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## Work Well or Plan Well

OPERATING efficiency in coal mines, as elsewhere, is he outcome of planning rather than of working. Too many executives burden themselves with small duties that a subordinate could just as well perform. They should always be asking themselves what work they can shirk, not what work they can do. Any class of work thus definitely avoided should be put into the hands of some subordinate with full responsibility for its performance and he should be given definite but not crippling instructions as to the course he should steer. Occasionally the work can be taken up by sample and inquiry made as to the punctiliousness with which the instructions have been followed.

Thus relieved, the executive can plan largely. He can visit other mines, he can spend hours mastering the details of some new process, he can test some part of the operation to see if it is being efficiently conducted, he can direct the keeping of records. But he must beware of being the master worker and make sure that he is the master thinker of the organization, the stimulating, inspiring and directing force of the institution.

## When Government Bureaus Fail

THE EXISTENCE of the Federal Trade Commission, according to recent Washington news dispatches, is threatened by a combination of Congressmen representing varying shades of political opinion. Observers, wise in the ways of Pennsylvania Avenue, point out that the activities of the commission may be ended by a refusal on the part of Congress to vote further appropriations for its support. That method has been used before to end the life of agencies that fell from Congressional grace. It is simple, direct and effective.

Ordinarily the business men of the country would not be interested in the causes of the demise of this discredited institution. The boon of dissolution is so great that it borders on churlishness to inquire whence and why such a precious gift comes. In the present case, however, the source and motives for the contemplated action are as important as the deed itself. These put a cross-section of the political reactions towards business enterprise under the slide where all who will may examine them.

When the Federal Trade Commission was first proposed, business men generally welcomed the idea of the establishment of a bureau that would counsel with, rather than chastise, legitimate commercial initiative. The first chairman, E. N. Hurley, one of the few men who have been big enough to become part of the government machinery without succumbing to the political control complex, justified their hopes. But those hopes vanished with Mr. Hurley's resignation. Since that time the Federal Trade Commission has been a storm center, condemned by sober business men, petted by radicals, reversed more often than sustained by the courts, abusing its access to publicity and the public confidence with accusation and innuendo.

Surely here was a course of action sufficiently destructive to arouse the antagonism of Congress. Alas, the head and front of the commission's offending is not that it is persisting in that course, but that it has taken steps to mend its ways! Under the reorganization recently effected, says Chairman Humphrey, the commission "would not in the future be used as a smelling committee or a detective agency for any other department of the government. Neither is it going to be used as a publicity bureau to spread socialistic propaganda, nor to advertise the political or personal fortunes of any person or party." For the expression of such sentiments the commission is denounced as a body that has outlived its usefulness, as a creature of sinister powers and no longer in a position to protect small business interests.

What is happening to the Federal Trade Commission is likely to happen to any government regulation bureau. The genesis of most attempts at regulation is destructive. The essence of control is "thou shalt not." Even in those cases in which new agency is pictured as an instrument of helpfulness, its offer to assist is usually prefaced by the demand that the industry to be aided must first conform to such rules of conduct and management as the agency may see fit to prescribe. Where, as apparently is now the case with the Federal Trade Commission, the government bureau makes a genuine effort to aid instead of hampering, its quondam political friends become its foes.

The business world may take a cynical satisfaction in the present controversy over the future of the Federal Trade Commission. The decease of that body as it existed prior to the last reorganization would have been a blessing; its demise today probably would be no great loss.

## **Real Costs of Loading**

Y THE USE of loading machines and conveyors in Da mine the number of men employed is reduced, so less houses are needed; fewer acres have to be developed, so the interest on the investment is decreased; the number of locomotives needed for gathering and the main-line haulage is reduced, saving supplies, maintenance, labor, depreciation and interest charges. Also less rails and wire are needed. In figuring the overhead due to the investment in the machine, its depreciation, supply and maintenance costs, these savings in other equipment should be deducted even though the operator cannot save all these costs but has to meet most of them by reason of the fact that he has the equipment and cannot sell it to advantage. Ventilation, drainage, supervision and tipple costs may be lowered, but it may be difficult to evaluate precisely the exact amount thus saved.

The operator needs to know just where he would be 863

if he had to equip a new mine instead of an old one, and to remember that in time, with the extension of the mine, he will need the equipment that is now laid by. Temporarily he may have to bear the triple burden of the equipment discarded for the time being, of the equipment still in use and of new material that the introduction of new methods entails, but later he will not be so encumbered, and the real value of the machine should be estimated with this ultimate saving in mind. Too often the interest on the whole cost of the new equipment, the depreciation on it and its cost of operation and repair are figured against the machine. Why not lower these overheads by estimating the savings on eliminated machinery, development and housing thus getting the true cost of operating in a mine designed for this particular system?

Those superintendents seeking to obtain further mechanization can prove their case forcibly by such a method of calculation. It is the correct way to estimate costs, though it will give a false impression of the immediate value of the installation.

Speaking at the American Mining Congress Exposition, G. B. Southward, chief engineer of the Virginia Coal & Coke Co., said that the number of main-line haulage locomotives could be reduced 20 per cent, gathering locomotives 50 per cent, and mine cars 25 per cent and that the length of main track could be cut 50 per cent, light steel haulways 66 per cent, and the area under development 75 per cent. With such large reductions in cost ignored, the true conditions under which the mine is operated cannot be correctly estimated if the reductions are not made part of the calculation.

The introduction of conveyors and machines for loading means the elimination of much of the equipment that cruder methods make necessary. It may be conservative to dismiss this fact from the mind, but the conservative method of estimation is not always the most constructive. What is desired is not a one-sided calculation but the true facts of the case.

### The Washington Formula

THE COAL INDUSTRY, abused though it may be by the commonalty, is not without its friends, many friends—particularly in Washington. So strong is this friendship, so abiding the affection entertained for the coal men, that these friends are forever devising, according to their individual bent, simple to grandiose schemes to save the industry from the foes knocking at the gate. Safety for the industry, we are told, lies only in unquestioning acceptance of these proposals to make it a government ward: rejection can lead only to the complete enslaving of the business by hostile demagogues.

That, in effect, was the argument advanced in favor of acquiescence to the Freylinghausen program; it being re-echoed by supporters of the Oddie bill; it is in the background of every discussion of government regulation, every suggestion to extend bureaucratic control over the industry. "It is *our* plan—or something very much worse—that threatens you," is the warning. If the coal trade, weary of Greek gifts, mildly protests, the grief of its political friends is painful to behold. Such brutal rejection of friendly services passes the understanding, wounds the sensibilities and sours the natural sweetness of the gentlemen who sit on Capitol Hill.

## Standardization Reduces Waste

THE SETTING UP of standards aids both manufacturer and operator and saves money for the consumer of the final product. When a standardized machine is produced the manufacturer can give careful consideration to every element of design, knowing that the cost of the labor thus expended will be spread over a large production.

The larger the number of units made the more readily will the workman learn what manipulations are necessary for such construction. Fewer mistakes are likely to be made. The mechanics need less supervision at every stage of the work. The routing of the mechanical operations can be more effectually planned. As a result the cost of the machine is much reduced.

Then again the manufacturer has fewer patterns to make, less parts and patterns to keep in stock, fewer blueprints to file, less items to catalog, and there is less chance of error when parts are ordered. By reducing the number of types the manufacturer can keep safely fewer completed machines in stock, and thus he reduces the investment charge and the cost of storage facilities. He also has an opportunity to keep records of the performance of a large number of machines all precisely similar and to learn in consequence how the models should be improved.

But the operator who buys the machine is also advantaged. He gets a better price because the manufacturer can make the machine at lower cost. He has less parts to store and can cut the outlay for spares to a minimum without risk of running short. He can save storage room and reduce the expenses of keeping a record of his stock. The savings thereby effected may reach surprisingly high figures if a large number of machines are in use, for with several mines he will need only a slightly larger stock than would serve for only one or two, should they be equipped with machines of a multiplicity of models.

His men will know the characteristics of the machine and how to repair and replace parts when needed. The management will learn where the mechanism is likely to fail and just what care should be expended on it to keep it in good order. The mine employees can be shifted from machine to machine and from mine to mine and prove equally efficient despite the change. When makes of machine vary, the man who is shifted is some time in learning how to use the equipment and his efficiency is decreased accordingly. He may even have to experiment, with costly results.

Standardization reduces waste and should be applied to every type and capacity of machine as soon as the design has reached such a point of efficiency and durability that standards can be determined. The desire of some engineers to demand changes without due reason and the practice of demanding the duplication of machines of an antiquated type add greatly to cost and sometimes jeopardize safety.

In many cases it would pay, when the parts fail, to modify old types so that the newer design of parts could be inserted and the old machines transformed to the new standards, if that be possible. In some instances the remodeling or replacement could be done on a large scale with ultimate gain as, for instance, where a mine has a gage of track which has become obsolete, been found uneconomical or has been chosen by some whim, for which nothing but an idiosyncrasy of a former owner of the mine can be alleged as an excuse.



# **Mine Plant Generates Power from Pulverized Bone**

Uses Unsalable High-Ash Refuse with Ease—Obtains Better Results than Stokers—No Difficulty Is Suffered from Slagging of Furnace Walls or Bottom

> By Frank H. Kneeland Associate Editor, Coal Age, New York City

SOUTH OF MASON and Dixon's line the only coalmine power plant that burns powdered fuel is that of the United States Coal & Coke Co., at Gary, W. Va. So far as I am aware, also, this is the only installation of its kind in the United States that utilizes pulverized bone in the generation of electric energy.

Some mine power plants are planned and built complete and entire; they are fully equipped and sufficiently large when they are first put into commission to meet all requirements of the mines they are intended to serve throughout the whole anticipated life of these operations. Such plants are efficient but few in number. Others spring from small beginnings and grow piecemeal by a process of more or less haphazard accretion, unit after unit of equipment being added to meet the demands of a mounting load. Such plants are seldom efficient but, unfortunately, they are fairly common in the coal fields.

Between these two extremes lie a vast number of installations that are the result of engineering skill of a high order, and represent an evolution that is the product of increasing power requirements on the one hand and improving equipment on the other. The plant at Gary belongs to this latter classification. It has undergone several changes and improvements and has been enlarged from time to time, yet each succeeding change has been carefully considered and each piece of equipment installed has been chosen from the best available at the time the change was made. As a result, at every stage of its metamorphosis this plant has been an efficient unit.

As originally constructed, twenty or twenty-five years ago, this plant was equipped with four hand-fired boilers and two reciprocating steam engines. As new mines were opened and the power demands upon the plant increased, the two buildings—boiler plant and engine house—were extended and new equipment added until about 1920 when the apparatus installed comprised twelve stoker-fired boilers, two cross-compound, highspeed engines, two cross-compound Corliss engines, and two turbines, together with the necessary auxiliary and cordensing equipment, boiler-feed pumps and the like.

Even with this complement of machines the plant became overloaded and still further additions were necessary. In the meantime, such improvements had been made in the use of powdered coal as a fuel for stationary boilers that its possibilities for use in this plant were carefully considered. Not only this but the effective fuel utilization was carried a step further.

The headplece shows the Gary plant. Note the total absence of anything that might logically be called smoke. Modern methods of combustion, whether by way of the stoker or by means of powdered fuel, are doing much to lessen the smoke nuisance, particularly in the larger cities. Best of all, however, the absence of smoke is a fairly reliable indication of complete combustion within the boiler furnace.





In this region, the beds of Pocahontas coal worked are overlain with from 3 to 12 in. of black rash or bone. In some places also the coal carries a bone parting. On analysis this material ordinarily shows from 20 to 40 per cent of ash. Thus it is burnable but not marketable. Because of the rugged and abrupt topography of the district, disposal of refuse from the picking tables usually presents a big problem. To a lesser extent this is true also of sweepings from the railroad tracks beneath the tipples as well as from the mine tracks both above and below ground.

It was decided, therefore, to utilize these various refuse materials in the company's power plant, thus turning a waste substance, which could be disposed of only at an appreciable expense, into a useful product electric energy. Accordingly, the power plant was again remodeled and enlarged. Two of the old boilers were removed and two new ones, fitted for burning powdered fuel, added in their place.

The boiler capacity of this plant now consists of two 779-hp. Stirling superheating boilers fitted for burning powdered fuel, five 520-hp. B. & W. (Aultman-Taylor) boilers fired by Jones stokers and five 300-hp. boilers of the same type fired with Taylor stokers. The old boilers were built for 150 lb. pressure of saturated steam. The new units are designed for a working pressure of 225 lb., but are now operated at 150-lb. pressure and 150 deg. of superheat.

In the power-generating portion of the plant the two, high-speed, engine-driven units were removed and a 3,000-kw., back-geared, turbo-generator installed in their place. The arrangement of piping is such that this machine is supplied with superheated steam from the new boilers, any surplus mixing with saturated steam from the older units, and the mixture passing to the other machines in the plant. The older engines and turbines thus are supplied with steam that is superheated to a certain extent, but not so highly as that reaching the new turbine.

Interest in this plant, however, centers in the utilization of the refuse fuels. It will be interesting, therefore, to trace the course of this material to and through the boiler house (the general plan and elevation of the plan shown in Fig. 1). At present, bone and track sweepings from Mines Nos. 2, 6, 9 and 11 are shipped to the power plant for fuel. Arrangements are being made whereby bone and rash from Mine No. 8 may be utilized in a similar way. This material, as it accumulates at the various plants named, is shipped in open-top cars, covered with canvas tarpaulins to keep out moisture.

Upon arrival at the upper end of the power plant, the bone is discharged into the track hopper F (see Fig. 1). Bone or coal from No. 3 mine, the tipple of which is nearby, reaches the same point by way of the chute D and conveyor A. From the bottom of the hopper F the material is delivered by a reciprocating feeder after passing a magnetic separator to the crusher G. This is a Jeffrey, 30x30-in., single-roll machine having a capacity of 50 tons per hour. From the crusher, the material is delivered to the conveyor Bby which it is elevated and transported to either of the chutes H or J.

By the chutes H the fuel is delivered to the bins Labove the pulverizing mills. These bins are of about 50 tons capacity each. Small reciprocating feeders in the bottoms of these bins deliver the bone to the pulverizers, which are 46-in., Fuller-Lehigh mills with a capacity of about 60 tons of coal or 50 tons of bone per hour. Only one machine is operated at a time, the other being held as a spare. From the pulverizers, the ground fuel passes to a Fuller Kinyon transport system by which it is delivered to either of the two powdered fuel bins K over boilers Nos. 1 and 2.

The discharge end of conveyor B is fitted with a butterfly valve, or its equivalent, by which the coal handled by this conveyor, or any desired portion of it, may be sent to either the pulverizers or to the conveyor C. This latter conveyor is installed above the bunker, or bin, M serving boilers Nos. 3 to 12 inclusive. This conveyor is equipped with a traveling or automatic tripper, which normally moves back and forth along the bin, discharging coal as it goes. It can, however, be stopped at any desired point or be moved from place to place by hand. The bunker, accordingly, may be filled uniformly or the coal may be delivered to any portion of it.

The pulverized coal bins K over boilers Nos. 1 and 2

will hold about 200 tons each. Five screw feeders, each driven independently by its own motor, mounted on the bottom of each bin deliver the powdered fuel to five vertical, flat, or fish-tail burners in the top of the boiler furnace. Details of these boilers may be seen in Fig. 3.

Draft for the burners of each boiler is furnished by a small motor-driven fan mounted on the fireman's platform which is at a slightly higher elevation than the top of the furnace. Additional air for combustion reaches the furnace through a series of suitably dampered openings in the front wall. Products of combustion, after leaving the boiler settings, enter a T-shaped breeching by which they are delivered to a self-supporting, reinforced-concrete stack slightly over 200 ft. high. The old or stoker-fired boilers have individual steel stacks each 125 ft. high.

In lighting a fire in the furnaces of boilers Nos. 1 or 2, if powdered coal is the fuel, an ordinary oil-soaked waste torch is used. If the fuel is pulverized bone, a wood fire is first kindled in the bottom of the furnace, and when this gets burning briskly the powdered fuel supply is turned on. All the burners of one boiler will ignite from any one when this one begins burning. It is the intention to install permanently on each of these boilers a large kerosene blowtorch by aid of which the pulverized fuel burners may be lighted with ease.

Ashes from the new, or powdered-fuel, boilers are withdrawn by hand and wheeled in barrows to the ash bin, as are also those from the old or stoker-fired units. The ash bin is a wooden structure located near the lower end (in Fig. 1 the right-hand end) of the plant. This is of such a height that a wagon or truck may be driven under it, into which the ashes may be drawn off through gates. This material is hauled away and used at present for surfacing roads and making fills.

Heretofore the chief obstacle encountered in burning



#### Fig. 2-Pulverizing Plant and Boilers

This shows the position, in plan, of the various pulverizers, transport equipment, powdered fuel bins, burners and the like, relative to the boilers. The pulverizing equipment is housed in a separate building from the boiler plant. A vent to the atmosphere is provided above the crushing mills. All auxiliary equipment is driven electrically.



Fig. 3-Section Through Boiler and Furnace

It is roughly 23 ft. from the discharge opening of the fish-tail burners to the floor of the furnace, and approximately 17 ft. in the clear from front wall to bridge wall. Thus combustion space is ample and the path of the fuel long. The flame rolls lazily downward and then turns backward and upward along the tubes toward the baffle opening to the second pass of the boiler. Incandescent but solid or extremely viscous particles of ash reach the furnace floor. No trouble from slagging is experienced, no matter how hard the boiler is driven.

powdered fuel under stationary boilers has been the effect upon the brickwork of the intense heat generated. In some of the earlier installations, the fine particles of ash in a liquid state "condensed" upon and ran down the furnace walls washing the fire brick with it. Liquid slag collected on the furnace bottom in a state too viscous to be tapped off. In time, the boiler had to be shut down and this material, upon cooling, had to be mined out with picks and gad chisels.

As constructed today, most powdered coal boiler furnaces are made either with air ducts within the walls through which air for combustion is drawn, thus cooling the walls, or with the inside of the furnace protected by means of fin tubes, through which water circulates and which thus, in reality, form part of the heating surface. Slagging on the furnace bottom also is prevented by means of a water shield or bank of tubes placed above the furnace floor through which the ash must pass in order to come to rest on the furnace bottom. These tubes cool the particles to such a degree that they solidify before coming to rest and do not slag.

None of these expedients are resorted to in the Gary plant—the furnace walls are solid and the furnace floor is unprotected. These boilers have been operated for several months, often at capacities far above normal rating, yet no difficulty has been experienced from either deterioration of the brickwork or from slagging. The reason for this is doubtless two-fold. In the first place, the furnace volume is large and the movement of the burning fuel through it is slow while the path traversed by the individual particles is a long one.



A Distant View of the Power Plant at Gary with Old Coke Ovens in the Foreground The ten steel stacks serve the ten stoker-fired boilers and the concrete stack serves the two pulverized-fuel units. The steel stacks sometimes emit a small amount of smoke, especially if a furnace door of the boiler served is open. The concrete stack never emits anything but a gray haze. It is smokeless at all times.

Secondly, the temperature necessary to fuse the ash of Pocahontas coal is unusually high.

As a matter of fact, ash adheres to the furnace walls in plenty as may be judged from Fig. 5, but it forms a protective rather than a deteriorative coat. An examination of the ash deposits on the furnace walls, made at the time this photograph was taken, showed that the ash apparently adhered particle by particle. Thus the deposit was built up much as a fall of damp snow builds up on the side of a building or other object. In other words, all ash accumulations within these furnaces are of a porous and powdery nature which, when cold, may easily be broken down or scraped off with the bare fingers. An ordinary garden rake would be an effective tool for removing this deposit.

A more effective insulation for the inner walls of a furnace than this ash deposit would be difficult to imagine. After it had been entirely removed from a small area of the surface, so as to expose the fire brick lining, the brickwork appeared not to have been affected in the least by the intense heat developed. It was noticeable also that there was no indication either of extreme heat or of ash adherence on the first baffle.

These boilers have been operated for several months with entire satisfaction and without difficulty. During this time they have been driven throughout a wide range of capacity from a fraction of normal rating to heavy overloads. It is characteristic of boilers fired on pulverized fuel that they are extremely flexible and will respond almost immediately to wide variations in steam demand. The boilers at Gary are no exception to this general rule.

One interesting problem, or rather possibility, involved in the operation of this plant is that of utilizing the powdered coal ash for some more useful purpose than filling in ground. It has been suggested that this material might well be employed in rock dusting the mines. Under the microscope, most of the ash particles appear to be smooth and globular in form or at least to have well rounded edges and corners. It may be possible that this ash could be utilized in this manner without endangering the health of the employees.

Experiments also have been conducted, although on a somewhat limited scale, looking to the utilization of

these ashes in the building of walks and pavements. Mixed with asphalt, they make a material that takes an excellent surface when placed upon concrete, brick or other suitable foundation. How well or how long this surface will endure under the action of traffic remains to be seen.

How such experiments as these may turn out, however, is a small matter. The primary object which prompted the building of the latest addition to this plant was not the production of ashes but the generation of power from a mine product that otherwise was not only unsalable but which could be disposed of only at an appreciable expense. Beyond question or cavil this object has been attained. Today perfectly good kilowatt hours are being generated from a fuel the cost of which amounts to the freight or switching charge entailed in bringing it from the outlying mines to the power plant. Less difficulty has been experienced in burning this bone in a pulverized form than is encountered in burning it in mechanical stokers.



Fig. 5-A View Inside the Furnace

This shows the front and side walls as well as the furnace floor from which a large portion of the ashes has been removed. Two dampered air inlets appear near the top of this illustration. Be-tween these air inlets is an area from which a portion of the adhering ash has broken away and fallen. Nowhere is the ash coating hard as it readily yielded to the bare hand.

# Banker Advises Bigger, Better Equipped Units For Mining the Nation's Coal

I. E. Allen Thinks Sensible Consolidations Will Eliminate Small Irresponsible Companies Thus Steadying Production and Increasing Profits

## By J. Ernest Allen

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J. Ernest Allen

ested in coal mining, the public is loath to invest in coal securities, and only a very small percentage of the two to three billions of dollars annually invested by the American public finds its way into the treasuries of coal companies, a percentage entirely incommensurate with the relative importance of the industry.

Before you indict the investment banker for this fact, I want you to remember what his functions are. Investment bankers are primarily merchants who stock up only such goods as they can sell, and, like other merchants, can operate profitably only by rapidly turning over the goods upon their shelves. Hence, we must not only consider the inherent safety of any given security before we purchase it, but we must ask ourselves the question, "Can we sell it, or will we be obliged to carry it for a more or less indefinite period as a frozen asset?"

#### FAVOR ONLY PROVED COMPANIES

It is perfectly true that within certain limits our customers accept and act upon our advice as to the investments they make, but we encounter great difficulty in overcoming the sales resistance of an investing public imbued with a fixed distrust of any given industry. We find, as regards coal securities in particular, that only the issues of large and long-established companies with exceptional records as to earnings are at present looked upon with any degree of favor.

The reasons for this attitude on the part of the investing public are not far to seek. The vital part your industry plays in the world and the very direct contact

This article is part of an address delivered by Mr. Allen at the American Mining Congress, in Cincinnati, Ohio, May 28, 1925.

it has with most of the householders of the country naturally cause you to receive much attention at the hands of the public press, through which the public at large has received certain fixed impressions, some true and some erroneous. Your labor difficulties have, as you know, received great publicity, and the public is not altogether uninformed as to the irregularity and spasmodic character of your production, as to the unfortunate interruptions to your car supply and as to the important fact that the developed production of your industry has far outstripped the normal demand of the country for your product. The banker, with better facilities for securing exact information than the general public, can perhaps better appreciate not merely your problems but the efforts being made to meet them.

#### TOO MANY SMALL OPERATIONS

Several phases of your industry particularly interest us. It seems to us that you are plagued as an industry with too many small and ill-equipped operations which shut down when the market for coal is low but are reopened at every period of increased demand. They flood the market with ill-prepared coals which they sell in competition with your superior products at prices which frequently bear no relation whatever to their costs of production. In fact, they are themselves, as a rule, profoundly ignorant of what their costs are.

If the industry in some way could purge itself of such undesirable producers, and if it could be guaranteed as well against any further increase in its productive capacity until such time as the normal consumption of the country has grown sufficiently to catch up with it, the financial standing of the industry would improve immeasurably by reason of the far greater degree of stability it would attain. These difficulties are, I think, generally recognized throughout your own industry as one of the principal causes of the lack of popularity of coal securities.

With respect to modernization of plant and equipment, most bankers feel that, in such a highly competitive industry as coal mining, they can only consider the financing of properties which are adequately equipped with the most up-to-date plant and machinery. Large units so equipped make for low costs and a better prepared product, and low costs and a wellprepared product make for steadier production and greater profits. The trend towards such large, wellequipped units will, we believe, eventually play an important part in the elimination of that element which I have referred to as one of the plagues of your industry, the small, irresponsible mine.

One is struck by the fact that the largest unit of your industry, by which I mean that group of mines under one control which has the largest output, produces only about 3 per cent of the total output of the country, the balance of production, 97 per cent, being divided among some 4,000 or more different interests. This fact, and an analysis of the character of many of the units of your industry, lead us irresistably to certain conclusions. We believe that the logical solution of most of your problems will be found in consolidations, in the gradual merging of the innumerable smaller units of your industry into a reasonable number of large, highly organized units.

The advantages to the industry itself of such mergers, when wisely made and soundly financed, can hardly be overestimated.

The large unit can afford to employ the highest technical skill, which the small unit usually cannot; it has financial strength sufficient to modernize its equipment and reduce costs; it can confine production, in times of lax demand, to a few collieries operating fairly steadily, reopening its closed mines only as the demand for coal justifies. It can effect great savings through the standardization of equipment, through centralized purchasing and through the elimination of much administrative overhead. And last, but by no means least, such mergers will go a long way toward

curing the overproduction evil and toward ridding the industry of the unfair, cutthroat competition of irresponsible operators.

Such a proposal as this involves no conflict with the wise laws of our country designed to prevent combinations in restraint of trade. Reasonable competition is desirable. Mergers such as I have in mind, capable of effecting every benefit I have named, could be carried out in practically every field in the industry and still result in a large number of competing corporations entirely within the law.

The development of such mergers should be gradual and should proceed along natural lines—that is, with combinations of properties located in the same fields, whose problems are similar and whose geographical locations with respect to one another point clearly to the unmistakable advantages to be derived from unified management and consolidated acreage. Whether such relatively small local mergers can later be combined with others, with advantage to the trade and to the public, can well be left to the future, when experience will point the way.

The soundest kind of a merger will be that effected without calling upon the investing public for financial assistance. It will be one where the controlling interests of the various properties to be consolidated have sufficient vision to see the great benefits to be derived, sufficient broadmindedness to be willing to surrender a little of their independence, and where each has a sufficient sense of fairness to concede the equitable value of his neighbors' properties as well as to admit a reasonable value for his own. It will be a consolidation effected by the owners themselves, each taking such proportion of the issued stock of the consolidated corporation as the value of his property and business bears to the total. The banker will be glad to lend all the assistance in his power, and can be of real value in suggesting sound plans of capitalization, and, perhaps, in bringing harmony out of conflict.

I recognize that such financially self-contained mergers cannot always be accomplished. At times it is necessary to refund the indebtedness of some proposed constituent company. In such cases it is often essential that some public financing be done. Wherever possible, such financing should be in the form of stock—

THE BANKER'S "SLANT" "MOST BANKERS feel that, in such a highly competitive industry as coal mining, they can only consider the financing of properties which are adequately equipped with the most up-to-date plant and machinery," says Mr. Allen. "Large units so equipped make for low costs and a better-prepared product, and low costs and well-prepared product make for steadier production and greater profits. The trend toward such large, well-equipped units will, we believe, eventually play an important part in the elimination of that element which I have referred to as one of the plagues of your industry—the small, irresponsible mine."

not bonds. On account of the highly fluctuating nature of the coal industry, fixed charges should be avoided wherever possible. Many a coal enterprise, which, had it been soundly financed by stock issues, could have outlived the storm, has been wound up by foreclosure because, in a dull coal market or strike period, it could not meet the interest and sinking fund payments of its bonded debt.

Bond issues should be resorted to only as a last expedient in the financing of coal properties. They should seldom be issued in excess of 40 per cent of the reasonable value of

fixed assets, and in order for them to be salable today a long record of satisfactory earnings is absolutely essential. The proper safeguards for the investor, which should attach to an issue of coal bonds, and the many factors which determine them, have been the subject of careful study for many years by investment bankers who specialize in such securities; but such considerations, important though they be, I have not considered germane to my more general topic.

#### CONFIDE WITH YOUR BANKER

Before closing may I suggest that, if and when you need to consult an investment banker, you select one who has knowledge of your industry and experience in the handling of coal securities. There are many such. Then, after you have picked your banker, be absolutely frank with him; lay every card upon the table. If he is to help you he must have all the facts. He cannot work without tools, and facts are his tools. Do not be afraid that what you tell him or the figures you give him will be betrayed to others. I am proud to be able to say of my calling that probably no other class of business men is so continually entrusted with such important confidences, and that none has better deserved the faith thus placed in it.

And one other thing, when handling an issue of your securities, the banker must see to it that such securities are properly safeguarded; he owes that duty to his customers. But he does not want to run your business, or in any way to have a hand in the running of it. His business is banking—not operating coal mines. He knows the former and is satisfied to stick to it.



# West Virginia Coal Mining Institute Assembles

A Hundred Men at Logan Discuss Gases, Substations, Geology, and Coal Cleaning—They Visit Three Modern Mines in the Logan Region to See New Ideas Applied

## By R. Dawson Hall

Engineering Editor of Coal Age

WITH A HUNDRED persons present the West Virginia Coal Mining Institute assembled on June 2 at the Aracoma Hotel, Logan, W. Va., to hear and discuss papers on mine gases, substations, geology and coal cleaning. After a day's technical session the party devoted the second day to visiting three modern mines in the Logan region. At the June 2 meeting, in the absence of B. H. Mulvihill, of the Wheeling Trent Corporation, Wheeling, W. Va., who was to talk about the Trent process, Chairman R. M. Lambie, chief inspector of mines of the State of West Virginia, introduced William Yant of the U. S. Bureau of Mines, who presented an article entitled "Some Practical Effects of Mine Gases and Their Detection."

Mr. Yant remarked that though methane was directly or indirectly the main cause of mine explosions, only rarely did the quantity of gas in a mine reach such a percentage as to make an extensive explosion of gas in a mine possible. Usually the gas was merely the primer or initiator of the explosion which, in the main, is a dust explosion. Methane is quite harmless when breathed. If there is plenty of oxygen present an atmosphere having even 40 per cent of methane could be inspired without harm.

Large quantities of hydrogen sulphide have been found in the sulphur mines of Europe. This gas is sometimes generated in the metal mines of America those, for instance, working sulphide ore—but in American coal mines enough hydrogen sulphide to be dangerous is only likely to occur from the incomplete combustion of black powder. One would suppose that the rotten-egg smell of the hydrogen sulphide would be enough to prevent accident as sufficient warning would be given, but, strange to say, with the larger concentrations of this sulphide the olfactory nerves become fatigued and even paralyzed and so the stink damp fails to create aversion. When the gas takes effect the respiratory centers are instantly paralyzed and death follows.

In discussing mine fires Mr. Yant said that when the percentage of oxygen in the sealed area falls to between 16 and 17 the flames die out, but that does not end combustion, for flameless combustion will continue slowly until the percentage falls much lower. When the oxygen falls below 12 per cent methane cannot explode. If the methane rises to the explosive limit before the oxygen falls to such a level that it will not support an explosion, the blast may occur if a source of ignition is present.

#### INDICATE NATURE OF SAMPLE

In sending mine air samples to a laboratory for test it is well to indicate what is the nature of the sample and what one is desirous of establishing. Suppose it is, what might be termed, normal mine air which is sufficiently contaminated so that the mine owner desires to know whether it can be breathed safely. Then, in testing the gas for carbon monoxide it will not be sufficient to use the well-known Orsat apparatus, which is correct only to 0.1 or 0.2 per cent. The Haldane apparatus will give results to 0.02 or 0.03 per cent. However, in the event of a mine fire, if the test is to be made of gas from behind a seal, then the Orsat apparatus will give results close enough for the need of the hour. But it will not determine whether the air is pure enough for human breathing.







W. J. German E. I. du Pont de Nemours & Co., Inc.

C. E. Krebs Consulting engineer, Charleston, W. Va. U. S. Bureau of Mines, Pittsburgh, Pa.

Furthermore, the chemist should be told if the air sample taken is explosive, otherwise in testing it he may accidentally explode it, with danger of injury to himself or his assistants. A sample of mine air taken in the main return is a good control on the quantity of methane generated but not the final word in determining the safety of the mine. It is merely an average of a multiplicity of conditions, some bad and some good, and tests should be made at the working faces.

#### TESTS FOR CARBON MONOXIDE

The effect of carbon monoxide on the blood furnishes the best test for that gas in its lower concentrations, Mr. Yant said. The blood need not be in a human body. Carbon monoxide can be mixed satisfactorily with blood which has been drawn from the body. Mr. Yant explained that, owing to the imperfection of the ventilation in a sealed area, the samples taken at the seal gave a wholly inadequate idea of the conditions at the fire or of the average conditions throughout the occluded area. Requested by Mr. Cameron, he elaborated on this point. He said he had found that samples taken in rubberstoppered bottles might be regarded as utterly valueless three or four hours after taking. He had great faith, however, in vacuum tubes with a small hole which was sealed with wax after filling. These tubes should contain 250 cu.cm. each. The difficulty was to have such tubes readily available in case of an emergency.

C. E. Krebs, Clark and Krebs, Inc., Charleston, W. Va., said that hydrogen sulphide escaped in explosive quantities from clay veins in the United States. Mr. Yant said he had not heard of any instances of that kind. He added, in answer to an inquiry, that by tapping a seal at the bottom and top the effect of stratification could be avoided.

Mr. Yant's paper was followed by one by J. E. Borland, of the Westinghouse Electric & Manufacturing Co., Bluefield, W. Va., on "Mining Substations." Mr. Borland expressed his preference for a copper conductor in the return circuit to supplement the work of a bonded rail. Will German, E. I. Dupont de Nemours & Co., made a humorous address and the morning meeting came to a close.

At the afternoon session C. E. Krebs delivered an address on the coals of Logan County, saying that the Logan County coals had been successfully correlated with those of the Kanawha region, a certain fossilferous limestone furnishing the clue. The Logan field lies in the Coalburg basin. The measures all thicken as they reach the Logan area. Thus the Island Creek coal in the district mentioned is from 9 to 12 ft. thick. The same bed in the Kanawha district, which is known as the



Haulage Equipment and Track and Line Material Are of the Best at the Properties of the Gay Coal & Coke Co., Mt. Gay, W. Va.

Cedar Grove bed, is only 36 in. thick. Mr. Krebs said that Logan County had more thick beds than any county in the state and was tributary to a river that had a fall of only 172 ft. from Logan to the mouth or 21 ft. to the mile. In the early days all the traffic went by this river and even today, if canalized it could take care of the coal traffic of the region, and it could be canalized easily because of its slight fall.

R. Dawson Hall made a short talk on the modern intensification process as applied to coal mining, advising against the opening of too many mines and the selling of coal of too many varieties. The reputation of the operator is based on the worst coal he ships. He said that the message of the Government to the farmer -Intensive Operation-was a good message for the operators who had too many plants spread over too large an area and who, in the operation of a mine, had too many idle and too many working places.

A. C. Callen, dean of mining, University of Illinois,

riffles extending in the general direction of the upper portion or arms and terminating at the central portion which is raised, the sides of this leg being inclined downward. The arms are miniature separating tables or decks of the older type separator. The running gear is identical with the older type. The head motion likewise is in the direction of the riffles.

When the coal is received at the base of the Y, the lightest particles are immediately discharged by the force of gravity to either side. The heavier particles are retained between the riffles and concentrated in the central portion of the Y. This portion feeds onto the two miniature decks forming the arms of the Y and are there treated as on the old type of separator. Mr. O'Toole claims that the new air table doubles the capacity per unit, makes close sizing less necessary, saves space, lowers the height of the structure, reduces the work of the dust collector, makes a smaller percentage of middlings and reduces the cost of treatment by de-

. The Gay Mine, One of Three Visited by the West Virginia Mining Institute on June 3. This property at Mt. Gay, is operated by the Gay Coal & Coke Co., which, since 1904, has been mining its coal on a slab-cut, pillaring system. About one-third of the coal here shown was loaded mechanically. One Joy machine, since last Thanksgiving Day, has loaded 40,000 tons at a rate of about 300 tons per shift.

Urbana, Ill., and former president of the Institute, addressed the institute on the need to support mining extension in the state. He said that it had grieved him greatly when the annual appropriations for the work had been cut from \$15,000 to \$6,000. Fortunately, the original figure had been restored but he believed that it should be increased and made more adequate.

To Walter Thurmond, general manager, Thurmond, Argyle & MacBeth Coal Cos., was assigned the subject of railroad freight rates. He said that the differential in Lake cargo freights is 28c. against this region. An attempt had been made to raise this differential to 53c. This endeavor the citizens of West Virginia should do all in their power to circumvent.

E. C. Carris, American Coal Cleaning Corp., McComas, W. Va., read William J. O'Toole's article entitled "Recent Development in Pneumatic Coal Separation" describing the new wye or "Y" type of separator which is not unlike the letter Y. The raw coal is fed in at the base or foot of the Y. This portion contains

creasing the investment and by saving power, labor and supplies.

W. A. Hunt, general superintendent, Island Creek Coal Co., described the Safety Club founded by his company. This club is regulated by the men themselves. The company has six to ten safety police at each mine. Each man serves one month and then is replaced by another man. The Safety Club hears charges against any man who has been found violating the rules in any way. They fine him 50c. for each offense, and his name is posted on the board in the clubhouse. The unfavorable publicity seems more effective than the fine. The money collected is distributed by the club officers. Thus \$700 was donated to the Barrackville Relief Fund. Short fuses are the cause of most of the accidents. Slate and coal accidents are abnormally low as the roof is exceptionally strong and reliable. For the first two or three months, when the club was first organized, the accident rate was not noticeably lowered, but after the work had been under way for a while the minor ac-

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Robert Lambie Chief, West Virginia department of mines, Charleston, W. Va., who presided at the institute meeting at Logan.

cidents were reduced 60 per cent. Mr. Hunt hopes to lower the frequency of such accidents 75 per cent below that in earlier days. It is the hope that the fatality rate will fall below one death for every million tons.

In the absence of the representative of the Pocahontas Fuel Co., A. F. Brosky described the equipment of the Coloder Co. The company's motion picture portraying the Coloder was shown at the same time.

In the evening a banquet was given the visitors by the Chamber of Commerce of Logan and the coal operators of the district. George J. McTigue, chairman of the Chamber presided. Addresses were made by Walter Thurmond, W. J. German and R. Dawson Hall, the lighter entertainment being provided by six artists.

On the morning of June 3 the guests were driven to the Gay Coal & Coke Co.'s property at Mt. Gay, the first mine to be opened in the Logan region. It was opened Thanksgiving Day, 1904, and since that time has not had a fatal accident.

The cars hold about 2.4 tons, and the gage is only 32 in., the equipment having been designed so that the cars could be run in front of a longwall face, it being the intention to break the roof with props placed so



M. E. Kent President, Logan Coal Operator's Assn., and general manager, Cleveland Cliffs Iron Co., Ethel, W. Va.

as to leave room for a string of cars near the face but at loading distance therefrom. As the roof did not break as desired the size of the cars and the gage is perhaps smaller and narrower, respectively, than would have otherwise been chosen. The grades are in places  $4\frac{1}{2}$  or 5 per cent in favor of the loads.

The coal consists of two splits, each 2 ft. 11 in. thick, separated by 12 to 18 in. of shale. The long face is first cut in the parting by an arcwall machine, two or three cuts each 7 ft. deep being made as is found necessary. The first cut reduces the rock to powder but later cuts tear out large chunks of the shale. The parting breaks readily from the coal above and below. The shale is loaded by a Joy machine, dumped onto a Jeffrey pit-car loader which carries the shale across the track and deposits it in the gob of the room.

The roof used to be quite solid but of late has been of a somewhat weak slate which has to be carefully posted. After cutting, the coal is drilled, the bottom bench being shot first. The holes in the lower split are put near the bottom and charged with 17 in. of powder, 12 in. of tamping and another 8 in. of powder. Then the rest of the hole is tamped with clay. This



A. C. Callen Head of the mining department, University of Illinois.



W. A. Hunt General superintendent, Island Creek Coal Co., Holden, W. Va.



J. E. Borland Westinghouse Electric & Mfg. Co., Pittsburgh, Pa.



Scene on the Guyandotte River, About One Mile from Logan, W. Wa.

distributes the explosive and prevents the back of the cut from blowing out. The top coal is brought down by a shot near the roof, 10 or 12 in. of powder all in the end of the hole being used. The coal breaks somewhat irregularly from the roof. A Joy machine loads the coal into cars.

Lunch was served at the West Virginia Coal & Coke Co.'s clubhouse at Omar, a plant originally operated by the Main Island Creek Coal Co. After lunch a visit was made to the Monitor No. 3 mine of the Monitor Coal & Coke Co. where a Goodman loading shovel, operating hydraulically, is driving a 35-ft. room under an ideal roof which has, so far, made the use of props unnecessary. The hydraulic pressure is 1,000 lb. per square inch. This gives 6-ton pressure to crowd the shovel into the coal pile and four tons to lift the coal. The track is laid at one side of the shovel, the adjustable but almost horizontal boom of which is swung over the car. The shovel holds about 1,000 lb. The cars are brought in to the shovel, and taken away, by a locomotive practically one by one; though each time an empty car is needed, the unloaded cars of a full trip are pushed into place near the shovel, one is cut off at the shovel and the rest are drawn away again.

Each car holds about 2.8 tons, and is loaded in from 2 min. and 20 sec. to 2 min. and 45 sec. This is the time of actual loading. As time is lost in the placement of cars, the actual output is less by far than that indicated by these figures. While the shovel waits for cars, it can be moved forward under its own power with great dispatch. The machine can take all the coal in the 35-ft. face with only one side-move.

The coal is 7 ft. thick and usually has only one inch of impurity, though in the face of the room it was probably about 2 in. thick. It is an exceptionally clean bed of coal.

After the trip to the Monitor mine the visitors were driven to Island Creek No. 21 and went to the shaft bottom 250 ft. below the surface. Only one man is employed to cage the cars and one man to take care of them as they leave the cage. The trackwork is excellent, 60-lb. rail being used at the main shaft and 40-lb. rail at the supply shaft. Ward-Leonard control is used for hoisting, the flywheel moving with such a little loss of energy that it will run 55 min. without any input of power.

The date and place of the winter meeting is to be decided later.

#### Good Haulage Pays

This view underground in a mine of the Gay Coal & Coke Co. illustrates the heavy, wellaligned, mainline trackage which this company maintains in its low-coal. West Virginia operations, Costly derailments are few here.



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# Seventeen Men Lose Their Lives in Kentucky Mine Explosion

#### (Special Dispatch to Coal Age)

Louisville, Ky., June 8.—An explosion in Mine No. 9 of the West Kentucky Coal Co., about one mile from Sturgis, Ky., at 9 o'clock this morning caused the deaths of seventeen miners who were entombed, the remainder of the force of about 130 escaping to safety. Seven of the dead miners were white and the remainder negroes. The explosion was reported at a depth of 425 ft. and 2,000 ft. from the main shaft. Fans were reported running and ventilation good soon after the explosion. Two rescue squads equipped with gas

## Bureau of Mines Shifted to Commerce Department

President Coolidge issued an executive order June 4 transferring the Bureau of Mines and the Mineral Statistics section of the Geological Survey from the Interior Department to the Commerce Department. The transfer takes effect July 1. According to Secretary Work, the change will result in the better organization of government activities.

The transfer of the Bureau of Mines, following closely upon a similar shift recently of the Patent Office from the Interior Department, represents the conclusion of the reorganization of government departments by executive order, as the President has only a limited authority under the organic act of the Commerce Department to make such shifts.

This agreement, it was learned in high administration quarters, is contingent upon adoption of a reorganization plan which would provide for the inclusion of all the conservation agencies of the government in the Interior Department.

Secretary Hoover said that the future activities of the Bureau of Mines under the Commerce Department would depend entirely upon recommendations of the committee which is to meet with him before he leaves for California next week. He has asked the American Institute of Mining and Metallurgical Engineers and the American Mining Congress to appoint representatives on the committee and plans to add one or two outstanding mining experts himself.

In addition to determining the most desirable field of activity for the Bureau of Mines from the viewpoint of the industry, the committee will also be asked by Mr. Hoover to assist in finding a new director for the bureau to masks went into the mine under the leadership of superintendent T. F. Christian an hour after the explosion. Five bodies were recovered Monday.

The explosion occurred when one of the miners drilled into a strong feeder of gas, which was ignited from his lamp. The damage to the property was slight as the effect of the explosion was localized by rock-dusting. It was stated that this was the first explosion the company had suffered since eight years ago, when sixty-two men were killed in its No. 7 mine.

succeed H. Foster Bain, who has resigned.

The Bureau of Mines will continue to occupy its present quarters in the Interior Building. As some time is certain to elapse before the new director will be chosen, Dorsey Lyon has been recalled from the West to take up again the duties of that office. Due to the extended absences of Director Bain in the dispatch of foreign assignments Mr. Lyon has served as acting director for a considerable portion of the time during the past two years. It is understood that he is in no sense a candidate for the vacancy. He is much more interested in the metallurgical side of the Bureau's work, of which he has been in charge for a number of years.

## More Mines to Open Soon In Pomeroy Field

Pomeroy, Ohio, June 9, 1925.—Production at the Pittsburgh Coal Co.'s mines at Pomeroy Bend continues without interruption. No. 7 mine of the Essex Coal Co., in the same district, which is worked on a co-operative basis, has accommodated most of the men at that company's No. 5 mine, the tipple of which was burned a week ago Sunday. Men are applying for work every day and petitions have been presented to the New Pittsburgh Coal Co. to open Syracuse and Thomas mines. These mines will be opened on the November, 1917, scale as soon as the company can make satisfactory arrangements covering switching charge with the traction line which delivers the coal from the mine tipple to the Hocking Valley R.R.

The men employed at these mines in the Pomeroy district held a meeting on June 6 and voted to continue work and not attend a meeting scheduled to be held by the union on June 10.

## Mediator Rejected in Nova Scotia Strike

At a conference between officials of the British Empire Steel Corporation and the miners of Picton County, N. S., at the Acadia Collieries on May 29. Vice-president J. E. McLurg offered a new wage schedule on the basis of a 10 per cent reduction from the wages of 1924, graduated so that the burden would fall lightly on the lower paid men, as compared with the better paid and contract workers. He stated that it was the result of prolonged study and calculation by the corporation officials, and that if the proposal was accepted work would be resumed at once.

At the request of executives of District No. 26. United Mine Workers, James Murdock, Canadian Minister of Labor, consented to act as mediator in the wage dispute between the corporation and its employees, provided the arrangement was satisfactory to the company. Vice-president McLurg on June 1 stated that the corporation refused to entertain the proposal.

Professing to be acting on the advice of International President John L. Lewis, union leaders on June 4 withdrew the men engaged in maintenance work in the Nova Scotia coal mines. The action was declared to be the beginning of a "more vigorous policy" on the part of the 12,000 strikers toward the British Empire Steel Corporation.

## Sears-Roebuck in Coal Trade

Sears, Roebuck & Co., the Chicago mail order house, has decided to go into the soft-coal business, and will offer coal direct from mines in southern Illinois, southern Indiana, and western Kentucky, in carload lots to individuals, companies or club groups. This new method of selling coal, President Kittle pointed out, eliminates middlemen, jobbers, agents and salesmen, and makes it possible to buy coal at mine prices at a saving of \$1 to \$3 a ton.

"When the coal is shipped we send a bill to the nearest bank and a copy to the purchaser," said Mr. Kittle. "All the consumer has to do is to pay the bill at the bank. Then an order is issued on the railroad to deliver the coal. Freight charges are paid to the agent. We are looking forward with keen interest to the season's results in a great merchandizing experiment designed to cut down distribution costs on one of the great basic necessities."

## Union Gets Jolt in West Virginia When Consolidation Coal Co. Goes Non-Union; Union Output Low

Overshadowing all other developments in the strike situation in northern West Virginia is the recent effort of the Consolidation Coal Co. to work on a non-union basis, which is the most serious blow that the United Mine Workers has been dealt in the recent organization drive.

The Consolidation was instrumental in "letting down the bars" to the union in this field in 1918. When the Baltimore agreement was signed in April, 1924, for a three-year period the Consolidation and other companies did not become signatories direct, but signed through the Northern West Virginia Coal Operators' Association.

Frank R. Lyon, vice-president of the Consolidation company, who is in charge of operations, issued a statement last week in which he said that the company was acting in good faith in starting Columbia mine No. 29, near Clarksburg, as the employees had requested the officials by petitions to work at the mine on the 1917 wage scale.

Union officials, however, will not admit that their membership is being stampeded into the non-union mines. James L. Studdard, international representative, in a circular letter sent to the membership, reproduces a resolution which says that the company has not officially asked the local union to accept a reduction in wages in violation of the Baltimore agreement and that the report that the union miners at local No. 1344, at Columbia, had signed a new wage agreement is false and without foundation.

The Consolidation expected to start loading coal at Owings Mine No. 32 and Pinnickinnick No. 25, in the Clarksburg district, on June 9 on a non-union basis. Eighty-five men applied for work at Owings and 35 at Pinnickinnick. The Estella Coal Co., of Phillipi, employing 100 miners, has opened up on an openshop basis. Mine No. 41 of the Bethlehem Mines Corporation, near Barrackville, probably will resume operation within the next 10 days.

#### More to Open Non-Union

The Hutchinson Coal Co. and the R. M. Hite interests, representing the Virginia & Pittsburgh Coal Co. and the Edna Gas Coal Co., it is reported, will soon open up on a non-union basis. The West Virginia Coal & Coke Co. opened some plants on an open-shop basis recently in the Elkins section, although that portion of the field has been working on a non-union basis for some time.

John Billy, a former official of the Wendel local of the United Mine Workers, was sentenced by Judge W. B. Kittle at Grafton, June 3, to serve three years in the penitentiary for burning down the tipple of the Gordie-Bailey-Fahey Coal Co. at Wendel. In his confession he implicated eleven union miners and two international representatives. Ettore Del Guzzo and James Feeley, both of whom, it is reported. will soon return to the state. In handling the 116 union miners arrested for violating an injunction granted to the New England Fuel & Transportation Co., Judge W. S. Meredith, in Marion County Court, in Fairmont, sentenced each man to pay a \$4 fine. Instead a large number went to jail. After a specified day the judge ruled that the miners would have to pay the county 60c. a day for every day that they remained in jail. The miners' attorneys were on the verge of asking support for 170 dependents of the men in jail. The miners, however, tired of jail life and all paid their fines. Under the state law the county must pay the dependents of prisoners.

Lee Hall, of Columbus, president of the Ohio miners, visited Wheeling May 5 and gave out a statement saying that the plans for the organization were working out nicely and would ultimately result in the complete organization of the district despite injunctions. Expressing satisfaction over the conduct of the strikers up to this time, Mr. Hall made a personal appeal that the union miners continue a strict observance of every law and injunction.

#### **Expect Arrest of Bomber**

Fourteen men and two women charged with bombing two non-union miners' houses at Glendale May 25, when 20 lives were endangered, were released June 5 because of lack of evidence. Prosecuting Attorney Loyd Arnold, of Moundsville, declared that Alex Chesman, who, the state says, placed the bombs, would be arrested in a few days. A pair of wet canvas shoes which fitted the tracks left by at least one of the actual bombers around the wrecked homes were found in Chesman's home.

Denial has been made by Charles Evans Hughes, former Secretary of State, that he will be associated with the United Mine Workers in their legal entanglements over injunctions in the Panhandle section. Attorney Thomas C. Townsend, chief counsel of the union, denied that he made the statement, but a Wheeling newspaperman said he did.

In federal court at Wheeling, June 4, Federal Judge W. E. Baker handed down an order in the sweeping injunction granted to the West Virginia-Pittsburgh Coal Co. and in its final reading paragraph No. 7 is stricken from the original on agreement of attorneys for both sides, because most of its prohibitions are contained in the other six paragraphs.

Armed with this official order, attorneys for the union began preparations for an immediate appeal from Judge Baker's finding to the federal Court of Appeals at Richmond.

Judge Baker also handed down a final order on the temporary injunction granted June 2 on application of the Mineral States Coal Co. and 16 other companies operating in the four Panhandle counties. In this also, by agreement between attorneys. important deletions from the original were made,

## Another Wise Mule

A mule recently trapped in the mine of the Ajax Company on New River in Fayette County, W. Va., by a flood of water from an abandoned working was rescued after eight days' confinement, when one of the miners waded through water up to his arm pits and discovered that the animal was still alive. A mine car blocked the entry and made the mule a prisoner. It had retreated to a high place in the workings, where the water was only 2 ft. deep. Although the mule was saved, the coal company was not so fortunate, as it has voluntarily gone into the hands of a receiver, with liabilities set forth at \$150,000.

which miners contend is their victory. The words "peaceful persuasion" are cut out, and in their place was substituted "menacing, threatening, injuring or use of violence, abuse or unlawful acts."

This will be argued in Elkins on June 12, when counsel for the United Mine Workers will argue a motion to dismiss the application.

In the first five days of last week the non-union coal output aggregated 5,569 cars, while union tonnage aggregated 982 cars. The chief increase in nonunion production was along the Monongah Division, B. & O., and the Monongahela Ry.

The Louisville & Nashville R.R. has asked the Interstate Commerce Commission to extend until Dec. 31 the time for filing engineering plans for making physical connections from the Eastern Kentucky and Cumberland Valley divisions of the L. & N. to the Carolina, Clinchfield & Ohio R.R., which was jointly leased last year by the L. & N. and the Atlantic Coast Line, making a through route from eastern Kentucky to South Atlantic ports. Preliminary surveys of the 140 odd miles which it must build over the backbone of the Cumberland mountains in Kentucky and Virginia have indicated tremendous costs, and the company desires time to make alternate surveys and a close study of the engineering problems to be met before making a report.

#### Production of Byproduct Coke by States, 1923 and 1924\* (In Net Tons)

State	1923 a	1924 5
Alabama	4,385,000	4,396,000
Colorado	448,000	523,000
Illinois	3,187,000	2,340,000
Indiana	5,043,000	4,206,000
Kentucky	434,000	252,000
Maryland	862,000	821,000
Massachusetts	554,000	433,000
Michigan	1,649,000	517,000
Minnesota	090,000	957,000
New Jersey.	1 794 000	1 558 000
Obio	6 374 000	5 692 000
Penneylyania.	9 186 000	8 533 000
Tennessee	124 000	76,000
Utah	121,000	115.000
Washington	31.000	39,000
West Virginia.	941,000	997,000
Missouri, Rhode Island, and		
Wisconsin	1,052,000	869,000
General States of the second s		
Total	37.598.000	33,995,000

\* Compiled by U. S. Geological Survey. a Final figures. b From monthly reports furnished by operators.

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## High Wages and Irregular Work Keep Up Coal Prices **Alberta Commission Is Told**

When the Alberta Coal Commission held sittings at Calgary and Drumheller late in May, evidence was submitted by operators and others that the retail prices of Alberta coal in the home market was too high, considering how close the mines are. High wages, high freight rates and a long period when climatic conditions prevent a full output were among the reasons given for high prices. Other witnesses affirmed that there were too many mines operating and that the small mines had to carry too large an overhead to sell their product for less.

Suggesting that half the mines in the province should be shut down, W. S. Henderson outlined a plan whereby those companies which closed should be reimbursed by the mines which were able to dispose of their production.

Pat Conroy, speaking on behalf of the miners, outlined a scheme for expropriation and nationalization of all mines, the government to build houses for the miners and sell them at cost on an amortization plan. This and regulation of output so as to provide steady work over nine or ten months instead of intensive work for three and idleness for three, would make the miners feel more settled and would result in better relations with the employers and enable the establishment of more satisfactory terms of work.

Jesse Gouge, one of the principal operators of the district, denied that there were too many mines or that the price was too high. If the market for Alberta coal could be widened the mines could work steadily and the miners would be more satisfied, he declared.

George L. Brockbank declared in Calgary that if the cost of production could be brought down by making miners' wages equivalent to those in other industries, the market would automatically extend itself.

From Drumheller the commission will proceed to the Blairmore field and thence to Edmonton, where a final sitting will be held.

Products of mines contributed 1,114,-662,945 tons of revenue freight to the Class 1 railroads of the country during 1924, according to Interstate Commerce Commission figures just compiled. This is a decrease of 10.54 per cent as compared with the tonnage furnished by the mining industry during 1923. The showing was better during the last quarter of 1924, when 171,153,101 tons of mine products was shipped. This is a decrease of less than 2 per cent as compared with the fourth quarter of 1923. The details of the freight furnished by mines during the last quarter of 1924 are as follows, in net tons:

Anthracite	19,053,922
Bituminous coal	93,424,012
Coke	4,086,439
Iron ore and	9,705,676
Base bullion and matte Clay, gravel, sand, stone Crude petroleum	2.714.067 232.854 36.883.554 2.089.510
Salt	857,127
Other products of mines	1.409,097

Entrance to Mine Where Fifty-Eight Men Were Killed

Throngs awaiting rescuers at mouth of the operation of the Carolina Coal Co., at Coal Glen, N. C., where an explosion at 9:30 a.m., May 27, entombed miners at work. The finding of matches in the pocket of one of the negro victims led the authorities to helieve that the blast may have been caused by some of the miners smoking in the

## J. M. Davis Named to Head Lackawanna R. R.

William H. Truesdale, who for the last twenty-six years has been executive head of the Delaware, Lackawanna & Western R.R., will retire from that office at the next meeting of the board of managers at the end of this month. He has been offered the chairmanship of the board. He is 73 years old.

He will be succeeded in the presidency by John Marcus Davis, at present head of the firm of Manning, Maxwell & Moore, but during the greater part of his career a railroad man of wide and varied experience. His affiliations have been with the Erie, the Great Northern, the Baltimore & Ohio and the Harriman lines.

Mr. Truesdale became president of the Lackawanna in 1899 at a salary of \$25,000 a year, and under his management the railway, together with the Glen Alden Coal Co., then a subsidiary, has been one of the largest earners in the East. Since 1900 it has paid 3831 per cent in cash and 135 per cent in stock dividends on its stock-the handsome average of 14% per cent in cash and a little over 5 per cent in stock annually.

## **Griggs to Continue as Exchange Manager**

Herman M. Griggs has consented to continue as manager of the Ore & Coal Exchange, with headquarters at Cleveland, Oh<sup>\*</sup>o. The recent announcement that he had resigned to become associated with Pollock, Becker & Co., ore dock operators at Ashtabula, Ohio, was followed by an insistent demand upon the part of leading lake shipping interests that Mr. Griggs reconsider his proposal to sever his connection with the Exchange.

## **Stinnes Drops All Interests But Coal Trade**

A financial crisis in the affairs of the Stinnes firm reported from Berlin last week created a deep impression. The company found itself short of liquid means to meet maturing short-term debts.

After conferring with Hugo Stinnes, 2d, and other Stinnes representatives, including Messrs. Voegeler and Silberberg, well-known associates of the late Hugo Stinnes, leading German bankers decided to grant to the concern credits to make possible the conversion of its outstanding short-term obligations into long-term obligations.

The bankers and the Stinnes directors will proceed to consider the re-organization of the Stinnes interests, involving considerable curtailment in some directions. Coal will remain the pivotal interest, and there will be no curtailment in that branch. But there will be concentration, involving the sale of a considerable portion of the vast interests now controlled by the Stinnes heirs.

The trouble was brought about by the heterogeneous and unorganic character of the whole Stinnes combination, which was held together only by the business genius and tremendous prestige of its founder.

In business circles the affair is believed to presage reorganizations of other Western firms which expanded too rapidly in inflation years.

#### **Coronado Co. Asks Rehearing**

The Coronado Coal Co. on June 3 asked the Supreme Court for a rehearing of the case in which the court recently held that the international organization of the United Mine Workers was free of blame for damages growing out of the Arkansas coal strike of 1914.



# Legal Status of Trade Associations Cleared Up by Supreme Court Ruling In Maple Flooring and Cement Cases

#### By Paul Wooton Washington Correspondent of Coal Age

The whole pall of uncertainty which for years has enshrouded trade association activities unexpectedly was swept aside last week when the U. S. Supreme Court handed down its rulings in the Maple Flooring Manufacturers' Association and the Cement Manufacturers' Protective Association cases. After the incoherent and faulty reasoning of the lower courts, of the Department of Justice and of the Federal Trade Commission the clear-cut opinions of the high court, expressed by Justice Stone, paved the way for a return to sanity in this particular. It can be said in defense of the De-

It can be said in defense of the Department of Justice, however, that its attention naturally was concentrated largely on cases where statistics were being used for unlawful purposes. In fact the department was accumulating a formidable array of abuses which influenced many to believe that a direct connection had been. established between the simple act of collecting trade data and unlawful restraint of commerce.

In instances where the association secretary not only gathered and disseminated statistics but also urged on the membership the maintenance of prices, it is obvious to all that the latter activity was in restraint of trade and unlawful. That act would have been in restraint of trade had there been no statistics. The mere fact that the secretary may have used statistical tables to reinforce his arguments that the time was ripe for a price advance does not reflect on statistics any more than a quotation from the Bible used to forward a nefarious effort reflects on the book of books.

The decisions will be warmly welcomed by the coal industry as they will remove the bogey which has all but wrecked the statistical work of the National Coal Association. The work of those of the local associations that are awake to the constructive value of current statistics will be strengthened greatly.

#### No Government Statistics

A phase of the decisions which has great significance is that the argument for detailed government intervention in statistical activities loses force. Were an industry precluded from recording its own costs the obvious need for such information would be an ever-present argument for the Oddie Bill, if not for a resumption of the Federal Trade Commission's idea of coal statistics. Now that work of that character can be done by the trade itself, an opportunity is given to supply the public with essential figures and thereby make unnecessary any government activity of that character.

The issue is not settled completely. Imbedded in the decision is the statement that "the statistics gathered by the defendant association are given wide publicity. They are published in trade journals which are read by from 90 to 95 per cent of the persons who purchase the products of association members. They are sent to the Department of Commerce, which publishes a monthly survey of current business. They are forwarded to the Federal Reserve and other banks and are available to anyone at any time desiring to use them."

The thing about the activities of the Maple Flooring Manufacturers Association that evidently commended it to the court was the fact that its statistics and other information were available to every one on equal terms with its members. When data are made readily available to anyone interested at the same minute and hour and in the same detail as they go to members there can be no question about the effect to stabilize the market.

#### Question of Publicity

Though the decision was rendered by a six to three vote, the fact that it was not unanimous suggests the need of further clarification. The question is not so much what may by collected as it is how shall the information be made public. This probably will be the task of the Department of Commerce.

At the Department of Justice it was stated that the clarification is welcomed. The action of the Supreme Court will interfere with no pending prosecution, it was declared. It was pointed out that the decisions in no way weaken the prohibitions of the antitrust laws against any agreement or conspiracy to control prices. "It is not, we think," said the Court,

"open to question that the dissemina-tion of pertinent information concerning any trade or business tends to stabilize that trade or business and to produce uniformity of price and trade practice. Exchange of price quotations of market commodities tends to produce uniformity of prices in the mar-kets of the world. Knowledge of the supplies of available merchandise tends to prevent overproduction and to avoid the economic disturbances produced by business crises resulting from overproduction. But the natural effect of the acquisition of wider and more scientific knowledge of business condi-tions on the minds of the individuals engaged in commerce and its conse-quent effect in stabilizing production and price can hardly be deemed a restraint of commerce, or if so it cannot, we think, be said to be an unreasonable restraint, or in any respect unlawful. "It is the consensus of opinion of

"It is the consensus of opinion of economists and of many of the most important agencies of government that the public interest is served by the gathering and dissemination. in the widest possible manner, of information with respect to the production and distribution, cost and prices of actual

## Those Good Old Days

The retail price for domestic sizes of anthracite coal for the month of June [1905] was increased 10c, a ton yesterday [June 1], making the price \$5.95. —Twenty Years Ago in the New York Tribune.

sales, of market commodities because the making available of such information tends to stabilize trade and industry, to produce fairer price levels and to avoid the waste which inevitably attends the unintelligent conduct of economic enterprise.

"Free competition means a free and open market among both buyers and sellers for the sale and distribution of commodities. Competition does not become less free merely because the conduct of commercial operations becomes more intelligent through the free distribution of knowledge of all the essential factors entering into the commercial transaction. General knowledge that there is an accumulation of surplus of any market commodity would undoubtedly tend to diminish production, but the dissemination of that information cannot in itself be said to be restraint upon commerce in any legal sense. The manufacturer is free to produce, but prudence and business foresight based on that knowledge influences free choice in favor of more limited production. Restraint upon free competition begins when improper use is made of that information through any concerted action which operates to restrain the freedom of action of those who buy and sell.

#### Price Reports Not Unlawful

"Persons who unite in gathering and disseminating information in trade journals and statistical reports on industry; who gather and publish statistics as to the amount of production of commodities in interstate commerce and who report market prices are not engaged in unlawful conspiracies in restraint of trade merely because the ultimate result of their efforts may be to stabilize prices or limit production through a better understanding of economic laws and a more general ability to conform to them, for the simple reason that the Sherman law neither repeals economic laws nor prohibits the gathering and dissemination of information. "Sellers of any commodity who guide

"Sellers of any commodity who guide the daily conduct of their business on the basis of market reports would hardly be deemed to be conspirators engaged in restraint of interstate commerce. They would not be any the more so merely because shareholders in a corporation or joint owners of a trade journal engaged in the business of compiling and publishing such reports.

"We do not conceive that the members of trade associations become such conspirators merely because they gather and disseminate information, such as is here complained of, bearing on the business in which they are engaged and make use of it in the management and control of their individual businesses. . . . "

## **To Discuss Coal Financing** At N. C. A. Meeting

Robert K. Cassatt & Co., banking and bond house of Philadelphia and other Eastern cities, will address the annual meeting of the National Coal Association at the Edgewater Beach Hotel, in Chicago, at noon, June 18, on the sub-ject of "Coal Operation Financing, Including Merger Financing."

Open forum discussions will include "Open Consignment of Coal," led by W. D. Ord, president of the Empire Coal & Coke Co., Landgraff, W. Va.; "Progress of the Safety Movement in the Bituminous Coal Industry," by W. L. Robison, vice-president of the Youghiogheny & Ohio Coal Co., Cleve-land, Ohio, and "Value of Association Work to the Industry by Work to the Individual Operator," by C. E. Bockus, president of the Clinch-field Coal Corporation, of New York City. D. R. Crissinger, chairman of the Federal Trade Board, who has been financially interested in coal mining operations for many years, will speak at the association banquet.

Philip Gee, Director of Information Service of the British Colliery Owners Association, had accepted an invitation to address the meeting, but he has advised that the uncertainty of the wage contract situation in England precludes his leaving for the length of

time required for an American trip. By direction of Mr. Hutchinson, who is president of the Westmoreland Coal Co., of Philadelphia, as well as presi-dent of the National Coal Association, concurred in by J. S. Brennan, secre-tary of the Somerset County Coal Operators' Association, and C. W. Gibbs, secretary of the Coal Operators Asso-ciation of the Thick Vein Freeport Seam of Pennsylvania, a meeting of Pennsylvania operators in attendance at the meeting of the National Coal Association will be held at the Edgewater Beach Hotel, at 3.30 p.m., June 17.

## **Coal Consumption and Power Output by Utilities Wanes**

Public utility power plants in the United States consumed 2,963,915 net tons of coal in April, according to a report by the Geological Survey. This compares with 3,180,932 tons in March. Fuel oil consumption by utilities in April totaled 696,704 barrels, compared with 835,584 barrels in the preceding month.

The average daily production of electricity by public-utility power plants in April was 172,000,000 kw.-hr. per day, less than 1 per cent smaller than the average output for March. The usual seasonal decline in the daily production of electricity has occurred during the first four months of the year. The decline in output for this year, however, was less than during the same months in 1924 and appears to be about the same as the average for the five years, 1920 to 1924.

The production of electricity by the use of water power in April established a new high record of 67,400,000 kw.-hr. This is 39.2 per cent of the per day. total output.



#### Thomas Riley Marshall

The former Vice-President, who died suddenly June 1, was noted for his in-dependence of thought. Previous to his two terms in the Vice-Presidency under President Wilson he had been Governor of Indiana. His last public official service was as a member of the Harding Coal Commission, appointed to investigate the coal industry after the strike of 1922. His clear thinking and unfailing good humor did much to lighten the dull formality of that body's activities. One of his axioms was "What we need is fewer laws and more citizens who appreciate the rights of their fellow men and give more attention their fellow men and give more attention to the Golden Rule."

## **Output**, Imports and Exports Of Coal Fall in Canada

Output of coal from Canadian mines in February totaled 1,156,349 tons, as against 1,488,654 tons in January, and a decline of 14 per cent, or 180,769 tons from the average for the month during the five preceding years. Production by provinces in February, when compared with the five-year average for the month, showed an increase in Saskatchewan and decreases in New Brunswick, Nova Scotia, Alberta and British Columbia.

February imports amounted to 1,-024,896 tons, while in January 1,166,-782 tons was brought in. February importations this year were 11 per cent lower than the five-year average for the month.

Imports of anthracite for February totaled 340,795 tons. This was 15,377 tons below the quantity imported in January, and about 9 per cent above the five-year average for the month. Anthracite imported from the United States amounted to 335,130 tons, while 5,665 tons came from Great Britain.

Exports of Canadian coal for the month of February were 41,691 tons; January, 85,410 tons. Comparison of the February exports with the preceding five-year average showed a decrease of 66 per cent.

The total number of men employed in the coal mines of Canada during Feb-ruary was 29,449, of whom 22,830 worked underground and 6,619 on surface, as compared with a total of 30,700 in January, of whom 23,787 worked underground and 6,913 on surface. Production per man was 39.3 tons for February, as against 48.3 tons per man for January; but during February the production per man-day was 2.5 tons, as compared with 2.6 tons in January.

## Sheridan-Wyoming Co. to Put In 12 Loaders

The Sheridan-Wyoming Coal Co. is converting its Acme mine at Acme, Wyo., to all-machine loading. Harry N. Taylor, president, announced in New York June 5 that he had bought eight big Goodman shoveling machines and four Joy 5-B-U's and that the mine, which has been shut down for some time, will be reopened soon with the machines doing all the loading. The coal is 35 ft. thick. Only the bottom 11 ft. is extracted. The Joys will drive entries and the Goodmans will work the rooms. The machines should be delivered at Acme between Aug. 15 and Sept. 15. A "school for loader operators" is now being conducted at the mine by Supt. Edward Bottomley.

"Conditions at this mine are ideal for loading machines, the manufacturers and technical experts, say," said Mr. Taylor, "so we are going into this thing wholeheartedly and will give the ma-chines a good whirl. They ought to succeed."

## **French Coal Mines Show Greater Efficiency**

Coal output by French mines in March last totaled 4,143,252 tons for 26 working days, a daily average of 159,365 tons, which, according to ad-vices received by the Bankers' Trust Co. of New York from its French Information Service, shows a slight increase over the February figures and is only slightly under the post-war record figure of last January.

In 1913 the daily extraction of coal in France average 135,147 tons. Output fell enormously as a result of the war and consequent destruction of the mines in the northern provinces, but in 1922 began to creep up again, reaching 121,064 tons in January, 1923. The average daily production pro-gressed to 144,680 tons in the beginning of 1924 and somewhat over 160,000 tons last January. A striking proof of the efficiency with which the work of reconstruction has been accomplished can be seen from the fact that the coal mines in the Departments of the Nord and the Pas-de-Calais now yield on an average 2,797 tons more a day than they did before the war. As a whole the mines situated within the pre-war area of France and, therefore, not including those of Lorraine, exceeded their pre-war output last March by 5,497 tons a day.

### Ship Board Rejects Bids

The Division of Purchases and Supplies, U. S. Shipping Board, Washing-ton, D. C., announced that the bids opened May 25 for supplying coal to vessels during the fiscal year have all been rejected. The reason for the re-jection is not given but the inference is that the figures were considered too high. Mr. Talbot, of the division, states that the board's coal requirements will be handled on a contract basis at the Port of New York, as supplies are needed.





**Practical Pointers** For Electrical And Mechanical Men



# **Kentucky Substation Layout Saves** Space and Is Convenient

The best engineering practice is sometimes overlooked because it is often found in small installations where large expenditures are not in evidence. An example of good engineering is the modest-appearing substation of the Columbus Mining Co., at its new mine at Allais, Ky. The distinguishing feature is the arrangement of equipment which makes it possible to house the complete 200-kw. unit in a 16 x 18-ft. building, and yet have ample room for safe operation, inspection and repair. The equipment layout is somewhat different from that ordinarily used, therefore a sketch of the floor plan is shown in Fig. 1, and a photograph of a view from the doorway, in Fig. 2.

The apparatus consists of a 200-kw., 1,200-r.p.m., 275-volt, synchronous converter; a switchboard of two panels, one having a reclosing circuit breaker; a double-throw starting switch; and three, 2,200 to 186-volt, single-phase transformers. The two-panel switchboard is located in the back part of the building



Fig. 1-Arrangement of Equipment It is not common to see a 200-kw. sub-station installed in a building of only 288 sq.ft. floor area, yet with this layout there is no need for any more space.

directly opposite the door and is set far enough from the wall so as to be conveniently accessible from the back. Its location is such that the instruments are in full view of the operator as he stands either at the converter or at the starting switch.



Fig. 2-Close Together but Not Crowded

This view, photographed from outside the doorway, includes all the equipment except one transformer. The switchboard instruments are in plain sight from operating posi-tions beside the converter and starting switch. Note that all items of the direct-current switchboard apparatus, including the reclosing breaker, meters, and field control, are grouped on one large panel.

The converter is set with the shaft parallel to the length of the building, and is near one end so as to allow ample room in the opposite direction, and along side of the switchboard, for removing the armature. Instead of the conduits being brought up through the floor beside the converter they terminate in the side wall of a pit beneath the machine. This pit is provided with a tile drain to carry away any water which might get into the substation. The building consists of a wood frame, roofed and sided with galvanized iron. This substation was planned and constructed under the direction of A. F. Barbieux, manager and electrical engineer of the company.

## **One Alarm Clock Saves a** Mile of Control Line

When motors are controlled by automatic starters it is usually easy to work out a method of time control, where that is desirable. An ordinary alarm clock is used with complete success by the Elkhorn Piney Coal Mining Co. to stop the motors at the pumping station of the town water system at Weeksbury, Ky.

The deep-well and pumping equipment is located about a mile from the main storage tank. This tank is on a hill 250 ft. higher than the pumping station, and is near the central power plant. The well is more than 200 ft. deep, so instead of the pump being made to force the water directly to the high tank a mile away it empties into a near-by 50,000 gal., groundlevel tank from which the water is pumped by a 30-hp., 4-stage, centrifugal pump to the high tank.

#### STARTED AUTOMATICALLY

Both pump motors are equipped with automatic starters, and the starting and stopping of the one driving the deep-well pump is controlled by a float switch in the ground-level tank. The centrifugal pump is not started and stopped by a float switch in the high tank be-

Fig. 1—Trips the Overload Relay The use of automatic starters lends flexibility to equipment and makes it possible to use money-saving control methods. The ordinary alarm clock in this picture has stopped the 30-hp. motor each day for two years.

cause that would necessitate the erection of a mile of control line. To get around this, an alarm clock, shown in Fig. 1, was mounted near the starter and fixed so that it would open the overload relay and thereby stop the centrifugal pump at a predetermined time.

The method of operating the pump station is as follows: Before the attendant makes his daily trip to see that everything is in good order and the machine bearings properly oiled, he finds out by 'phone from the power house engineer how many hours of operation of the centrifugal pump will be required to fill the high tank. Upon arriving at the pumping station he starts the centrifugal pump and sets the alarm hand of the clock so as to "go off" after the required number of hours. A few minutes after the centrifugal pump has been started, the water level in the ground tank has lowered sufficiently so that the float switch starts the deep-well pump. Both pumps then run until the alarm clock stops



Fig. 2—Ordinary Alarm Clock Used A short lever A is soldered to the alarm winding key, and a stop lever B provided. Before the relay can be closed, the alarm key must be wound to the dotted position.

the centrifugal unit, after which the deep-well pump continues to run until it has filled the ground-level tank and is stopped by the float switch.

A schematic sketch of the clock and tripping arrangement is given in Fig. 2. An ordinary good type alarm clock is used. To the alarm winding key was added a lever A, and to the frame of the clock a permanent stop B to keep the winding key from rotating beyond a fixed position. A piece of stout string Ewas tied from the end of the lever to the starter trip F. When it is desired to start the pumping station, the alarm is set to the proper hour and the alarm winding key given about one-eighth of a turn as indicated by the dotted line.

It is impossible to forget to attend to the clock because the overload trip of the starter cannot be closed until the alarm key is rewound the one-eighth turn. Although it is used every day, this alarm clock, motor-stopping device has never failed to stop the pump at the proper time during the two years that it has been in service.

R. R. WEBSTER.

Master Mechanic,

Elkhorn Piney Coal Mining Co. Weeksbury, Ky.

## Pump Connection to Borehole Is Removable

Connecting a mine pump to a borehole through which discharge is made to the surface is a job that can be done successfully in one instance by one method but may require an entirely different treatment in another. The method shown in *Coal Age* recently (issue of April 23, 1925, p. 619), is excellent under favorable conditions but would not meet satisfactorily the situation at our mine. The accompanying illustration shows how, after long experimentation, we overcame the difficulties encountered.

Inasmuch as the water with which we have to contend is extremely acidulous, it has both a corrosive and an erosive action. If a pinhole leak develops, the water will enlarge it to a rat hole within an hour. It was necessary, therefore, that the connection between pump and borehole should be one that could be taken out easily and renewed in case it should spring a leak.

A 3-in. pipe had been cemented into the discharge borehole throughout its entire length (300 ft.) be-



Some Ingenuity Was Used in Making This Connection

cause this hole made as much water as the pump already was handling. Average pressure in this hole is about 160 lb. but because of the small size of the discharge pipe this rises to a maximum of approximately 250 lb. at the end of each pump stroke. A Murry wood-lined, iron-incased, electric pump is used. This machine has a 6-in. piston, 12-in. stroke, makes about 60 strokes per minute, and was designed for a 5-in. discharge.

The accompanying drawing practically is self explanatory and needs little comment. The borehole is reamed out for a distance of 18 in. to receive a 6-in. pipe, the joint between pipe and rock being made tight by means of a lead flange and soft rubber gasket. Over the 3-in. casing a 4-in. pipe is slipped, terminating in a connection to a drain as well as one to the pump. The opening between the 4-in. and 6-in, pipes is filled with packing which is compressed by means of a piece of 5-in. pipe which acts as a gland. The 6-in. pipe is held in place by means of three pipe legs terminating in screw-jack feet. The 4-in. pipe is supported by a jack placed under the drain connection. The arrangement is such that should any part of the discharge pipe fail it may be quickly withdrawn and renewed. THOMAS JAMES,

Asst. Supt., Knox Consolidated No. 3 Mine

Vincennes, Ind.



# Soft-Coal Market Has Healthy Undertone; Vigor Lacking in Anthracite Trade

A better feeling seems to be creeping into the bituminous coal trade. Even though the improvement is so slight as to be scarcely perceptible, progress, such as it is, is in the right direction. While production is gradually climbing it is still believed to be lower than consumption, which means that dwindling stockpiles are continuing to melt and that the inevitable upturn cannot be postponed indefinitely. Basic conditions being sound and the midyear turn being at hand it is considered more than likely that an increase of buying will soon be in evidence.

Midwestern markets have been very quiet during the last week, both steam and domestic sizes lacking activity: Running time at shaft mines has been low, but strip mines are quite busy. Some eastern Kentucky mines are reported well sold up for the time being, but many others are scouting for business as usual and many are idle. Industrial demand is slowly gaining at the head of the lakes, but many are holding off in the hope of a readjustment in rates. Trade is still quiet in the West and Southwest, though prices are somewhat firmer due to a further cut in output.

The situation is much improved at Cincinnati with a good movement lakeward and inland. Domestic coals are firmer, while slack is weaker and smokeless not so strong. In southern and eastern Ohio the trade simply marks time, hoping for the best. An arrest of the decline in the steel industry gives a brighter aspect to the trade at Pittsburgh, but the New England and other Eastern markets are as quiet as ever.

#### **Anthracite Market Slides**

Easing off continues in the anthracite trade. Plenty of coal is moving to meet all demands. The companies are well booked to the end of June, but the independents are not so well off. Stove and egg are in strongest demand, pea is in good shape, chestnut more plentiful, the steam sizes rather weak, especially No. 1 buckwheat.

Production of bituminous coal in the week ended May 30 is estimated by the Geological Survey at 8,144,000 net tons, compared with 8,451,000 tons in the preceding week, as shown by revised figures. When allowance is made for the Memorial Day holiday the daily rate of output is shown to be higher. Anthracite



output in the week ended May 30 was 1,723,000 net tons, compared with 1,750,000 tons in the previous week.

Coal Age Index of spot prices of bituminous coal declined one point during the past week, standing on June 8 at 161, the corresponding price for which is \$1.95.

Dumpings at Lake Erie ports during the week ended June 7, according to the Ore & Coal Exchange, were: Cargo, 681,423 net tons; steamship fuel, 39,463 tons a total of 720,886 net tons, compared with 660,161 tons in the preceding week. Hampton Roads dumpings in the week ended June 4 totaled 421,608 net tons, compared with 368,836 tons in the previous week.



## **Midwest Trade Sags Again**

There has been practically no activity in the Chicago market during the past week, as both domestic and steam sizes continue to drag. The market on steam coals was worse, if anything, than for three or four weeks, principally because a few operators in western Kentucky reduced their mine labor to a wage considerably below the 1917 scale, and this new influx of cheap coal added something more to the demoralization to the market. Screenings from Indiana were very weak owing to the fact that the Big Four and the St. Paul roads placed some orders—not contracts—for lump coal with mines on their line. This has caused the production of enough screenings to weaken the position of the whole steam market. Buyers continue to mark time and will not even talk contract.

Southern Illinois producers did not advance prices June 1. The level for Franklin, Saline and Williamson County coals of the best grade is \$2.75, f.o.b. mine, for 6-in. lump and 6x3-in. furnace. Pocahontas people, as a rule, went from \$3 to \$3.25 on smokeless lump. A number increased their egg price to \$3.25, although enough egg at \$3 is available in this market to make the \$3.25 price level doubtful.

A little business continues to come into the Illinois and Indiana field, but most of it is from dealers who are placing coal in local business, such as school contracts, waterworks requirements, colleges, etc. While there is some talk in Chicago of an anthracite strike in September, this has not particularly stimulated the hard-coal market, which has not recovered from inroads made by coke and smokeless coals.

The Carterville field is quiet and hot weather has seemed to deaden all movement of domestic sizes, but steam is sold up. All mines have plenty of lump, egg and nut on hand that they cannot sell; several mines are crushing these sizes in order to take care of their screening contracts. Railroad tonnage is light. The strip mines are working—some of them are shipping mine-run and others are crushing. There are less than a dozen mines working in the field and a few of them are getting fairly good time; others one and two days a week.

In the Duquoin field conditions are unusually bad. Two days a week seems to be the working time for a couple of mines and they are having a hard time at that and are crushing sizes. In the Mt. Olive field conditions are practically at a standstill with one exception, where the mine is getting one and two days a week. Railroad tonnage is light and when the mines do work they are crushing mine-run to take care of screening contracts.

The Standard field gets one and two days a week and coal sells below cost. There is practically no demand excepting a little for apartment house storage and the St. Louis school business, which has just started. Domestic business is nil and mines that have crushers are crushing mine run to take care of their screening business.

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

Cull	cut Yuoto	IIIOII	D]	horr	nees, bu	ummous coal-	-iver rou	s, r.(	<b>J.D.</b>	vine	8
Low-Volatile, Eastern	Market Quoted	June 9 1924	May 25 1925	June 1 1925	June 8 1925†	Midwest	Market Quoted	June 9 1924	May 25 1925	June 1 1925	June 8
Smokeless lump	Columbus	\$3.50 2.30	\$2.85 1.85	\$2.85	\$2.75@\$3.00	Franklin, Ill. lump	Chicago	\$2.85	\$2.60	\$2.60	\$2.50@ \$2.75
Smokeless screenings Smokeless lump	Columbus	1.85	1.45	1.40	1.25@ 1.10 3.00@ 3.25	Franklin, Ill. acreenings	Chicago	2.00	2.10	2.10	2.00@ 2.25
Smokeless mine run	Chicago Cincinnati	2.00	1.85	1.85	1 85@ 2 10	Central, Ill. mine run	Chicago	2.10	2.10	2.10	2.00(a) 2.25
Smokeless mine run	Cincinnati	2.10	2.00	2.00	2.00	Ind. 4th Vein lump	Chicago	2.85	2.60	2.60	2.50(0) 2.75
*Smokeless mine run	Boston	4.40	4.25	4.25	4.20(1 4.35	Ind, 4th Vein screenings	Chicago	1.95	2.35	2.35	2.25(a) 2.50 1.80(a) 2.00
Cambria mine run	Boston	2.35	2.10	2.10	2.00(a 2.25	Ind. 5th Vein lump	Chicago	2.35	2.25	2.25	2.15@ 2.40 1.85@ 2.10
Pool 1 (Navy Standard) .	New York	2.65	2.55	2.55	2.40(0. 2.70	Mt. Olive lump.	Chicago St. Louis	1.60 2.85	1.60	1.60 2.50	1.40@: 1.60 2.50
Pool I (Navy Standard)	Baltimore	3.00	1.85	1.85	2.45(a) 2.75 1.80(a, 1.95	Mt. Olive mine run. Mt. Olive screenings	St. Louis	2.50	2.25	2.25	2.25
Pool 9 (Super, Low Vol.) Pool 9 (Super, Low Vol.)	Philadelphia.	2.20	2.00	2.00	1.85(0) 2.15	Standard lump	St. Louis	2.15	2.25	2.25	2.25
Pool 9 (Super. Low Vol.). Pool 10 (H.Gr.Low Vol.)	New York	1.85	1.85	1.75	1.65(a) 1.85	Standard screenings West Ky. block 1	St. Louis Louisville	1.60	1.70	1.70	1.65(0 1.75
Pool 10 (H.Gr.Low Vol.) Pool 10 (H.Gr.Low Vol.)	Baltimore	1.85	1.60	1.60	1.60(0) 1.85	West Ky, mine run West Ky, screenings	Louisville	1.55	1.35	1.30	1.15(0) 1.50
Pool 11 (Low Vol.) Pool 11 (Low Vol.)	New York Philadelphia	1.60	1.55	1.55	1.45(@) 1.65	West Ky. blockt. West Ky. mine run	Chicago	1.85 1.60	2.00	2.00	1.90(a 2.15 1.15(a 1.50
High-Volatile Faster	Baltimore	1.55	1.40	1.40	1.35(0) 1.45	South and Southwest					
D. 154 (4/Or and Or )						Big Seam lump.	Birmingham	3 00	2 30	2 40	2 2560 7 55
Pool 54-64 (Gas and St.)	Philadelphia.	1.50	1.55	1.55	1.40@ 1.60	Big Seam mine run	Birmingham.	1.85	1.75	1.75	1.50(0) 2.00
Pool 54-64 (Gas and St.) Pittsburgh sc'd gas	Baltimore Pittsburgh	1.50	1.45	1.45	1.40@ 1.50	Big Seam (washed) S. E. Ky. block1	Birmingham	2.00	1.85	1.85	1.75@ 2.00
Pittsburgh gas mine run.	Pittsburgh	2.10	2.15	2.15	2.10@ 2.25	S. E. Ky. mine run	Chicago	1.60	1.70	1.70	1.60(0 1.85
Pittsburgh slack (Gas)	Pittsburgh	1.35	1.55	1.55	1.50@ 1.60	S. E. Ky. mine run	Louisville	1.50	1.30	1.30	1.15@ 1.50
Kanawha mine run	Columbus		1.40	1.40	1.35@ 1.50	S. E. Ky. screenings	Louisville	.95	1.10	1.05	.90@ 1.25
W. Va. lump	Cincinnati	2.10	2.15	2.15	2.00@ 2.50	S. E. Ky. mine run	Cincinnati	1.45	1.45	1.45	1.25@ 1.65
W. Va. gas mine run W. Va. steam mine run	Cincinnati	1.35	1.50	1.50	1.40@ 1.60	S. E. Ky. screenings Kansas lump	Cincinnati.	. 90	1.15	1.05	1.00@ 1.15
W. Va. screenings	Cincinnati	. 85	1.15	1.10	1.00@ 1.15	Kansas mine run	Kansas City	3.50	2.85	2.85	3.00
Hooking mine run	Columbus	1.70	1.50	1.50	1.40@ 1.65	Kansas screenings	Kansas City.	2.50	2.60	2.60	2.50@ 2.75
Pitta. No. 8 lump.	Cleveland	2.45	2.25	2.25	1,90@ 2.60	† Advances over prev	ious week sho	wn in 1	ieavy ty	pe, deel	ines in italics.
Pitts. No. 8 screenings	Cleveland	1.20	1.45	1.40	1.85(0 1.90	I The term block is use tice, but the same coal is	d instead of lut being quoted a	mp in or a hereto	der to c	onform	to local prac-

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

			and the second se					
	Market	Freight	June 9.	1924	June 1.	1925	June 8	1925+
	Quoted	Rates	Independent	Company	Independent	Company	Independent	Companay
Broken	New York	\$7 34		49 00@ 49 05	and point in	*** 05@*** (P	macpenaent	Companay
Broken	Philadelphia	2 30 ,		30.00(0 30.0)		\$8.05@\$8.00		\$8.10@ \$8 70
Fag	New Vowl-	2.24	40 75 G 40 35	0.70(0) 8.85	1111111111111	8.60		8.60
Digger	Dhilad Inhia	2.34	\$0.13(0) \$9.23	8.45@ 8.85	\$8.40(@)\$9.25	8.35(0) 8.60	\$8.00(a)\$8.85	8.45@ 8.70
Ugg	Philadelphia.	2.39	8.80(0) 9.60	8.80(2) 8.85	8.60@ 9.30	8.40@ 8.60	8 70@ 9 30	8.50(a) 8.70
Egg	Chicago*	5.06	7.86@ 8.00	7.83@ 7.90	7.86(0) 8.50	7.44@ 8.18	7.86(a) 8.50	7.446, 8.18
Stove	New York.	2.34	9.00@ 9.50	8.45@ 9.10	8.75@ 9.25	8.85@ 9.10	8 90@ 9 25	8 85(0: 9 20
Stove	Philadelphia	2.39	9.15@ 9.80	8.85@ 9.00	9 20@ 9 75	8 85@ 9 00	9 30(0) 9 65	8 956 9 10
Stove	Chicago*	5.06	8.17@ 8.30	8 13@ 8 23	8 22@ 8 70	7 92@ 8 10	8 22 6 8 70	7 026 8 10
Chestnut	New York	2.34	8.75@ 9.25	8 4500 8 95	8 75(0) 8 50	8 3500 8 60	8 25(0) 8 50	9 4E (a) 9 70
Chestnut.	Philadelphia	2.39	8.85@ 9.70	8 80@ 8 85	8 60@ 0 45	8 5.10 8 40	9 70 0 9 FE	9 CO(a 9 70
Chestnut	Chicago*	5 06	8 00@ 8 13	8 08@ 8 13	9 14(2) 9 25	7 60 8 00	9 14(2) 9 75	0.00(a 0.10
Pen	New York	7 22	5 00@ 5 50	5 50@ 6 0.1	5.00 5.50	1.09(0) 8.00	0.14(0,0.55	7.09(0) 8.00
Dan	Philadelphia	2 14	5 75@ 6 75	5.30(0) 0.00	5.00(0) 5.50	5.00(0) 5.00	5.0000 5.50	5.00(0 5.70
Des	China a	4 70	5.120 6.15	5.75(0) 6.00	5.4U(a) 5.75	5.00(a) 5.40	5.50(0) 5.75	5.00(a) 5.40
D look at N	Vincago	7.77	3.15(0) 3.15	5.50(4) 5.91	4.91(0) 5.36	4.69@ 5.00	4.91@ 5.36	4.69@ 5.00
Buckwheat No. I	New LORK	2.22	2.15(0) 2.75	3.00@ 3.15	2.00@ 2.50	2.50	2.00@ 2.50	2.50
Buckwheat No I	Philadelphia	2.14	2.50(a) 3.00	3.00	2.25@ 2.75	2.50	2.15@ 2.75	2.50
Rice	New York	2 22	1.75(a) 2.25	2.25	1.70@ 2.00	2.00	1.75@ 2.00	2 00
Rice	Philadelphia	2.14	2.00@ 2.25	2.25	1.90@ 2.00	2.00	1 850 2 00	2 00
Barley	New York	2.22	1.25@ 1.50	1.50	1 35@ 1 50	1 50	1 35@ 1 50	1 50
Barley	Philadelphia	2.14	1.50	1.50	1 50	1.50	1 1000 1 50	1 50
Birdaeve	New York	2.22	1.50	1 60	1 60@ 1 85	1 60	1 60(0) 1 75	1 40
* Mattern fall			mask shaws in harms		1.00 1.05	1.00	1.00@ 1.73	1.00

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



Weighted averaged price. \$1.95 \$1.96 \$1.96 \$2.06 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.

Domestic trade at St. Louis is practically at a standstill. Cool weather for a while encouraged a little storage for current needs, but the weather in the last week ended this and most dealers have plenty of supplies on hand and are not handling anything until storage business opens up. A recent survey develops that this may be disappointing as orders for over four hundred oil burners were placed in St. Louis in May.

## Kentucky Isn't Making Money

Though it is reported that some of the eastern Kentucky coal companies are fairly well sold up for the time being, this is at variance with conditions over the field as a whole, for many companies need business and a number of mines are not running. That the trade hasn't been making any money was shown a few days ago when one of the largest companies passed a dividend on preferred stock and a good many of the smaller companies and a few fairly large ones are in financial trouble.

A few of the larger companies are arranging to increase tonnage this year, as several in the Elkhorn and eastern Kentucky fields are building new miners' homes and other buildings in order to increase working forces.

Prices are no better than they have been; while some 4-in. prime gas block is quoted at \$2.40 a ton, not much coal of any kind is selling at over \$2 @ \$2.25. Domestic coals of the larger size are not in much demand; the call is more on egg and 2-in. lump, at \$1.65 @ \$2.

Screenings in eastern Kentucky are 90c. @ \$1.25, good stuff selling at \$1 and up for the bulk of production, and moving well for this season of the year, as industrial buyers are consuming a lot of fuel. In western Kentucky one to three days a week represents running time for most mines, and companies with strings of mines are operating only a few of them. There is some movement of egg and nut to the South, but the North and Northwest is not buying as it should at this season, in spite of the fact that prices hardly will be lower and show indication of jumping when demand does start.

In western Kentucky prepared sizes are \$1.40 @ \$1.85; mine run, \$1.15 @ \$1.50, and screenings, \$1.10 @ \$1.25. Mine-run is held at the same levels in both fields. although some prime eastern Kentucky gas mine-run is selling at a little over \$1.50.

#### **Industrial Inquiry Better in Northwest**

Industrial demand at Duluth is slowly but steadily increasing, but the revival is indicated mostly by inquiries rather than orders. Many of the large manufacturing concerns are waiting until their coal is practically gone before reordering, all expecting a readjustment downward in prices.

Dock men here say that there can be no downward move in prices, but that there will surely be an increase unless buying starts to clear the docks. The only business is spot, and this is in one-car lots. A fair amount of soft coal is reported as going to Twin Cities, but this also is spot movement.

There is a fair market in screenings, which are holding firm around the \$4 mark, and there is no disposition to shade to get orders.

Pocahontas is holding its own and selling well. It seems to have lost none of its popularity of last winter. Dealers are preparing to supply much of this grade to Duluth this year.

Again thirty-six cargoes arrived last week, and only five of them were hard coal. Nine are reported on the way from lower lake ports, and of these none is hard coal. The movement of anthracite from lower lakes is being choked off. More hard coal is going to the Twin Cities now from here than to any other single place. Consumers there seem to be filling their bins, but they are not doing so here, despite the fact that the automatic raise of price of 10c. a ton a month is going on steadily in everything but buckwheat and pea. The former is weak at \$7 and the latter holds at \$10.10.

Kentucky has shown a spread in prices during the past week as follows: Lump, \$6@\$6.25; stove, \$5.75@\$6; dock run, \$5.50@\$6; screenings, \$4. Youghiogheny lump is \$5.50 and Pocohontas \$7.50.

Milwaukee coal-dock managers report conditions unchanged from last week. Coal is coming right along from the lower lakes, but not as briskly as during the first weeks of the season of navigation. During May a total of 378,396 tons was received—83,107 tons of anthracite and 295,289 tons of bituminous coal. The receipts for the season up to date aggregate 732,215 tons—238,955 tons of anthracite and 493,260 tons of bituminous coal.

Retail dealers in Milwaukee have advanced prices of anthracite. For egg size they now get \$16.10 shoveled and \$16.85 carried to bin; stove, \$16.50 and \$17.25; chestnut, \$16.35 and \$17.10; pea, \$13.30 and \$14.05.

#### Lower Output Stiffens Prices in West

Further reduction of production in Kansas has had a stiffening effect on prices of shaft lump and nut, on which there has been considerable shading. A light threshing market has opened, but, due to the increased use of combination headers and threshers and the greater use of oil in thresher engines in the Middle Western wheat states, this market isn't expected to have much effect this year. Virtually no coal is being mined in Arkansas, some companies having ceased to give quotations, and little is being produced in Oklahoma. Kansas shovel coal is selling at \$3 for lump; \$2.75 for nut and \$2.50 for mine-run, crushed mine-run and screenings.

In Colorado there has been no change in the coal situation in the last week. Output has not increased, the mines operating about 30 per cent. The trade is holding back orders until freight-rate reductions become effective, about Aug. 1.

The lignite field in northern Colorado, which produces about three million tons a year, is expected to be on the 1917 scale after June 22. Several of the companies are now operating on that scale and the larger companies posted notices pending a hearing of the Industrial Commission for authority to reduce, which will be decided upon June 22. The operators do not anticipate any difficulty because all the other districts in Colorado are now practically on the 1917 scale.

Prices remain unchanged since June 1, when there was 25c. advance in all kinds of coal.

The coal market continues very quiet in Utah. Retailers report a little flurry due to a number of cold spells, but outside of that very little coal is being taken for either domestic or industrial consumption. There is some demand for coal for winter storage purposes, but it is very light so far. Smaller sizes are moving best and about enough slack is being made to meet the demand. The price situation is unchanged and the transportation and labor conditions are excellent. All possibility of a general strike in this territory would seem to have passed with the decision of the Independent Coal & Coke Co. to reopen its mine in Carbon County on the old wage scale.

#### Situation Clears at Cincinnati

A vast improvement has been shown in the Cincinnati market during the past two weeks and the air of uncertainty that had veiled the day-to-day business seems pretty well riven. The improvement in mine-run prices seems pretty well attributable to the amount of this coal that is moving lakeward and to inland points. Domestic coals are much firmer and the presence of smaller buyers on this market looking after their own supplies through personal contact is a pretty good indication that they have been convinced that the shoe, to a certain extent, is now on the other foot.

Bituminous mine-run has moved up steadily and what coal is to be had between \$1.25 and \$1.40 is far from being quality stuff. Even the better grades of steam are quoted between \$1.35 and \$1.50 and special-purpose offerings run as high as \$1.65. Corresponding with this is a slight weakness in the slack market. Increase in the make of domestic and sized coal makes the supply uneven and there have been days when the price dipped down to \$1, though the general market can still be said to be between \$1.10 and \$1.15. Egg and stove coal have a good market that holds up well.

In the smokeless section of the market things are not quite so good. Some New River firms ask \$3.25 for their product and the general market seems to be around \$3. Sales of egg at \$2.75 still persist and it is said that direct selling agents for some Pocahontas concerns are willing to load a car of egg and fill a lump order with it. Nut is variously priced from \$2.25 to \$2.50 but mine-run is the steadiest on the list with a given \$2 mark. The heavier make of lump and egg has caused an overflow of slack and the general market has moved down to \$1.25 with concessions on even this where the sulphur is high or other defects have to be faced.

River business has fallen considerably due to the drop in the stage. Lack of rain in the upper valley has caused navigation to be precarious and only tonnage necessities are moving.

There has been no change in the retail situation, deliveries still lagging.

The coal trade in Columbus and central Ohio was unchanged last week, steam users still holding off on contracts and reducing stocks as much as possible while looking forward to better times. The outlook, however, is a little better. Users of steam probably are the best buyers at this time. Utilities are taking most of the tonnage and railroads are coming in a little stronger. Little distress coal is on the market now, as few cars are being sent on consignment. Due to reduced production of lump, screenings are more plentiful and are the strongest points in the trade.



Operators and wholesalers are trying to promote buying for domestic use during the summer months rather than in the fall. Prices are lower and deliveries can be made with more ease. Retailers are in pretty good shape and are not buying to any extent.

While some mines in southern Ohio are closing, others are opening under the 1917 wage scale plan and production is increasing. The present output is estimated at about 25 per cent of capacity.

The trade in eastern Ohio is lifeless so far as Ohio coal is concerned, except with stripping operations, which, because of lower production costs, are able to undersell coal from the deep mines. Consequently the strippers are running almost full time.

Steam buyers continue to purchase in hand-to-mouth fashion and with their activities at about half time their current needs are comparatively small.

The retail yards are buying little outside of anthracite or smokeless bituminous, and are placing practically no orders with Ohio mines.

Spot prices remain unchanged and will not go lower because at the present time coal is being sold, in many instances, at less than actual cost of production and the mines will close down rather than entail further losses.

During week ended May 30, which consisted of only five work days, the eastern Ohio No. 8 field produced 204,000 tons, or 34.7 per cent of potential capacity for five days. The daily average of 40,000 tons per day compared with 39,000 tons per day during the preceding week.

## **Outlook Brighter at Pittsburgh**

Demand in the Pittsburgh market remains very light, with no quotable change in prices. The recent increase in West Virginia competition, particularly from the Fairmont field, has proved that Pittsburgh prices could not be shaken down any farther. There is no prospect of an advance.

The industrial outlook, involving consumption of coal, has materially improved in the last few weeks. The decline in steel activity, expected to continue into July, has been practically arrested, and this is interpreted to mean that general activity, involving steel consumption, is going to continue quite heavy.

The Buffalo soft-coal trade shows no material change. Prices are on the bottom and are likely to remain there till something not yet in sight turns up. There is a disposition now to go slow in all industries, particularly those depending largely on coal to operate them.

## Quiet Reigns in New England

While there are rumors of firmer prices at Hampton Roads it is hard to verify them in the New England market. It is true there is less coal offering either on cars at the rehandling piers here or at the Virginia terminals, doubtless owing to new heavy restrictions that operators have imposed on output, but potential production always is there and a little trend upward in price will certainly be followed by increased mining. Therefore until the market can come somewhere near absorbing the tonnage the non-union districts can easily produce there is not likely to be any materially higher range of prices than prevails now.

New England buyers in the past have been offered spot coal at \$4.20@\$4.30, f.o.b. vessel at Hampton Roads, and although inclined to be reticent as to the exact grade of coal, there is little question that it was No. 1 Navy standard. Certainly there are broad opportunities to choose from a full line of favorably known fuels at figures down to \$4.10@\$4.15 and there are not many indications these opportunities will be withdrawn during June. Pocahontas and New River are in plentiful supply and enough is being mined at \$1.40 per net ton at the mines to justify purchasing agents in predicting that there will be no material advance prior to September.

Coastwise freights are on a minimum cost basis, and in no recent season has it been possible to bring coal forward so cheaply. Steamers are easy at 70c.@75c., Norfolk to Boston, and in view of this situation occasional quotations of \$5.15@\$5.25 on cars Mystic Wharf, Boston, for inland delivery are not surprising.

Of Pennsylvania coals all-rail there is little heard. The opening for them in this market is very much circumscribed by low offerings of tidewater Pocahontas and New River.



#### **Demand Drags at New York**

The reported decision of the U. S. Shipping Board to buy in the spot market the coming year instead of by contract is the attitude taken by many large consumers in the New York market. Although production of soft coal shows a steady increase operators assert that demand is very little heavier than for several weeks back. Reserve stocks, it is said, are being drawn upon heavily to supply the difference between output and estimated consumption.

Prices remain at about the same level and operators contend that they could not sell at any lower figures. Most operators and salesmen believe the worst is over and that business will soon become better.

Tidewater stocks remain at about 1,500 cars daily, most of the coal being on consignment.

At Philadelphia the trade is in the throes of the long depression. The average consumer is buying as he has been for almost a year—just as he needs it. Though storage piles at most industries are quite low manufacturers are not disposed to stock up for next winter.

The better steam grades continue to lead in sales, especially since a greater proportion of non-union coal of good quality is coming out. At that, many mines are still closed, with the idea of making preparations to resume on a nonunion basis. The wholesale shutdown has had practically no effect on prices, except possibly to keep them from going lower.

The one bright feature of the trade is railroad fuel buying, the prices for which are, as usual, lower than spot quotations. Among gas coals the only strong demand is for slack, because of the light amount of screening being done. This causes the operator no particular concern, as he knows the user of slack will buy mine-run when he cannot get fine coal.

Despite the depression which continues to dishearten the soft coal industry at Baltimore, it is interesting to note that coal loadings in the two weeks ended May 16 increased to the extent of 653 cars over the corresponding period of last year. There was a decrease in the loading of coke. Export coal cargoes in May surpassed those of either January or February of this year.

Improvement in the demand for domestic coal at Birmingham which indications a short while back seem to justify the trade in anticipating with the beginning of June has materialized only in a meager degree and disposition of domestic sizes is still a vexatious problem for the mines. Deliveries on contracts for June are abnormally light, and in some instances are being temporarily held up. Spot buying is not being indulged in to the extent it was at this season last year. The poor domestic market is serving to restrict steam coal production to some extent.

Demand for the better grade of steam fuel is about sufficient to move the production under the restricted operating schedule, and there is no surplus of note even of the lower and medium grades, though there is some shading of standard quotations on low quality mine-run coal from small operations which have little overhead and preparation expense. Standard high-grade coals are maintaining the schedule, which has varied little in several months, being considered on a rock-bottom basis. Outside of the railroads and utilities cement plants and cotton mills are providing the backbone for the commercial market.

#### Hard-Coal Market Lacks Vigor

Plenty of anthracite is coming to the New York market to meet all demands, but there is no rush of orders. Business is not what it should be with the end of the present wage agreement in sight, but it is expected that as soon as the consuming public learns that wage conferences have started buying will pick up. Meantime the companies have plenty of orders to keep them going to the end of June, but the independent producers are not so fortunate. Dealers are not willing to pay more than company prices and because of that the individual operators have to hustle for business.

Stove and egg lead the domestic sizes in demand. The latter size is being taken largely by apartment houses and on city contracts. Chestnut and pea sizes are not lagging. No. 1 buckwheat is not moving as well as it might and is a matter of worry to some producers. Rice and barley are not causing any trouble.

A week of unusual heat in Philadelphia has caused retailers generally to report a falling off in new business and the current trade has vanished.

Mine prices were raised 10c. June 1, although some shippers did not increase pea coal. A few independent operators added something extra to stove. Retailers in a number of instances have increased prices to the consumer. Stove continues in best demand, but no one is short of it.

Stove continues in best demand, but no one is short of it. Egg also is in call, although the same condition applies here. Nut is in heavy surplus and is keeping all operators on the move to dispose of it. Pea is not particularly plentiful, but there is no strong demand for it. Steam sizes are dull, and the independents are inclined to cut on every size. Barley is the least troublesome, but there is a tonnage to be had off price.

With the temperature hovering near 100 deg. in Baltimore, most coal dealers report practically nothing doing in the way of coal distribution. Meanwhile there are sufficient supplies on hand to meet a resumption of demand when men's thoughts again turn to coal.

The sudden arrival of hot weather at Buffalo wiped out most of even the rather poor anthracite trade that existed during the cool spring. No one seems to worry about the possibility of a strike in the fall. The fact that coke does not sell very freely in this market, when it behaves in a furnace practically the same as anthracite of the same size does, shows that the consumer is as yet far from having made up his mind as to what fuel he will depend on hereafter. The price remains at 9@\$9.50 for furnace size at the curb.

Lake shipments are light. The winter loadings were so heavy that the total to June was 690,564 tons, with only 237,700 tons for May, as against 470,100 tons to the same time last season.

#### Demand Slow in Connellsville Coke Market

The only Connellsville coke market item of the week was the closing of another furnace coke contract, for one stack, involving 15,000 to 17,000 tons monthly. This was for thirdquarter, at a price nearer \$3 than \$3.25. Negotiations are on for fourth-quarter coke for the same furnace, at an advance over the third-quarter price. This makes three contracts closed, the business proceeding very slowly. A few more inquiries are now developing.

Spot furnace coke is practically dead, there being no furnace buying and little buying by the miscellaneous consumers. The market is quotable at \$3 but the price is really without test.

Buying of spot foundry coke has been fair in the past three weeks compared with the previous stagnation. Prices are no better, being quotable at \$3.75@\$4.25, and sales probably are averaging closer than formerly to the lower figure. There is practically no interest in foundry coke contracts.

Pig iron production in the country at large declined 13 per cent from April to May and the rate now is about 5 per cent lower still. A further decrease is expected, but not a large one. No furnace using purchased Connellsville coke is likely to go in, and in time a few more may go out.

Car Loadings, S	urplusages and Short	tages
		Loaded
Week ended May 23, 1925 Previous week Week ended May 24, 1924	986,20 984,91 918,21	9 151,548 6 155,630 3 139,083
	All Cars Coal Cars	hertage
May 22, 1925. May 14, 1925. May 22, 1924.	327,216         134,669           330,433         141,258           331,012         170,333	

#### 888



## **Outlook Improves**

steady and the outlook is a little more satisfactory. The improvement in the last month has been fairly substantial, but still leaves the trade as a whole something like 200,000 tons per week short of the activity at the corresponding period of last year. Production in the Welsh field at present is approximately 900,000 tons weekly, as com-pared with about 1,100,000 a year ago. None of the pits already closed has been opened and it is possible that several more collieries will close. Shipments abroad have been heavier for South America, Egypt and coaling depots, and it is believed that stocking is taking place on a larger scale. There has been no recovery in shipments to France and Italy yet. It is understood that German coal is not giving satisfaction and that, despite adverse exchange, the French State Ry. will return to South Wales for part of its requirements.

The Newcastle market position is not

## Stronger Tone Develops in Hampton Roads Market

Hampton Roads coal movement continued without feature last week except a considerable tonnage for Canada and other ports to the north. Some movement to Italy and South America also was reported.

Bunker business was only fair, and supplies at tidewater had diminished sufficiently to boost prices slightly. The strengthening of the market was due to scarcity of coal more than to demand. The tone of the market was a little stronger.

#### All Grades Sluggish in French Coal Market

The only change in the French coal market is that outlet is steadily getting worse, both as regards industrial and household fuel. Yet French collieries are in better fettle than Belgian, British and German operations.

Deliveries of indemnity fuels from May 1 to 9 totaled 152,200 tons, including 64,400 tons of coal, 81,400 tons of coke and 6,500 tons of lignite

The Welsh steam coal trade remains eady and the outlook is a little more tisfactory. The improvement in the st month has been fairly substantial, it still leaves the trade as a whole as a whole be regarded as unsatisfactory.

It is feared that the cut in German railway rates on Ruhr coal to the coast ports, now in operation, must prejudice English coal, which hitherto has held its own well in a market which was principally supplied from the Northumberland and Durham coal fields. Unless British exporters can reduce their quotations about 1s. 10d. per ton they are in danger of losing trade on coal delivered. In the contract market a few inquiries are out. The Stockholm Gas & Electrical Works invites tenders for 10,000 tons of first-class Durham coking unscreened coals, to be shipped during November and December.

Output by British Coal Mines in the week ended May 23, a cable to *Coal Age* states, totaled 4,860,000 tons, compared with 5,030,000 tons the week before.

briquets, a daily average of around 17,000 tons. During the first eighteen days of May the O.R.C.A. received from the Ruhr 158,300 tons of coke, or an average of 8,800 tons per day, compared with the usual level of 10,000 tons.

#### **Belgian Market Steadier**

The Belgian coal market on the whole, though still depressed, shows a slight improvement in its tendency to greater steadiness. At the same time British imports are hampered by the downward tendency of prices and an upward movement in exchange. Sales of German free coals are far from strong as prices in Germany are trending up since the Syndikat's reconstitution.

Demand for industrial grades is somewhat better and prices compare with those of foreign markets. Home fuels also are on the mend.

The State Railways have placed heavy orders for briquets; and it is now up to the naval administration and private industry. Coke remains unchanged.

Employers and men have come to an

agreement to put off to the end of June the 5 per cent reduction in wages, hoping that a new salary convention may be adopted by that time.

Export Clearances, Week Ended June 6, 1925

#### FROM HAMPTON ROADS For Italy: Ital. Str. Vesuvio, for Genoa..... Ital. Str. Campania, for Bagnoli.... Ital. Str. Maria Enrica, for Porto Ferrajo ..... Tons 6,788 Ital. Str. Maria Enrica, for Porto Ferrajo For France: Ital. Str. Emanuele Accame, for Marseilles Fr. Str. P. L. M. 23, for Rouen... For Nova Scotia: Amer. Str. Suffolk, for Sydney... Br. Str. Wabana, for Sydney... For Canada: Br. Str. Daghild, for Montreal... Nor. Str. Hans Gude, for Quebcc... Ital. Str. Armando, for Montreal. Dan. Str. Battinsborg, for Levis... For Argentina: 11.003 11,514 8,010 7,517 11,314 4.486 For Argentina: Br. Str. Cornish City, for Buenos Aires . . . . . . . . . 6.650 Arres For Spain; Ital. Str. Aster, for Gibraltar..... For Canal Zone: Amer, Str. Achilles, for Cristobal... Amer. Barge Darien, for Cristobal... 9,015 12,033 7,245 For Jamaica: Nor. Str. Certo, for Kingston..... 2,212 For New Brunswick: Dan. Str. Danaborg, for St. John.. For Brazil: Nor. Str. Tilthorn, for Rio de Janeiro 6,978 Br. Str. Saint Dunstan, for Rio de 9.220 6.978 Janeiro For Dominican Republic: Nor. Str. Etterstad, for San Pedro de Macoris 615 FROM BALTIMORE For Canada: r. Str. Emilie L. D., for Levis, Quebec 6.599 Hampton Roads Pier Situation N. & W. Piers, Lamberts, Pt.: May 728 June 4 Cars on hand .... 1.306 1.663

Tons on hand	74,321	108,151
Tons dumped for week	06,305	122,131
Tonnage waiting	5,000	5,000
Virginian Piers, & Sewalls Pt.:		
Cars on hand	1.437	1,155
Tons on hand.	00,400	83,850
Tons dumped for week	82,498	100,404
Tonnage waiting	24,473	5,024
C.&O. Piers, Newport News:		
Cars on hand	2,228	2,312
Tons on hand 1	10,745	121.070
Tons dumped for week 1.	40,515	153,901
Tonnage waiting	8.435	5.550

#### Pier and Bunker Prices, Gross Tons

PIERS

	******			
	May 30	June 6†		
Pool 1, New York Pool 9, New York Pool 10, New York Pool 11, New York Pool 9, Philadelphia Pool 10, Philadelphia Pool 1, Hamp. Roads. Pool 2, Hamp. Roads.	\$5.25@ \$5.50 4.70@ 4.85 4.50@ 4.65 4.25@ 4.50 4.65@ 4.90 4.35@ 4.55 4.25@ 4.30 4.25 4.10 4.00	4.75(a) 5.00 4.50(a) 4.65 4.25(a) 4.65 4.25(a) 4.90 4.65(a) 4.90 4.35(a) 4.55 4.25(a) 4.55 4.35(a) 4.30 4.35 4.15		
roots 5-0-7, manp. nus.	4,00	4,00		
BU	NKERS			
Pool 1, New York Pool 9, New York Pool 10, New York Pool 11, New York Pool 11, New York Pool 10, Philadelphia. Pool 10, Philadelphia. Pool 1, Hamp. Roads. Pool 2, Hamp. Roads. Pool 5-6-7, Hamp. Roads.	\$5.50@ \$5.75 4.95@ 5.10 4.75@ 4.90 4.50@ 4.75 4.60@ 4.80 4.45@ 4.65 4.35 4.20 4.10			
Current Quotation	ns British	Coal f.o.b.		
Port, Gross Tons				
Quotations by Cable to Coal Age				
Cardiff:	May'30	June 6†		
Admiralty, large	26s.@ 26s.6d.	26s.@ 26s.5d.		

Cardiff:	May 30	June 6†
dmiralty, large	26s.@ 26s.6d. 15s.6d.	26s.@ 26s.5d. 16s.@16s 6d.
Newcastle:		
Best steams	16s.6d.@17s.	168.91.
Best gas	18s.6d.@ 19s.	188-6d.
Best bunkers	16s.3d.@17s.	16s.6d.
† Advances over pret	rious week she	own in heavy



COAL AGE

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#### ALABAMA

Six white miners were killed May 31 in a mine at Piper, owned by the Little Cahaba Coal Co. Death is believed to have been caused by an accumulation of blackdamp in an unused heading of the mine, which the six men were exploring. There was no explosion. The heading in which the men met death had been sealed for two months as the result of a fire. It was opened May 31 and the six went in to learn if the fire was out. The bodies of the six men were found 700 yd. from the entrance.

The DeBardeleben Coal Corporation suffered the loss of its large ecommissary building at Empire Mines, Walker County, by fire on the morning of May 22. The building and contents were valued at about \$40,000. The origin of the fire is unknown. The building will be replaced at the earliest practicable date.

Incorporation papers were filed in the Jefferson Probate Court the past week for the Warren Coal Co., with a capital stock of \$2,000,000 the object of the corporation being to engage in coal mining, handling of mineral lands and other activities of a kindred nature.

The Hercules Powder Co. has issued invitations to the opening of its new Bessemer plant on June 17. A special train will be provided to convey the guests to the plant, which is about seventeen miles from Birmingham, on the Louisville & Nashville R.R. There are twenty-six separate buildings located on a tract of 1,280 acres and all brands of explosives manufactured by the Hercules company will be made at the plant which will be one of the largest and most modern in the country, having a capacity of upward of 1,000,-000 lb. of high explosives monthly.

#### **COLORADO**

W. H. French recently sold his undivided one-half interest in the coal mine and business of the French & Fielding Coal Co., Mancos, to F. C. Hallar who, in turn, has sold the property and business to Roy Freeman, owner of the Freeman coal mine and business. The new owner took over the working force and organization just as it stood.

Notice of a cut in wage scale amounting approximately 30 per cent was filed May 26 with the State Industrial Commission by the National Fuel Co., which operates the Puritan mine, in Weld County, and the Monarch mine No. 2, in Boulder County. In following the lead of many other Colorado coal operators the company professes to be unable to operate under the present scale.

#### **ILLINOIS**

The Illinois Central R.R. has signed a long-term contract with the Security Coal Co., Duquoin, and the latter has started work on a \$40,000 coal chute with a capacity of 650 tons, from which all north and south bound trains will be coaled. The contract succeeds that with the Jackson Coal Co. at Hallidayboro, whose chutes burned more than a year ago and which mine has been idle over a year. The Security mine at Duquoin employes 250 men.

An announcement by the headquarters of the Belleville subdistrict of the Illinois United Mine Workers states that the Taylor mine, at O'Fallon, is about to resume operations after being shut down since March 15. The mine employed 250 men. Out of the eightyseven mines in the Belleville subdistrict only about five or six are working anything like full time. Some miners in the subdistrict have been idle for a year or more.

Two large operations in the Springfield district recently were sold, the Cora Coal Co., mine, two miles north of the water-works, and the Black Diamond Coal Co. mine, near Auburn, both having passed to the Peabody Coal Co. The purchase price is said to have been \$200,000. Both mines have been operated by the Peabody company under a ten-year lease, which expired April 1, 1925, with the privilege of purchase on its maturity.

The strip mine of the Young Coal Co., Duquoin, has resumed work after a shutdown of thirty days. The mine was closed about May 1, shortly before the death of E. J. Scott, of St. Louis, former president of the company, then known as the Scott-Smith Coal Co.

Superintendent Grant L. Saylor, for years with the Franklin County Coal Co., has resigned and will enter business for himself. Theo. Lewis, of Sandoval, has been appointed as his successor.

#### INDIANA

Universal Mine No. 4 at Universal, closed May 20. The mine, operated by the United States Fuel Co., which is controlled by the Illinois Steel Corporation, supplies coal for the use of this company alone. Between 200 and 250 men were employed at the operation.

A proposal that the Indianapolis school city act as its own jobber and retailer in buying next winter's coal supply was made to the City Board of School Commissioners at the meeting May 26. A proposition has been made by a dealer to lease a coal yard to the school city whereby coal will be bought direct from the mines and be stored and delivered as needed. No definite action was taken on the proposal. The business director of the schools reported to the board that approximately 4,000 tons of coal were saved last winter through the work of Willis Relfis, coal inspector, in instructing janitors in the proper firing of furnaces.

A statement to the effect that organized labor had approved the appointment of Edgar A. Perkins, Indianapolis, as a member of the Indiana Industrial Board, is denied by William Mitch, secretary of District No. 11, United Mine Workers. According to Mitch the mine workers were against the appointment of Perkins. "In view of the fact that about 50 per cent of the cases coming before the board are mining cases," said Mitch, "we wanted a man on the board who knows something of modern practical mining." Charles Fox, former mine worker and former president of the State Federation of Labor, held the position for some years and was displaced by Perkins.

#### **IOWA**

Roy Allen has leased forty acres of coal land at Colfax on which he has five holes drilled, to Walter Barron. These five holes found veins of coal from 3½ to 4½ ft. thick. Mr. Barron was superintendent of the Hocking Coal Co., Oskaloosa, for four years. He will operate this mine by steam and electric power. Mr. Barron has formed a company composed of himself, George Nichols, Fred Barron and Benjamin Beckham. An office will be opened in Fairfield.

#### KANSAS

Governor Ben S. Paulen has accepted an invitation to attend the state minerescue and first-aid meet to be held in Pittsburg June 13, conditional upon no unforeseen pressure of official duties interferring. Eighteen teams are now putting the finishing touches on their training. Participants in the meet will be guests at a banquet tendered by the Pittsburg Chamber of Commerce immediately after the contest. A wrestling and boxing card also will be given for the entertainment of the teams and the miners attending the meet. Speakers at the meet and banquet will include Governor Paulen, W. L. A. Johnson, general commissioner for the Southwest Interstate Coal Operators Association; Matt L. Walters, district president of the Mine Workers; President W. A. Brandenburg of the Kansas State Teachers College of Pittsburg; Frank O'Brien, member of the state Public Service Commission, and W. D. Ryan, safety commissioner of the Bureau of Mines.

With the purchase of the mineral rights on 360 acres within the last week the Cherokee & Pittsburg Coal & Mining Co., the holding company for properties operated by the Jackson-Walker Coal & Mining Co., completed title to 4,000 acres seven miles west of Pittsburg as a reserve. For three farms involved in this latest deal the company paid \$29,000. Joseph Fletcher, superintendent of the Jackson-Walker, said that when the new property will be developed depends entirely upon the market for coal. The land is underlaid with the Cherokee vein which is from 21 ft. to 3 ft. 10 in. thick, and also has a shallower vein.

#### **KENTUCKY**

It was reported from Whitesburg on May 30 that the Whitesburg Coal Co., at Whitco, had obtained contracts for a full year's output on a steady run, and had started full-time operations,

There will not be much tonnage moved by water for some time to come unless there are some heavy rains soon in the Ohio Valley. The Ohio River is now so low that the government force is busy putting in low water gates at the Louisville dam in an effort to deepen the pool extending some miles above Louisville, and it was reported from Memphis, Tenn., on May 30 that even the Mississippi was very low there, showing a stage of but 12.3 ft., as compared with 27.3 at this time last year. Dredge boats were ordered to start work in deepening the channel, the first time on record that such work has been started so early in the year.

It is reported from Owensboro, that, effective June 1. the Universal Coal Co., of that city, through Attorney G. S. Wilson, had purchased the Jennings coal mines. including 200 acres of coal rights, at Baskett, from Henry Gager. Harry Jennings, Alex Blair and Thomas Corley.

The West Kentucky Coal Bureau will not meet during June, July or August, as there are not many traffic matters of importance for discussion, and hot weather and vacations mean slim attendance.

Announcement was made at Corbin on May 24 that the Louisville & Nashville R.R. had arranged to start work at once on the construction of fifty miles of trackage to enlarge the Corbin yards, which have long been inadequate for handling the heavy coal movement to Louisville and Cincinnati. An average of a thousand coal cars per day is handled through Corbin going to the Cumberland Valley division coal fields.

#### **MINNESOTA**

The Northern Pacific Ry. recently had on display in the Twin Cities two large storage-battery locomotives that are being sent to the company's new coal fields in Montana at Coalstrip. They are of large storage - battery capacity, capable of being kept in continuous operation through their recharging facilities. The locomotive -----

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weighs 70 tons. Each will handle 2,500 tons of coal per day in 10-car trains.

James H. Charles, assistant treasurer of the Inland Coal & Dock Co., Minneapolis, was arested last week charged with being short in his accounts, and held for the grand jury. He pleaded not guilty and was released on bail. An alleged shortage of \$15,000 is said to have been made up within \$3,000.

#### **NEW YORK**

Flans of a group of minority stockholders of Burns Brothers, coal dealers, to elect several new directors and to have the company take over certain properties with which some of the proposed new directors are now affiliated will be opposed by the management at the annual meeting of stockholders June 11. This became known June 2 when Frank L. Burns, president of the organization, who has served the company more than twenty years, sent stockholders a letter explaining the position of the company and its record during the past year.

A certificate has been filed in the office of the Secretary of State at Albany, increasing the capital of the Hickory Grove Coal Mining Corporation, Rochester, from 1,250 shares of common stock of no par value to 5,000 shares of common of no par value, the preferred consisting of 1,500 shares, \$100 par value, the same as heretofore.

#### OHIO

Directors of the M. A. Hanna Co. on June 2 declared the regular quarterly dividend of \$1.75 a share on the first preferred stock, but voted to omit the 2 per cent quarterly distribution due at this time on the second preferred. The dividend on the first preferred will be paid out of accumulated surplus, the report for the first quarter showing a deficit of \$313,150. It is understood that the present unsatisfactory state of the coal industry was partly responsible for the first quarter deficit. The company had an operating loss for that period of \$102,687.

Indignation has reached a high pitch over the destruction by fire, evidently of incendiary origin, of a mine of the Stalter-Essex Co., near Pomeroy, recently. The mine has been operating on a co-operative basis for about a month after a long shutdown, the miners acting in direct violation of instructions from the union. The building will be replaced at an expenditure

### Pierre Destombes Shaft

Otherwise known as Shaft 11 of the Lens Mines in France, the buildings of which have just been completed. What a structure of beauty is the water tower in the foreground!

of about \$35,000, according to Fred Essex, Columbus.

The Columbus Board of Education opened bids May 13 for 15,000 tons of bituminous mine run or lump coal and 2,000 tons of nut, pea and slack, for the public schools. Only the smaller lot has been awarded, it going to the Burns Coal Co., of Columbus, at a bid of \$3.59 per ton, delivered at the schools. The other lot has been readvertised and bids are to be in July 2.

Representative business men and professional men of Athens, meeting recently, joined Nelsonville business men in a movement which they declare will help to revive the Hocking coal field, now prostrate by mine suspension. Many men have been idle and without work for months, while bankers say business men are being forced into bankruptcy. Leading business men of the Hocking coal field declare that leaders of the International Union of Coal Miners apparently are determined to eliminate the Hocking coal field because of alleged over-production. The charge was made that miners are being misled solely to gratify the ambitions of certain high miners' union officials that "no backward step" will be taken as long as they are in office.

#### **OKLAHOMA**

Lightning recently fired the Smith-Davis & Co. mine plant at Cardin, destroying it. The loss is placed at between \$75,000 and \$100,000. The plant was one of the largest and heaviest producers in the Picher district. Sid Davis, of Baxter Springs, Kan., and associates owned the property.

Notwithstanding the stand pat attitude of the union coal workers in refusing work under the 1917 wage scale, and the advice of their leaders to hold out for the 1924 scale, the operators in the Henryetta district are cleaning out their mines and will begin hoisting coal as soon as the mines are in condition to operate. They say they can get all the help needed under the terms of the 1917 scale. The B. & M. mine at Schulter has been operating with non-union men under the 1917 scale for three weeks with an almost capacity crew. The Crowe Coal Co., largest operator in the district, has 60 men putting the old Victoria mine in condition and it is expected this will open soon. This mine is one of the 10 of the Crowe company and has not been operated in three years. It is reported that the Kincaid and the Kincaid-Corrigan mines have begun work with half crews and are hoisting coal.

#### PENNSYLVANIA

Work of construction on a new tipple at Mine No. 2 of the Rosedale Coal Co., at Poland, Pa., across the West Virginia line, which was destroyed by fire May 30, will be completed within three weeks. The mine will work on an openshop basis. It produces 1,500 tons daily.

At a hearing before Justice of the Peace James T. Young in Ebensburg, Cambria County, on June 2, eleven Nant-y-Glo residents were found guilty of disorderly conduct and twelve were discharged. The charges grew out of the alleged activities of union miners at the mines of the Heisley and Lincoln coal companies' operations, now at work under the 1917 scale. Two dynamite explosions in Nant-y-Glo during the past week destroyed considerable property, principally in broken glass.

Carbon Coal & Coke Co. mines and those of the Kenrock Coal Co., located at Dudley, in the Broad Top bituminous field, resumed operations June 1 under the 1917 scale. Other mines in the region probably will follow the lead of these companies and reopen soon, as the miners throughout the region have come to the conclusion that steady work under the 1917 scale is preferable to no work at all, as they have been convinced that the operators cannot compete with the non-union fields and sell coal at a profit.

The Central Coal & Coke Co., Inc., of Pittsburgh and Altoona, has purchased the holdings of the Lacy Coal Co. for \$30,000. This mine is located on the Monongahela division of the Pennsylvania R.R., about one mile from Millsboro. It is the plan of the new owners to produce from 200 to 300 tons per day from this mine. M. D. Kelley is president of the Central company, and R. J. Kelley is treasurer.

Directors of the Delaware & Hudson R.R. on June 4 began an inspection trip of the company's coal properties, preparatory to segregating the coal companies from the railroad. Leonor F. Loree, president of the road, headed the delegation, which left, the Pennsylvania Station, New York and went as far as Wilkes-Barre on the Lehigh Valley.

A free short course in mining is to be given from June 22 to July 25 by the School of Mines and Metallurgy at State College, the last four of the five weeks being devoted largely to those young men who want to qualify for state examinations for mine foremen or fireboss jobs. Advanced students will attend for the full five weeks' period and others the last four weeks. On completion of the five weeks' course a certificate is awarded, showing the subjects studied, and another is given when ten weeks' study has been com-pleted. The U. S. Bureau of Mines safety car will be at State College for the first two weeks of the course, and prominent mining men will speak on special mining subjects. Additional information will be supplied by Dean Holbrook.

The Philadelphia & Reading Coal & Iron Co. has a corps of engineers and laborers engaged in laying 5,000 ft. of 6-in. wooden pipe from the Reliance operation to and into the old Rhoads slope workings, situated under the town of Mount Carmel. The purpose of the line is to entirely fill in the workings of this old opening with slush, which will not only be obtained from the daily run of waste at the Reliance but will eventually dispose of the big culm bank near the colliery.

Conditions in the Connellsville coke region have not changed much of late. The H. C. Frick Coke Co. curtailed operations further two weeks ago but increased them again last week. The Denbo mine of the Reliance Coke Co., on the Monongahela River near West Brownsville, and the Isabella mine of the Hillman Coal & Coke Co., further up the river, are working full, shipping coal to the Jones & Laughlin Steel Corporation, which is buying from these non-union operations, working on the 1917 scale, instead of producing it at its own subsidiary mines, the Vesta Coal Co., all of whose operations are union and working under the Jacksonville agreement.

The Lehigh & Wilkes-Barre Coal Co., of Wilkes-Barre, has extended its group life insurance contract with the Metropolitan Life Insurance Co.



Courtesy Bertha Consummers Co

Miners' Houses at Rachel Mine

Typical homes provided by the Bertha-Consumers Co. for its employees at West Virginia operations. The Rachel mine is on the Baltimore & Ohio R.R. near Mannington, W. Va. enabling its employees to increase their protection by approximately \$600,000, bringing the total in force to more than \$2,000,000.

#### TEXAS

The Midland Coal Co. Southwest Life Bldg., Dallas, increased its capital stock about the middle of May from \$30,000 to \$40,000.

#### UTAH

The U. S. Bureau of Mines announced on May 28 that the completion of an analysis of coal deposits in Utah disclosed that there are more than 13,000 square miles of land in the state known to contain workable coal. The estimated original supply of these deposits was placed at 196,458,000,000 tons of commercial coal. Coal was discovered in 17 counties in the state, it was stated. So far, however, the bulk of the coal mined in the state comes from Carbon County.

John Crawford, well known state coal mine inspector, broke two ribs while inspecting the Kinney coal mine in Carbon County late in May. Crawford appears to have slipped while walking along the tramway. After a surgeon had set the broken bones the veteran inspector refused to go home and continued his examination of the property.

The last week in May saw the end of the strike at the Independent Coal & Coke Co.'s mine in Carbon County. The men had been out six weeks when the company decided to reopen the mine at the old wage scale. The strike was called when the company announced a "cut" of 20 per cent in wages and the cost of board and lodgings and cottages over which it had control. It was thought at first that other companies would follow suit, but none of them did-

#### WEST VIRGINIA

A voluntary application for a receivership for the Richland Coal Co., the largest mining company in the Panhandle section, having mines in Ohio, Brooke and Marshall counties, was made May 23 in Circuit Court in Wheeling, when Judge J. Harold Brennen appointed the Dollar Savings & Trust Co. and Attorney John P. Arbenz as joint receivers. It is reported that the company is operated on a non-union basis. The transaction is a friendly one, with no objection raised by the creditors.

After an idleness of three months, mines in three of the districts of Taylor County late in May began the production of coal at the rate of 155 cars of coal a week. More non-union mines are to be opened during the early days of June by the Jerry Run Coal Co. at Rosemont. There are 16 non-union mines in Taylor County, seven of which are idle, but operators state that work will be resumed in most pits in a few weeks.

The second mine of the Cannelton Coal Co. was placed in operation during the last week of May, after a long suspension, and two of the four mines of the company are now being operated

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with a fair output. New labor continues to come in at all the Kanawha & Michigan mines, enabling them to increase their output each week. There are now said to be only about 700 union strikers remaining in the union camps, the others having gone to work elsewhere.

Information is to the effect that the offices of the Kingston-Pocahontas Coal company are to be moved on July 1 from Huntington to Hemphill. It is stated that the change is in line with a recently adopted policy of the company to consolidate and centralize its system, bring the executive department to closer to the operations and thus facilitate operation. The Kingston-Pocahontas Coal Co. has five operations at Kingston on Cabin Creek, one at Marytown, one at Big Sandy, one each at Orkney, Warwick, Harvard and Exeter, all considered part of the Hemphill operation. and operations on Pond Creek in Kentucky.

Marion County Circuit Court of Fairmont was upheld recently by the Supreme Court in the case of J. R. and W. W. Knight, who received a verdict of \$2,000 in an action against the Chesapeake Coal Co., which it was alleged mined coal within 5 ft. of the property line, a violation of the state mining laws.

The property of the North American Coal Co., near Maidsville, was sold by Attorney Terrence D. Stewart, trustee, to the Fielder Coal & Coke Co., of which Stanley H. Fielder is manager, for \$13,000. The sale had been continued several times because of inadequate bids. The property was finally knocked down at \$13,000, although the value of the personal property, improvements and coal to be mined is placed at more than \$50,000.

The Upland Coal & Coke Co., belonging to the Crozer interests in the Pocahontas district, is constructing an all-steel five-track tipple at its plant at Elkhorn, on the Norfolk & Western. The tipple will be of the most modern type of construction.

The Island Creek Coal Co., operating mines in Logan County, produced 474,-500 tons of coal in April as compared with 355,000 tons in March, approximately 400,000 tons in February and 494,000 tons in January.

Information from Colonel J. S. Browning, a pioneer operator at Pocahontas, Va., and an attorney of Tazewell County, Va., is to the effect that suit has been started in the federal courts in West Virginia by the heirs of the late Colonel William Mahone for possession of 32,000 acres of coal lands in McDowell County. Colonel Browning was recent in Charleston to qualify in Judge McClintic's court and to start the suit to dispossess companies in the Tug Fork field in favor of William Malone, Jr., of Norfolk.

Appraisers of the estate of the late Quin Morton, well known in southern West Virginia Coal circles, in making a report discloses that his estate in Kanawha county consists entirely of personal property, principally interests in coal and other industries, having a par value of \$202,618.83 but an actual cash or market value of only \$92,621.32.

## WASHINGTON, D. C.

George M. Wood, for many years editor for the Geological Survey, has fallen victim to the new federal retirement law. Whitman Cross, one of the Survey's best known geologists, also has been retired. In each of these cases the man was retired against his will. These men are enthusiastically interested in the work they have been doing and each is in a position to render the best service he ever has given.

#### CANADA

In the first quarter of the present year not a single fatality occurred in the coal mines of British Columbia. In the first quarter of 1924 there were five fatalities. In 1924 the ratio of accidents per thousand persons employed was 1.66 compared with 7.32 in 1923. The number of fatal accidents per million tons produced during 1924 was 4.52 compared with 17.6 in 1923. The average for the past ten years per thousand persons employed was 4.75; the average for ten years, per million tons produced was 10.98.

At a second mass meeting of the employees of the Canadian Collieries' Cumberland mines the decision of the former meeting not to accept the wage reduction of 60c. per day was reversed by a large majority. Officials of the company explained that at the present price of coal from those mines the company could not compete against other operations where the miners had accepted a wage cut. They explained that 80 per cent of the cost of coal from the Vancouver Island coal fields was paid to labor, and the only possible way that the company had of lowering the price of coal was by reducing the wage rate paid to the men. Employees at the company's Wellington mines and the Fire Boss's Association of Vancouver Island already had accepted the wage reduction.

The Dominion Government's share of the cost of subsidizing the transportation of Alberta coal to eastern Canada will be provided for shortly in a supplementary estimate, Charles Stewart informed the House this week.

The Crows Nest Pass Coal Co., of British Columbia, has declared a dividend of 3 per cent, the first since May of last year, when a distribution of 1½ per cent was made. The company is steadily improving its position since the settlement of the labor difficulties and has recently maintained an output of 3,000 tons of coal daily. The management is making every endeavor to obtain a wider market and contemplates entering the iron and steel business to dispose of its coke.

A new service for the transportation of coal by the Century Coal Co. from Cleveland, Ohio, by water to Port Stanley, Ont., the terminus of the London & Port Stanley Ry., is in operation. It is expected that about 150,000 tons of coal will be brought in by this route during the navigation season.

As a result of the coal miner's strike in the Cape Breton district the amount of coal now being shipped into Montreal by ocean-going vessels is exceeding all previous records. Welsh anthracite is being imported in large quantities, no fewer than seven ships being in port during the week ending May 23, with others on the way. American coal also is being shipped to Montreal from Hampton Roads and this trade is likely to continue as long as the Cape Breton strike remains unsettled. The large tonnage now being received by water has averted all possible danger of a shortage.

By a majority of three to one the employees of the Canadian Collieries' Cumberland mines have refused to accept a reduction of 60c. per day in their wage rate, and as a consequence the mines will be closed. About 200 men are affected.

## Traffic

## Indianapolis Hearing Closed in Eastern Rate Case

Hearing of testimony in the Eastern coal freight rate case before the Interstate Commerce Commission was closed before Examiner Burton Fuller, in the Federal Building in Indianapolis, June 4. A finding of the examiner will be made public soon. Railroads which are supported by the Indiana coal operators in fighting the move of the Indiana State Chamber of Commerce for lower freight rates on coal shipped from the Inner Crescent mines of West Virginia and Kentucky, argued that reductions would force other reductions which would cripple their revenues.

In testimony before the commissioner, the Indiana operators asserted that the Indiana coal industry already was suffering a depression caused by low freight rates from West Virginia fields. Traffic attorneys for the state chamber requested a reduction of rates to a parity with rates from the Inner Crescent mines to lower Michigan, which they argued were lower, though for a longer haul, than to points in Indiana from the same mines.

## To Cut Rate to Portsmouth From Kenova-Thacker

It has been announced to Huntington (W. Va.) operators by the Norfolk & Western R.R., that rates on coal from the Kenova and Thacker districts in southern West Virginia to Portsmouth will be reduced 22c. a ton, the present rate of \$1.39 a ton being cut to \$1.17a ton. The Norfolk & Western has not set any date as to when the new rate is to become effective, but officials of the road have advised operators that the change will be made as soon as possible.

Portsmouth is an important consuming center as there are a number of large industries thereabout which are heavy consumers of coal. Therefore it is anticipated that the cut will stimulate business.

A resolution protesting to the Interstate Commerce Commission against an increase of freight rates on coal shipped from West Virginia to lake ports was adopted June 4 by the House of the West Virginia Legislature.

## **Recent Patents**

Mining Car; 1,528,001. Ivan B. Wathen, Rimersburg, Pa. March 3, 1925. Filed June 13, 1923; serial No. 645,959. Prop for Mines: 1,528,034. Peter Thiel-mann, Silschede, Germany. March 3, 1925. Filed Feb. 16, 1924; serial No. 693,298.

Conl-Londing Apparatus; 1,528,258. Josef Michalik, Ronco, Pa. March 3, 1925. Filed July 22, 1924; serial No. 727,539.

July 22, 1924; serial NO. (27,539, Cutter Chain; 1,528,546. Morris P. Holmes, Claremont, N. H., assignor to Sullivan Machinery Co., Chicago, Ill. March 3, 1925. Filed Feb. 28, 1919; serial No. 3, 1925 279,865.

Self-Locking Chute: 1,528,748. Emil G. Barneko, Valparaiso, Ind. March 10, 1925. Filed Oct. 12, 1922; serial No. 594,083.

Mine Car: 1,529,510. Hugh W. Sanford Knoxville, Tenn. March 10, 1925. Filed June 23, 1924; serial No. 721,837. Filed

Safety Suspension Gear for Pit Cages, Hoists and the Like; 1,529,707. Thomas Morris, Oswestry, England. March 17, 1925. Filed Nov. 21, 1923; serial No. 676,122.

Miner's Fuse Pliers; 1.529,857. John Yourek, Jr., and Stephen Yourek, Thayer, Ill. March 17, 1925. Filed June 15 1923; serial No. 645,623.

## **Coming Meetings**

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

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

Baitimore Hotel.
Pennsylvania Retail Coal Merchants' As-noclation. Annual convention, June 11 and 12. Hotel Bethlehem, Bethlehem, Pa. Sec-retary, W. M. Bertolet, Reading, Pa.
Retail Coal Dealers Association of Texas. Annual convention June 15 and 16 at Houston, Texas. Secretary, C. R. Goldman, Dallas, Texas.

The Colorado and New Mexico Coal Operators' Association. Annual meeting, June 17, Boston Building, Denver, Colo. Secretary, F. O. Sandstrom, Boston Build-ing, Denver, Colo.

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

West Virginia Coal Association. Annual meeting, June 17-19, at Edgewater Beach Hotel, Chicago, Ill. Assistant secretary, James E. Hart, Huntington, W. Va.

Hilnois Mining Institute. Annual meet-ing, June 18-20, on board boat leaving St. Louis, Mo. Secretary, Martin Bolt, Spring-field, Ill.

International Chamber of Commerce. Third general conference, Brussels, Bel-gium, 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.

Mining Society of Nova Scotia. Thirty-third annual meeting at the Bras d'Or Hotel, Baddeck, C. B., June 23 and 24. Secretary, E. C. Hanrahan, Sydney, N. S., Canada, Canada.

American Institute of Electrical En-sincers. 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 Con-vention, Seattle Wash., June 24-26. Chair-man, 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.

Canadian Institute of Mining and Metallurgy. Annual western meeting Nov. 3-5, Winnipeg, Manitoba, Can. Secretary, George C. Mackenzie, Drummond Bidg. George C. Mackenz Montreal, Que., Can.

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

## **New Equipment**

## **Dual-Power Locomotives Have Many Advantages**

Combination mine locomotives have long been favorably known. Until re-cently, however, the efficiency of these machines has varied appreciably according to whether they were operated on the trolley or on the storage battery. In the locomotive shown in the accompanying illustration, the Ironton Engine Co., of Ironton, Ohio, claims to have produced a machine, the efficiency of which will not vary over 2 per cent when it is switched from one source of power to the other.

About four years ago the prototype of this machine, which was known as the Duplex locomotive, made its appearance. From experience gained with this machine, as well as from a practical knowledge of electrical, mechanical and mining engineering and experience with storage batteries, the machine here shown has been developed.

In all but the smaller sizes two motors of 125 volts each are operated in series. On the small machines, one motor of 250 volts is used. The two-motor drive is preferred on the large machines because each motor then actuates its own pair of drivers and the universal joint between them only carries the possible unbalanced load which, as a rule, is slight.

The battery on this machine may be charged while the locomotive is drawing current from the trolley either when moving or standing still. The rate of charge is controlled by the modified constant-potential method which insures proper tapering of the charge at the finish and makes it impossible to overcharge and heat the battery if current is left on after the accumulator is really full. The usual number of cells for a 250-volt power circuit employing the lead-acid battery, is 92 to 96, ac-cording to the actual operating voltage in the mine. With the Edison or nickel cell, the number of cells varies from 120 to 140. Worm gear drive is employed on all types of this locomotive, both single- and double-motor.

It is asserted by the makers that this locomotive can be used with perfect safety in case of fire or explosion underground. Thus it may be employed to rush help or material to any section of the mine where a car can be hauleu. Intermittent charging of the battery while current is being drawn from the trolley increases the capacity of the accumulator by from 25 to 50 per cent per day without injury.

A saving in the maximum load and demand charges may be effected by the use of this locomotive, this applying to both generated and purchased power. The use of this locomotive also will improve the voltage of power lines at the working faces by relieving them of heavy current demands at low potential.

Removable battery containers can be furnished for this machine and a change of batteries made by one man in five minutes. The machine is made in various sizes. The driving wheels range from 18 to 24 in. in diameter, the track gage from 30 in. to standard, the wheel base from 36 to 72 in., the overall length from 12 to 30 ft. and the height above rail from 25 to 54 in. thus the machine may be built to fit a wide range of conditions and to operate success-fully in both high and low coal.

## **Bridge-Type Dipper Front Strengthens Power Shovel**

In all power-shovel operations the greatest wear naturally comes on the front of the dipper, because this is the part that does the actual digging. Although the teeth take the brunt of this hard work the lip gets its full share. In order to prolong the life of this part of power shovels the Amer-ican Manganese Steel Co., of Chicago Heights, Ill., has designed and placed on the market the dipper front shown

in the accompanying illustration. This is known as the Clark, bridgetype dipper front and is made of cast manganese steel. The upper edge or lip is made double, the two walls being connected by ribs. By this means not only is the strength of the dipper lip

#### Rugged and Sturdy

This shows a dual-power locomotive built especially for operation in low coal, this particular machine being only 31 in, high above the rail. Some of the higher machines are fitted with a detachable battery box which may be removed when the battery is exhausted and a fresh one placed on the machine in 5 min. time, one man performing the entire operation.

COAL AGE



#### 893



#### Heavy-Digging Dipper Front

The mouths of the teeth sockets are plainly visible along the right half of the lip. Six teeth—three diggers and three lifters—are in place in the left half. The reinforcing strip along the outer edge of the lip is riveted in place. The teeth merely are slipped into their sockets and may be removed easily for sharpening or rearrange-ment. ment

doubled, but sockets are formed for the The arrangement is such that teeth. the front may be fitted with the number of teeth best adapted to the work in hand. Thus a 2½ yd. front has nine sockets and the operator may use either three, four, five or nine teeth depending upon which number will give the best results.

Ordinarily square, tool-steel, digging teeth are alternated with pick-up teeth of cast manganese steel. Under these latter along the outer edge a small renewable wearing band is provided. The number, arrangement and length of the teeth may be changed easily to meet the needs of local conditions. No bolts or rivets are necessary to hold the teeth in place and, consequently, they may be removed readily for resharpening. When they become short, blocks may be placed in the bottoms of the sockets thus giving the effect of added length.

This dipper front is made flat or straight and, consequently, it makes a smooth, even cut which is desirable in stripping or digging coal. In addition to the advantages inherent to the design of this front, which is patented, the metal of which it is made-manganese steel-is peculiarly tough and resistant to shock making its useful life exceptionally long.

#### Long-Lived Rivet Set

Rivet sets made of ordinary carbon steel possess many shortcomings, chief of which is the fact that they gradually loose their temper under the heat of



It Stands the Racket New rivet set made of alloy steel and heat treated. Its temper is not drawn by continuous heat. This new set is made of a high quality of alloy steel, heat-treated by a new process. It will withstand the heat of the rivets almost indefinitely. The maker claims that this new set will outlast three or four ordinary sets.

## **Two-Motor Valve Grinder Is** Dependable Worker

Mushroom or poppet valves have become such common pieces of equipment even about the mines that the Black & Decker Mfg. Co., of Towson, Md., has placed upon the market the valvegrinding machine shown in the accompanying illustration. The design of this grinder is peculiar in that it em-bodies two electric motors instead of one as is usual in devices of this kind.

This construction has been adopted because the two motors have distinct functions to perform and operate at different speeds. One drives the grinding wheel at 3,450 r.p.m. while the other actuates the work spindle through back gears at a speed of 430 r.p.m. More dependable work is assured by the use of two motors because this eliminates



## Grinder for Bench Mounting

This machine is fitted with a three-point suspension, and the same construction is applied to each motor mounting. The ways or Vs are protected from dirt and grit by suitable covers. The switches controlling the motors are located in the machine base where they are in an extremely handy ossition. position

belts or flexible shafts which normally form an integral part of grinding machines of this kind.

In this machine the valve to be ground is held by means of a collet, three different sizes of which are furnished as regular equipment with each grinder. These are  $f_{\mathfrak{s}}$ , § and  $f_{\mathfrak{s}}$ -in. in size and will accommodate probably 90 per cent of all valve-grinding work to be done.

This machine is fitted with a threepoint suspension which assures that it will rest solidly regardless of where it is mounted. Both work-carriage and cross-head also have three-point suspensions with springs holding them to their ways. Thus wear is automatically taken up. The base of the machine is made heavy with large braces to prevent distortion.

Br. Donaldson B. Dowling, of the Cana-dian Geological Survey, a geologist of in-ternational authority on the coal and petroleum resources of western Canada, died in Ottawa on May 26, from a sudden attack of heart trouble. He was born in Canden Township, Addington Co., Ontario, In 1858, and was a graduate of McGill University, Montreal. Entering the govern-ment service in 1884, he was engaged for many years in exploration work in north-ern Ontario, Manitoba and Saskatchewan. His most important work was his study of the coal and oil deposits of western Canada, his knowledge of which gave him the development of these resources. He was a member of the Geographical Board, and in 1917 was president of the Canadian Mining Institute.

Mining Institute. James W. Ellsworth, of New York, capi-talist and art collector, died June 3 at his villa, near Florence, Italy. Death was thought to have been hastened by worry over the plight of his son, Lincoln Ells-worth, who flew from Norway in quest of the North Pole two weeks ago and has not been heard from since. The elder Ells-worth financed the North Pole expedition. Mr. Ellsworth made millions in the coal business. He was president of the James W. Ellsworth Coal Co., with headquarters in Cleveland. In addition to his home in New York and the villa in Florence, Mr. Ellsworth also maintained a residence in Hudson, Ohio. his birthplace, and a château in Switzerland.

## Industrial Notes

The Sullivan Machinery Co. announces the establishment of a new branch office at Pottsville, Pa. 208 W. Market Street, in conjunction with the Pottsville Supply Co., Inc., which has been local agent for Sulli-van equipment for several years past. A. K. Owen will continue in charge, under direction of Edward W. Noyes, district manager at Scranton.

manager at Scranton. The Prairie Coal Co. of Mulberry, with a capitalization of \$35,000, has been granted a Kansas charter and will oper-ate a steam-shovel mine on a 200-acre tract north of Gross. The company purchased a No. 251 Marion shovel that had been used at Liberal. Mo., and is having it rebuilt. The 18-in, vein of coal is said to be of high quality with sufficiently shallow over-burden to permit it to be worked profit-ably. It is expected that loading will start carly in July. The members of the com-nany are John T. Ryder, A. B. Ryder, A. J. Ryder and John D. Ryder, all of Mul-berry, and T. J. McNally, of Pittsburg.

## **Trade Literature**

Walter A. Zelnicker Supply Co., St. Louis, Mo., has issued Bulletin No. 331 con-taining information on track material, raits, angle bars and fishiplates, steel sheet piling, switch stands, crossings, tanks, etc. Direct Current Generating Sets, Eng-herg Electric & Mechanical Works, St. Joseph, Mich. Catalog No. 105. Pp. 32; §&x11 in. : illustrated. Describes the dif-ferent parts, gives dimensions and numbers of spare parts.

Link-Belt Co., Chicago, Ill., has issued Book No. 755 describing the rivetless chain. It is well illustrated, showing the assembly and dissembly of the chain, which has only three parts. Tables of weights and strengths are included.

American Blower Co., Detroit, Mich., re-cently issued leaflets-giving prices, size and weight-describing and illustrating Slrocco utility blowers and Ventura disc ventilating fans with General Electric and Westinghouse motors.

Westinghouse motors. Rock Drill Steels, Air and Water Hose. Hose Couplings and Fittings. Gliman Man-ufacturing Co., Fast Boston, Mass. Bulle-tin 102. Pp. 16; 6x9 in.; illustrated. Automatic Starters for Synchronous Mo-tors. Electric Machinery Mfg. Co., Minne-apolis, Minn. Bulletin No. 799. Pp. 19; Six11 in.; illustrated. Some of the fea-tures described are classification, prin-ciples of operation, frequency relays; auto-matic field switch.