices, is regulation—a control which might be proper as applied to public utilities, but which could not be extended to all business simply on the ground that it produced a necessity of life. It was in this case that Chief Justice Taft made the memorable obiter dictum that since the adoption of the constitution it never has been supposed that the business of the coal operator and of the coal miner is so clothed in the public interest that the price of product or the rate of

wages could be fixed by regulation.

This phase of the opinion was hailed widely by the coal operator as protecting them against state or federal regulation. The fact that it applied to labor as well as capital seems not to have attracted attention.

The court's ruling that the Industrial Court may not fix wages, now says specifically what it implied before, that it may not fix hours of labor. It is in line with a number of other decisions of the last few years. Minimum wage laws were held to interfere with the right of contract. The decisions in connection with the arbitral features of the transportation act all intimate that the constitutional guarantees as to freedom of contract or as to the deprivation of property without due process of law extend to activities of laborers in selling their labor, either as individuals or collectively through the trade union.

What Will Real Effect Be?

The far-reaching effect of these decisions is not generally realized as yet. Some of the early interpretations of these constitutional principles prevented the federal government and the states from controlling effectively combinations of capital and from regulating rates of railroads and other public utilities. The early decisions seemed to favor capital. The Supreme Court was regarded by many union leaders as a partisan tribunal, but these recent decisions show that the court is just as ready to apply these principles to labor. In addition to precluding federal or state interference with the laborer, they mean that government has no power to interfere with combinations of labor or with the terms of labor agreements.

These decisions strike a new blow at centralization of authority and strengthen the tradition of individual responsibility. The court in effect says: "Your power to regulate is very limited." The constitution already had said, in effect: "Such regulatory powers as are given are to be divided between the federal government and the states so that neither can accomplish much."

Ford coal mines in Kentucky and West Virginia last year produced 1,862,936 tons of coal, of which, 1,444,536 tons were used at Ford Motor Co. plants. The 418,427 surplus tons over the company's requirements were sold to the public.

Utah Keeps Closed Lights

The Utah Industrial Commission on April 10 reaffirmed its stand against open-flame lights in coal mines. The code, written a year ago, which forbade them, will stand. Several weeks ago the commission conducted a public hearing as a result of an agitation for open-flame lights led by the Union Carbide Sales Co. and several operators, but at the last moment those in favor of them failed to testify. The commission's refusal to modify the code in view of this was a foregone conclusion.

Forty Arrests in Indiana May Improve Shot Firing

About forty affidavits were sworn out April 16, for miners working in Shirkieville mine No. 1, at Shirkieville, Ind., charging them with violating the state mining laws. This move follows several explosions in the mine in which at least four shotfirers have been killed in four weeks. The affidavits were separate and made returnable in various courts to make possible more ready disposition of the cases.

This action is taken by the state mine inspector in an effort to enforce regulations for safety which have not previously been obeyed, he claims. Inspector Dally declares he is going to show certain miners of Indiana that the law regarding legal firing of shots has teeth in it. The operating company contends it cannot compel the men to obey the law.

Hocking Valley Operators Band Into an Association

A new Hocking Valley coal operators' organization has been formed by about 85 operators of the Nelsonville mining district and is styled the Southeastern Ohio Coal Operators' Association. Headquarters have been established at Nelsonville, with Don McGill, of the Lick Run Coal Co. as secretary. H. Charlton, of the Black Diamond Coal Co. of Columbus, is president and John C. Baird of the C. Robbins Coal Co. is vice-president.

The association is to look after the mutual interests of operators, especially with regard to labor and traffic. The organization was launched about March 20, and several meetings have been held for the drafting of the constitution and by-laws. A meeting was held April 16 when additional members were received.

Mail Order Coal Is Worrying Midwest; Montgomery Ward May Sell It

The retail trade throughout the Midwest is getting disturbed over the growth of mail order coal business. Two things added to this perturbation during the past week: Simon Levy, of Chicago, head of the biggest direct-to-consumer house in the country, contracted for the entire five-years output of the Franklin County Mining Co.'s mine at Benton, Ill., and Montgomery Ward & Co., the great mail order merchandise house of Chicago, sent out a circular letter suggesting that it, too, may sell coal.

Heretofore, Mr. Levy, who is head of several mail order coal concerns in Chicago, including the Boyleston Coal Co., Washington Coal Co., and Bernice Coal Co., with offices in a big south side residence renamed "The Coal Exchange Bldg.," has specialized in western Kentucky coal. This was easy for him to buy. But now he is getting into Franklin County, a mining region whose name has been made a household word by advanced advertising and selling methods of several great Illinois mining companies.

Levy Guarantees Running Time

Mr. Levy has made a five-year contract, mine run basis, at a price in the vicinity of \$2.15 per ton, f.o.b. mines, net to the operator. The contract contains a stipulation that the mine is to receive a certain number of days' work each week. If Levy's concerns are able to furnish more working time, it is said the price of mine run will be reduced accordingly. It is also rumored that this five-year contract is subject to renewal.

The Franklin County Mining Co. heretofore has been very closely connected with the Great-West Coal & Lumber Co., of which J. F. Gascoigne is president. Until this recent change Mr. Gascoigne was vice-president of the Franklin County Mining Co., but he has

resigned and is reported to have bought back the stock in the Great-West company, heretofore held by J. M. Seymour, president, R. R. Ward, treasurer of the Franklin County Mining Co., and their associates. This deal, giving the largest coal mail order house in the United States a direct connection on Franklin County coal, is perhaps going to force a great many retail coal dealers out of business or cause them to re-vamp and remodel their present business methods.

Montgomery Ward & Co., a house that heretofore has given all of its attention to marketing manufactured products to the farmer, is now giving serious thought to the opening up of a coal department. It has picked a certain territory in Minnesota and has circularized its mailing list there to sound out the people. The letter, which is accompanied by a questionnaire, reads as follows:

"Will you give us your opinion on a plan we are considering which should make it possible for you to save a nice amount on your coal expense?"

"A number of our customers have suggested recently that it would benefit them if we would arrange to sell coal. We have investigated the situation and find that if several customers in a community could buy a car load together, we could sell coal considerably below usual prices.

"The only way the order could be handled is this: You and your neighbors would club together and order a carload (40 to 50 tons). One of you would collect the money and send it to us with the order for the car load. The car would then be shipped to the one who sent us the order. When it arrived you would divide the coal among yourselves, according to the number of tons each ordered, and make arrangements for having it delivered to your homes.

"We are wondering whether there would be any difficulty from your standpoint in handling an order for coal in this way. That is why we are writing this letter to you. We would like your opinion on this point.

"We think the plan is a good one but we realize that to be successful it must be a real service to our customers and one they can use. To make it easy for you to give us your opinion, we have put some ques-

Horse Drops Into Mine

While at work in one of the big mines of the Harbison-Walker Refractories Co. at Luthersburg, Clearfield County, miners recently were surprised by a crashing noise in the mine and, upon investigation, found a horse struggling to gain its feet in a pile of dirt and rocks. The horse, the property of A. B. Bloom, had dropped 30 ft. into the mine when the surface on the Walter L. Leach farm gave way beneath its weight. Though badly frightened, the animal was uninjured. By several hours' work the debris was removed and the horse was led from the mine through the main slope, little the worse for the experience.

tions on the other side of this page. You can just fill in the answers and use the stamped envelope we have enclosed for your convenience. Your frank opinion on this matter will be appreciated. It will be an indication of your friendship which we value very highly."

Pennsylvania Legislature Juggles Hard-Coal Tax

The Pennsylvania Senate at Harrisburg, April 15, passed finally the Heaton bill repealing the tax on anthracite. The action was a gesture merely, as the bill had no chance of passing the House upon three different days prior to adjournment. At the same time the House bill repealing the tax was in a Senate committee and had been for a week or more. The passage of this would have put the matter up to the Governor.

The opposition of anthracite interests is said to have resulted in the killing of the bill of Governor Pinchot to ratify the Delaware River treaty compact regulating the use of the waters of the river. The bill was passed through the House but struck trouble in the Senate and the conferees were named.

British Safety Experts Who Come to Advise with Us and Learn Our Methods



E. J. Foley

Ernest Julian Foley, C. B., and his associates represent the Safety-in-Mines Board of the British Government. Mr. Foley's public career has been laid in the Civil Service. He has served on the Board of Education, General Post Office, Admiralty and Inland-Revenue Departments of Great Britain. He was Assistant Director of



R. V. Wheeler

Transport in 1915. Dr. R. V. Wheeler, who has been in America before with his assistant W. R. Chapman, is the senior editor of "Fuel," a publication of the Fuel Research Board dealing with the treatment of fuels. In the combustion and ignition of gases and in the treatment of mineral fuels he is probably the leading authority. Dr. H.



H. F. Coward

F. Coward, who brings his wife with him, expects to take up his residence in Pittsburgh, and to contribute for one year to the researches of the Pittsburgh Station of the U. S. Bureau of Mines, initiating studies into the ignition and combustion of gases. This visit of the commission may lead to closer international harmony in safety research.



W. R. Chapman

Strike in West Virginia Is Spreading Into Panhandle; Consolidation Mines Close

Eight hundred and fifty men were thrown out of employment Saturday, when the Consolidation Coal Co. closed two mines and four coaling stations along the B. & O. R.R. This, and a strike of an undetermined number of non-union miners in the Panhandle counties are the newest development in the strike situation in northern West Virginia.

The Consolidation plants that were closed are: Mine No. 96 at Baxter, which employed 250 men; mine No. 87 at Ida May, which employed 375 men and these coaling stations: West Fairmont Shaft No. 38, near Fairmont; Highland No. 36 along the M. R. branch of the B. & O.; Perry mine No. 62, in Harrison County, and mine No. 25, at Pinnickinnick, Harrison County. Two hundred and twenty-five men were employed at these stations.

The Consolidation Coal Co. is one of the few large concerns signed up under the Baltimore agreement with the United Mine Workers that had worked after April 1. While no official announcement was made, it is reported that non-union coal companies have been taking business away from union plants and this probably hastened the closing of the Consolidation plants. Frank R. Lyon, vice-president, said the company had closed these mines indefinitely.

The United Mine Workers are trying to stiffen the morale of the striking miners by holding mass meetings all over the upper Monongahela valley, and trying to hold out hope by telling the strikers that the miners all over the country will sustain them and aid them financially. If reports are correct, the union miners are getting dissatisfied with the amount of relief that they are obtaining.

The miners believe that the morale of the strikers will be improved when John L. Lewis, international president, addresses a series of mass meetings in May.

A daily average showed 118 non-union mines to be at work in the strike zone according to figures compiled by the Northern West Virginia Coal Operators' Association. The peak number to work any one day was Tuesday, April 14, when 127 were active, while the least number to work was 109, Friday, April 17.

In the first five days of last week the non-union mines loaded 3,788 cars of coal, which represented 81 per cent of the normal daily non-union production prior to April 1, when the strike started. Union mines produced 1,223 cars of coal in that period. Non-union production totaled 75 per cent of the aggregate production in that time.

The miners union has been attacking the production figures announced daily by the operators' association, but the representatives of the association say they are correct and are based on railroad data. Both union and non-union collectively will produce approximately 300,000 net tons in the week ended April 18. The mines loaded 293,400



Warren M. Puckett

President of the Cabin Creek Consolidated Coal Co. of Charleston, W. Va., who died March 29. He had been president 15 years.

net tons the week before and 303,900 net tons, two weeks previous.

The strike among the non-union coal miners in the Panhandle section seems to have been more successful than the Fairmont strike, if reports are correct. The call was issued April 16 to all non-union miners. The United Mine Workers of America of Ohio, who are conducting the strike, are preparing to make an application for a blanket injunction which, if issued, will prevent coal companies from interfering with the rights of miners to free assemblages.

The United Mine Workers of America claim that 85 per cent of the non-union miners in the Panhandle section are striking, but J. C. McKinley, for the operators, says that the mines of Brooke and Hancock counties are loading more than ever but admits fewer men are working in Ohio and Marshall counties.

A.I.E.E. Meeting Discusses Mine Electrification

Although intended primarily for electrical men, the meeting of the American Institute of Electrical Engineers at the Hotel Chase, St. Louis, Mo., April 16 to 17, had its message for mining men as well. The fact that three papers presented at this meeting were devoted to subjects of vital interest to coal producers indicates to what extent the electrical and coal industries are interlocked and interdependent.

The session on Friday morning, April 17, was designated as the mining session, when the following papers were presented: "Coal Mine Electrification," by W. C. Adams, of the Allen & Carcia Co., of Chicago, Ill.; "Applications of Motors to Mine Locomotives," by A. W. Clark, of the Westinghouse Electric & Manufacturing Co., of East Pittsburgh, Pa.; and "Electric Shovels," by D. J. Shelton and D. Stoetzel, of the Marion Steam Shovel Co., Marion, Ohio, and the General Electric Co., Schenectady, N. Y., respectively. This session of the meeting was planned and conducted by the committee on the application of electricity to mining work.

Kansas Union Miner Army Shuts Many "Co-op." Mines

Following mass meetings in Arma and Franklin in the southeast Kansas field, Monday night, April 13, between 1,000 and 2,000 union miners in motor cars, accompanied by Matt Walters, president of District 14, United Mine Workers, and Alexander Howat, sometime president of the district visited co-operative and open shop mines in the vicinity of Gross and Mulberry early the next morning and persuaded some 250 men employed in six mines to quit work. These mines were made idle: Doubleday shaft, employing 90 men; Sheridan No. 16, co-operative shaft, employing 30 men; Sheridan No. 12, co-operative shaft, 30 men; Clemens No. 19, co-operative shaft, 50 men; Raven Block Coal Co., shovel mine, 30 men and the Norris shovel, 25 men.

District officials asserted the drive was to invite non-union miners into the union, and announced all had agreed to join. Reports to Governor Paulen, of Kansas, were that the demonstration was in celebration of the action of the U. S. Supreme Court, April 13, in declaring unconstitutional the Kansas Industrial Court Law, on the appeal of the Charles Wolff Packing Co., of Topeka. Another explanation, compatible with both these, was that the affair was to strengthen organized resistance to lower wage propaganda.

Central Pennsylvania Was Never so Idle as Now

The week ending April 11, shows the lowest coal production in the history of the central Pennsylvania district. The total was 9,783 cars compared with 11,043 cars for the week ending April 4. To and including the 11th, the loadings were 15,646, against 21,547 for the corresponding period of March. This makes a daily average of 1,631 cars, the lowest in any week in the history of the district, except during strikes. The district can load on the average, under normal conditions, 4,000 cars daily. Of the 1,621 cars loaded, the Central Pennsylvania Coal Producers' Association estimates that 1,100 were loaded in mines running on a wage scale less than the union rate.

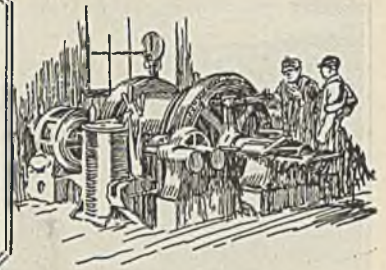
Twenty-five thousand of the 60,000 miners in central Pennsylvania normally working in the bituminous mines are now idle. Of the total, 45,000 are members of the United Mine Workers of America, and 15,000 non-union. Practically all those idle are union men. An undetermined number of union men are working on the 1917 scale.

Reports from the Berwind-White Fuel Co.'s operations are to the effect that the miners have accepted their wage reduction in good grace and the mines are working six days a week. At Colver, between 400 and 500 men are working at reduced wages five days a week, with fair prospects for the future.

Mines subsidiary to the Erie R.R. held by the Northwestern Mining and Exchange Co., closed on April 16, throwing out of employment 1,500 men. The latest order includes Granville, Eriton, Kramer and Dagus mines.



Practical Pointers For Electrical And Mechanical Men



How a Brass Liner Was Cemented at the Bottom of a Borehole Casing

Recently at our mine I had occasion to cement a 3-ft. brass pipe liner into the bottom of a 47-ft. borehole casing. This borehole was used to discharge water from the mine. The inside diameter of the casing was 8½ in. The outside diameter of the brass pipe was 7½ in.

The difficulty of such a job was to get the cement between the borehole casing and the brass pipe, because the liner had to be put in the casing at the bottom end of the borehole. To get around this difficulty I had a cone-shaped hood made for the brass liner. At the bottom of the cone the tin was extended to lap over the liner approximately 1 in. Before the cone was placed on the liner, a hole was cut in the apex and a No. 6 wire passed through it. Both on the inside and the outside of the cone a knot was placed in the wire so that it would

not slip through the hole. One end of the wire extended outside of the mine to the top of the borehole and the other through the liner into the mine.

The cone was placed over the top of the liner and held there as the brass pipe was lifted up into the bottom of the borehole. We next plugged up the bottom of the space between the borehole casing and the brass pipe to prevent any cement from falling through.

The workmen on the outside mixed a sufficient quantity of cement and dropped it into the borehole. When the cement reached the brass liner it struck the cone-shaped hood and dropped into the space between the liner and casing. For our particular job we used about 2½ buckets of cement. About 15 minutes after the cement had been dropped into the borehole, the men outside pulled the hood off the liner by pulling on the wire. About 24 hr. afterwards we were pumping water through this borehole and the job proved to be fine.

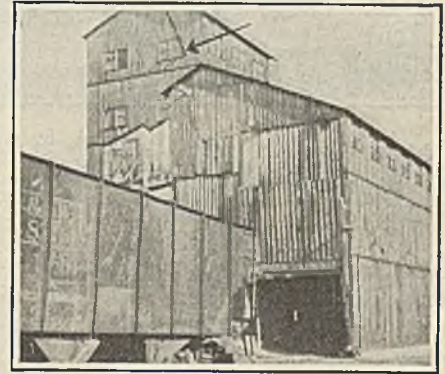
JOSEPH R. FUREY,
Blairsville, Pa.

Electricity Calls Officials

It's a simple matter to call an official of the Richmondale Coal Co., near Carbondale, Pa., to the colliery office when he is wanted. An electric horn mounted on the outside of the breaker is controlled by a switch located in the office.

The reason why the horn is located on the outside of the building is apparent when one remembers that the sound of the horn even in this position can be heard above the noise of the running machinery. It is also located outside so that it can be heard anywhere around the colliery yard.

There are several buildings on the property, in particular, the boiler house, powder house, carpenter shop and saw room where props are cut.



This Signal Saves Steps and Time

An electrically operated horn located near the top of this breaker, although on the outside wall can be heard in the building or anywhere around the colliery yard.

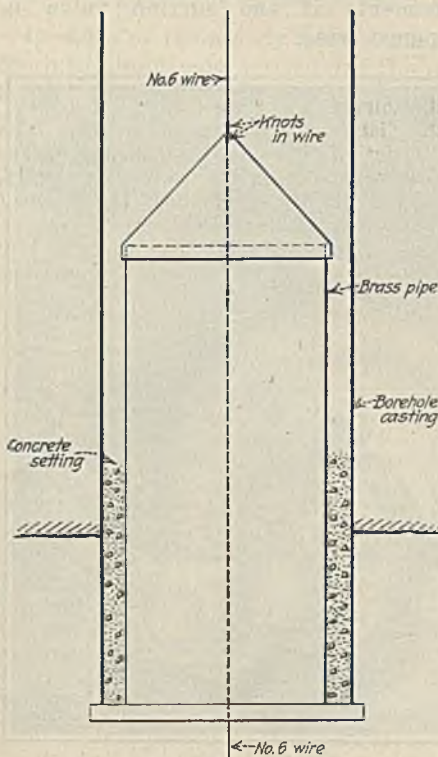
One of the hoists is a quarter of a mile from the breaker but even here the horn can be heard.

This arrangement is usually satisfactory when someone must be called to answer a long distance telephone call. All the clerk has to do is give the desired signal from the colliery office and the person who is called soon presents himself at the office.

Special Cars for Use in Working Low Coal

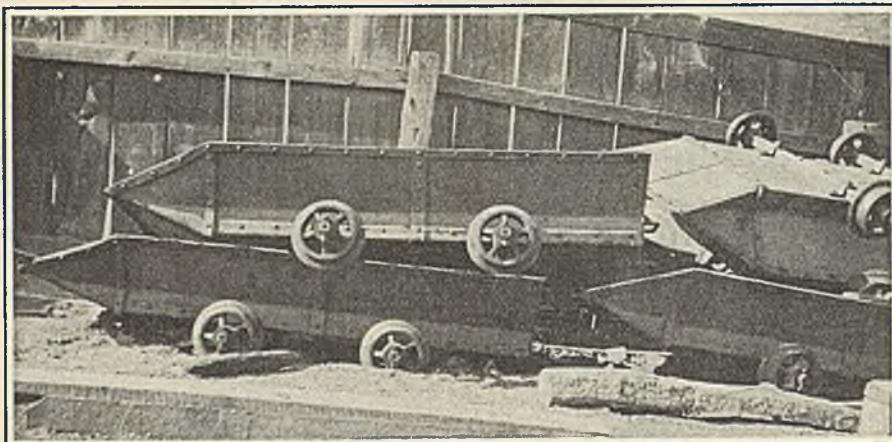
A great deal of time was spent upon the design of low-type mine cars used at the Clifford Mine of the Hillside Coal & Iron Co. in Forest City, Pa. Aside from being low, the shape of the standard car this company has built is such as to enable it to hold a large quantity of coal. The car can be loaded or unloaded easily at the nose-pointed end. In low veins the space between the top of the car and the roof is necessarily small. Consequently, it would be a great effort to swing a shovel over the side of the car. Because the end of the car has been made low it acts as a chute for loading and unloading.

The construction of the car is simple. Small wheels supported on heavily built, solid axles make it possible to make the clearance under the car unusually small. The wheels are held on by cotter pins. This method of attaching the wheels has been found successful because the



Cone-Shaped Cap Guides Concrete Into Position

The brass liner was cemented inside the borehole casing by dropping concrete in the top of the borehole.



Car Built Close to the Ground and Easy to Load

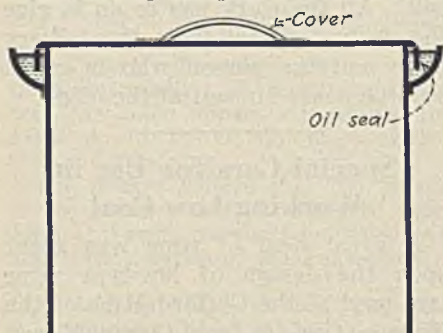
The low end on this type car makes loading and unloading easy. Small wheels reduce the clearance above the rails and ties to a low figure. The shape is such that the capacity is large, even though over-all height is little enough to conform to the thin veins worked by the Hillside Coal & Iron Co.

cars are pushed by hand and therefore, are not subjected to side and end strains common with power-drawn types.

In service these small cars are pushed to a main haulageway and unloaded into larger cars which are in turn taken to the breaker to be dumped.

Air-Sealed Tank Keeps Varnishes Fresh

Almost every morning when the workman starts to use varnish, paint or insulating compounds which have



Fresh Air Is Excluded by This Tank Design

The drying action of air on varnishes and paints cannot work effectively on material in a container such as this. The oil in the reservoir surrounding the tank acts as a seal when the cover is applied.

stood overnight, he is confronted with the necessity of wasting a certain quantity of the material.

Usually all of these substances dry quickly and, when left uncovered for a short period of time, form a tough skin on the surface. If this dried material is mixed into the fresh substance underneath, it rarely if ever dissolves and consequently it is impossible to do a good surfacing job.

The illustration shows a handy container, which may be designed as a pail or large tank, for sealing out

the air from varnishes, paint or other liquids. A recess is made around the outer edge of the container so that it can be filled with an oil or other liquid. The edge of the lid extends into the oil when the cover is applied. Thus air and even moisture are excluded. When such an arrangement is used with containers holding volatile liquids it obviously will prevent rapid evaporation.

E. K.

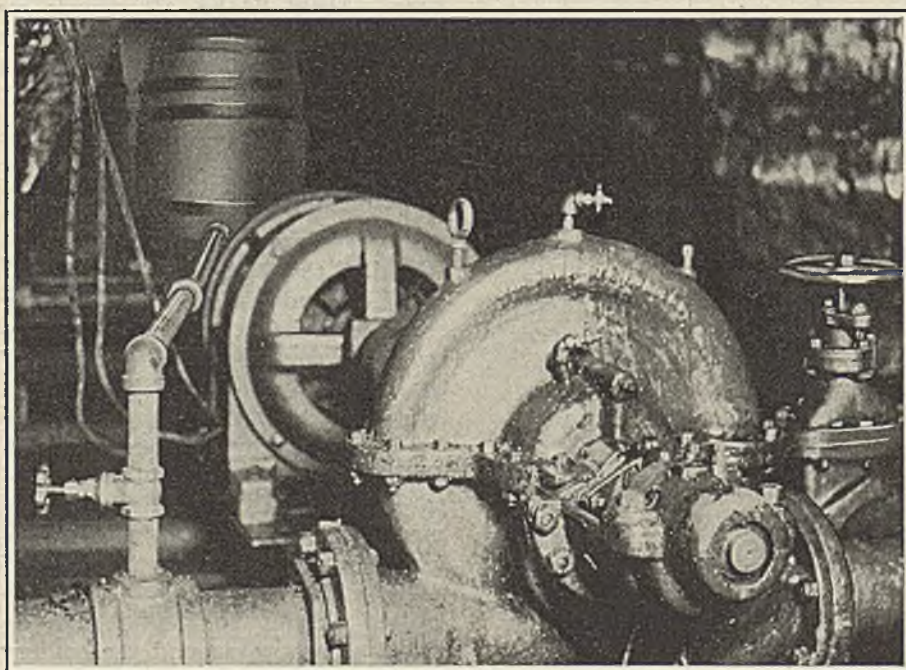
Water for Priming in Case Foot-Valve Leaks

A simple and effective means is used by the Sunday Creek Coal Co. for priming centrifugal mine pumps. The accompanying photograph was

taken in mine No. 11 at Corning, Ohio. Here, a 1½-in. pipe is carried from a tee in the pump discharge line to the bottom of an open-top wood barrel located on a raised platform nearby.

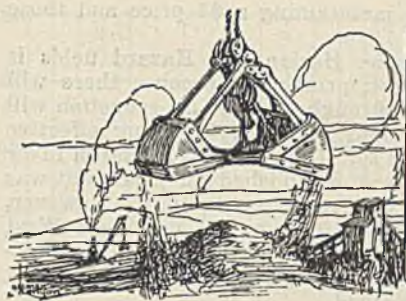
In order to be certain of having ample storage capacity for priming the pump, this barrel is connected at the bottom with two others on the same level. They are filled by opening for a short time the 1½-in. valve while the pump is in operation, and the priming, when necessary, is accomplished by opening this same valve. The pump suction is fitted with both a foot valve and gate valve. Priming is required only in case dirt has lodged under the foot valve and allowed the discharge line to empty through the pump back into the sump.

In this particular installation, which is of a temporary nature and was made up of material on hand, the gate valve in the suction plays an important part. A 40-hp. motor is used to drive an 8-in. pump against a head which calls for a much larger motor. The use of the 40-hp. motor is made possible by keeping the suction line choked with the gate valve. The correct setting of the valve was determined by connecting an ammeter temporarily into the motor circuit. W. F. Williams, superintendent of the mine, explained that the motor fuses will blow in a few moments if the suction valve is opened wide.

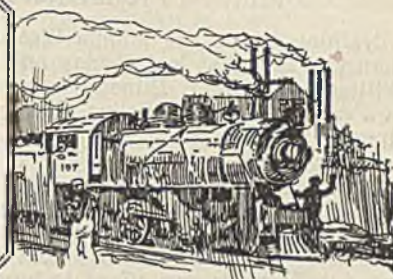


Barrels on Platform Connected to Discharge Line

Although the pump suction is equipped with a foot valve it often happens that dirt causes a leak which, during a shut-down of a few hours, will empty the line. In this case the pump is primed by opening the small valve and allowing water to run from the barrels into the discharge line. After the pump begins to discharge the barrels are refilled through the same valve.



Production And the Market



Bituminous Coal Market Still Marking Time— Anthracite Maintains Position

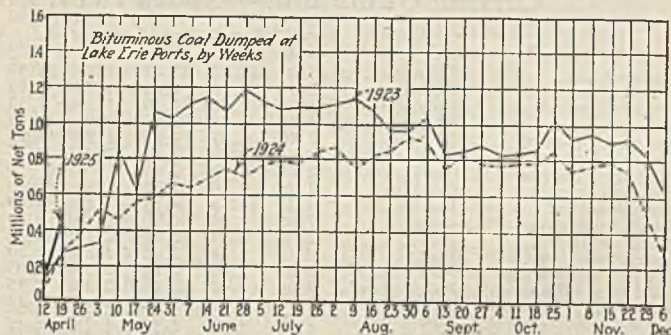
Bituminous operators, who look for nothing in the way of business the first month of the new coal season, will not be disappointed this year of grace. Aside from the hopes—some of which are reported close to realization—built upon lake shipments, the outlook in the non-union districts of the Southeast appears no rosier than in the union strongholds of the Central Competitive Field, where the demand for a revision of the Jacksonville wage agreement will not down. Measured by its effect upon the market, the strike in northern West Virginia is a blank. The open-shop gains ground in Central Pennsylvania and dissatisfaction grows in union areas.

Screenings take the lead for strength in nearly every field. Part of this strength, of course, is due to the seasonal dullness which has spread over the domestic market and cut down production. But part must be credited to a basically healthy underlying industrial demand for coal. Discounting to the limit the professional optimist reports on general business, the fact remains that there is real ground for solid confidence.

Production Better than Last Year

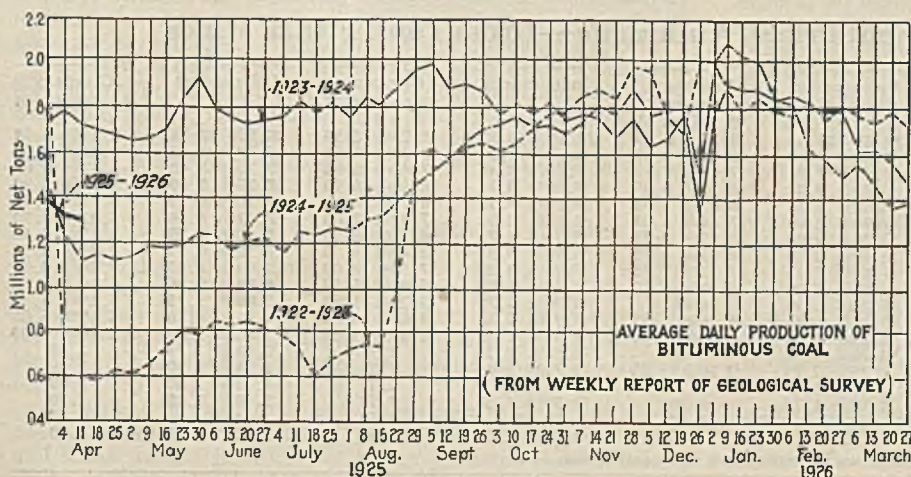
In spite of the steady downward trend in production, the bituminous coal output for the week ended April 11 is estimated at 7,890,000 net tons, as compared with 7,540,000 tons the preceding week. More significant, however, is the fact that the output was 907,000 tons ahead of the corresponding week in 1924. The improvement was in the non-union fields. West Virginia and, to a lesser extent, Kentucky, are speeding up to meet lake demands. Eastern Ohio is also making some plans to move tonnage, but southern Ohio and western Pennsylvania are pessimistically inclined when the question of participation in shipments to the Northwest is raised.

Dumpings at Lake Erie ports during the week ended April 19 totaled nearly a half million tons. Cargo dumpings were 464,479 tons; steamship fuel, 20,330 tons—a total of 484,809 tons, as compared with 147,152 tons the week preceding. Hampton Roads dumpings for the week ended April 16 totaled 369,746 net tons, as compared with 372,374 tons the week preceding.



Coal Age Index of spot prices on bituminous coal for April 20 stood at 161, the same figure as the preceding week. There was no change in the average price, which was \$1.95.

Anthracite demand in the New England and Middle Atlantic states, although far from feverish, is of a character to inspire the major producers with a feeling that the new coal year will move along normal lines. There is not sufficient backbone to the call for domestic sizes, however, to warrant any wholesale resumptions at the operations which went down in the dead market during the closing weeks of the past coal year. Nor has the steam market been active enough to justify the risk of throwing more tonnage upon it. Rice and barley are fairly well maintained, but No. 1 buckwheat shows signs of heaviness.



Estimates of Production

(Net Tons)
BITUMINOUS

	1923-1924	1924-1925
March 28.....	9,122,000	8,353,000
April 4 (a).....	7,041,000	7,546,000
April 11 (b).....	6,983,000	7,890,000
Daily average.....	1,164,000	1,315,000
Coal yr. to date (c)....	149,649,000	141,013,000
Daily av. to date.....	1,691,000	1,588,000

ANTHRACITE

March 28.....	1,942,000	1,640,000
April 4.....	1,548,000	1,482,000
April 11 (b).....	1,856,000	1,723,000
Coal yr. to date (c)....	26,325,000	24,264,000

COKE

April 4.....	278,000	220,000
April 11 (b).....	265,000	214,000
Cal. yr. to date (c)....	4,125,000	3,592,000

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

Midwest Production Pared Down

Nothing shows the Middle Western situation any better than the fact that last Friday only six mines out of 64 in Williamson County, Illinois, were operating and only five in Franklin County. Saline County was not much better. Operators have found it practically impossible to move domestic sizes.

High grade southern Illinois and the Clinton district screenings are meeting with a ready sale at \$2 to \$2.25 and would command more were it not for the fact that considerable western Kentucky strip coal is available at such low prices industrials can afford to buy mine run and crush it. Fairly good western Kentucky strip lump has been offered freely at \$1.15 to \$1.40 and mine run at \$1.10 to \$1.25.

The tonnage contracted for to date is relatively unimportant when compared with commitments of normal years. Ninety per cent of the contracts closed so far this season have been with public utilities. Manufacturers are as yet undecided and think prices may go still lower before the contracting season ends.

The condition on Eastern coals is far from satisfactory. Some standard smokeless shippers are attempting to hold mine run contract figures at \$2.15, but a number of smaller mines, with good coal are offering contracts at \$1.75. Prepared smokeless is moving slowly, with lump and egg at

\$2.75. Few shippers are maintaining a \$3 price and those only in the country.

Very little coal from the Harlan and Hazard fields is moving into the Northwest, principally because there will be a reduction in the new through rates. This reduction will cover two groups of stations, the first becoming effective May 3 and the second May 20. This 15c. differential in favor of eastern Kentucky has been established for years, but was not recognized when the new rates were put in. However, now that the new rates are in from all points in West Virginia and Kentucky, the Interstate Commerce Commission has given consideration to the plea of the L. & N. that this differential be maintained.

Anthracite prices have been reduced to the lowest level for the year, but in spite of this little tonnage is moving forward. The producers and shippers of domestic coke, in order to keep abreast of the times, have reduced their price from \$2.50 to \$2 per ton, f.o.b. ovens.

Only a few shaft mines are working in the Carterville field, most of them are dragging along on one and two days a week. A number of strip mines are working almost full time. Nearly all coal sold is going at cost or below. Railroad fuel loadings have eased off, excepting with the strip mines and is light, generally speaking. In the Duquoin field conditions are somewhat similar.

Mt. Olive mines are loading a fair quantity of railroad

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

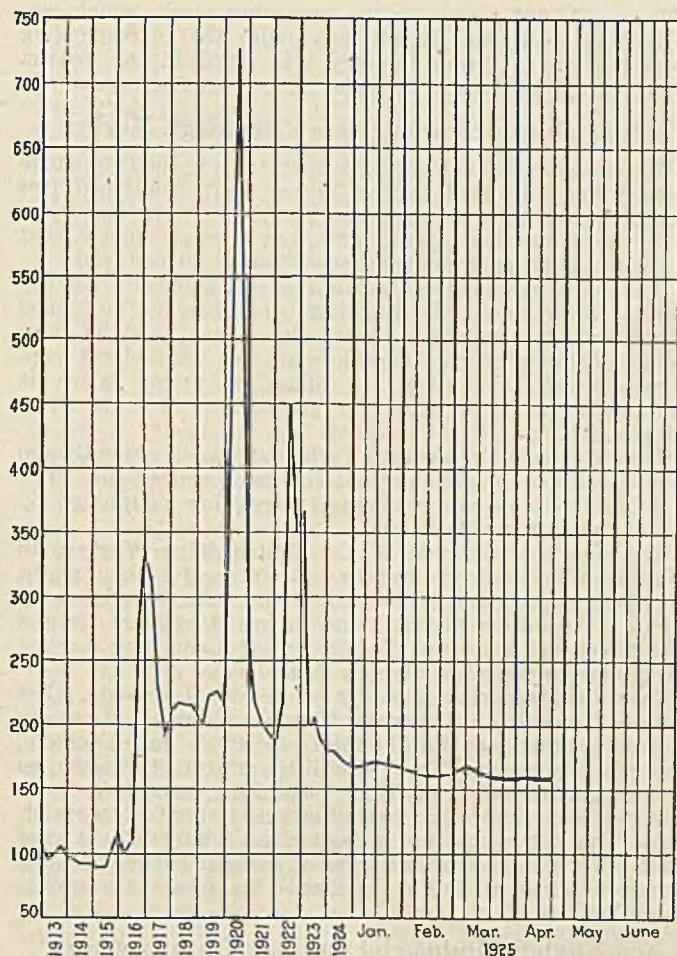
Low-Volatile, Eastern		Market Quoted	Apr. 21, 1924	Apr. 6, 1925	Apr. 13, 1925	Apr. 20, 1925†
Smokeless lump.....	Columbus....	\$3.35	\$3.10	\$2.85	\$2.50@2.75	
Smokeless mine run.....	Columbus....	2.25	1.90	1.85	1.75@2.00	
Smokeless screenings.....	Columbus....	1.85	1.20	1.30	1.35@1.50	
Smokeless lump.....	Chicago....	3.10	2.85	2.85	2.75@3.00	
Smokeless mine run.....	Chicago....	2.10	1.85	1.85	1.75@2.15	
Smokeless lump.....	Cincinnati....	3.35	2.85	2.60	2.50@2.75	
Smokeless mine run.....	Cincinnati....	2.05	2.00	2.00	2.00	
Smokeless screenings.....	Cincinnati....	1.75	1.50	1.50	1.50	
*Smokeless mine run.....	Boston....	4.20	4.35	4.35	4.20@4.40	
Clearfield mine run.....	Boston....	2.00	1.95	1.95	1.70@2.10	
Cambria mine run.....	Boston....	2.50	2.25	2.25	2.10@2.40	
Somersett mine run.....	Boston....	2.15	2.10	2.10	1.85@2.20	
Pool 1 (Navy Standard).....	New York....	2.85	2.65	2.60	2.35@2.85	
Pool 1 (Navy Standard).....	Philadelphia....	3.00	2.65	2.65	2.50@2.75	
Pool 1 (Navy Standard).....	Baltimore....	2.20	2.05	2.05	1.90@2.15	
Pool 9 (Super. Low Vol.).....	New York....	2.20	2.00	2.00	1.85@2.20	
Pool 9 (Super. Low Vol.).....	Philadelphia....	1.80	1.90	1.90	1.75@1.95	
Pool 10 (H.Gr. Low Vol.).....	New York....	1.85	1.80	1.80	1.65@2.00	
Pool 10 (H.Gr. Low Vol.).....	Philadelphia....	1.85	1.65	1.65	1.55@1.80	
Pool 11 (Low Vol.).....	New York....	1.65	1.75	1.75	1.65@1.75	
Pool 11 (Low Vol.).....	Philadelphia....	1.50	1.55	1.55	1.40@1.60	
Pool 11 (Low Vol.).....	Baltimore....	1.50	1.50	1.50	1.40@1.65	
High-Volatile, Eastern		Market Quoted	Apr. 21, 1924	Apr. 6, 1925	Apr. 13, 1925	Apr. 20, 1925†
Pool 54-64 (Gas and St.).....	New York....	1.45	1.45	1.45	1.35@1.60	
Pool 54-64 (Gas and St.).....	Philadelphia....	1.55	1.45	1.45		
Pool 54-64 (Gas and St.).....	Baltimore....	1.60	1.70	1.70	1.60@1.75	
Pittsburgh sc'd gas.....	Pittsburgh....	2.40	2.40	2.40	2.30@2.50	
Pittsburgh gas mine run.....	Pittsburgh....	2.10	2.00	2.00	1.95@2.10	
Pittsburgh mine run (St.).....	Pittsburgh....	1.85	1.80	1.80	1.75@1.90	
Pittsburgh slack (Gas).....	Pittsburgh....	1.30	1.65	1.65	1.60@1.70	
Kanawha lump.....	Columbus....	2.10	2.10	2.10	2.00@2.25	
Kanawha mine run.....	Columbus....	1.50	1.40	1.35@1.50		
Kanawha screenings.....	Columbus....	.95	1.10	1.00@1.25		
W. Va. lump.....	Cincinnati....	2.25	2.00	2.00	1.75@2.00	
W. Va. gas mine run.....	Cincinnati....	1.30	1.30	1.30	1.25@1.50	
W. Va. steam mine run.....	Cincinnati....	1.30	1.20	1.25	1.15@1.40	
W. Va. screenings.....	Cincinnati....	1.00	1.00	1.10	1.15@1.30	
Hocking lump.....	Columbus....	2.40	2.25	2.25	2.15@2.40	
Hocking mine run.....	Columbus....	1.60	1.45	1.40	1.35@1.50	
Hocking screenings.....	Columbus....	1.30	1.15	1.15	1.10@1.25	
Pitts. No. 8 mine run.....	Cleveland....	2.35	2.25	2.30	1.85@2.75	
Pitts. No. 8 screening.....	Cleveland....	1.80	1.75	1.75	1.75@1.80	
		1.40	1.45	1.40	1.35@1.40	
Midwest		Market Quoted	Apr. 21, 1924	Apr. 6, 1925	Apr. 13, 1925	Apr. 20, 1925†
Franklin, Ill. lump.....	Chicago....	\$2.75	\$2.60	\$2.60	\$2.50@2.75	
Franklin, Ill. mine run.....	Chicago....	2.35	2.35	2.35	2.25@2.50	
Franklin, Ill. screenings.....	Chicago....	2.15	2.10	2.10	2.00@2.25	
Central, Ill. lump.....	Chicago....	2.60	2.35	2.35	2.25@2.50	
Central, Ill. mine run.....	Chicago....	2.10	2.10	2.10	2.00@2.25	
Central, Ill. screenings.....	Chicago....	1.90	1.90	1.90	1.80@2.00	
Ind. 4th Vein lump.....	Chicago....	2.85	2.60	2.85	2.50@2.75	
Ind. 4th Vein mine run.....	Chicago....	2.35	2.10	2.10	2.15@2.35	
Ind. 4th Vein screenings.....	Chicago....	1.95	2.05	2.05	2.00@2.15	
Ind. 5th Vein lump.....	Chicago....	2.35	2.10	2.10	2.15@2.40	
Ind. 5th Vein mine run.....	Chicago....	2.10	1.95	1.90	1.85@2.10	
Ind. 5th Vein screenings.....	Chicago....	1.80	1.70	1.50	1.55@1.85	
Mt. Olive lump.....	St. Louis....	2.85	2.50	2.50	2.50	
Mt. Olive mine run.....	St. Louis....	2.50	2.25	2.25	2.25	
Mt. Olive screenings.....	St. Louis....	1.50	1.75	1.75	1.75	
Standard lump.....	St. Louis....	2.35	2.25	2.25	2.25	
Standard mine run.....	St. Louis....	1.95	1.80	1.80	1.75@1.90	
Standard screenings.....	St. Louis....	1.85	1.70	1.70	1.65@1.75	
West Ky. block†.....	Louisville....	2.25	1.85	1.85	1.75@2.00	
West Ky. mine run.....	Louisville....	1.60	1.35	1.35	1.25@1.50	
West Ky. screenings.....	Louisville....	1.60	1.25	1.25	1.25@1.40	
West Ky. block†.....	Chicago....	2.25	1.85	1.85	1.75@2.00	
West Ky. mine run.....	Chicago....	1.60	1.30	1.30	1.15@1.50	
South and Southwest		Market Quoted	Apr. 21, 1924	Apr. 6, 1925	Apr. 13, 1925	Apr. 20, 1925†
Big Seam lump.....	Birmingham..	2.60	2.25	2.25	2.25	
Big Seam mine run.....	Birmingham..	2.00	1.75	1.75	1.50@2.00	
Big Seam (washed).....	Birmingham..	2.20	1.85	1.85	1.75@2.00	
S. E. Ky. block†.....	Chicago....	2.25	2.10	2.10	2.00@2.25	
S. E. Ky. mine run.....	Chicago....	1.60	1.55	1.55	1.40@1.75	
S. E. Ky. block†.....	Louisville....	2.35	2.10	2.00	2.00@2.25	
S. E. Ky. mine run.....	Louisville....	1.50	1.35	1.35	1.15@1.50	
S. E. Ky. screenings.....	Louisville....	1.25	1.10	1.10	1.00@1.25	
S. E. Ky. block†.....	Cincinnati....	2.25	2.10	2.00	2.00@2.25	
S. E. Ky. mine run.....	Cincinnati....	1.30	1.25	1.30	1.15@1.65	
S. E. Ky. screenings.....	Cincinnati....	.90	1.05	1.10	1.15@1.45	
Kansas lump.....	Kansas City..	4.50	4.25	4.25	4.00@4.50	
Kansas mine run.....	Kansas City..	3.25	2.85	2.85	3.00	
Kansas screenings.....	Kansas City..	2.50	2.75	2.75	2.75	

*Gross tons, f.o.b. vessel, Hampton Roads. †Advances over previous week shown in heavy type; declines in *italics*.
† The term block is used instead of lump in order to conform to local practice, but the same coal is being quoted as heretofore.

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

		Market Quoted	Freight Rates	April 21, 1924	April 13, 1925	April 20, 1925†
				Independent	Company	Independent
Broken.....	New York....	\$2.34			\$8.00@8.50	
Broken.....	Philadelphia....	2.39			8.50@8.65	
Egg.....	New York....	2.34		\$8.25@8.65	8.25@8.65	\$8.25@8.50
Egg.....	Philadelphia....	2.39		8.25@9.40	8.60@8.65	8.30@8.50
Egg.....	Chicago*.....	5.06		7.59@7.81	7.65@7.72	7.76@8.40
Stove.....	New York....	2.34		8.25@9.00	8.25@8.85	8.50@8.75
Stove.....	Philadelphia....	2.39		8.60@9.50	8.65@8.85	8.75@8.90
Stove.....	Chicago*.....	5.06		7.90@8.03	7.81@8.03	8.12@8.50
Chestnut.....	New York....	2.34		8.25@9.00	8.25@8.75	8.25@8.75
Chestnut.....	Philadelphia....	2.39		8.60@9.50	8.65@8.75	8.50@8.95
Chestnut.....	Chicago*.....	5.06		7.81@7.94	7.72@7.95	7.94@8.25
Pea.....	New York....	2.22		4.50@5.00	5.50@6.00	4.25@5.00
Pea.....	Philadelphia....	2.14		5.25@6.50	6.00	5.00@5.75
Pea.....	Chicago*.....	4.79		5.13@5.36	5.36@5.55	4.91@5.36
Buckwheat No. 1.....	New York....	2.22		2.25@2.75	3.00@3.15	2.50@3.00
Buckwheat No. 1.....	Philadelphia....	2.14		2.75@3.00	3.00	2.00@2.25
Rice.....	New York....	2.22		1.75@2.25	2.00@2.25	1.75@2.00
Rice.....	Philadelphia....	2.14		2.00@2.25	2.25	1.75@2.00
Barley.....	New York....	2.22		1.50@1.75	1.50	1.40@1.50
Barley.....	Philadelphia....	2.14		1.50	1.50	1.50
Birdseye.....	New York....	2.22			1.60	1.40@1.60

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



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

Index	1925			1924
	April 20	April 13	April 6	April 21
Weighted averaged price	161	161	162	169
	\$1.95	\$1.95	\$1.96	\$2.04

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

fuel, but the field is generally depressed. There is no domestic business to speak of. The few mines running in the Standard district are producing more coal than there is a demand for and most of it is being sold below cost. Screenings are scarce and most of the coarse coal that is being sold is being crushed. Railroad tonnage is fairly good.

What little domestic business there is at St. Louis is in small quantities and for cheaper grades. Oil competition is hitting the higher priced fuels, especially smokeless. Country domestic is unusually quiet. There is some country demand for steam, and local carload steam trade is fairly good for screenings. Wagonload steam business is quiet.

Local St. Louis retail prices have been revised and are as follows for curb delivery: Standard, \$5 per ton; Mt. Olive, \$5.50; Duquoin, \$6; Carterville, \$6.50; Big Muddy, \$7; anthracite grate, \$15.25; stove, \$16; egg or chestnut, \$15.75; pea, \$13; buckwheat, \$10.50; smokeless lump or egg, \$9; domestic coke \$9.75 and \$10.25.

Mild Weather Checks Kentucky Trade

Abnormally mild weather over the better part of the spring has checked domestic consumption, and there is little demand from Louisville retailers for prepared coal. Retailers are showing no inclination to load down their yard stocks in anticipation of summer stocking by the householder.

Movement to the North and Northwest has not yet shown the customary acceleration. Aside from captive mines and a few plants holding big utility or industrial contracts,

running time in the Kentucky fields is low. Nevertheless, production as a whole is somewhat larger than last year.

Prices show practically no change. Some western Kentucky houses are asking \$1.40 for screenings, but \$1.30 is about as much as can be had in the Louisville market. Some eastern Kentucky shippers ask \$2.25 for prime block, but coal can be had as low as \$1.75, with plenty of good stuff at \$2. Some mine run has been offered as low as \$1.15, in both fields. Other sizes show very little change.

Eastern Kentucky lump is \$1.75@2; egg, \$1.65@1.85; nut, \$1.50@1.65; mine run, \$1.15@1.50; and screenings, \$1@1.25. Western Kentucky, block, lump and egg are at \$1.75@2, with some quotations as high as \$2.25; nut, \$1.50@1.75; mine run, \$1.25@1.50; screenings, \$1.25@1.40.

Northwest Awaits First Coal Cargoes

Navigation opened at the Head-of-the-Lakes last week, but no coal cargoes arrived from lower lake ports. Four cargoes reported on the way are expected within the week. Stocks on docks, while not large, are adequate.

Prices are off a little from the levels quoted last week. Kentucky has dropped 25c. in everything but screenings, making the market in this grade \$6 for steam lump, \$5.75 for stove, \$5.50 for dock run and \$4.25 for screenings.

There is a fair demand for Pocahontas and anthracite, but the buying is on a hand-to-mouth basis and dealers are busy delivering ton and half-ton lots. Tight money nullifies efforts to persuade householders to stock up for next winter.

General trade, though dull, is, nevertheless, normal for this time of the year. Docks have their men out looking for business with the industries which should head up about the first of May. Dock men look for good business from the railroads this season. The railroads, which had almost 1,000,000 tons on the docks at the opening of navigation, are moving much coal now to escape the personal property tax on May 1.

The coal trade in the Twin Cities is slow to show much signs of activity. Although navigation is open, there is no urgent rush to move coal forward. The trade in the different branches is awaiting developments under the new freight rates. It seems quite likely that there will be a decided change of origin of considerable of the all-rail coal reaching some portions of this district. Some railroads are inquiring on contracts, but do not appear to have placed any orders. Prices show no material change.

Coal dock managers report a quiet market in the area supplied by Milwaukee. Industries are taking normal quantities, but domestic demand is spasmodic and waning. Coke was cut \$1.50 a ton by the dealers, April 15, a reduction of \$1 from the price that prevailed during the real winter months. Two bituminous cargoes, aggregating 15,100 tons, reached Milwaukee docks from the lower lakes on Wednesday, and about ten additional steamers have been chartered for immediate shipments.

Western Trade Continues Dull

Few Southwestern mines are being worked, and these only two or three days a week—principally to supply contracts. In Oklahoma, the only activity is in mines operating under the 1917 scale. In Arkansas and in the Henryetta field talk of abandoning the Jacksonville agreement becomes stronger every day. List prices remain unchanged, though shading is common.

Continued warm weather has demoralized the Colorado domestic coal trade. Even the inducement of the storage price reduction ranging up to \$1 a ton has failed to stimulate demand. The mines, as a whole, are operating a trifle less than half time. There has been no change in the mine prices.

Business in Utah continues quiet, with mines working around two days a week only. Some unloaded bills are accumulating in the larger sizes, but the mine-owned yards of Salt Lake City are storing a lot of lump coal so as to assist the mines in producing enough slack to meet the demand. There are no price changes at present and practically no gossip or rumors on this subject. It is a long time since coal prices were as steady in that section as they have been during recent months. Labor is plentiful and transportation conditions were never better.

Closing of several lake contracts of volume with rumors of more about to be completed were the interesting morsels

of trade gossip at Cincinnati last week. A Logan producer is said to have sold 500,000 tons of screened mine run at \$1.50. Another company, with mines in the same district, and others loading over on the Norfolk and Western was said to have closed for 100,000 tons of 1½-inch at \$1.90 and 100,000 tons of slack at 90c. Other rumors of smaller deals also balance on the \$1.50 mine-run basis.

The best of the list still remains in the slack prices. As high as \$1.40 was realized for Hazard and Harlan during the week with the general offerings advancing to \$1.15 to \$1.25. High volatile spot mine run is wobbly, though better grades again showed a slight advance. Prepared sizes still carry the spread noted for some time past.

In the smokeless market there seems to be more indecision over the price of the prepared than for some time. Following the differentiation between the lump and the egg prices some of the producers went on the market with an out-and-out \$2.50 quotation for the two. There seems to be a general disposition to "fight 'er out" without much care of what may happen.

River business continues good with large cargoes coming down and some proceeding on for down-the-river points as far as Louisville. Retail business is slow to dragginess. There has been no further cut in prices.

Columbus Shows Slight Improvement

Columbus reports a slight improvement, due largely to the fact steam reserves have been reduced to a rather low point. The increase, however, is not great and it is believed that it will be some time before there is any marked gain in the volume of business. Utilities and iron and steel plants are the most liberal buyers.

Contracting is also attracting more attention. Some agreements have been renewed, but most consumers still depend on spot coal for their daily supplies. There is less unsold tonnage on the market and this has helped to strengthen the situation. More producers are willing to wait until orders are booked before loading cars. Contracts renewed are at figures 25 to 35c. a ton less than last year. Railroad contracting is backward.

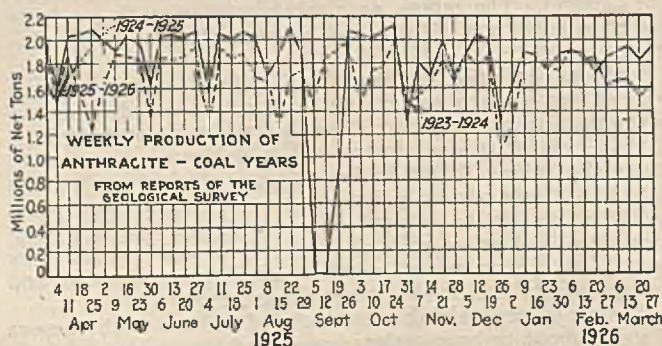
Retailers have succeeded partially in cleaning up stocks and will not be in the market until later. The stocking season for consumers is not expected to be as early as usual because of difficulties with credits. Buying of so-called fancy grades when they can be picked up at a bargain is the manner in which some dealers are replenishing yard supplies.

Production in the southern Ohio field is still at a low point, ranging from 12 to 15 per cent of capacity, the greater part of which comes from co-operative mines.

The eastern Ohio situation shows little change. Orders are scarce, production is being curtailed, with the possible exception that some stimulation may shortly be felt from output of a few mines which have begun shipping lake coal. Steam demand is showing no improvement, industry continuing to consume a minimum quantity and fuel being purchased only as needed. In the domestic trade, the market is exceedingly quiet and this branch of the business is considered practically over for this season.

The industry throughout this section is in a pessimistic frame of mind due to failure thus far to interest officials of the United Mine Workers in a downward revision of the wage scale to meet competition with non-union mined coal which already has made serious inroads upon the natural markets of the union mines.

During the week ended April 11, the No. 8 field produced 211,000 tons, or about 30 per cent of potential capacity.



This was 11,000 tons over the preceding week, which was a five-day week, and 12,000 tons under the corresponding week last year. From January 1 to April 11 the district produced 3,624,000 tons, or about 37 per cent of capacity.

Sluggishness Characterizes Pittsburgh Market

It seems doubtful now whether operations in the Pittsburgh district have dropped to the 15 per cent mentioned last week. No definite opinion can be obtained in the trade as to the actual decreases to date, but it would appear that the rate in the past week has been under 20 per cent.

Demand is extremely sluggish, and less sales effort is put forth. Nevertheless, the fact that slack has not continued its advance this month indicates that there must be shipments of lump of considerable size, for some local consumers must have slack regardless of price. Slack is quotable at \$1.50 to \$1.60 for steam and \$1.60 to \$1.70 for gas.

Some Connellsville operators who cut wages a month ago have succeeded in moving coal for gas purposes, at \$1.65 to \$1.75 for mine-run not equal to regular Youghiogheny gas of the Pittsburgh district.

Although the attempts of the United Mine Workers to unionize West Virginia appear less successful than might have been expected, it is pointed out that the fight has only begun. The union has millions to spend and this is the first time the American Federation of Labor has backed the miners in the way it is now doing.

There are reports, some by professional experts, that soft coal is selling still lower. If prices obtained on certain contracts closed by Buffalo interests are a fair example, the reports are true. There is still the unsettled question as to how far the coal from West Virginia is to replace Pennsylvania coal; at present the situation is about at a standstill. The outlook is not pleasing, especially as the coal trade must also face a dull state of general business, which promises to last till fall at least, with no surety of improvement then.

New England Industrial Outlook Unsatisfactory

The New England market, in the judgment of the steam trade, is as unsatisfactory as it has been any time the past year. Accumulations at Hampton Roads, it is true, are less than usual, but prices still drag, with no indication of any early increase. There is no improvement in demand, and the few buyers at all interested in the spot market are taking full advantage of the ragged situation.

Quotations on Navy Standard range downward from \$4.40 gross, f.o.b. Norfolk and Newport News. Where the bottom is is a question. Considerable second grade stuff is available at \$4 to \$4.15, but, apparently, no first grade coal has slipped below \$4.20. The bulk of the dumpings are on contract accounts so that the proportion of tonnage represented by the spot prices is relatively small.

The spot market on coal loaded out of Boston is similarly demoralized. Competition is ruthless. With truck delivery spreading over ever-widening areas, the number of contestants for each small piece of business increases. Retail deliveries are being made 20 to 25 miles from the retail yard at almost the same price asked for coal in the city within a mile or two of the wharves. On cars the current Boston price on high-grade coal ranges from \$5.20 to \$5.40.

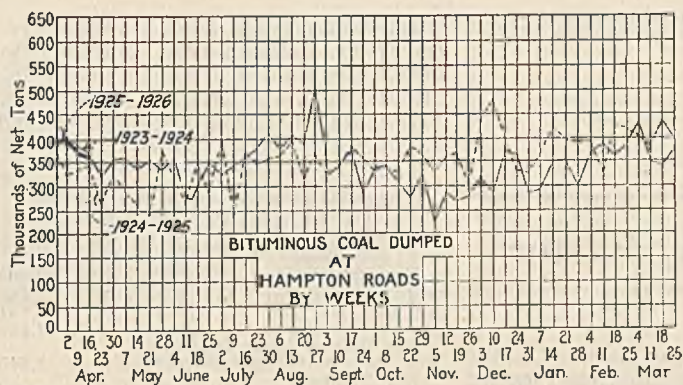
No Improvement in New York Market

The soft coal situation at New York gained no strength during the past week. Where possible reserve supplies are being drawn upon to meet consumption. Buyers not so situated are not purchasing more coal than is actually needed to meet immediate requirements. Even cuts in wages, which have enabled some operators to keep their mines open, have not helped to solve the situation and producers find it difficult to increase sales.

Some additional orders have been placed because of the fear that West Virginia coals might be short, but this extra business has not yet been sufficient to change the market.

Some hope for improvement is based on the opening of the lake season. Meantime, local houses are striving hard to sell their coal even though it may be necessary at times to let it go at the minimum prices quoted.

The bituminous market at Philadelphia is dragging heavily and there seems to be no chance for improvement until the consumer takes a different attitude as to his



supplies. Business has dropped again, but prices hang fairly close to the low level that has prevailed for weeks.

The failure of the strike in the Fairmont field has encouraged more central Pennsylvania operators to try to produce coal on a cheaper wage scale.

Cement and brick plants are the most active buyers in the local market. The textile outlook is much better, but it is in this trade that the hand-to-mouth policy of buying persists, and very few mills will stock anything.

There is a substantial movement of railroad fuel coal from the high volatile fields; considerable new business has been closed lately. Some producers are inclined to complain that the railroads are forcing too low a price out of the operator. However, the roads have very little trouble in placing their tonnage almost at their own price.

Marking time, the soft coal trade at Baltimore is selling in small spot lots while awaiting the day when consumers will want to contract. The usual April effort to induce contracting has met with little success so far. Some of the larger companies are standing on quotations which are restricting their contracts on better grade coals because others are cutting prices 15 to 35c. Exports the first two weeks of April totaled 13,142 tons of cargo and 2,231 tons of bunker.

With little demand for domestic coal in the open market and deliveries on contracts restricted to the last notch, mines are facing a very knotty problem in moving their output. Dealers in many large centers have carried over considerable high-priced coal from last season. Although the majority have entered into new contracts they are very reluctant about taking early deliveries.

The steam coal situation is unchanged. Spot buying is slow, but sufficient business is being booked along with contract requirements to take care of output under limited operating schedules. Reports indicate that consumers covered by old contracts generally are renewing them. The Louisville & Nashville closed a contract the past week, taking about the usual amount of washed Big Seam, paying the same price, it is understood, as last year. Two other lines have bids in hand.

Quotations on standard grades of commercial and domestic fuel are holding up well with no indication at present of lower prices.

Furnace mines are being operated more steadily than commercial and domestic plants, as consumption of furnace coke is heavy. Demand for foundry coke is about on a parity with production, with quotations \$5@5.50 ovens. Domestic sizes are in light demand. Egg coke is \$4; nut, \$3.25@3.50, ovens.

Coal production for the week ended April 4 as reported to American Mining Institute, was 359,000 net tons.

Anthracite Demand at New York Steady

Although anthracite is moving in better shape at New York than last week, demand is not such as to warrant increased output. A few operators find themselves hard pushed to meet the call for stove coal. Stove and chestnut lead in popularity, but egg is gaining. Broken coal is being absorbed quickly by gas companies and others using that size.

Independent producers of choice coals are asking slight premiums for their prepared sizes, but the bulk of the trade is being booked at company schedules. Pea is in better demand than is usual in this market.

Retail business is in good shape and most dealers are busy filling bins with next winter's coal supply.

Of the steam coals rice and barley are in good shape, but the demand for buskwheat No. 1 is not lively.

Philadelphia spring trade in anthracite does not have the snap of other years, although retail dealers have at least enough to keep them busy from day to day. The possibility of a strike has been played up, yet the consumer is little moved by this argument.

There seems to be a decided tendency in the trade to work off the old size coal. As a matter of fact one of the largest producers has sent little, if any, new size to this market. There are a few small shippers who are producing nothing but old sizes and offering it at a premium. Recently there has been considerable complaint that the new chestnut shipped by one or two company producers has too much undersize in it.

Nut accumulations at the mines are becoming heavier. Most of the independents are sold up on pea for the month. Stove is in strong demand; the call for egg is moderate.

The retail price situation is very disconcerting, and there are variations of as much as \$1 to \$1.25 a ton.

Steam trade is not improved and there is considerable buckwheat on the market at cut rates. Barley continues strong but rice is still available in liberal surplus.

Moderate ordering marks the Baltimore anthracite retail trade. There is a growing tendency among householders to buy only part of their season's supply, and come back in January or February for enough to round out the winter. Many purchasers prefer to ignore the spring cut and have a part of their money available until around mid-winter, rather than to put in an entire supply and tie up the amount of cash necessary.

The hard coal trade at Buffalo has done a little better of late, due, perhaps, to the cool weather. Some of the retailers report a more general response to the effort to get them to put in winter coal now than was the case last year.

The independent anthracite trade is very dull. Prices are held close to company circulars and that means small profit for the individual operators. Better demand for small sizes is reported, though nothing seems to have come in this section from the demonstration of the value of these sizes for domestic fuel last winter.

The lake season is open. Clearances so far total 153,600 tons, of which 108,900 tons cleared for Duluth and Superior, 37,200 tons for Chicago and 7,500 tons for Milwaukee. No vessel rates have been announced.

Dullness Rules Connellsville Coke Trade

The Connellsville coke market has had another dull week. This simply reflects conditions in the iron and steel industry, where there is still a heavy operation, but a declining one, and much doubt as to what further decline there will be in blast furnace and steel mill activity.

Labor conditions in the region reflect no uneasiness on account of the efforts to spread unionism in West Virginia. Operators do not expect any trouble. With decreasing operations there is a surplus of labor.

Although production had been reduced, spot demand for furnace coke is so light that it will not readily absorb the occasional surpluses. Three twenty-five was the asking price a week ago, but various sales have been made at \$3 and a shade above that figure.

Spot foundry coke has been dull, but has not been pressing seriously on the market, which remains quotable at \$4 to \$4.50 according to brand.

The *Courier* reports coke production in the Connellsville and lower Connellsville regions in the week ended April 11, at 85,600 tons by the furnace ovens—a decrease of 13,400 tons—and 62,890 tons by the merchant ovens—a decrease of 8,770 tons—making a total of 148,490 tons—a decrease of 22,170 tons.

Car Loadings, Surplusages and Shortages

	—Cars Loaded— All Cars Coal Cars	
Week ended April 4, 1925.....	922,375	131,487
Previous week.....	931,395	140,885
Week ended April 5, 1924.....	861,990	123,403
	—Surplus Cars— All Cars Coal Cars	
April 7, 1925.....	344,258	184,461
March 31, 1925.....	344,959	185,724
April 7, 1924.....	278,724	159,438
	—Car Shortage—	

Foreign Market And Export News

British Coal Trade Improved by Easter But Is Sagging Again

A temporary improvement was felt in the Welsh coal market due to buyers anticipating their requirements for Easter. Aside from this factor, stocks of nearly all classes of coal are accumulating and pit stoppages are still numerous. The most important recent closure is the Blaenavon group of pits, involving 2,500 men. Up to date there are around 30,000 miners idle in Wales.

Strike talk on the non-unionist question is still very evident and 40,000 miners in the Rhondda valley are talking of coming out on May 1, unless the district is cleared of non-unionists.

There is not much business to report. The Egyptian State Railways' contract for 150,000 metric tons has been placed at 34s. 4½d. for delivery c.i.f., at Alexandria, during May, June and July.

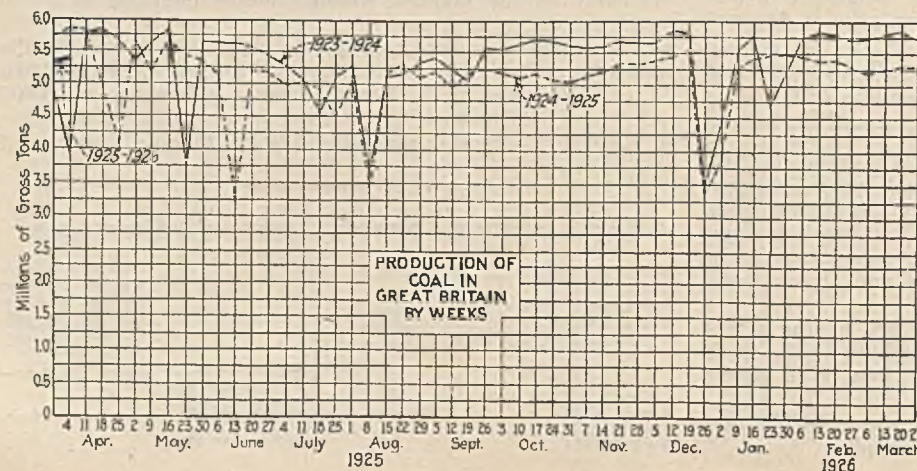
German competition is keen. Of the Latvian Railways' order for 40,000 tons of steams, 15,000 tons has been allotted to Yorkshire at 24s. 6d. c.i.f. Riga, and the balance has gone to Germany.

Coal output by British collieries in the week ended April 4, a cable to *Coal Age* states, totaled 5,295,000 tons according to official reports. This compares with 5,262,000 tons produced in the previous week.

French Market Dull, January Steam Prices Persist

The French market is unchanged. The collieries of the North and Pas-de-Calais probably will not alter the prices applied in January on industrial coals and coke. Beginning April 1, for all sales outside the market, and for all dealings below 100 tons, the terms are those of the Comptoir de Douai, plus an increase charge of 3 fr. per ton.

Briquet prices for France are fixed as follows: April-May, by rail, 86 fr.; by water, 81 fr. June-July, by rail, 91 fr.; by water, 86 fr. Sept. 1-Sept. 15, by rail, 95 fr.; by water, 90 fr.



From March 1 to March 21, the Office des Houillères Sinistrées received from the Ruhr 183,600 tons of coal, 260,000 tons of coke, and 15,500 tons of lignite briquets.

During the month of March, the O. R. C. A. received from the Ruhr a total of 357,804 tons of coke. The April price has not been officially announced but it is expected to rise 1.55 fr. per ton to level it up to the price of French metallurgical coke.

Coal output by French mines in January totaled 4,171,595 tons for a working period of 26 days, as against 3,850,335 tons for 25 working days during December. The production of metallurgical coke by the French ovens aggregated 235,701 tons during January.

Hampton Roads Movement Still Slow—Boats Are Delayed

Business at Hampton Roads is still inactive, though reduction of supplies at the piers had a tendency to strengthen prices. Most mines serving that port were operating on a three-day basis, and the shipments to tidewater were low.

Dumpings for the first two weeks of April were considerably below normal, and low supplies several times caused delay to ships. All coal was quoted \$4 or better, but inquiries were inactive, and the general report through the trade was that business was unusually dull.

Belgian Costs Out of Line so Wage Cut Is Due May 1

Belgian producers find it so difficult to meet French and British competition with wages at the present levels that they asked the workmen's syndicate to cancel the present convention of salary. The syndicate refused. The employers have decided to abrogate the agreement May 1.

Indemnity fuels from Germany received by Belgium from March 1 to March 20, totaled 155,864 tons of industrial coal, 4,700 tons of home fuels, 21,790 tons of metallurgical coke and 3,340 tons of lignite briquets.

Export Clearances, Week Ended April 18, 1925

FROM HAMPTON ROADS	
For Canada:	Tons
Ital. Str. Valprato, for Montreal...	7,069
Br. Str. Dagbild, for Quebec.....	11,101
Br. Str. Wabana, for Quebec.....	7,113
For British West Indies:	
Nor. Str. Betty, for Barbados.....	3,645
For Mexico:	
Amer. Str. Redbird, for Frontena..	1,508
For Cuba:	
Br. Str. Wearbridge, for Havana...	6,611
For Brazil:	
Braz. Str. Inga, for Clara.....	4,751
Br. Str. Jersey Moor, for Rio de Janeiro.....	6,427
Br. Str. Framlington Court, for Rio de Janeiro.....	6,427
For New Brunswick:	
Br. Str. Kamouraska, for St. John.	7,215
For Italy:	
Ital. Str. Labor, for Genoa.....	5,902
Ital. Str. Posillipo, for Genoa.....	8,441
Ital. Str. Flume, for Porto Ferrajo	9,575
Br. Str. Truxillo, for Civitavecchia..	1,813
For Jamaica:	
Nor. Str. Erhold, for Kingston....	1,754
For Danish West Indies:	
Dan. Str. Silkeborg, for Cuaraco....	2,588
For West Africa:	
Ital. Str. Fortunato, for Dakar.....	6,011

FROM BALTIMORE

For Porto Rico:	
Am. Str. Gov. John Lind, for Jabos	117
For Italy:	
Ital. Str. Buccanri, for Leghorn....	6,375
For Chile:	
Nor. Str. Capto (coke), for San Antonio.....	2,911

FROM PHILADELPHIA

For Cuba:	
Br. Str. Kelsomoo, for Antilla.....	—
For Porto Rico:	
Am. Str. Isabela, for San Juan.....	—

Hampton Roads Pier Situation

N. & W. Piers, Lamberts Pt.:	April 9	April 16
Cars on hand.....	218	1,156
Tons on hand.....	12,522	75,260
Tons dumped for week.....	118,816	107,478
Tonnage waiting.....	10,000	5,000
Virginia Piers, Sewalls Pt.:		
Cars on hand.....	751	701
Tons on hand.....	51,400	49,300
Tons dumped for week.....	87,363	84,397
Tonnage waiting.....	12,700	2,986
C. & O. Piers, Newport News:		
Cars on hand.....	1,900	1,757
Tons on hand.....	92,685	85,815
Tons dumped for week.....	126,305	138,255
Tonnage waiting.....	15,400	7,725

Pier and Bunker Prices, Gross Tons

	April 11	April 18†
Pool 9, New York....	\$4.70@4.85	\$4.70@4.85
Pool 10, New York....	4.50@4.65	4.50@4.65
Pool 11, New York....	4.25@4.50	4.25@4.50
Pool 9, Philadelphia..	4.65@4.90	4.65@4.90
Pool 10, Philadelphia..	4.30@4.55	4.30@4.55
Pool 11, Philadelphia..	4.25@4.30	4.25@4.30
Pool 1, Hamp. Roads.	4.20	4.30
Pool 2, Hamp. Roads.	4.00	4.15
Pools 5-6-7, Hamp. Rds.	3.90	4.00

BUNKERS

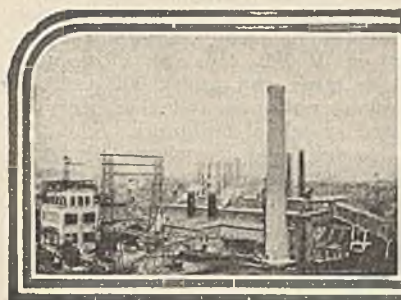
Pool 9, New York....	\$4.95@5.10	\$4.95@5.10
Pool 10, New York....	4.75@4.90	4.75@4.90
Pool 11, New York....	4.50@4.75	4.50@4.75
Pool 9, Philadelphia..	4.80@5.10	4.80@5.10
Pool 10, Philadelphia..	4.60@4.75	4.60@4.75
Pool 11, Philadelphia..	4.45@4.65	4.45@4.65
Pool 1, Hamp. Roads.	4.30	4.35
Pool 2, Hamp. Roads.	4.10	4.25
Pools 5-6-7, Hamp. Rds.	4.00	4.10

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

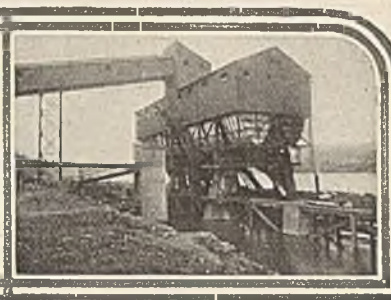
Quotations by Cable to Coal Age

	April 11	April 18†
Cardiff:		
Admiralty, large.....	25s. 9d.	26s. @ 26s. 6d.
Steam smalls.....	16s. 6d.	16s. 6d.
Newcastle:		
Best steams.....	18s. @ 18s. 6d.	16s. 9d. @ 17s.
Best gas.....	17s. 9d.	20s. @ 20s. 6d.
Best Bunkers.....	18s.	18s.

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



News Items From Field and Trade



ALABAMA

R. W. Edwards has been appointed district manager at Birmingham, for the Car Service Division of the American Railway Association, effective May 1, succeeding G. C. Randall, transferred to the newly-created New England district, with headquarters in Boston. Mr. Edwards comes from the Great Lakes district, Detroit, Mich.

COLORADO

The wage cutting in many Colorado mines during April was not accomplished in perfect peace, although there have been no outbreaks. The worst that has happened is a series of protests to the industrial commission. One was filed by three men who claim they were discharged at the Stanley mine near Bon Carbo for declining to accept the new low pay. The commission has not made its decisions yet.

Fire in the Empire mine of the Empire Coal Co., near Aguilar, has done considerable damage in the mine but is now under control. No explosion occurred either at the start or during the progress of the fire.

The State Industrial Commission after visiting Trinidad, April 7, Walsenburg on the 8th and Canon City on the 9th to pass upon the merits of miners' protests against wage reductions, handed down its opinion April 14, sustaining the operators, namely, the National Fuel Co. operating the Thor Mine in the Trinidad District and the Colorado Fuel & Iron Co. operating mines Robinson No. 1 and No. 2. No decision has yet been rendered on the mines in the Canon City district. The Industrial Commission held a session April 14 at Oak Creek and on the 15th at Mt. Harris in Routt County to hear the arguments in the wage scale there.

ILLINOIS

H. E. Bishop of Rock Island, and Clarence Kintz of Coal Valley, have reopened the Rex coal mine near Warner. The shaft had been closed since early last fall and had been allowed to fill with water. A crew of cleanup men started work about April 1 and it is expected that coal will be hoisted soon.

A compromise settlement has been made by which the Donk Brothers Coal & Coke Co. paid \$3,000 to the Madison Coal Corp. to compensate for about 5,000 tons of coal mined out of the Madison property by the adjoining Maryville mine of the Donk company. The settlement was effected at St. Louis, Mo.

The mine of the McLean County Coal Co. at Bloomington, one of the oldest

mines in the state is closed, possibly for all time. Adlai T. Stevenson, formerly Vice-President of the United States, was president of the company at one time, as was Matthew T. Scott, whose wife was president-general of the National Daughters of the American Revolution; and Mrs. Scott was likewise president for a period. The present president is Carl Vrooman, formerly Assistant Secretary of Agriculture. The mine was opened fifty years ago. The shaft is 500 ft. deep, and two of the three seams are worked. Work in the second vein is about a mile from the shaft, while that in the third vein is one and one-third miles. The veins are thinner than in other mines in the Bloomington field, with the result that it is necessary to pay 24c. a ton more for work than in Springfield mines. The equipment is in poor condition and electrification would cost from \$50,000 to \$75,000.

INDIANA

A first mortgage to secure corporate bonds amounting to \$150,000, transacted through the Terre Haute Trust Co. as trustee, by the Macksville Coal Co., was filed with the County Recorder at Terre Haute, April 11. The bonds are dated April 1, 1925, due and payable in 10 years and are to be sold in denominations of \$1,000, \$500, and \$100.

KANSAS

The Kansas first aid and mine rescue meet will be held in Pittsburgh, Saturday, June 13. This was the decision of operators' and miners' representatives, April 10. Fifteen teams are expected to compete. The winning team will represent the state at the national meet in September.

KENTUCKY

On April 15, the coal strike in Western Kentucky wound up its first year. In some mines it has been an endurance contest, but many mines have managed to break loose from the union, and are operating when they can obtain business. Indications are that by fall the strike will be a thing of the past. There is not a single mine operating on the Jacksonville wage basis in the field. One tried it but was forced to close down when fall business slumped off.

W. H. Hunt, former Kentucky mine inspector and miner of Central City, has been working under a contract to remove the body of Floyd Collins from Sand Cave, where Collins was caught by rock and died last winter while the world read of it in the newspapers and

shuddered. Hunt has been on the job with a picked crew of nine experienced miners for two weeks. The crew reached the body but had to drop the shaft 10 ft. deeper and come in at a different angle. It has been contended from the first that experienced miners could have handled the job better than amateurs and engineers who failed last winter in their effort to bring the man out alive.

L. C. Gunter, of Knoxville, Tenn., is interested in the establishment of a coal briquet plant to be built at Stony Fork Junction, near Middlesboro.

The Nagola Elkhorn Coal Co. of Fleming, of which A. F. Parsons is secretary, has 227 acres of coal land under development, and plans a daily output of 1,000 tons. It will install electric machinery for which the contract will be let soon.

The Himyar Coal Co. at Domino is planning the remodeling of its tipple and other improvements.

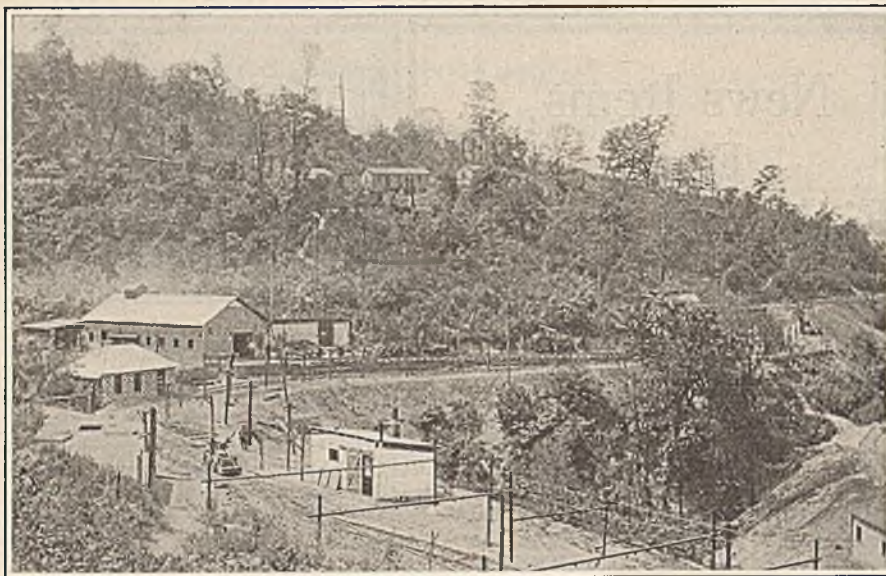
The sale of the property of the Letcher Coal Mining Co. of Whitesburg and Louisville, at Louisville, on April 20, at public auction at the court house, will mark the sixth forced sale of coal mining plants in Letcher County within a few weeks. The recent sale of the Harlan Liberty Coal Co. property at court house at Harlan was the sixth hammer sale of Harlan mines within a year.

The Beaver Creek Coal Co. is planning the development of new mines near Wayland, and will build a mining town.

W. J. Ruby, president of the Kentucky Bank & Trust Co. at Madisonville, has filed suit for himself and as trustee for the bank against the Circle City Coal Co. of Nebo, Frank Fehr, of Louisville, John N. McCabe and Roy Gruschow of Chicago, Ill., stockholders or officials of the company, asking for an accounting of the affairs of the concern. He holds that Gruschow borrowed from the bank, pledging 47 shares of the company stock, and has paid very little on the note while the plant was closed down and dismantled after it had shipped and sold a considerable quantity of coal over a period of some years and had made \$100,000 or more. He charges fraud in the disposition of the profits.

MARYLAND

The Baltimore Coal Exchange has elected J. F. Palmer, of Cumberland, Md., as secretary, succeeding the late Julius Hellweg. Mr. Palmer has been serving as secretary of the North Potomac District organization of soft coal operators.



Courtesy Bertha-Consumers Co.

Motor Road at the Bertha Mine

Located at Dinsmore, Washington County, Pa., this operation of the Bertha-Consumers Co. has a frontage of two miles on the P. C. C. & St. L. R.R. The structure in the foreground is the motor sandhouse, to the left of which is the first-aid hospital. The large building in the background is the supply house.

MINNESOTA

The Great Lakes Dock & Coal Co. has issued \$500,000 worth of 5½ per cent bonds. These have been subscribed, it is understood, and the money will be used for refunding purposes.

The Berwind Fuel Co. is completing a new briquetting plant at Duluth-Superior harbor. The addition will bring the plant up to three presses, and will almost double the present capacity. Good market for briquets was found this year, it is said. The Berwind company handles briquets made from Pocahontas screenings, and the Stott Briquet Co. handles those made from anthracite dust.

B. A. Galleher, superintendent of the Northwestern Fuel Co. Duluth-Superior harbor has returned from a trip to New Orleans. Mr. Galleher was away from the city for a month.

MISSOURI

G. A. Urban, Quincy, Ill., and H. S. Taylor and John T. White at Palmyra, have purchased a zinc and coal field of 1,500 acres, five miles west of Palmyra, on the Palmyra and Philadelphia road. There is said to be a vein of coal approximately 4 ft. thick 70 ft. below the surface.

MONTANA

The Rosebud mine at Colstrip is developing steadily. The recent addition of a shovel equipped with an 8-yd. bucket raised the output to about 2,500 tons daily, making the mine one of the largest strip operations in the West. Rosebud coal is now used by the Northern Pacific R.R.—owner of the mine—in freight service on the Yellowstone and Montana divisions. A shop, measuring 40 x 100 ft., has just been completed at the mine so that no longer is it necessary for shop work to be done at Forsyth.

NEW MEXICO

A new coal mine at La Ventana, 55 miles northwest of Bernalillo, in Sandoval County, has been opened by the San Juan Coal & Coke Co. and will be ready to produce at least 300 tons a day as soon as the Santa Fe R.R. completes the Cuba extension, now building. Before the coal company began opening up its 2,500 acres of coal land, La Ventana was nothing but a goat ranch on the side of a slope. In the crest of the range nearby is a notch faintly resembling a window. From this the town takes its name. The coal company expects a fair sized town to develop soon. A power plant and machine shop for the mine already have been constructed, and about 50 people have come into the territory.

OHIO

Prior to a secret meeting of the Interstate Coal and Dock Co., of Maine and the Volatile Coal Co. its subsidiary, held at the Business Men's Club in Cincinnati, April 15, a statement was issued over the signature of president E. M. Poston in which it was declared that steps would have to be taken toward refinancing the companies or obtaining security for extending their credit. The Interstate Co. of Maine purchased the assets of the Interstate Coal and Dock Co. of Wisconsin after the failure of that corporation in 1922.

John Glaser, president of the Midland Coal Sales Co. and connected with the Midland Mining Co. is suffering from poison ivy as a result of spring gardening at his home in Cincinnati.

The purchasing agent of the Hocking Valley R.R. Co. announced that no contracts for railroad fuel would be entered into by that company for some time. The road is still taking considerable tonnage from former contracts and after these expire the railroad fuel will be purchased on the open market.

The Columbus Board of Education will receive bids May 13 for the delivery of 15,000 tons of bituminous lump or mine run and 2,000 tons of bituminous nut, pea and slack for the various city school buildings. The coal is to be delivered by wagon or truck during the summer months. E. L. McCuna is clerk of the board.

PENNSYLVANIA

The Pennsylvania legislature has passed an act raising the salary of Joseph J. Walsh, secretary of mines, from \$6,000 to \$8,000. The bill awaits the signature of the governor.

The Rochester & Pittsburgh Coal & Iron Co. reports for 1924 a deficit of \$180,623 after charges, exclusive of depreciation, compared with a net income of \$367,236 after all charges the preceding year.

On the night of April 9, the tippie at Centre No. 7 a co-operative mine belonging to Hartley Spackman and located at Centre, Clearfield County, was destroyed by fire. The loss is \$4,000. The mine has been working regularly, all the men at work holding an interest in the operation, getting the coal out on a co-operative plan. The origin of the fire is not known.

On April 13, the House defeated the Mangan bill providing that 2,000 lb. be made a ton in all transactions in Pennsylvania. The vote was 70 ayes to 103 nays. The measure was opposed by Representative Miller, Luzerne, who said the bill does not decrease the price of coal. Representative Stadtlander, Allegheny, opposed it also on the ground that as it provides 40 lb. for shrinkage, purchasers would get but 1,960 lb. to a ton and there could be no prosecution.

After being idle for several weeks, due to a fire which destroyed thousands of tons of coal, operations have been resumed at the Cameron mine of the Susquehanna Collieries Co., at Shamokin. Every modern method including fire walls were used to check the mine fire. Finally flooding had to be resorted to, millions of gallons of water being pumped into the colliery.

The Glen Alden Coal Co. of the Scranton region recently launched a giant reforestation project with the assistance of the state forestry department. It is the plan of the coal company to plant at least 40,000 new trees in the west mountain region. The ground on which the trees are to be planted once grew a good sized forest but mining operations and forest fires cleared the area.

The suit of John Alden Lee against the Lehigh Valley Coal Co., involving a lease on a Pennsylvania mine, leased by the Lehigh Valley and owned in part by Lee, cannot be tried in the federal courts because no diversity of citizenship is apparent, the U. S. Supreme Court ruled April 13, affirming the district court. Lee named Kate P. Dixon co-defendant with the coal company. She owns half the mine. The courts considered she was named defendant because she would not sue as plaintiff and that her residence in another state did not establish federal jurisdiction.

Cave-ins in Wilkes-Barre, caused by anthracite operations, have put the new East End Boulevard in danger. This is one of the main arteries leading to the Pocono Mountains. Improvements on this highway costing about \$500,000 have made it a great scenic route for automobilists. It may now be closed until the subsidence stops. Most of the town of Larksville is now in constant danger from caves. Street car traffic is spasmodic. Many of the houses have been purchased by the companies mining under the town. The village is expected to sink to a new level which will be permanent when mining is complete. Its buildings and streets can then be restored.

TENNESSEE

The Georgia-Tennessee Coal Co., recently incorporated in Atlanta, Ga., by J. Lindborg, Martin Sperling and others, has acquired 4,000 acres of coal land on Raccoon Mountain, near Chattanooga, and will put in a plant with a capacity of 1,000 tons per day.

UTAH

It seems certain now that the federal authorities will appeal the case against George A. Storrs and associates to the U. S. Supreme Court. Storrs and his three colleagues were accused of using the mails to defraud. The federal grand jury indicted them, but the court ruled that during the proceedings the court reporter was appointed an assistant district attorney and the proceedings were irregular for that reason. It was stated the case would be carried to the highest tribunal on a constitutional question. Defendants were promoters of the Great Western Coal Mines Co. Storrs is a former Carbon County coal mine superintendent and former warden of the state prison.

VIRGINIA

The 1924 statement of the Clinchfield Coal Corporation shows, as of December 31, profit and loss surplus of \$3,572,783, an increase of \$244,887, over the preceding year.

WASHINGTON

Coal towns in Washington with baseball enthusiasm have formed the Pacific Coast Coal League with Dave Botting, general manager of the Pacific Coast Coal Co., as president. The league includes Black Diamond, Carbonado, Burnett, Seattle and Newcastle. The season opens May 10 when Seattle plays at Newcastle.

The coal possibilities of Skagit County are great according to O. P. Jenkins of the State College geology department. He recently made a public statement saying that a survey of the county indicated the Cokedale and Cumberland Creek region coal deposits are inviting commercially and that the coals have good coking qualities.

WEST VIRGINIA

Josiah Keely recently was elected president of the Cabin Creek Consolidated Coal Co. to succeed the late W.

M. Puckett. Mr. Keely has long been in charge of the operations of the company and will continue to direct its mining affairs. Charles R. Moriarity, who has been in charge of western sales for the past 20 years was elected vice-president in charge of general sales. He will retain his offices in Cincinnati.

Anticipating possible trouble if the strike of the northern counties spreads into the Panhandle region, Sheriff Campbell Henderson, of Wheeling, took 35 deputies on a general gun and moonshine raid through the Richland district, April 8. Only one arrest was made but quantities of contraband liquor and home brew were dumped by the officers and an assortment of guns and other weapons were confiscated. The officers reported that the hillsides began flowing hastily-poured liquor as soon as the word spread that the raiders were coming.

In the district court for the northern district of West Virginia sitting at Martinsburg, April 10, a fine of \$6,000 each was imposed upon the Cleveland & Morgantown Coal Co. and Samuel Purs-glove, of Cleveland, Ohio, receiver for the Morgantown & Wheeling Ry. Co., for alleged discrimination in the distribution of coal cars to mining companies in West Virginia. The specific charge was violation of the Elkins act regulating commerce. The fines were paid.

An analysis of coal production in the smokeless territory of southern West Virginia in February discloses a decrease of 188,050 tons as compared with February, 1924. The whole decline was in the Pocahontas field, where 1,345,965 tons were produced and shipped as compared with 1,637,925 tons in February, 1924. Production in the New River region amounted to 785,711 tons as compared with 719,712 tons in February, 1924. An increase of 65,999 tons. In the Winding Gulf region the February output was 670,633 tons as compared with 642,767 tons in Febru-

ary, 1924, an increase of 27,866 tons, and Tug River produced 433,785 tons as compared with 423,740 tons in February, 1924, an increase of 10,045 tons.

Nearly 80 per cent of the coal in mines of the Cole and Crane estate, at Omar, is recoverable without increased cost, J. F. White, state mine inspector, testified at Huntington, April 13, for the defense in the trial in circuit court of the \$275,000 damage suit brought by the estate against the Main Island Creek Coal Co. Witnesses for the plaintiffs previously have testified that approximately a million and a half tons of coal have been "bottled up," due to alleged improper mining methods, and in violation of the lease which the trustees of the estate made to the company.

The Gauley Mountain Coal Co. has obtained deeds to 5,000 acres of smokeless coal lands in Raleigh County, involving the expenditure of about \$250,000. It is understood that the coal company plans in the near future to develop this property and will sink a 740-ft. shaft. The shaft will be the deepest one in West Virginia, it is said. The property is in the Marsh Fork District, about two miles from the C. & O. and Virginian railways. The understanding is that a branch line, accessible to both roads will be built soon.

Dynamite was exploded near the non-union plant of the Continental Coal Co. in Scott's Run, April 13. The explosion occurred in a nearby field and it is believed that it was staged to frighten non-union miners employed at the plant. Five foreigners have been detained by the county authorities for investigation. This was the first indication of trouble at this mine.

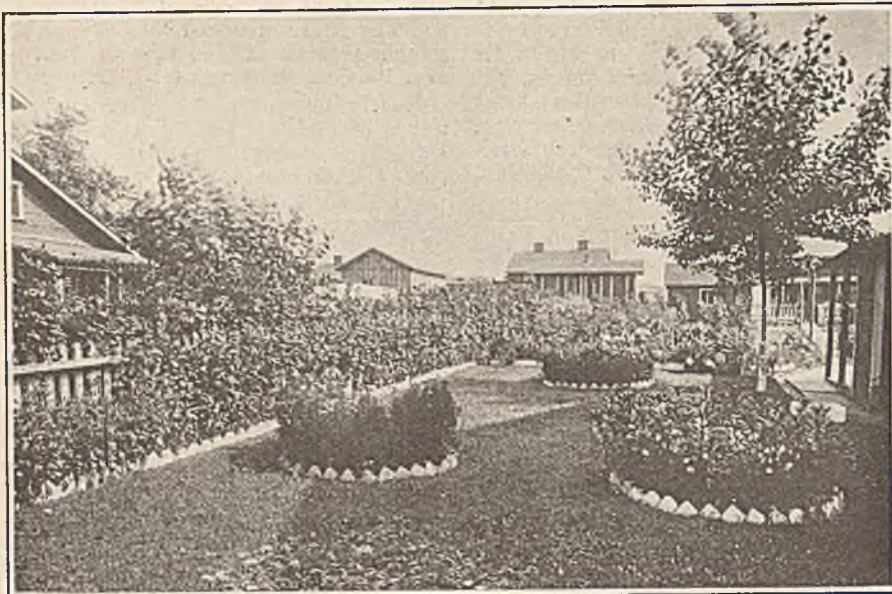
WASHINGTON, D. C.

Truman M. Dodson, Vice-President of the Pittsburgh Coal Co., will discuss "The Coal Situation," at the annual meeting of the U. S. Chamber of Commerce to be held May 20-21 at Wash-



Man Shaft at Consolidation Coal Co.'s Mine Caretta, W. Va.

This shaft is part of plant No. 261 of the Pocahontas-New River division of the coal company. It is located on the Norfolk & Western R.R. in McDowell County not far from Welch.



Steve Parel of the Whitney Mine Has a Good Garden

One of the less known subsidiaries of the United States Steel Corporation is the Hostetter-Connellsville Coke Co. having the Hostetter and Whitney mines. Steve Parel has made House 15 look like a section of a state botanical garden.

ington. The economic phase of the industry will be outlined by the Pittsburgh operator.

CANADA

Canada will import about 500,000 tons of Welsh and Scotch anthracite during 1925, according to Fred McCourt, president of the Canadian Industrial Coal Co., Ltd., who returned recently from a trip to the British Isles. Canada is now getting a good deal of the hard coal that Wales and Scotland used to send to France and Germany. Scotch and Welsh producers expect to expand their trade on this side. Mr. McCourt pointed out that while the Canadian importation of Welsh anthracite two years ago caused a carry-over of 15,000 tons in the following spring, last year the dealers were sold out before the middle of February. The Canadian Welsh Anthracite Co., which shipped 100,000 tons during 1924, has arranged to handle 170,000 tons this year.

Two parallel coal seams, one nearly 4 ft. in thickness, and the other 3 ft. have been discovered by the Maritime Coal Ry. and Power Co., near the Maple Leaf mine at River Herbert, N. S. It is stated that a stope will be sunk immediately for the working of the 4 ft. seam, and that work will be furnished for several hundred men.

Arrangements have been completed between the provincial governments of Ontario and Alberta for the transportation East of 25,000 tons of Alberta coal. It was originally intended to have had 100,000 tons brought in, but owing to the lateness of the season it was considered advisable only to arrange for a quarter of that quantity. The government will not purchase or distribute the coal, but has arranged for producers to transact their business through the Provincial Fuel Controller. The freight rate by the Canadian National Railways will be \$7 per ton.

The increasing use of coke in Ontario was discussed by several speakers at

the annual meeting of the Ontario Retail Coal Dealers' Association, held in Toronto on April 8 and 9. D. C. Ashmead, of the U. S. Bureau of Mines, spoke on the mining and preparation of anthracite. After much discussion a resolution was adopted protesting against "snowbird" competition and urging that all coal dealers should be licensed by the province. D. F. Williams, vice-president of the Hudson Coal Co., spoke of the uncertainty of the anthracite supply. The following officers were elected: President, W. H. Smith, Owen Sound; vice-president, F. A. Dunlop, Hamilton; directors, James Foulds of Oshawa, Fred Mann of Brantford, T. E. Pratt of Peterboro, F. H. Marlatt of St. Thomas, G. F. Rogers of St. Catharines, J. A. McLean of Wingham, and M. F. Craig of Guelph. The Secretary is E. A. Caspell of Brantford.

The 1924 statement of the International Coal & Coke Co., Ltd., shows a net operating loss of \$9,582, largely because of the miners' strike in Alberta, which ran for seven months to October 20. President A. C. Flumerfelt said the strike, including depreciation and depletion for the closed-down period, cost the company \$122,000. The company is in sound financial condition.

Traffic

Many Protests Filed Against Lake Coal Differentials

Protest against the widening of the lake coal differentials has been made by the Michigan Public Utilities Commission before the Interstate Commerce Commission. The Wisconsin commission, it is reported, has also protested. Both protests, it is reported, are made on the broad ground that these states do not want to have their coal markets restricted in any way, but want to retain free competition among the soft-coal fields serving that territory.

The B. & O. R.R. has entered a protest against the increase in lake coal carrying differentials in which it points out that benefits would accrue to the Pittsburgh and No. 8-Cambridge fields, which are only 90 miles nearer than Fairmont. The B. & O. says that it will lose \$500,000 annually in revenue if the differential is raised from 15 to 30c. in favor of Pittsburgh and No. 8-Cambridge fields. The road has filed a series of exceptions with the commission.

The West Virginia Public Service Commission has filed exceptions before the Interstate Commerce Commission also in which it stressed the fact that the examiners gave undue weight to the distance feature and overlooked the advantages enjoyed by the West Virginia coal fields because of its excellent railroad facilities.

N. & W. to Build Browns Creek Line

The Norfolk & Western Ry. is obtaining options for a right of way to build a branch line up Browns Creek, near Welch, W. Va., to open 10,000 acres of good coal land in McDowell County. There is a possibility that the Norfolk & Western may extend the line from Browns Creek across Wyoming County, so as to connect with its line to Mullens. The Houston interests, the Pocahontas Fuel Co. and the General Pocahontas Coal Co. control most of the coal property in the Browns Creek section.

Shippers Propose Rate Changes

Shippers, carriers and consumers of coal were represented at a conference with the Interstate Commerce Commission at Washington, April 10, regarding proposed changes in rates on west-bound coal affecting points of origin in Illinois, Indiana and Western Kentucky. Adjustments are necessary because of various rulings by the Commission, but the new tariffs proposed originally by the railroads were suspended because of numerous complaints. At the conference it was suggested that new basic rates be established from northern Illinois, with a graduated differential from the other districts affected. The carriers were not ready to make a final agreement. Representatives of the railroads were to meet again with officials of the Commission at Washington, April 21, to go more fully into details of the suggestions.

Freight Traffic Breaks Record

The volume of freight carried by the railroads during the first two months this year was the greatest ever handled by them during any corresponding period on record, according to reports for those two months filed today by the carriers with the Bureau of Railway Economics. In net ton miles, it amounted to 70,560,495,000, an increase of two-tenths of one per cent over the corresponding period in 1924 which marked the previous high record, and an increase of three-tenths of one per cent over the same period in 1923. It also was an increase of 3.9 per cent over the same period in 1920.

Recent Patents

Loading Device for Coal Mines; 1,525,854. Joseph P. Dawson, Charleston, W. Va. Feb. 10, 1925. Filed March 26, 1924; serial No. 702,105.

Method of Mining Coal; 1,525,855. Joseph P. Dawson, Charleston, W. Va. Feb. 10, 1925. Filed March 26, 1924; serial No. 702,106.

Shoveling and Loading Machine; 1,526,022. Harold I. Stage, San Francisco, Calif., assignor to Ingersoll-Rand Co., Jersey City, N. J. Feb. 10, 1925. Filed Sept. 27, 1923; serial No. 665,041.

Coming Meetings

National Retail Coal Merchants Association. Annual convention Traymore Hotel, Atlantic City, N. J., May 11-14. Resident vice president, Joseph E. O'Toole, Transportation Bldg., Washington, D. C.

The American Society of Mechanical Engineers. Spring meeting, May 18-21, Milwaukee, Wis. Secretary, C. W. Rice, 29 West 39th St., New York City.

Mine Inspectors' Institute of America. Annual convention, Jefferson Hotel, Peoria, Ill., May 19 and 20. Secretary, G. B. Butterfield, 179 Allyn St., Hartford, Conn.

Chamber of Commerce of U. S. A. Thirteenth annual meeting, May 20-22, Washington, D. C.

Manufacturers' Division of the American Mining Congress. National exposition of coal-mining equipment, Cincinnati, Ohio, week of May 26. Secretary of American Mining Congress, J. F. Callbreath, Munsey Building, Washington, D. C.

National Association of Purchasing Agents. Tenth annual convention, Milwaukee, Wis., May 25-28. Secretary, W. L. Chandler, Woolworth Building, New York City.

International Railway Fuel Association. Seventeenth annual convention, Hotel Sherman, Chicago, Ill., May 26-29. Secretary, J. B. Hutchinson, 6000 Michigan Ave., Chicago, Ill.

American Wholesale Coal Association. Ninth annual convention, French Lick Springs Hotel, French Lick, Ind., June 1 and 2. Secretary, G. H. Merryweather, 1121 Chicago Temple Bldg., Chicago, Ill.

Illinois & Wisconsin Retail Coal Dealers' Association. Annual meeting, June 9-11, at Lake Delavan, Wis. Secretary, I. L. Runyan, Great Northern Bldg., Chicago, Ill.

Mid-West Retail Coal Association. Annual meeting at Kansas City, Mo., June 9-10, Baltimore Hotel.

National Coal Association. Annual meeting, June 17-19, Edgewater Beach Hotel, Chicago, Ill. Executive Secretary, Harry L. Gandy, Washington, D. C.

International Chamber of Commerce. Third general conference, Brussels, Belgium, June 21-27.

American Society for Testing Materials. Twenty-eighth annual meeting, week of June 22, Chalfonte-Haddon Hall, Atlantic City, N. J. Secretary-treasurer, C. L. Warwick, 1315 Spruce St., Philadelphia, Pa.

American Institute of Electrical Engineers. Annual convention, Saratoga Springs, N. Y., June 22-26. Secretary, F. L. Hutchinson, 29 West 39th St., New York City.

Chemical Equipment Exposition. June 22-27, Providence, R. I. Association of Chemical Equipment Manufacturers, 1328 Broadway, New York City.

Twelfth National Foreign Trade Convention. Seattle Wash., June 24-26. Chairman, James A. Farrell, National Foreign Trade Council, Hanover Square, New York City.

Tenth Exposition of Chemical Industries. Sept. 28 to Oct. 3, at Grand Central Palace, New York City.

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

Coal Mining Institute of America. Annual meeting, Dec. 9-11, Pittsburgh, Pa. Secretary, H. D. Mason, Jr., P. O. Box 604, Ebensburg, Pa.

New Equipment

Cylinders Set at Right Angles In Portable Compressor

A new 220-ft. portable air compressor has been built by the Sullivan Co. to meet the increasing demand for portable compressors of larger capacity. It embodies a number of interesting features.

The same size compressor cylinders have been utilized as in the 110-ft. portable outfit. They are 5½ in. in diameter and have a 5-in. stroke and are single acting, but there are four of these cylinders. Instead of being arranged vertically in a line, they are set in pairs, each pair being at right angles to the other, forming a "V". Each pair is thus at an angle of 45 deg. with the vertical axis of the machine. The pairs of cylinders are slightly offset lengthwise, which permits operation from a single crank shaft. Only two crank pins are used, but each pin accommodates two connecting rods placed side by side. The rods for the two front cylinders are attached to one pin, and the rods for the two rear cylinders are connected to the other. Counter-weights are provided on the crank shaft, as in the case of the 110-ft. unit, and the construction also follows that machine in providing a heavy square-rim flywheel inside the housing at the rear end of the compressor.

It is obvious that the 90-deg. arrangement of the pairs of cylinders provides excellent counter-balancing which results in a marked reduction in vibration.

The compressor employs standard "Wafer" valves, providing short lifts but wide port openings, and excellent efficiencies. All moving parts run in oil on the splash system. Pistons and connecting rods are of the automobile type. The compressor is direct connected by means of an interlocking external and internal gear clutch to a Buda four-cylinder, four-cycle gasoline engine. To drive the compressor at its full rated speed of 800 r.p.m., 43 hp. is required. The engine has abundant reserve capacity.

The engine and compressor are firmly bolted to a substantial cast steel frame, yet the angle construction of the compressor and the consequent reduction of vibration have permitted holding the weight to the low figure of 5,360 lb.

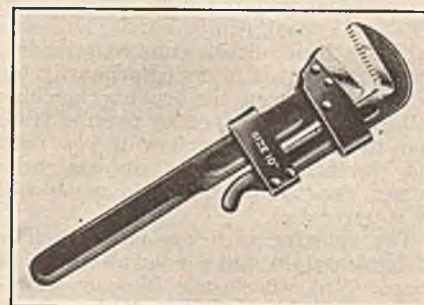
complete. This does not include oil, water and gas. The gas and air tanks are suspended on brackets at the compressor end of the rig, the air receiver being 20x60 in. in size, and the fuel tank holding 25 U. S. gal.

Equipment includes standard portable compressor fittings, such as Racine radiator, Eiseman high-tension magnetto with impulse starter, Zenith carburetor with Pierce speed governor, pilot valve or by-pass unloader, etc. The outfit is provided with hand-operated brakes on the rear wheels. The engine and compressor cylinders and the radiator are cooled by positive feed water circulation.

This compressor will operate two or three rock drills, three or four concrete breakers or tampers and seven to nine riveters or clay spaders.

This Type of Pipe Wrench Is Quickly Adjusted

When a stubborn nut, bolt or rod fails to yield to ordinary treatment—which is often—the pipe wrench comes into use. A pipe wrench is a general



Wrench Saves Time and Trouble

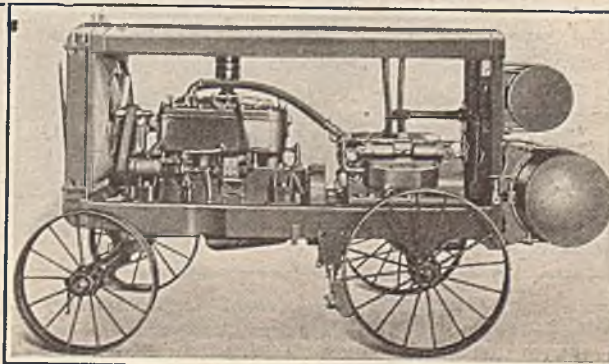
Depressing the thumb extension of the movable jaw, toward the handle, unlocks the pawl. The jaw is then slid to the desired position where it locks automatically.

utility tool and is a necessary part of a mechanic's outfit, as well as the principal tool of pipe fitters and conduit workers.

The Hampton Automobile Products Co., of Huntington, W. Va., has announced a new quick-adjusting pipe wrench which, as the name implies is a time saver, and is less cumbersome than the more familiar types. The wrench has been patented. It was first

Easily Taken to Work

This large-sized compressor outfit is equipped with a 220-ft. unit designed along standard approved lines. It is well balanced and directly connected to a four-cylinder gasoline engine.



made in 1920, and since that time has undergone extensive tests in service.

The quick-adjusting feature is made possible by the use of a pawl which engages teeth on the back of the frame or handle. The pawl is so designed and held in position by a spring that it is disengaged whenever the movable jaw is pressed to the handle, thus adjustment of the wrench is accomplished by simply sliding the jaw to the desired position.

Small Locomotive Speeds Up Work of Machine Loaders

Mechanical coal loading has brought problems of its own—difficulties from which hand mining is immune. It is now well recognized that in order to be successful commercially, loading machines must be kept busy. It is futile to install an expensive machine capable of loading one to three tons of coal per minute unless provision is made for supplying the machine with cars. Some time must inevitably be lost in changing cars but best results will only be attained when this loss is cut to a minimum. Particularly in room-and-pillar workings this resolves itself into the problem of rapid car shifting.

In order to facilitate the movement of cars to and from loading machines the Mancha Storage Battery Locomotive Co., of St. Louis, Mo., has developed the little accumulator locomotive shown in the accompanying illustration. This machine is designed to handle only one car at a time, either empty or loaded. Inasmuch as it is intended primarily for use only between the loading machine being served and a nearby parting from and to which points it will ply back and forth continuously, it has been named the "shuttler." This name will be copyrighted.

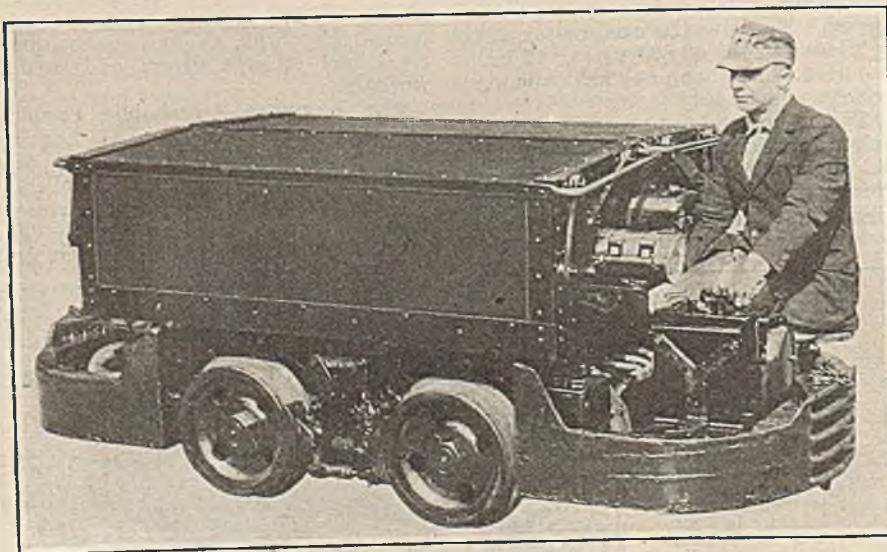
The shuttler is a one-man machine of light weight and comparatively high speed. The wheels are 16 in. in diameter mounted on a 28½ to 32-in. wheel-base and made of a special alloy rolled steel which gives this locomotive draw-bar pull equal to that of one ¼ heavier with chilled cast-iron wheels. The overall length of the machine is 9 to

10½ ft.; its total height above the rail is 41 in., its width 48 to 52 in. and its total weight 4 to 5½ tons. It is provided with one motor hung longitudinally with the machine and actuating the drivers through a segmented shaft and worm or bevel-spur gearing. Brakes, headlights, controller and other fixtures are of standard design and of a type that experience has proved to be well adapted to their purpose. The battery equipment consists of 48 cells, and the capacity amounts to about 26 amp.-hr. The normal speed of the machine over level track unloaded is 8 m.p.h.

Like other locomotives built by this manufacturer, this machine can be fitted with a second battery and battery box that can be readily and quickly changed when the battery on the machine becomes exhausted. When thus equipped, this little locomotive is available at all times and may be operated two or more shifts out of each 24 hr.

Among the advantages claimed for this machine are the following: It entails a small capital investment, and its battery is inexpensive both in first cost and upkeep. Being operated by one man the wages of a brakeman are saved. The machine will replace from 3 to 4 mules and from 2 to 3 men, depending upon the physical conditions of the mine. Its small weight enables it to operate over any rail, even wood, upon which the mine cars travel, and its short wheel base, as well as its effective overall length which because of rounded ends, is less than that of a car, permit it to traverse any curve around which a mine car will pass. In one Pennsylvania mine from 80 to 110 cars are being gathered from hand loaders by one man with one of these machines during each shift.

However successful this shuttler may be as a gathering motor, it is in serving loading machines that it reaches its greatest utility. For this purpose it has the requisite ruggedness, speed and battery capacity. It is built in both the "open" and "flame-proof" or permissible types, in which latter case it is considered safe for operation in the return of closed-lamp mines.



Small Locomotive of Ample Battery Capacity

The Shuttler is a one-man locomotive designed to serve loading machines. Its large battery capacity and comparatively high speed admirably adapt it to this type of service. It may also be used for gathering in which service it is quite successful.

Obituary

James W. McQueen, 50, president of the Sloss-Sheffield Steel Co. of Birmingham, Ala., died of influenza in New York City April 20. He had gone north for a meeting of his stockholders and was taken sick on the train. His death followed by only a few weeks the successful merging of the Sloss Steel Co. with the Alabama Co., one of the great achievements of his career. The consolidation involved large coal holdings in Alabama. Mr. McQueen is survived by his two sons, Giles E. and James W. McQueen, Jr.

Henry J. Elliot, 69, formerly prominent in the coal trade in the Twin Cities and Chicago, died April 13 at the home of his son-in-law in St. Paul. Mr. Elliot has been in the coal business for 35 years, and for many years was manager for the Pittsburgh Coal Co. in Chicago. The interment was in Minneapolis.

Walter P. Macomber, for 25 years manager of the Washburn Lignite Coal Co. of Wilton, N. D., died April 2. His widow has been named as manager pro tem, to carry out the plans which he had developed, and in which she had been intimately connected.

Austin G. Gorham, 77, old time Colorado coal operator and once president of the Gorham Coal Co. is dead at Buxton, Me. In 1888 he was vice-president and general manager of the Marshall Consolidated Coal Co., which was later changed to the Gorham Coal Co. and eventually to the Rocky Mountain Fuel Co. It is now one of the large operating concerns of the state.

Edward Williams, 75, of Philadelphia, died April 9 after a long illness. He was one of the best known mine superintendents in Pennsylvania, for years having directed the Packer Colliery at Lost Creek in Schuylkill County, and later the Centralia colliery in Cambria County. Mr. Williams retired five years ago. Last February, while in the Presbyterian hospital in Philadelphia, Mr. and Mrs. Williams celebrated their fifty-first wedding anniversary. She survives him.

James A. Stitt, who had been a superintendent for the late John A. Clark at the Chiefton mine, prior to its sale to the Fairmont Coal Co., the predecessor of the Consolidated Coal Co., died Friday, April 17, at the home of his daughter, Mrs. G. M. Blinford in Barboursville, W. Va. He originally came from Illinois.

John J. Town, 76, sales agent of the Delaware, Lackawanna & Western Coal Co. since 1905 and connected with the company through Holden & Co., in Syracuse, where he was born, died at his home in Utica, April 12, leaving a wife and a son, D. H. Town.

Manford H. Coffin, 66, founder of the Mutual Co. of Salt Lake City, died at his home in Boise, Idaho, April 8. Mr. Coffin resigned as vice-president and general manager of the company in 1922. At the time of his death he was engaged in the promotion of the Equitable Coal Co., another mutual.

W. L. Schmick, of St. Louis, Mo., died April 13, in a St. Louis hospital, following an illness of some weeks. The cause of his death is reported to have been an inoperable carcinoma of the intestine. He was born July 29, 1860, at Baltimore, Md. He went to St. Louis in 1880, being continuously thereafter connected with some Illinois coal producing company until 1920, a period of forty years.

William Ellsworth Glasscock, 62, Thirteenth Governor of West Virginia, who was chief counsel for the Brady-Warner Coal Corporation in a number of legal cases in Monongalia County, recently died at his home in Morgantown, April 12.

Oliver L. Garrison of St. Louis, Mo., died in St. Louis, early in April. He held several official positions with the Illinois Coal Operators' Association soon after its origin and also was president of the Big Muddy Coal Co. at Murphysboro, until 1920.

New Companies

The Consolidated Coal Co. of Salt Lake City has been incorporated for \$500,000. R. M. Lehman is president.

The Red Devil Coal Co. of Ogden has been incorporated at Ogden, Utah. It will have a capital of \$25,000 in \$1 shares. The incorporators, who include J. A. Stallings of the Spring Canyon Coal Co., Salt Lake City, are all Salt Lake men but one.