

# COAL AGE

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## Six Luxury Products

ANTHRACITE, GAS, OIL, purchased steam, hot water and electricity are the six luxurious heating products. Competition among them is strong. That there is so large a choice offered is a clear indication that the public will have cleanliness and comfort if money can buy them. It is willing to buy ease in operation if the price is not unreasonably high. From now on, anthracite, the cheapest of all the luxury fuels and the least luxurious, will have to be sold and not merely sent to the market. The price and the quality of the product will determine the quantity accepted by the public. It no longer will be true as in the past that Mr. Eastern Householder *must* have anthracite.

Hitherto, the anthracite companies have been restrained in their dealings solely by their sense of fairness. Those who sold clean and well-sized coal did it more from principle than necessity. More and more has the latter reason for selling well-prepared coal come to the fore, leaving the ethical constraint as a secondary consideration. Advantage and conscience now both advise the anthracite operator to prepare coal clean and sell it at a low price. With such an alignment of compulsions he is left indeed with no choice.

Conditions in the anthracite industry are not, however, so bad as some think, and may be explained somewhat in the following manner: The public, remembering its sorrows during the long anthracite strike, prepared to buy early. Busy people cannot keep track of the termination dates of wage contracts. When they have a haunting memory of a past strike they buy without a moment's thought of the easily ascertainable fact that the anthracite contract is good for four years. Besides, was there not a bituminous-coal settlement pending April 1 of this year and when did the public ever distinguish between hard and soft coal?

In consequence, the public bought early, earlier perhaps than it would with an anthracite strike in prospect. The hard-coal operators were happy, but the brisk business could not be expected to last. The slump came and the winter exhibits only what a student of the summer market readily would have anticipated.

## "No Backward Step"

"I NEVER THOUGHT that I would have to do this again," ruefully remarked a miner recently as he laboriously undercut his face in one of the low-coal longwall mines of Iowa. He was thinking of the time, only a few years ago, when he ran an electric undercutter in that same mine. The machines which then made up the cutting equipment now lie idle and rusting near the foot of the shaft.

It truly seems a pity that undercutting, which was then accomplished with entire satisfaction by means of

electric energy, is now being performed by "human horsepower." This reversion to obsolete methods brings strongly to mind the union's slogan of "No Backward Step." It naturally prompts the inquiry as to what part, if any, has that policy played in the rather general disuse of longwall mining machines throughout the Iowa fields.

These machines have been discarded for the simple reason that the operator knows, or is satisfied, that he is getting cheaper coal by hand mining. In other words, the scale demanded by the United Mine Workers for machine mining does not allow a sufficient differential below pick mining to make the use of undercutters pay, at least not under present conditions of light demand and local freight rates which are high as compared to those charged on coal shipped in from distant states.

Thus the policy of "No Backward Step," and the small differential allowed for mechanical mining has reacted to cripple seriously the longwall fields of Iowa. In comparison with a few years ago only a few men are now employed and most of these have had to revert to swinging a pick in undercutting their places.

## Paid for Both Mills

ONE OF C. M. SCHWAB'S repertory of stories which he delights to tell and which he recounted at the recent meeting of the American Engineering Council relates to a mill he had erected for Andrew Carnegie and which he had promised would reduce the cost of steel 50c. on the ton. It had cost about \$1,000,000 and after it was completed it actually saved 60c. on every ton produced. Mr. Carnegie came down to see the mill, and Mr. Schwab showed him around, but somehow that steel man's usual vivacious manner seemed to have deserted him, and the keen old Scotchman noticed the change, asking him what he was holding back. "Well," said Mr. Schwab "to be frank what is troubling me is that if I had the mill to build again I could save not 60c. but \$1 a ton. Certain improvements could be made in the design, but it would mean the entire rebuilding of the mill."

Mr. Carnegie instead of wasting time on reproaches about Mr. Schwab's lack of foresight urged that the mill be torn down and rebuilt to get that 40c.; and it was done. The old ironmaster was not one to let an expenditure however recent influence his judgment as to a new one. The past was past. The new mill was to him obsolete the day it was built. It paid to rebuild it, and it was rebuilt.

How many men would have lost that 40c. a ton for twenty years rather than face the facts! How many are doing that with machinery erected some ten years ago? Yet they regard themselves as astute business men. They pay in losses for the machine that they do not get. Mr. Carnegie's savings paid for both mills.

## Up from the Ranks

A SHORT TIME ago a high official of one of the greatest mercantile establishments in the world resigned his position. The manager of the concern was soon asked "How are you going to fill this vacancy—where can you find a man to take this one's place?" His reply was prompt and to the point. In effect it was "That is the easiest thing in the world; it is the least of my troubles. I shall hire a new office boy."

This method of promotion had been followed by this company since its inception. It had always yielded satisfactory results. There may be cases when an industrial firm is compelled to go outside of its own organization to find executive material, but these are, or should be, exceptions to the general rule. By and large, when any firm or organization is compelled to seek its officials from some source outside its own ranks, this very act becomes a reflection upon its own methods of management.

"Thou hast been faithful over a few things; I will make thee lord over many things," is as wise a maxim of management today as it was when first uttered nearly twenty centuries ago. The firm that builds its employees into the niches that they have demonstrated their ability to fill satisfactorily seals its own doom.

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## Central Heating

HOUSE HEATING with wood and coal has had two revolutionary developments already. The open hearth has given place to the stove and the latter to the domestic furnace. All three, however, are still being used somewhat extensively. A third change is to central or group heating either by steam or by hot water. This system has been used for many years, but its progress has been slow. Widely heralded at first as a big source of revenue and a great economy, it has fallen far short of the estate which was predicted for it.

At one time the public utilities that furnished steam or hot water were regarded as more likely to be successful than those that furnished electricity, but whereas electricity has shown itself a remarkably salable commodity, steam and hot water have encountered much sales resistance. Yet many of the enterprises of these early days have continued in business, and just now in New York, Pittsburgh and Rochester, to mention some of the points of activity, large extensions are being made with every prospect of abundant success.

Ordinary furnaces, run without any unusual skill, will give about 50 per cent efficiency in steam raising. Some give a much higher economy. Hot-water heaters usually are more efficient than steam heaters. Large boiler furnaces of modern type will give from 85 to 90 per cent efficiency or will realize from 70 to 80 per cent more heat per pound of coal than the ordinary domestic furnace. If it were not for the losses of distribution, this and the fact that fine coal is used would seem to be conclusive arguments for central heating. Unfortunately where steam has to be carried a mile, even in pipes well coated and installed in underground conduits, the losses are heavy.

In the State of Indiana it has been found necessary to grant the companies providing steam heat the right to charge a rate that makes domestic heating with purchased steam higher than with purchased coal. It

is only fair to say that most, at least, of these plants are not recent, and many have ill segregated loads with long distributing distances, though these of late have been circumscribed with the approval of public-service authority.

Even though the costs of heating with purchased steam may be higher than with a coal furnace, there are many advantages—no smoke, no furnace, no attendance, no space given up to furnace uses and coal storage and prompt response to the demand for more heat. Certainly, purchased steam has great conveniences for which people might be expected to be willing to pay. The public is disposed to purchase convenience and comfort.

That is why the furnace has displaced the stove. The former has kept coal dirt out of the living rooms; steam heat will keep it out of the house altogether and will make it possible to convert the cellar into a living room or a basement store. With complete combustion, it will eliminate smoke from a city, and that is a consummation that every modern community is seeking. Modern civilization may be expected to demand it as soon as the public realizes its advantages.

It will probably be a development favorable to the coal industry, as its extravagances in distribution will more than overbalance its economies in production. It will use slack or pulverized coal and so free the operator from the harassment of seeking to make large coal and it will help to balance his market between fine and coarse sizes. It will have to be generated near the load and this, outside the cities, will mean the erection of relatively small stations, not well suited for the generation of current because of the lack of condensing water. If the power-generating stations are to attempt to sell steam in connection with their operations their efficiency will inevitably decline. If such stations are spread the country over and connected, transmission distances will be reduced. Consequently, power-generating economies would be lowered, and transmission economies would be increased. However, it is not inconceivable that the power-generating stations would not attempt to supply steam except near the centers already established. The suburban and rural heating stations would undertake nothing but winter heating and summer cooling of buildings and homes in their vicinity, for which purposes only one network of mains would be needed.

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## Get After the Small Leaks

AFTER EVERYTHING has been done to eliminate large leaks as sources of waste and loss is the time for the operating official to consider the smaller ones. Many small leaks can be stopped by some simple rearrangement of equipment or by installation of devices that will make a man's efforts more effective.

For instance, at a certain mine a railroad car retarder was used, the control handles of which were located at the loading platform. The man who shifted cars also worked on the picking table, but to get from the table to the car meant going up and down a stairway. The car retarder control grips were moved up to a point beside the picking table and this saved all of the time and effort of the workman that had been expended in traveling. He produced more and did it more easily.

A little time and study often reveals "the one best way" to do work.



## Many Innovations Characterize Pruden Operations

All Production Processes Except Loading Performed Mechanically—  
 Much Automatic Equipment Installed—For Over Four Years Manager  
 Has Gone to and from His Work by Airplane, Thus Saving Much Time

By J. H. Edwards

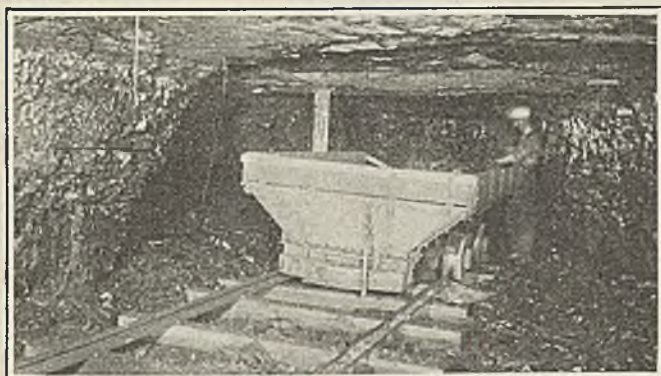
Associate Editor, *Coal Age*, Huntington, W. Va.

**F**LYING MACHINES, manless coal tipples, and many pieces of automatic equipment are everyday affairs at the mines of the Pruden Coal & Coke Co., Pruden, Tenn. The location, in the Cumberland Mountains approximately 45 miles in a bee-line due north of Knoxville, and near the end of a 21-mile

Tennessee and mine No. 2 is just across the line in Bell County, Kentucky. All three are drift operations in the Mingo bed, which in this locality averages from 5 to 7 ft. in thickness.

No. 2 mine, otherwise known as Back Creek, is the one of primary interest because of its more modern equipment. In July, 1925, a new headhouse and tippie were put into service. The former is of especial interest because of the unique design. Labor saving is carried to the practical limit. During a recent and unexpected visit to the mine I asked the same question that many others have asked, "Is the mine shut down today?" This was prompted by the fact that not a man was in sight when I reached the headhouse.

After a few minutes, a locomotive with a long trip of loaded cars came into sight around a bend of the



Loading at the Face of an Entry

The coal is the Mingo seam. At this point there is 5 ft. of coal and a thin soft parting near the center. The car shown is one of the 150 of the 3-ton drop-bottom type with which the mine is equipped. Except for the 8-in. wooden side boards, the car is all-steel.

branch off of the main railroad, makes the modern methods of these mines all the more noticeable.

C. A. Griffith, vice-president and general manager, begins his week by pulling aside the curtains of his home in Knoxville and gazing at the northern horizon to form an idea as to the clearness of the weather. If the sky is favorable he climbs into his airplane and in 45 minutes is at the mine. But if, on the other hand, the weather appears bad, he spends four hours on the train to reach the same point.

The three mines that the company operates are east of the Jellico district in the southern Appalachian field on Clear Fork Creek, and are at, or within a radius of two miles of Pruden. Mines No. 1 and No. 3 are in

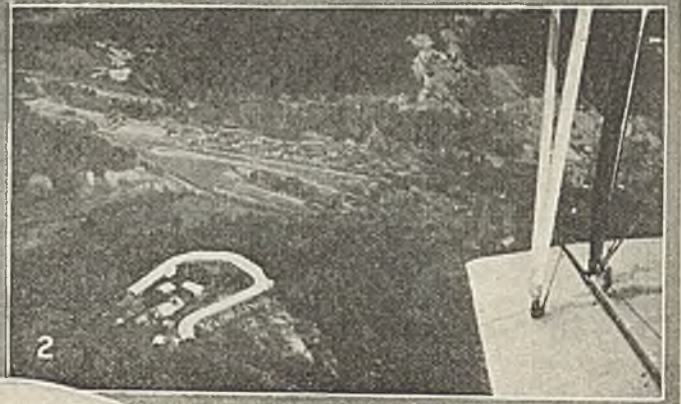
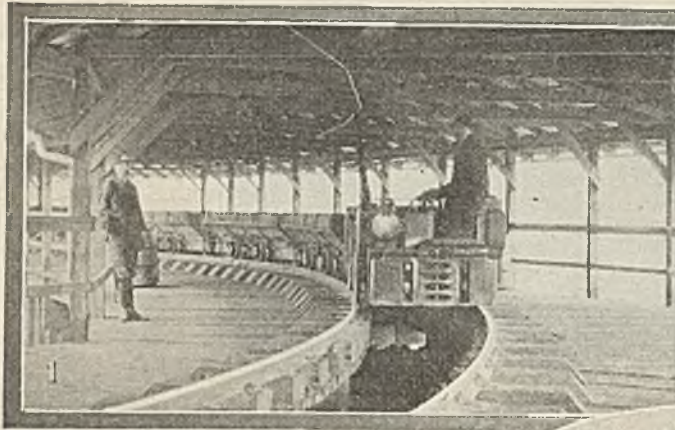
The headpiece accompanying this article is an airplane view of the tramroad and headhouse. When this picture was taken the roofing had not yet been placed on the headhouse. At the right of this structure may be seen the "Y" on which the trips are turned so that the cars go into the mine with their forward ends pointing outby.



Haulage Locomotive Flagged at the Main Portal

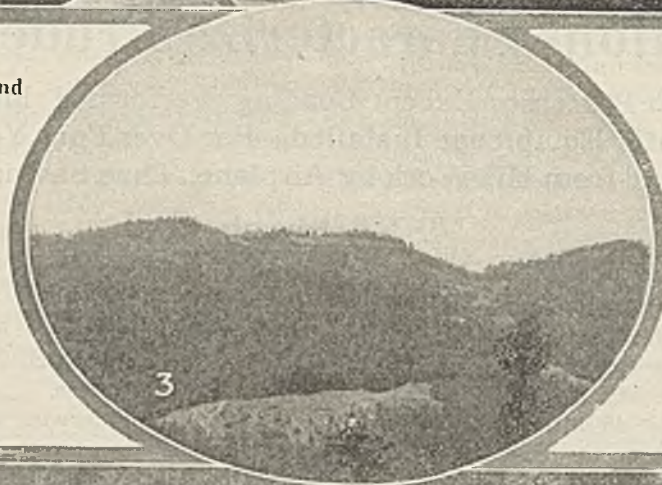
Sixty-pound rail is used on the main haulways. The track, which is 44-in. gage, is maintained so that derailments are rare. C. A. Griffith, manager of the Pruden Coal & Coke Co. stands at the left and just behind him is R. C. Speaks, superintendent of mines Nos. 1 and 2.

mile-long, outside tramroad. This trip slowed down but never stopped as it reached the tippie. The brakeman ran ahead, took a short pointed rod from a hook on the side of the scalehouse and proceeded to take the car checks and string them in order on the rod as the trip moved by. This rod he left in the scalehouse and then ran and caught the trip as it was leaving the tippie.



## Scenes in and

1—Shows a trip passing over the monitor bin at the headhouse. The dump is on a curve of 50 ft. radius. The brakeman has left his work of taking checks to get into the picture. 2—Headhouse and town from the air. This photograph was made from Mr. Griffiths' airplane and shows the horseshoe headhouse and part of the town. The airplane wing appears at the right. 3—The landing field. This strip of cleared land is close to the town and



## Near the Headhouse

about 250 ft. higher than the railroad. 4—Trip passing over slate dump. Cars of refuse are here unloaded without stopping. The scraper that moves the freshly dumped material to a point where it will slide down hill may be seen near the tree in the lower left foreground. 5—Loaded trip nearing headhouse. The outside haul is nearly a mile in length and the trip never stops until it reaches the "Y."



There was no weighman in the scalehouse, the car weights had been stamped on a paper tape by an automatic scale. The 90 odd tons of coal had been dumped automatically from the 3-ton drop-bottom mine cars. A few minutes after the trip had left, a man came out of the sandhouse and went into the scalehouse where he removed the checks one at a time from the rod and marked the numbers in proper sequence beside the coal weights on the tape. Next he transferred the coal weights from the tape to the regular weigh sheet.

After the short time required to do this "bookkeeping," he left the scalehouse and proceeded to unload material from an incline car. Another man came out of the incline hoisthouse and went into the booth below the headhouse from which point he began to operate the monitors. These two men, making up the entire force at the headhouse, operate the man and material hoist, unload sand and all other material brought up the incline, tend the sand dryer, post the weigh sheet, and operate the monitor drum and loading gates.

The mine output is now 750 tons per day. The economical handling of the "outside" incident to this production is the fulfillment of a dream of Mr. Griffith, the

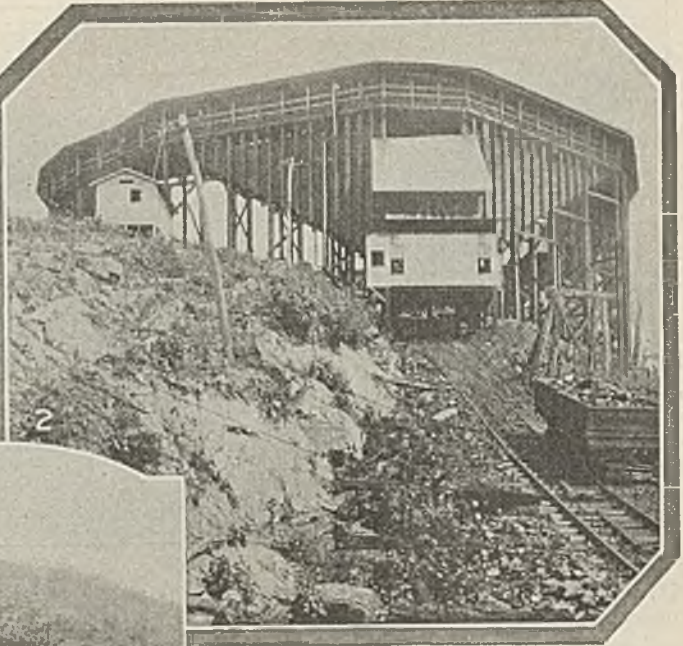
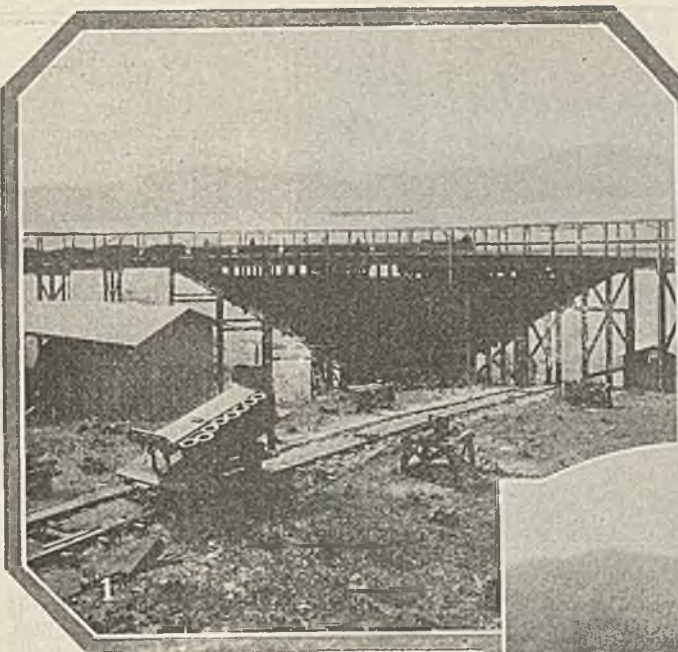
manager. He is the man who patented the "S.-D." Griffith automatic drop-bottom cars which are used at the mine. He is using this same type of car at the other mines of his company but not with a layout so near the ideal.

The equipment at No. 2 mine consists of 150 cars. They are of all-steel construction except for 8-in. side boards which bring the car height up to 34 in. The track gage is 44 in., and the car weight 3,250 lb. The cast-iron wheels are fitted with Sanford-Day, solid-roller bearings.

## DUMPING TRACK IS ON A CURVE

The headhouse is built in the shape of horseshoe in order to obtain sufficient height for the 150-ton storage bin. The track where the cars dump above the bin is on a curve of 50-ft. radius—an unusual feature for a drop-bottom installation. Without evidence to the contrary, it would naturally be supposed that a straight track would be necessary for dumping this type of car.

The bin is lined with  $\frac{1}{4}$ -in. steel and the bottoms pitch 30 deg. towards the center. This pitch has proved quite satisfactory for the side on which the cars dump. On

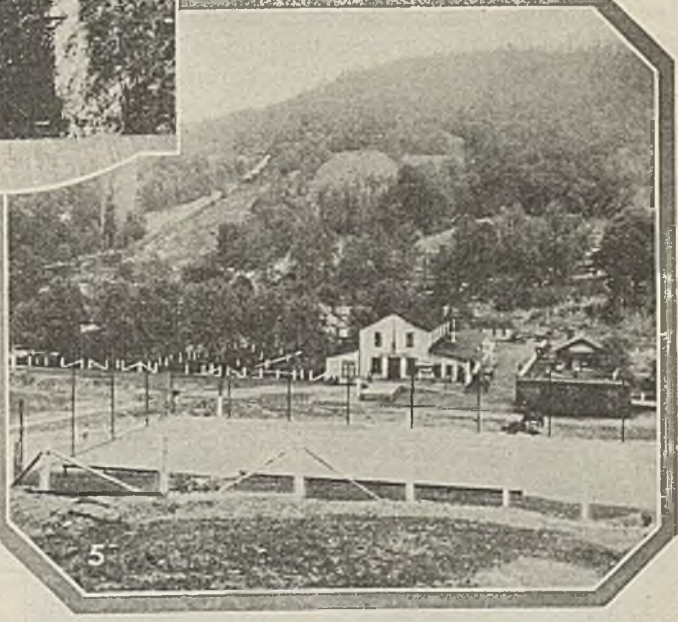
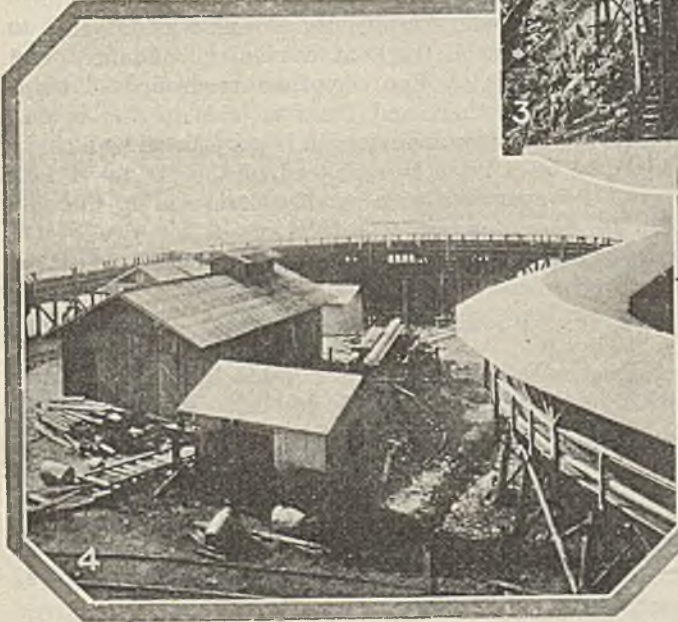


**General Views**

1—Shadow photograph of a dumping trip. The point at which the cars are here discharging is at the left of the bin.  
 2—Close-up of headhouse and monitor bins. Each monitor consists of two standard mine cars in tandem. Each is fitted with sideboards making the capacity of the trip about 9 tons.  
 3—View from the headhouse. The plane is 1,550 ft. long. The white streaks on the opposite mountain side are the roofs of

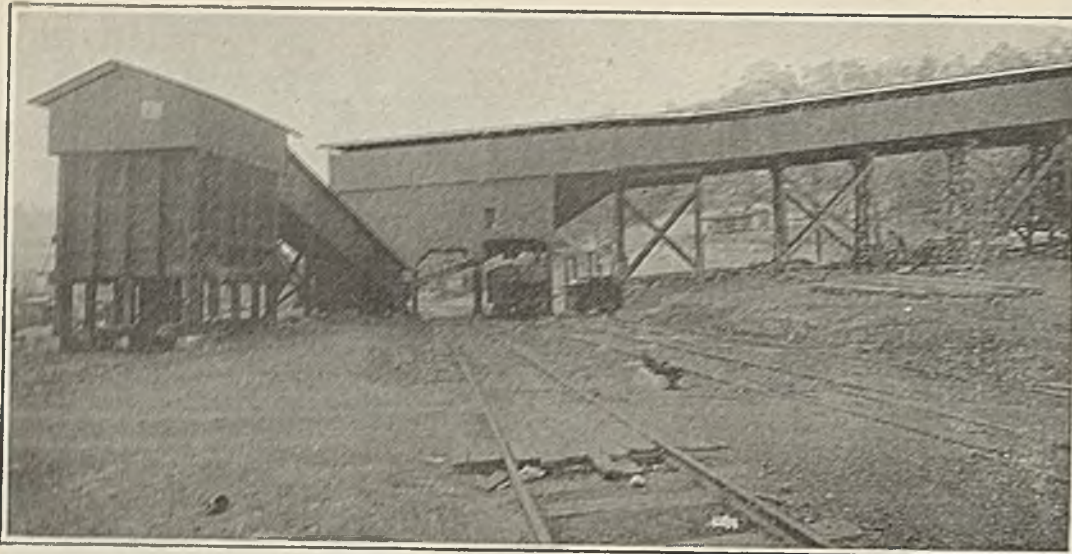
**About the Plant**

various buildings of No. 1 mine.  
 4—View from top of sand house. Sand for the locomotives is brought up the incline in ordinary mine cars. Their tightness prevents spillage on this sloping track.  
 5—General view of town including office and commissary. On the mountain side is No. 1 mine. At the left, as indicated by the smoke, is the central power plant for all three operations.



this side the movement of the coal keeps the steel polished. On the other side, however, a steeper pitch would be preferable. The coal here accumulates only when the bin is nearly full and therefore the steel bottom rusts just enough to cause the coal to stick. Inasmuch as the bin is seldom completely filled, the difficulty is a minor

one which warrants no change in the existing structure. Although the bin is quite deep in the center, the coal is not broken appreciably in dumping. The bottom doors are unlatched automatically as each car reaches the upper edge of the 30-deg. slope. If the bin is partially filled so that the coal extends up the sloping side to the



**Close-Up of Tippie and House Coal Bin**

Most of the output is sold to the Louisville & Nashville and Southern railroads, and the mine is located on a joint line of these two companies. The tippie is fitted with bar screens so that domestic lump can be loaded when desired. A 36-in. belt conveyor supplies the house coal bin, the chutes of which are fitted with undercut gates. Between the tracks, in the foreground, is a spring-anchored tail sheave used with an endless-rope arrangement for spotting cars.

track, the doors drag on top of this coal and do not open until the edge of the pile is reached.

Use of drop-bottom cars also simplifies the handling of slate. Cars loaded with this material are brought out of the mine intermixed with cars of coal. While the trip is passing over a trestle and without stopping, the doors of the slate cars are tripped by hand releasing this refuse. At the point where the slate dump had to be located the hill is not of sufficient steepness for gravity to keep the slate from piling up to the dump. When necessary, therefore, this refuse is moved by a dragline scraper to a point where it slides down the hill. This dragline is operated by a small motor-driven hoist located alongside of the track. The tail sheave is fastened to a tree.

#### ROOM-AND-PILLAR METHODS USED

Methods inside of the mine are about what would be expected in a well-managed operation working under the conditions here prevailing. Extraction is by the room-and-pillar system and the pillars are taken advancing. The coal lies practically horizontal and has a thin parting of soft material near the center. Undercutting is done with electric machines, and gathering with cable-reel locomotives. Sixty-pound rail is used on the mains, and 20-lb. in rooms and cross-entries. Steel ties are employed in rooms and air courses. All loading is done by hand and the average output per loader is approximately 10.5 tons per day. Direct current at 275



**Tippie and Headhouse from the County Road**

Three men operate and tend all of the equipment in sight: one at the tippie and two at the headhouse. The handling of sand and supplies is in itself a considerable job.

volts is supplied by a 200-kw. converter located on the outside near the mine portal and driven from a 2,300-volt line leading from a central generating plant at No. 1 mine.

The railroad tippie at the foot of the gravity plane is handled by one man. Ordinarily the output is loaded as mine run but the tippie is equipped with bar screens which are used occasionally for making domestic lump. Instead of the typical monitors, four of the standard drop-bottom mine cars are operated two-in-tandem. To these cars have been added 30-in. wooden side boards making the capacity  $4\frac{1}{2}$  tons, or 9 tons for the tandem. Dumping at the tippie is, of course, automatic.

#### ELECTRIC CAPSTAN SPOTS THE CARS

Shifting and spotting of railroad cars is done by a motor-driven capstan located between the tracks under the tippie and controlled from the floor above. The arrangement consists of an endless rope with several turns around the capstan "nigger head," and with tail sheaves located beside the track at convenient distances each side of the tippie. Four empties are dropped down to the tippie together, and the free side of the endless rope, which for a certain length is supplanted by a chain, fastened by a hitch to each end of the string of four cars. By operation of a small control switch the cars can be moved in either direction. After two of the cars have been loaded they are dropped out of the string in order to lessen the load on the capstan.

#### ENTIRE TIPPLE WAS CREOSOTED

House coal is loaded from a 75-ton bin having chutes with undercut gates. A 36-in. belt conveyor carries this coal from a low point of the tippie up to the bin. As will be noted from the illustrations, the coal bin, railroad tippie, and headhouse are wooden structures. All joints were, however, creosoted as the framing was done and then a coat of the same preservative was applied over the entire structure. This was followed by a second coat last summer.

In addition to the new equipment described there is now being built near the mine portal a concrete and steel building 40x80 ft. in plan which will house a shop, wareroom and substation. After the new structure is put into use, several small temporary buildings will be torn down. This will make the Pruden No. 2 mine a "show place" as well as an example of the latest in automatic devices.

# Unionism Arrives at Man's Estate in Anthracite After Violent and Bloody Youth\*

History of Siney's Union and Immediate Successors Marred by Mob Action and Murders—Arbitration Anathema to Some Union Groups As Far Back as 1871—Sliding Scale Scheme a Bone of Contention

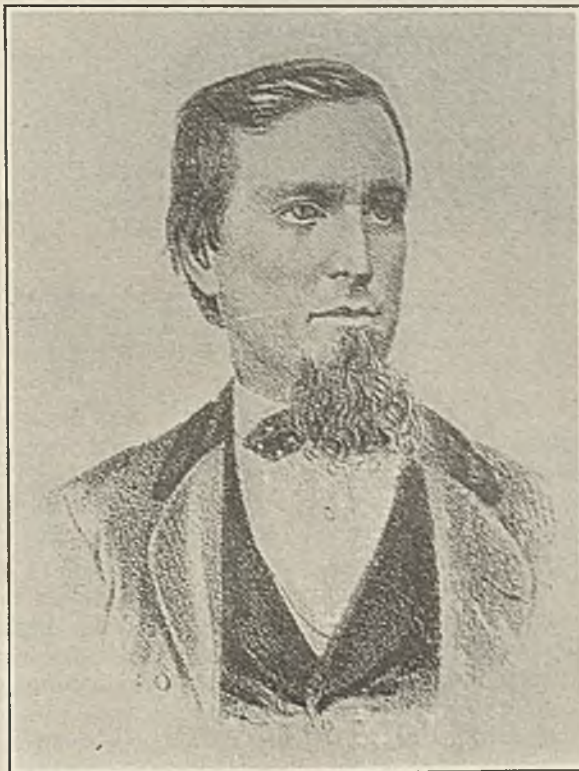
By Myron D. Edmonds

**J**OHAN SINEY, the real father of trade unionism in the coal fields, first became a recognized power in the anthracite labor movement in 1868. The same year, under his direction, a series of strikes were launched to force the application of the Pennsylvania Eight-Hour Law of 1868 to coal mining. That law, however, applied only to those working by the day. There was nothing in the statute to prevent an employer hiring a man by the hour and compelling the employee to work as many hours as the employer desired. In fact, this seemed to be the favorite device for outwitting the measure—in other states as well as in Pennsylvania. The Workingmen's Benevolent Association, in which Siney was the animating spirit, nevertheless started a strike to enforce the 8-hr. day and to win an increase of \$1 in the daily wage rate. The first blow was struck in the Mahoney Valley. Men from that section went on a march and tied up all Schuylkill County, then went to the Lehigh region and promptly closed it, and talked about marching upon the mines in the Wyoming and Lackawanna districts, which had remained at work. Production in the Schuylkill region, which was shipping over 5,000,000 tons a year, was cut down to 30,000 tons a month.

Most of the men were back at work by August, at an advance in wages, but without the 8-hr. day. There were minor strikes that fall and the year ended with all the men, save at a few collieries in Schuylkill, out on a fresh strike. This in turn languished and by the beginning of March, 1869, most of the workers again were back on the job. Coal prices were low and freight rates had been reduced, the transportation companies having agreed to keep rates at a minimum and to reduce facilities offered in proportion as the market showed signs of overstocking.

Efforts to reorganize to call a strike for the 8-hr. system were started. A convention was held in Hazleton on St. Patrick's Day, 1869, when the assembled delegates

organized themselves into the general council of the Workmen's Benevolent Association. John Siney was not at this convention, though he was the head of the Workingmen's Benevolent Association in Schuylkill County. John Parker headed the Schuylkill delegation, and was chosen president of the council. Parker was a self-educated blacksmith of considerable ability. He was a fluent talker and a good writer, and he ended his days as editor and proprietor of a newspaper. It was arranged that the council should consist of seventeen representatives—three from what is now called the Wyoming field, around Wilkes-Barre and Scranton; four from what is now the Lehigh field, with Hazleton as its chief town; and ten from Schuylkill County and the neighboring districts now constituting the Schuylkill field, including corners of Dauphin, Columbia and Northumberland counties. It was directed that there be a strike as soon as four counties of the six represented should so advise, the operators to get one week's notice. It was also resolved that the proportion due to labor, based on coal prices at the shipping points, should be 20 per cent. Today anthracite labor is getting



John Siney

Siney was the first really important and powerful leader of the mine workers. He originated the miners National Association of the United States. This was the first national union of anthracite and bituminous miners. He became its president in 1873.

about 70 per cent of the mine price.

On April 29, Siney, as president of the W.B.A. in Schuylkill, issued orders for a strike on May 10. The Scranton miners, who had gone into the union, now backed out, but the strike in Schuylkill took place as scheduled and the tie-up was general from the extreme south of the hard coal region up as far as Pittston. Early in June the operators offered terms. Their idea was that wages should be determined by the average selling price of coal on board at shipping points, the monthly averages to be determined by the sales of five operators chosen by the union. This was the famous sliding scale idea, which had been advanced and advocated by Benjamin Bannan, editor of the *Miners' Journal*, and heartily approved by his friend, Horace Greeley. The sole remaining question was to determine what the actual cash wages should be when coal was at a given average price to be used as the basis, and the general council of the union left this to be

\*Fourth of a series of four articles tracing the development of the union labor movement in the hard coal region. The preceding articles appeared in *Coal Age* on Jan. 6, 13 and 20.

determined by the different districts as they saw fit. By the end of June all the Schuylkill mines were back at work, but the hitch continued at some Lackawanna mines.

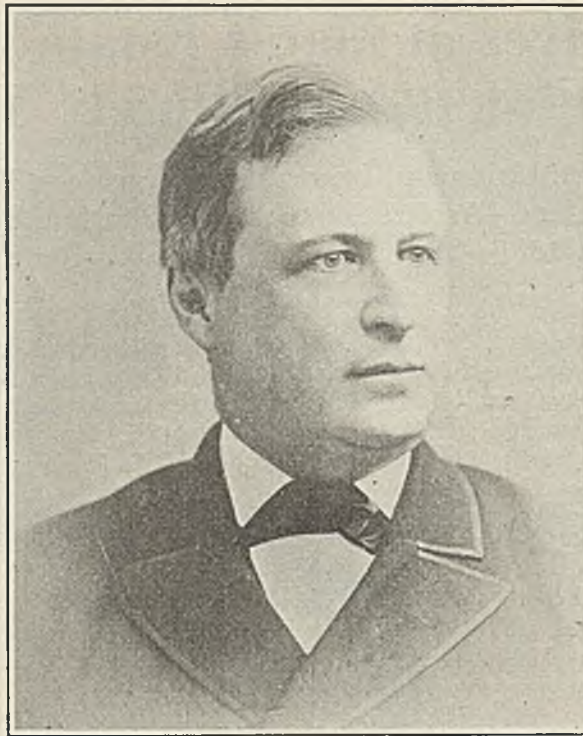
The National Labor Congress met in Philadelphia that year, closing a five-day session Aug. 21. Siney attended, and was a member of the mines and mining committee, which reported resolutions accusing anthracite operators of willingness to collect anybody's bill from a man's wages for 5 per cent, regardless of the merits of the case; alleging that company stores were used to rob workers; and saying that mine employees were docked for doctors' fees, 75c. a month for married men and 50c. for unmarried. The *Miners' Journal* retorted these "great outrages" did not exist in Schuylkill, though they did in the Lehigh field. Yet it is certain that the company store once flourishes in Schuylkill.

Minor disturbances continued. The union had engaged to show no discrimination against any workers, and the operators had made a similar pledge. But there were sundry strikes at mines where men not belonging to the union were employed—the forerunners of the button strikes of the past twenty years. They were not so calmly accepted, though, for one of these strikes was branded as a "tyrannical proceeding," and the bellicose Bannan editorially recommended that the instigators be prosecuted for conspiracy.

Labor grew increasingly restive. The workers paid a certain rate based on the supposition that coal would sell at shipping point at an average of \$3 a ton. As the price went up or down from that base, wages would rise or fall, price always being figured on the nearest quarter dollar, so that an average of \$3.12 would mean wages on a basis of \$3, while an average of \$3.13 would mean a basis of \$3.25. There were a number of strikes called at separated collieries on the ground that the basis was too low, and the operators, growing weary, resolved on the formation of a strong Board of Trade which should include every mine in Schuylkill and Northumberland counties.

Operators and miners could not agree on the scale for 1870, and in February Siney ordered a general suspension. This was ignored in the Lehigh and Wyoming fields, and was not strictly observed around Shamokin, but it tied up Schuylkill. Wages in general had been cut, even on the railroads, and freights had been put on a low basis, but the union, meeting again on St. Patrick's Day, stuck to the 1869 rates. By early April the tie-up was quite general, for the operators strongly favored suspension unless some reasonable compromise could be reached. At this juncture Bannan repeated his original suggestion that an impartial umpire be called in to settle the deadlock.

The union leaders had met the contention of the



Franklin B. Gowen

Gowen was a long-headed business man and economist, president of the Philadelphia & Reading Ry. Co., and founder of the Philadelphia & Reading Coal & Iron Co. Much of the progress made in the Schuylkill region after the close of the Civil War resulted from his foresight.

operators that mining was not profitable with the retort that if this were so they should get out and make room for better men who could realize a profit. Col. J. J. Connor, one of the pioneers in the Mahanoy Valley and the first lessee of mining lands belonging to the Girard estate, for which the City of Philadelphia is and was trustee, apparently got tired of this union taunting, and told Siney that he would turn over his Mahanoy mine to Siney and his associates providing the union would take over all Connor's obligations to the City of Philadelphia, trustee for the estate, pay the stipulated royalty, maintain the mine in good condition, and make regular extensions and developments just as Connor himself would do. In return for his leasehold rights and the improvements on the property, Connor asked that the union pay him 10c. a ton on the output. Siney said

he would notify his associates next day, and that they or others would accept within 24 hr. thereafter. A committee waited on Connor next day but came to no conclusion. Three days after, a second committee saw him with no result. This second committee called again still three days later and rejected the offer.

Siney's explanation to Connor was that the 10c. margin asked was too high, and that it should have been only 5c. His naïve observation was that if an educated and trained man like Connor could not make 10c. a ton it was useless to expect that workmen without his advantages could succeed. Siney did not seem to perceive that if 10c. a ton could not be made in a new and favorably situated mine by an educated and trained man it was quite likely that other and less desirable properties were not making anything.

About the middle of 1870, the general council resolved that after July 15 eight hours and no more should be the lawful working day. The men in the Wyoming region had refused to stay idle on the wage dispute and they also refused to go out on the eight-hour issue. The union saw that something had to be done, and it made a new proposition covering wages, which it put into the hands of Franklin B. Gowen, head of the Reading Railroad. Gowen conferred with the operators and finally got through a compromise arrangement under which work was resumed. The truce was a hollow one, for there were numerous minor strikes at mines where non-union men were employed, and on Dec. 24, 1870, the general council ordered a general suspension effective Jan. 10, 1871, until such time as a new scale had been agreed upon. The strike came on scheduled time and was effective everywhere save around Shamokin. The political haymakers now began to get interested, and the judiciary general committee of the Pennsylvania Senate began an "investigation"—an early member of that long family of "investigations" and "inquiries" by



all sorts of smelling committees, with which the modern world is so familiar.

Gowen, not yet in the mining business, addressed this committee on behalf of the railroad and mining interests, and gave it a big dose of economic truth. The Civil War, he said, had caused colliery expansion too great for normal times. Unhampered operation of supply and demand, he declared, would have corrected conditions within a year or two by forcing out the unnecessary and expensive mines. But at that juncture, the Workingmen's Benevolent Association, an organization chartered by the legislature, undertook to meet the problem by raising wages and cutting the workday, "which would enable a man to earn in six or seven months as much as had previously been earned in a year."

#### SCHUYLKILL PROFITS WERE UNSATISFACTORY

Such a policy, according to Mr. Gowen, called for high coal prices and suspensions when prices fell to a point where high wages could not be paid. But this, in turn, forced coal to a pitch where Schuylkill could not compete with other regions. Gowen added that, so far as he could learn, in the whole history of Schuylkill coal operations from 1820 to that time the industry had not netted as much as 2½ per cent on capital invested.

Bannan, through the *Miners' Journal*, was lustily shouting for an umpire to decide, and the Schuylkill operators actually made the proposal that the union abandon all attempts to interfere with colliery discipline and management, that the operators pledge themselves against discrimination in case of union members, that work be resumed as soon as possible, that a committee of six from each side meet with power to choose between the proposals of each side or to substitute a third arrangement, and that in case of inability to agree this board choose an umpire with final powers. It was proposed that this board and umpire be retained permanently.

#### ARBITRATION ADVOCATED AND OPPOSED

The union declined the proposal, but it was clear something had to be done. The general council finally met in Mauch Chunk early in April and named a committee of five to consider arbitration. The majority report recommended a joint committee of twenty, who should select an umpire if necessary. The minority report, signed by James O'Halloran and Thomas Mullery, contained four clauses, of which the following two were of importance:

"We are opposed to arbitration because used nowhere but in despotic governments, where those who labor have no voice in the government and are no better than serfs.

"That because it appears to us that, as black slavery has been wiped forever from the pages of American history, it is intended to establish a white slavery instead, and in view of this we have voted against arbitration in free and independent America."

It must not be supposed that these sentiments were isolated then or that they find no proponents now. For in the records of the United States Coal Commission created in 1922 is a brief containing these words:

"One of the district presidents at the close of the 1922 strike . . . said: 'From time to time as the fight went on, the operators changed their arbitration proposals and dressed them up in many disguises, but the mine workers refused to become parties to any arbitration or approach to arbitration. We refused ar-

bitration from the President of the United States notwithstanding that all the pressure of the government was back of that proposal.'"

John Mitchell gained an immense public following for the mine workers on strike in 1902 by publicly proclaiming willingness to arbitrate. President Roosevelt won popular approval by intervening in that strike with an arbitration proposal and by the appointment of an impartial arbitration board. The strike of 1902 was the making of the United Mine Workers east of the Alleghanies, but the idea of 1871 still persists. In the Ashland (Pa.) *Daily News*, Oct. 3, 1925, appeared a statement credited to Thomas Kennedy, international secretary-treasurer of the United Mine Workers, and for many years a district president, which contains the following:

"You know full well that the United Mine Workers will not arbitrate, now or hereafter, and that your attitude" (that is, offering arbitration with work to continue in the interim) "could only result, and was intended to result, in forcing this suspension on the anthracite region."

But while the anti-arbitration influence was present in 1871 it did not prevail. A joint committee of operators and union men met April 17 and agreed on Judge William Elwell, of Bloomsburg, Pa., as umpire. A wire to him brought an acceptance, and he arrived on the scene of battle next day. It was agreed to put every issue, save that of the wage scale, before him at once. Each side had its presentation April 18, and the next day he handed down his findings.

#### VIOLENCE IS DECRIED

Judge Elwell's award, in brief, had these outstanding points:

(1) Mine owners have rights guaranteed by law which should not be interfered with directly or indirectly.

(2) It is unlawful for any person or association to interfere by violence, threats, or other coercive measures to prevent any person or persons from employing, or being employed, on such terms as may suit them.

(3) Men have an inherent right to refuse to work, but any general agreement to quit because a member of an association has not paid dues is contrary to the policy of the law and against the best interests of everybody.

(4) It is contrary to the spirit of the law to strike for the hiring or discharge of any person.

(5) Persons of sound mind and suitable age are allowed by law to enter into contracts, and their contracts to do certain work under specified terms, like all others, should be neither altered nor set aside save in a manner set by law, nor should outside interference be tolerated.

(6) Combinations by employers against members of the association must not be tolerated.

(7) No member of the association should be dismissed for doing lawful duties assigned to him by that organization.

The common sense and common honesty of Judge Elwell's award were so patent that finally the thorny question of a wage scale was delegated to him, and on May 17 he gave an award setting prices and continuing the policy of basing wages on the average price of coal on board cars at shipping point, with the proviso that while wages were based on an average of \$2.75 a ton they should fluctuate 1 per cent up or down for every

three-cent fluctuation in price, save that they should never go below what they would be with coal selling at \$2.25. This principle of the sliding scale was maintained continuously until 1912. But even as Judge Elwell's settlement was arrived at there was rioting in Scranton and the soldiers killed two persons. All through the remainder of 1871 there were strikes, involving one or two mines at a time, chiefly for wages higher than the agreement called for.

#### PEACE REIGNS FOR A TIME

After this there was peace of a sort until 1875. John Siney had left Pennsylvania to become head of the Miners' National Association with headquarters in Ohio, and John F. Welsh was head of the old W. B. A. union in Schuylkill. Again the question of wages came to the fore. The operators proposed that all inside work should be on a basis of \$2.50, but that only the sales from white-ash mines should be used in determining average prices. The fluctuations were to be the same as in the Elwell award. All outside wages were to remain fixed, regardless of any basis or change in prices. The actual wages which would have been paid under this proposal were: First class outside labor, \$1.50 a day; second class, \$1.35 a day; all other outside, 10 per cent reduction. Contract rates were to be cut 20 per cent and all other inside workers were to be cut 10 per cent. This would have meant that the highest outside wages would have been \$9 a week, while on the \$2.50 basis inside labor would have averaged \$9.90 a week, company miners \$11.70 a week and contract miners about \$65 a month. Should coal have gone as low as \$2.25, inside labor would have gone down to \$9.11 a week.

#### STRIKE BREAKERS ARE IMPORTED

A strike call was issued by Welsh. Men in the Scranton district looked to Siney's National Association for guidance, but from Hazleton south the walkout was complete. Some bright young man got the idea the strike could be broken by rounding up idlers in Philadelphia and putting them to work. About 200 were sent to Hazleton, and this brought well-merited rebuke on all sides. It was perfectly plain that 200 men could not work the mines, but it was certain that they could cause trouble, riot and even bloodshed.

As a matter of fact, there were riots and incendiarism anyhow. Efforts were made to burn down whole towns. In the case of Shamokin these efforts were repeated several times. Railroad bridges were set on fire. A mob of toughs from Hazleton and vicinity descended into the Mahanoy Valley to terrorize mines which had broken from the union. There was more or less gunplay between the rioters and squads of special police and deputy sheriffs, and finally the militia regiments were ordered out. As the National Guard at that time was composed chiefly of seasoned Civil War veterans there was little trouble in restoring order where they were stationed. About the middle of June, the strike was abandoned, each local union being left to make the best terms it could. Breakers, mine sawmills and even mines themselves were set on fire at intervals, but work continued after a fashion until 1877. The union meanwhile, crumbled away.

The almost continuous strikes had been accompanied by numerous assassinations and attempts at murder. Before a Pennsylvania legislative committee, created to investigate the entrance of the Philadelphia & Reading

into coal mining, President Gowen of the Reading cited 99 cases of violence, ranging from minor interferences with transportation to arson and murder in the Schuylkill and lower Lehigh fields between Dec. 13, 1874, and July 15, 1875, alone. There had been many previous instances. An operator named Langdon had been murdered near Hazleton in 1862. In 1863 another named Smith was beaten to death near Audenried. In 1868 Alexander Rea, who owned a mine near Mount Carmel, was murdered in his carriage half-way between that town and Centralia. "Bully Bill" Thomas, who combined a wonderful capacity for strong waters with all the attributes of a first-class fighting man, was attacked by seven or eight men while he was at work in a colliery stable near Mahanoy City, was shot several times and left for dead. He recovered, had other hairbreadth escapes, and lived for many years.

#### LAWLESSNESS BECOMES RAMPANT

Policeman Ben Yost, of Tamaqua, was murdered by a band of assassins near his home. In the summer of 1875, Thomas Gwyther, a justice of the peace, was shot and killed in Girardville, and Gomer James, a young Welsh miner, was shot down in cold blood at a Shenandoah picnic. Thomas Sanger a foreman, and William Uren, a miner, were murdered at Raven Run mine, near Ashland, that summer, and Morgan Powell, a foreman at the Lehigh Coal & Navigation mines in the Panther Creek valley was killed near Coaldale. Finally John P. Jones, another L. C. & N. foreman, was murdered near Lansford as he was going to work.

The slaying of Jones was a turning point. Arrests were made for that murder and others, and James McParlan, the celebrated detective, made himself known as the man who, masquerading under the name of McKenna, had associated with the murderous organization known as the Molly Maguires. He took the stand against them. Twenty men were hanged in Schuylkill, Carbon, Columbia and Northumberland counties for participation in murders. Ten were hanged in one day, June 21, 1877, six at Pottsville and four at the same hour in Mauch Chunk.

#### PROVISIONAL FORCES ARE ORGANIZED

The year 1877 was the period of the great railroad troubles. Transportation strikes were accompanied by trouble at the mines, though most of this was in the upper region, around Scranton, to which town Governor Hartranft ordered troops and even appeared on the scene himself. There were strikes and riots at Shamokin, where the strikers not only threatened to burn down the town, but actually looted freight stations and stores until stopped by a posse of citizens who shot three of them. The unrest spread from Scranton and Shamokin to Shenandoah, where the men went out. Ashland and Pottsville organized provisional forces of a thousand men each, and escaped trouble. The tie-up of the mines, while serious enough, did not affect the southern part of the Schuylkill field.

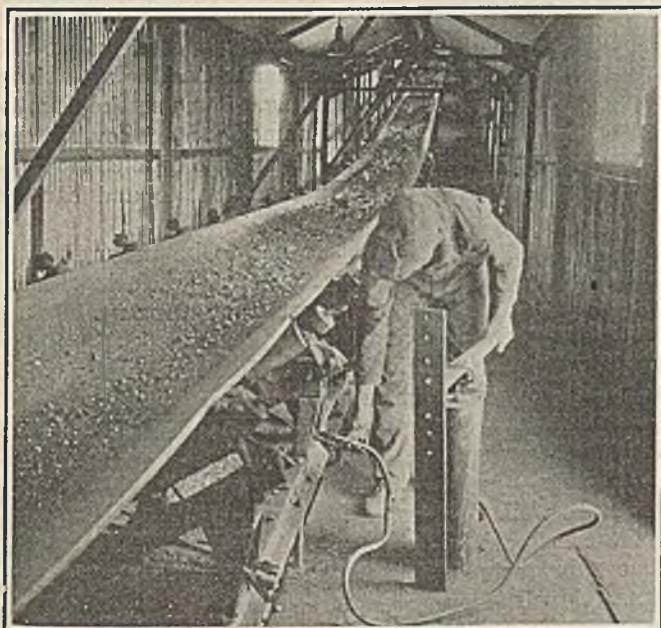
This was the last serious anthracite disturbance for years, although there were difficulties in 1880 at Shamokin, where five mines were tied up on a demand for more money. In 1886 there was a serious strike involving the Lehigh and Wyoming fields, and in 1887 the Knights of Labor, under Terence V. Powderly, and the new organization of anthracite miners known as the Miners' & Laborers' Amalgamated Association began ar-

ranging for a combination strike of railroad men and mine workers. This strike was called about Christmas time, 1887. It started off with a rush, but it fizzled quickly and completely. Neither railroaders nor mine workers in general wanted trouble, and the net result was to eliminate trouble makers from both.

It was in 1897 that the United Mine Workers of America first gained a foothold in the hard-coal country. Their organizers began to appear and to conduct a campaign for membership. It was in 1897, too, that a strike occurred at Lattimer mine, in Luzerne County, and a body of strikers on the march collided with the sheriff and his deputies. Blood was shed and the troops were ordered out. This strike was purely local, but it excited much interest in and out of the coal region. It is probably too much to say that this incident gave the United Mine Workers of America an essential impetus, but it is certain that the organization grew rapidly after the Lattimer trouble. Since that time, the United Mine Workers has been the dominant labor force in the hard-coal region, and for 30 years the history of anthracite unionism is the history of that organization.

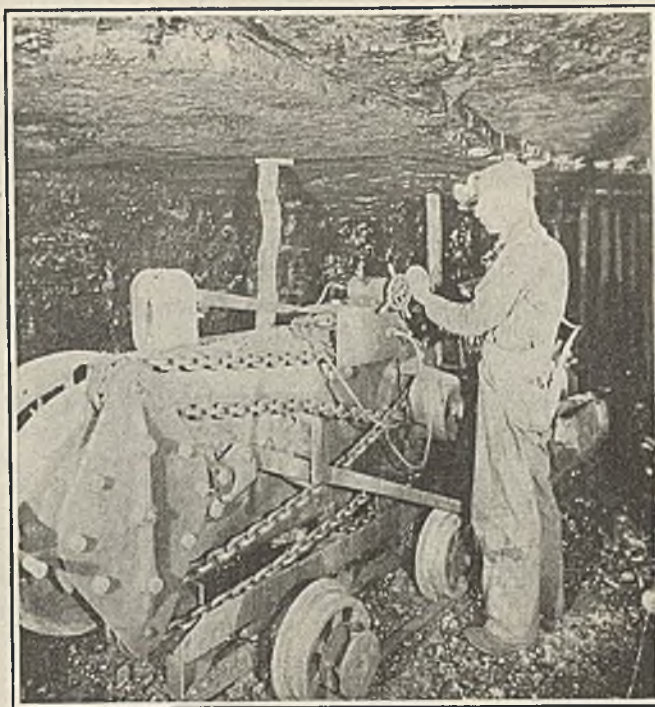
### Pressure-Feed Lubrication Is Proving Satisfactory

According to some observers it won't be long now until practically all moving equipment installed above and below ground at coal mines will be provided with pressure-feed lubrication systems. This scheme of lubrication is about equally as applicable to one piece of equipment as to another, and should function with entire satisfaction in almost every case. It saves much labor because a number of bearing surfaces are lubricated merely by advancing a plunger, through the agency of a feed screw, in a single pressure cylinder. The pressure thus created forces the lubricant through a number of flexible tubes which connect the cylinder to the bearings. There is no "fussing around" to remove and reset lubricating plugs, or to reach those not easily accessible. This, naturally, saves labor.



Eliminating "Screeches" in a Belt Conveyor

Here is shown another application of pressure lubrication. The nozzle of the hose is quickly applied to an "Alemite" receiver on the bearing. A single push on the bar above the plunger of the pressure tank forces a generous quantity of lubricant into the pulley bearing.



Pressure Feed Lubricator on Cutter

Here is shown the arrangement of this lubricating device on a shearing machine. In this case it is used for lubricating only one moving part; but it can be arranged to lubricate a number of points simultaneously.

These advantages are by no means all. Consider how much more efficient is this scheme than that of applying the lubricant from a container by hand—by pouring in the case of oil and by plastering when the lubricant is a grease. These hand operations to an extent tend to wash onto the bearing surfaces such abrasive materials as coal or rock dust and tiny particles of metal resulting from wear. The bearings, consequently, become pitted and scored and the rate of wear is accelerated. With the mechanical lubricator the pressure with which the lubricant is driven into the bearings is sufficient to force out the old lubricant and with it whatever gritty material is present. No bearing is neglected but all are adequately lubricated.

This system of semi-automatic lubrication is suitable for use on all types of cutting machines, loaders, locomotives and tippie machinery. It makes easy the job of lubricating the many bearings on belt conveyors and thus saves much time.

### Blasting Safety Affected by Stemming

In order that safer explosives and blasting methods may be developed, the Bureau of Mines, is investigating the factors which affect the liability of an explosive to cause ignition of gas or coal dust. The effect of chemical composition, physical characteristics, and explosive properties of the explosives themselves, as well as the methods of loading them in the borehole, are being investigated in a testing gallery from this point of view. It has been shown that for explosives of identical chemical composition, those having higher rates of detonation are more likely to ignite gas. Wet fireclay and fine rock dust stemming are safer than dry fireclay. Coal-dust stemming has been shown to be more dangerous than no stemming at all. The relation between limit charge and gas concentration has been studied and the lower limit of inflammability of natural gas to ignition by explosives has been determined.

## Lignite Deposits of Great Potential Value

Nearly One-Half of America's Coal Is Lignite—  
Automatic Coking Equipment Desirable—  
Char an Excellent Fuel

Possibility of making a high-grade fuel from the extensive lignite deposits of the United States, which comprise nearly one-third of its total solid fuel resources, has been demonstrated by the U. S. Bureau of Mines, as reported in Bulletin No. 255. This can be accomplished by utilizing a cheap process for carbonizing the raw lignite and subsequently briquetting the resulting char.

Extensive lignite fields lie in the states west of the Mississippi River, principally in North Dakota, Montana, Wyoming, Colorado and Texas. Smaller areas occur in several other places. The total area of the deposits, as well as the aggregate quantity of lignite contained therein, is so great that their potential economic value is seldom recognized. The section of the country which contains practically one-third of the nation's entire coal resources continues to import coal. Many of the lignite deposits are in regions that are not thickly settled or well supplied with manufacturing industries. Because of their peculiar physical and chemical characteristics, lignites are low-grade fuels and nearly every locality can obtain high-grade coal from a distance. The proximity of this section to the Great Lakes, which afford a relatively cheap means of transporting coal from the Eastern fields into the Northwest, has greatly retarded the development of the full possibilities of the native fuel. The lignites in these areas are imperfectly developed coals. Many of them have a more or less woody structure; others are darker, denser, and more homogeneous and approach sub-bituminous coal in character.

### SATISFACTORY DOMESTIC FUEL SOUGHT

A study of the lignite problem was made with a view to producing, for domestic purposes, a satisfactory fuel with a heating value comparable with that of high-grade coals. It was also hoped simultaneously to obtain data regarding the cost of operating a carbonizing unit to produce such a fuel; the yield and character of the by-products obtainable under definite operating conditions; the approximate cost of a commercial unit; the factors bearing on the design of a suitable carbonizer; the possibility of the direct use of the unbriquetted char; and other pertinent information. In studying the problem, experiments were conducted at Salome, Ariz., and at Hebron and Grand Forks, N. D.

The apparatus usually used for coking bituminous coal is distinctly unsuitable for carbonizing lignite. Because lignite has a low calorific value and upon distillation yields a relatively small percentage of char and gas of fairly low heating value; and because the industries dependent upon lignite for a fuel are not of a size to justify a large expenditure; a relatively cheap carbonizer, of high capacity that will be automatic in operation, is deemed essential. The efficiency of the carbonizing process developed by the U. S. Bureau of Mines is high.

The yield of by-products depends upon the character

and quality of the lignite carbonized, upon the degree of carbonization, and upon the method and the apparatus used. As a rule, the yields are lower from a ton of raw lignite than from an equal quantity of bituminous coking coal. The quality of the gas obtained from lignite is also lower than that of the gas from coal. The value of the by-products obtained upon the carbonization of the average grades of lignite is much less than that of those resulting from the carbonization of bituminous coal. The recovery of ammonia as ammonium sulphate will probably be unprofitable in the Northwest, particularly in small plants, until some time in the future. The tar and its crude distillation products are of value, but under existing market conditions and in the present state of the methods of refining, it is not advisable to assign a high value to the by-products or to attempt to refine them.

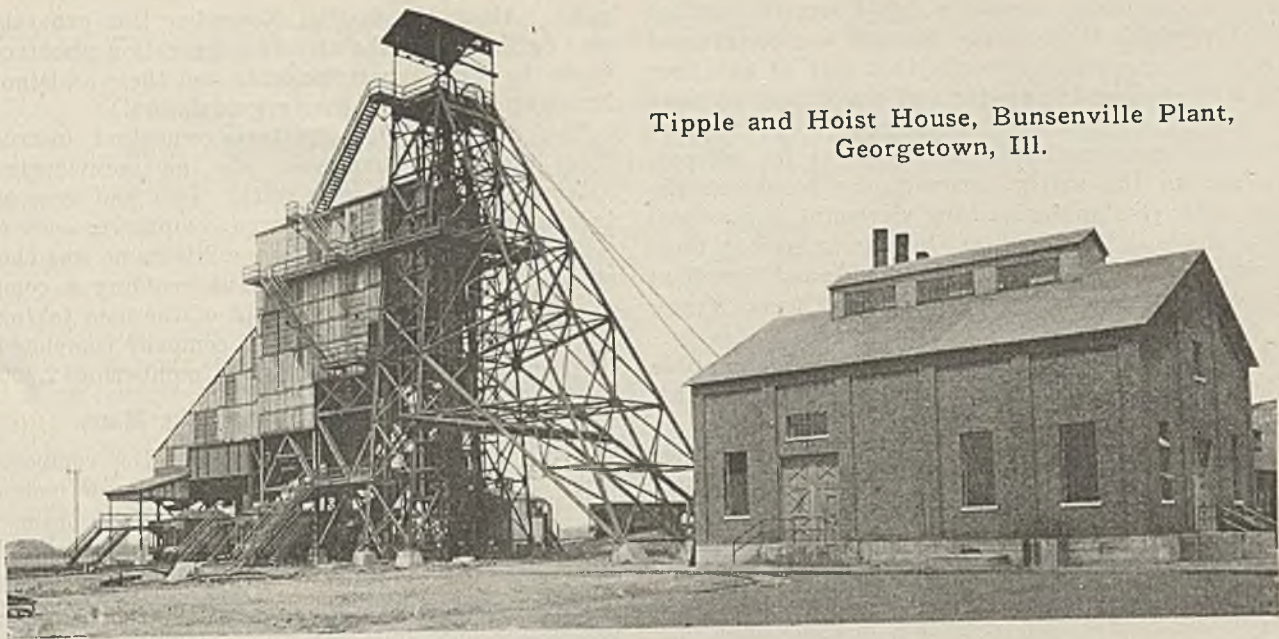
The lignite occurring in Europe is much different from that found in this country. The European demand for a high-grade fuel is not so exacting as here, although the demand for by-products is greater. The lignite industry in Europe has been investigated and the conclusion reached that the methods now used there are not adapted to the development of a lignite industry in the United States. In Europe, briquets are made from a partly dried lignite without the use of a binder but the American product does not contain sufficient natural binder to permit of its being successfully treated in this manner. Even if the briquets could thus be made, they would not satisfy the domestic trade in this country, for they have a tendency to disintegrate when fired.

### CHAR MAKES ADMIRABLE FUEL

A potential market exists in the United States for carbonized lignite, and this should be developed. This fuel is excellent for producer-gas generators and when burned on suitable grates it gives good results, either as a boiler, furnace or domestic fuel. A satisfactory grate for burning the char in domestic heaters has been developed by the Bureau. A further market for char or partly carbonized lignite lies in its utilization as a pulverized fuel. It should prove highly satisfactory for use in cement kilns. For domestic purposes, briquetted lignite char is comparable with anthracite in heating value and convenience in handling. Some smoke usually is evolved during the period immediately following the charging of the briquets, but on the whole the briquetted char burns much like anthracite and can be stored in a similar manner.

It is pointed out that it is not to be inferred that lignite can be used satisfactorily as a fuel without processing. Its use as a domestic or an industrial fuel is increasing yearly and it can be burned on suitable grates with fairly high thermal efficiency. Raw lignite, however, contains approximately 33 per cent of water; has about half the calorific value of good bituminous coal; slacks when it is exposed to the air (particularly in summer); is liable to ignite spontaneously and does not store well.

No commercial plants for the manufacture of lignite char or briquets exist in the United States at the present time. Much interest has been shown in the Bureau's investigation of lignite and in the activities of other investigative agencies experimenting in this field, and the outlook is promising for the development of a lignite fuel industry, particularly in the Northwest.



Tipple and Hoist House, Bunsenville Plant,  
Georgetown, Ill.

## Every Man in U. S. Fuel Co.'s Mines Takes Training in First Aid and Safety

**H**OW MUCH can be done to promote safe operation by steady, sympathetic effort in that direction is shown by the record of the United States Fuel Co., for every man in the employ of that firm has received first-aid training. The mines of that concern are located at Danville, Ill., the oldest of these operations being the Vermilion mine—two miles south of Westville, on the Chicago, Cleveland, Cincinnati & St. Louis R.R.

It is working the No. 6 bed and is termed non-gaseous. It has, unfortunately, a roof that in some places is of soapstone, to use the phraseology of the miners. In other places the top rock is of sandstone. This roof is dangerous, because it has so many unseen slips, especially coal slips. It needs constant watching.

From the first, the company has realized its own part in the work of safety. It is a hopeless task to induce men to guard themselves, if the company shows only a perfunctory interest in the safety and comfort of its employees. It must take the first steps, and, at this mine, evidence of this can be seen at every turn. Almost

All the "Fuelites," as the men of the United States Fuel Co. are termed, have this year taken a course of instruction. Some school this, for there are, in all, 2,300 of them! Mine operators have a peculiar safety problem. The simplest job in a factory is to build a safe roof or to get a company specializing in such a roof to erect one, but the coal mine has to accept the roof provided and it is often unsafe and treacherous, needing close timbering and constant watching. Railroads find some of their greatest hazards in tunnels. How would they like to have all their haulage in unlined passages such as those in a mine? Supervision does much, also, to prevent accidents, but in no place is it rendered more difficult than in a mine. So the management must be a partner of the men if it is to hope to get safety. This story relates the success the Fuel company has attained in this matter.

every safety device, at least all those that the necessities of the working conditions demand, have been introduced, both inside and out. One of the most recent installations has been the conveyor system of sump cleaning which enables the cager to clean the sump at any time in the day without danger and yet without any loss in hoisting time. Even at night, sump cleaning by old methods has not been unaccompanied by danger.

The mine was sunk during the latter part of 1905 to a depth of 180 ft. Cars holding about 2½ tons each can be hoisted at the rate of about five per minute. The total daily tonnage averages

about 4,500 tons, and the mine employs about 1,000 men.

Bunsenville mine is about 2½ miles west of Georgetown, Ill., and is located on the Chicago & Eastern Illinois R.R. It was sunk in 1914 and is 213 ft. deep. The conditions at this mine are as difficult as those in the Vermilion shaft. It employs about 1,300 men and has a daily capacity of 6,000 tons. The buildings are all of non-combustible material—brick, concrete and steel—thus giving a feeling of security to the men

below ground which cannot be felt where the surface works on which their safety depends are constructed of readily consumable material that may at any time catch fire, sending the products of combustion swirling into the atmosphere of the workings.

The coal company having provided for its full participation in the safety campaign by rendering the plants safe from an engineering viewpoint, it was possible to make all the "Fuelites" take an interest in their individual part in making the Bunsenville and Vermilion mines safe. The general superintendent, Thomas Moses, was by natural disposition well equipped for this further development, which some managers with admirable engineering ability are yet not always so well qualified to attain.

As a result, the accident rate around the two mines is considered low, judging that rate by the natural mine conditions. Factory safety depends less on the human frailties of individual employees than mine safety ever will. The roof of a factory can be made safe beyond peradventure. In this matter, good engineering will assure full protection to every man employed without any co-operation from the employees. The equipment of a factory is stationary and therefore under constant immediate supervision of chiefs. Safeguards can be provided. But the mine, always on the move, with men working in rooms largely by themselves, cannot be conducted with the same assurance.

#### FACTORY CONDITIONS ARE IMPOSSIBLE

Many a superintendent has sighed and said, "If I could only make my own roof and if I could only assemble all my machinery and men in a single room and could circulate around it and them, I would establish a safety condition far greater than I can hope to attain working a bad roof with men hidden in a multitude of walled inclosures scattered all over a township." So the human element has become, and ever will be, the big problem in mining, and the relation between men and management the determining factor in every mine. For with a bad roof, with a railroad (however narrow in gage) operated in tunnels and with machines scattered in many places, a mine cannot be safe unless every man in it "wills safety" and actively promotes it.

This, then, has been Mr. Moses' problem as it is that of every general superintendent in a bad-roof region. During the past summer and autumn, the U. S. Fuel Co. has been carrying on a campaign to make every employee do, of his own knowledge and goodwill, those things that are best calculated to increase his safety.

It has since the latter part of May been making an intensive drive to train its men in first aid and accident prevention and to give them instruction in the use of breathing apparatus, gas masks and other equipment which fortunately have hitherto not been needed at these mines. Up to the present time, these plants have been so free from disaster as to be overlooked altogether by a public whose knowledge of coal mines is largely confined to those operations that have figured in press reports of catastrophes.

A Bureau of Mines car was sent to the works to co-operate with the Department of Mines and Minerals of Illinois in the training of the employees. The desire to take first-aid instruction was so general that Mr. Moses, in conjunction with A. D. Lewis, director of the state department, conceived the idea of training every employee in and around the mines of this com-

pany. About the first of November this general plan was outlined, and the closest co-operation was received from the mine superintendents and their assistants in lining up the men for the various classes.

The company picked fifteen competent instructors from their own employees who had previously had extensive training in this work. Two men were placed in charge of the 25 to 40 men comprising each class. As each man finished the course, his name was checked off a duplicate payroll list, thus enabling a complete and accurate account to be kept of the men taking the training. On Dec. 18 the Fuel company completed the instruction of all its employees, numbering 2,300.

#### PERIODIC INSPECTIONS ARE MADE

Every three months a safety committee composed of three practical men, selected by the superintendent of the plant makes a detailed inspection of the mine with instructions to visit every nook and corner of the workings, examine carefully and report to the superintendent the exact conditions as they find them. At least two of the men appointed on this committee have had previous experience on these safety examinations, for as soon as any man has served one year he is replaced by a new man. Great benefits are being derived from this system of co-operative safety examinations. The supervising force is also systematized, not more than fifty miners being under a single face boss.

The general safety committee is composed of the whole organization, the chairman of which is the general superintendent, who signifies by his active participation his interest in safety and who, by his leadership, provides that no matter shall fail to have proper emphasis and due consideration. This safety business is no sluggish side current in the plant operation. The committee meets each month, and all accidents causing a loss of time which occurred during the preceding month are discussed one by one in detail, recommendations being made to prevent their recurrence.

The officials feel, however, that, after all, first aid is the best serum for accident prevention. It teaches men to think and think clearly; it instructs them to act promptly; it tends not only to minimize the severity of accidents that have unfortunately occurred, but it makes men avoid them altogether. It is taught, therefore, not as a cure but as a preparatory training for the exigencies of those occasions when prompt action may prevent death.

True, it is the bridge that takes the injured over the dangers of a severe hemorrhage, an infected wound, a crooked leg, or a stiff joint, and in cases of minor importance prevents further harm being done and puts the patient in the best possible condition for more extensive treatment. It also means to the injured less blood lost, and a cleaner wound.

But, more than that, it is safety's greatest ally, because it teaches men to think in terms of physical suffering; it causes them to view unusual situations in their relation to safety; it creates a tendency for each man to place himself in the victim's unfortunate position; it induces the pupil instinctively to study how to keep himself from being involved in an accident; it impels him to analyze his particular job and by so doing makes him foresee and eliminate conditions that might cause an accident; it urges him to take an active interest in his physical well-being; and still more important, it makes him automatically a disciple of safety.

# Progressive Company Controls Purity of Product

Weekly Ash Analysis in Modern Laboratory Gets Results—Standards Well Established—Quality and Production Recognized as Separate Functions—"Quality Department" Guards the Interests of Customer

By Jerome C. White  
Assistant Editor, *Coal Age*,  
New York City

ANY COAL company's success in large measure depends upon the quality of its product. Certainly, to its customers, upon whom its income depends, quality means as much as quantity. Recognizing this fact the Davis Coal & Coke Co. has for many years maintained a "quality" department. This is entirely separate and distinct from the "quantity" or production department.

This branch of the organization, in order that it may



Good Light Aids Inspection

Glass is used in the roof construction of the buildings housing the picking tables. These tables are all equipped with loading booms to lessen breakage when delivering into the railroad cars. The company is in this way enabled to get the full advantage of careful shooting to make lumpier coal.

have the greatest freedom consistent with the nature of its service, is directly responsible for quality to the vice-president and general manager. It is, therefore, relieved of responsibility for cost and production.

It is in fact, by the very position it occupies within the management organization, the customers' representative. Its whole attitude must represent the customers' viewpoint. To the men of this department the consumer's interests are always foremost.

## RED INK TELLS ITS STORY

Standards of quality occupy an important place in the functioning of this department. These standards are rigid. One thing that aids greatly in their attainment is the fact that they are understood by all concerned as they are posted at each mine, with the weekly results of operation. Any week's tests that fall below the set quality are posted in red ink. The standards are fair because every mine is sampled periodically as its development progresses. Changing conditions are thus taken into consideration in setting the standard for any particular mine.

This company works the Lower Kittanning bed near the middle of which occurs a 3-in. slate binder. Aside from this band of impurity, the seam is clean. One thing that I wish to emphasize is that the standard of

quality to be shipped is not based upon any test as to how well this coal can be prepared with the binder taken into consideration or allowed for, but upon the analyses of face samples with the binder entirely left out. This means that the company intends to ship clean coal. It makes no allowances for the binder and the miners know this. Their part is to clean the coal at the face. The company helps by studying best methods of mining and shooting and experimenting with explosives in order that best results may be realized. The tipples are equipped with picking tables adequately manned to remove any dirt that may escape the miner.

## WEEKLY SAMPLES ARE TAKEN

The miner's work is checked as is also that of the management. At intervals cars of coal are inspected by completely unloading them and sorting their contents. The results of this check are posted where all can see. Once a week each mine is sampled by an inspector who takes a small shovelfull of coal from the picking table at intervals during the day's run. This man is considered to be the customer's representative. He samples this coal after preparation and just before it goes on the loading boom. The sample thus taken is quartered down according to the U. S. Bureau of Mines' standards and sent to the laboratory at Thomas W. Va.

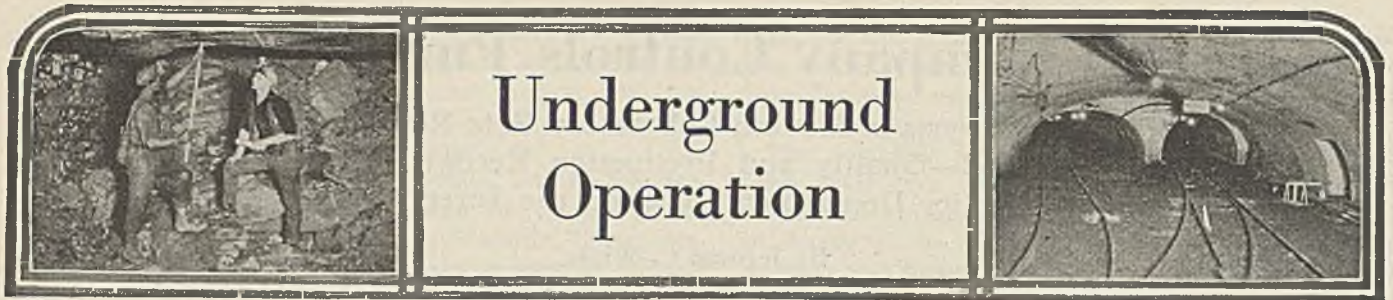
Ash analysis is made weekly for every mine. As the sulphur content is low and this element does not occur as a physical impurity, analyses for it are not made at such frequent intervals. It is, however, determined monthly from the composite samples. These tests are then reported to the vice-president and general manager, copies going to the general superintendent and the superintendent of each mine. Receipt of analysis reports by the superintendent, insures direct and prompt action. It has repeatedly occurred when the ash content of a mine has increased unduly that the mine superintendent has taken remedial measures immediately, before the general superintendent could remind him of the necessity thereof.

## COMPOSITE ANALYSES MADE MONTHLY

The chemist, after preparing the coal sample for the weekly analysis, saves a portion of it. Once a month these portions of the weekly samples from each mine are mixed and analyzed completely. This is called the composite analysis. It includes determination of moisture, volatile matter, fixed carbon, ash, sulphur and heating values as well as the fusing point of the ash. By this method any tendency toward change in the coal is promptly noted.

## COAL AGE INDEX READY

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



### Good Track Curtails Depreciation Of Locomotive Values

Track irregularities cause unavoidable departures from perfect alignment of a locomotive. The worse the track the greater is the necessity for flexibility of the motor supports. Conversely, the better the track the less the wear and tear on this part of locomotive

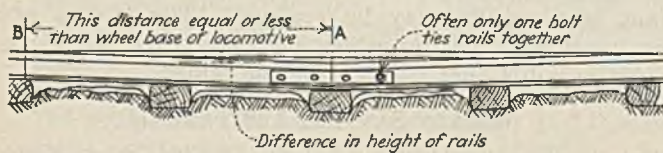


Fig. 1—This Low Joint Runs Up Costs

Using only one bolt makes an insecure joint. The twisting strain caused in the locomotive by this low spot is shown in Fig. 4, the result of which will be unnecessary repair and maintenance costs of the locomotives.

construction, as well as others. Fred W. Vodoz in *Electrical Mining* states that track poorly laid and maintained may call for a flexibility beyond reasonable provisions in locomotive design and should be avoided.

Figs. 1 and 2 illustrate two conditions of faulty track. In Fig. 1 the farther rail is straight, while the nearer rail is bent downward at a joint, forming a low spot within the wheelbase length of a locomotive. Fig. 2 shows the joint of two rails of different sizes without keeping their tops level to permit the wheels of locomotives and cars to pass this joint in either direction without sudden shock and, in the locomotive, without strain or binding of running parts, due to twisting of wheels and axles within the frame of the locomotive when passing such bad spots at high speed. It is not uncommon for rails of different sizes to be connected



Fig. 2—Why Hammer a Locomotive?

The shocks received by locomotives and mine cars when passing over such joints repeatedly during a day's operation is adding unnecessarily severe service to the rolling equipment. An off-set splice bar would eliminate the hammer-blow effect of this joint.

when laying track over which locomotives are required to run, and low spots seem bound to develop, even in fairly well-kept track. It is, therefore, necessary that locomotive running parts be so assembled that they will accommodate themselves to such conditions with as little difficulty as possible. Until comparatively recent times, locomotive traction motors were provided with two lugs, C and D in Fig. 3, for securing the shell to the motor support bar. These, with the axle bearings A and B, made four points of support for the motor and threw all requirements for flexibility onto the spring mounting of the support bar at its ends.

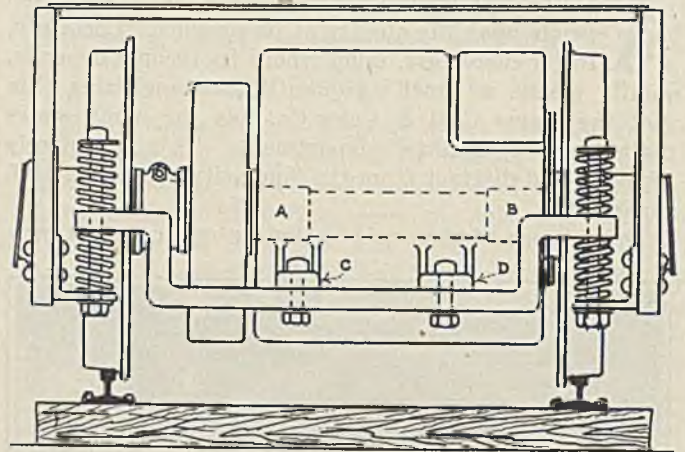


Fig. 3—Good Track Decreases Costs

Perfect alignment of a locomotive reduces straining and binding of the running parts which are due to twisting of wheels and axles within the locomotive frame when passing over bad spots in the track. The above illustration shows the perfect alignment possible with good track.

These springs, being practically in line with the wheels, must provide movement equal to the maximum movement of the wheels in passing bad spots in the track, when derailed, or otherwise caused to depart from straight and level track conditions. Any excess of such departure beyond the range of action for the springs will tend to bend the support bar as shown by Fig. 4. When a like condition occurs at the other side, the spring range already reduced by previous bending, is more quickly exceeded and the support bar is subjected to bending stress in the opposite direction from that of Fig. 4. Regardless of whether such conditions cause visible permanent bends, the bar is subjected to alternate bending stresses which cannot fail to have their

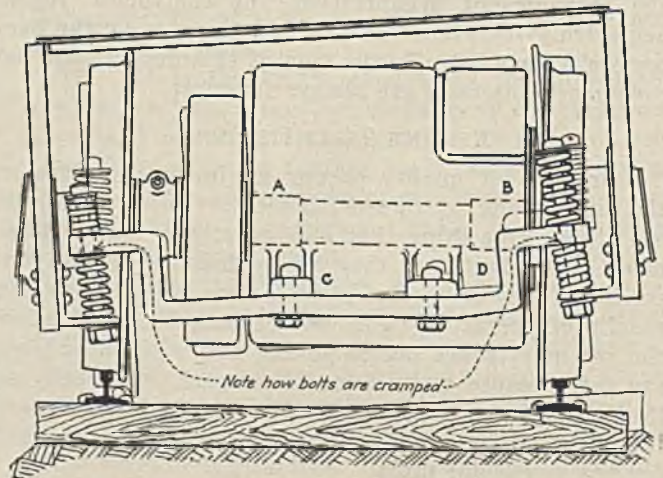


Fig. 4—Result at Low Track Joints

There is a tendency to bend the support bar when two lugs resist extreme tilting of the frame or axle. Repeated bending stresses which result from poorly laid or maintained track cannot fail to have their weakening effects. Three-point suspension lessens these effects.



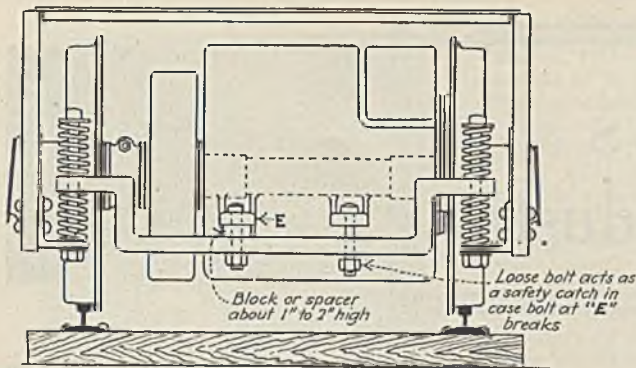


Fig. 5—Single Lug Increases Flexibility

Where there are two lugs, as in the older designs, flexibility between the motor and the frame of the locomotive may be increased, by using one only. As a safety measure a loose bolt should be left in the other lug to hold the motor in case the service bolt should break.

weakening effects. Bolts through the motor support lugs are likewise subjected to the weakening stresses of shearing and bending. Breakage eventually can be expected. The support-bar springs must be stiff enough properly to take care of their primary duty of cushioning the motor action. This stiffness, added to their limited range, actually causes the locomotive to ride nearly or wholly on three wheels when the fourth is over a low spot in bad track. Derailment then may easily occur, with all its bad effects of possible injury and sure delay.

In the older types of locomotives, with motors having two support lugs, it will be found that greater freedom of action for operation on bad track may be had by omitting, or definitely loosening the bolt in one lug, thus giving the motor shell three-point support, as in later types of construction. The lug kept in service should be the one nearest the gear end of the motor, as shown in Fig. 5 so as to oppose the forces as nearly as possible at their source. As a safety measure a loose bolt should be left in the other lug, to hold the motor in case the service bolt should fail.

Provision for three-point support, either in the original design or by the use of only one support lug where there are two, increases the freedom of movement but does not decrease the importance of having track well laid and maintained. Any locomotive forced to travel over bad track which is so irregular as to cause riding on three wheels at any time, is bound to give trouble. Derailing is usually the first difficulty. The wreck thus caused, added to the severe twisting of the heavy load-carrying parts—motor supports, frames, motor shells, etc.—certainly will result in breakage of expensive parts. Not only does breakage take place, but all axle brasses will wear much more rapidly. These factors, multiplying as time goes on, will reduce seriously the life and impair the performance of a perfectly good locomotive.

It is, therefore, necessary for economic reasons, to do everything possible to avoid poor track. The fact that one locomotive will travel over bad track, whereas another will not, is not a fair basis of comparison of the relative qualities of the two machines, for under such conditions the locomotive that will stay on the track will be made to suffer the resultant abuses and will have to be discarded in a relatively short time because of high operating expense. There is no greater mistake in mine management than the idea that good track is expensive: it is the cheapest good thing in the whole mine.

## Chip Out Hitches with Electric Hammer

Hitches in coal and slate can be cut only with difficulty. The hand pick may make a fair start, but the hitch has to be made so high above the floor and so near roof and often so close to timbers that it is difficult even to attempt to complete the trimming of the hole with such a crude tool. So hammer and chisel are used for its final shaping. Obviously, a punching tool is what is needed. It saves time and labor, but it is a new tool with which mines are not equipped and an unusual tool with which most operators are disposed to think they can dispense.

The Valier mine of the Valier Coal Co., in southern Illinois, has among its many innovations that have saved money, a Syntron electric hammer manufactured by the National Electric Mfg. Co., of Pittsburgh, Pa. It is used not only for cutting hitches for timber in coal and slate, but for drilling holes in the roof and for drilling and cutting holes in brick, rock and concrete. With it, one man can do as much as three men



Cutting a Hitch in Coal Electrically

This hammer has a stroke of  $\frac{1}{4}$  in. and frequency of 60 strokes per second. In hard materials such as concrete it will do as much work as three men with ordinary hand tools.

armed with nothing but the old-fashioned tools and brawn.

The hammer makes 60 strokes, each  $\frac{1}{4}$  in. long, every second. It is motivated by alternating current and operates in much the same manner as a pneumatic reciprocating hammer, but with much greater frequency of impact. The box in the foreground of the accompanying illustration is a transformer which converts 220 to 110 volts. The second box is a rectifier that changes alternating to pulsating direct current. The equipment is readily portable.



Where the Conveyors Meet

This bin bed of coal is being worked in Alabama by the Cedrom Coal Co. Because of the exceptionally good roof, low height, and the newness of the work no standard method of timbering had been adopted at the time this photograph was made. The bed here worked is only about 27 in. thick.



# News Of the Industry



## Union Miners' Wage Convention Drops Communists and Socialism; International Officers' Pay Raised

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

(By Wire from Indianapolis)

Sharp clashes between administration supporters and an insurgent group led by John Brophy of central Pennsylvania, defeated candidate for international president, punctuated the sessions of the convention of the United Mine Workers at Tomlinson Hall last week. At no time, however, was the minority able to command enough votes to endanger the administration program.

The convention after recurring floods of fervid oratory and calm appeal in which bitter epithet and cold logic were both invoked to sway the delegates:

- (1) Gave the international executive board unlimited authority to levy assessments as the prelude to starting the most aggressive organization drive in the history of the union;
- (2) Rejected all resolutions from anti-administration local unions censuring President John L. Lewis and his associates for their conduct of the affairs of the organization;
- (3) Read all Communists out of the union;
- (4) Increased the salaries of the international officers;
- (5) Purged the union of the charge of Socialistic aims by amending the preamble to the constitution so that miners now demand "an equitable share of the fruits of their labor" instead of "the full social value of their product."

### Nationalization Indorsed

The convention again went on record as favoring the "principles" of nationalization of mines and railroads under "democratic management" which will safeguard the economic weapons of labor—including the right to strike. The committee on resolutions, however, pointed out that the development of the idea must be slow. Nor did the language of the resolution adopted indicate any burning zeal for an immediate campaign in favor of the idea.

With most of the formal business of the convention now disposed of, the way is open for consideration of the question of the wage demands to be presented to the Central Competitive Field operators at the joint conference

scheduled for Miami, Fla., Feb. 14. The report of the union scale committee, headed by Harry Fishwick, president of district 1, was to come before the convention on Wednesday.

The opening note of discord was sounded early in the second day of the convention when a delegate inquired why the officers' reports made no mention of the check-off or arbitration in discussing the anthracite strike settlement. Mr. Lewis silenced the questioner with a statement that these were matters of contract interpretation to be handled by the proper officials.

### Cite Trouble in Anthracite Field

Later the committee on resolutions, P. T. Fagan, president of district 5, chairman, offered a substitute for two resolutions on this subject from anthracite local unions. The substitute, unanimously adopted, declared the miner members of the Anthracite Conciliation Board and the international officers were doing all they could to bring about an early decision. They were handicapped, continued the committee, by the attitude of certain members and union officials "who have joined with the anthracite operators in agreeing with the operators' interpretation" of the contract.

A committee substitute for seven resolutions on an organization campaign started the warfare in earnest. One of the seven resolutions, drafted by local union 2107, Avella, Pa., charged a loss of 200,000 members since 1922 "through the neglectful policy of our present administration." Another directed the union to refuse to sign contracts with producers operating in more than one district unless the contract took in all mines of such operations.

The committee substitute concurred "in principle" with these resolutions, but declared the union had been doing "its utmost" to organize the non-union fields. The substitute resolution referred the question to the international executive board "with instructions to do and use everything in its power, consistent with our resources, to bring

about the complete organization of the coal-mining industry."

Attacking the committee report, Mr. Brophy pictured a steadily declining union because, as he viewed it, the organization had subordinated unionization of the non-union fields to renewing contracts in the older fields. In the past six months, despite favorable conditions in the industry, there had been a decrease of 19,000 in the number of dues-paying members. Mr. Brophy also charged that the union had deserted the unorganized workers who struck in sympathy in 1922 and said this desertion had encouraged operators in the other fields to embark upon a policy of contract-breaking.

Delegate Brophy's confession of weakness, retorted Philip Murray, international vice-president, did not apply to the union. "We are going into the coming wage conference just as firmly entrenched as we have ever been in any period of the history of the United Mine Workers." Except in Brophy's own district, he added, there had been no letdown in organization activity. Mr. Murray denied that the union deserted the Connellsville workers in 1922; Communistic elements, he said, had gone into the region after the strike and led the men to desert the union.

### Verbal Brickbats for Brophy

Van A. Bittner, chief representative of the international union in northern West Virginia, also scored the retiring president of district 2. William Marvin and George Basset, central Pennsylvania delegates, added their condemnation. Percy Tetlow, secretary of the committee, closed the debate and the substitute resolution carried by a substantial majority.

The action of the committee in non-concurring in a resolution favoring recognition of the Soviet Government was the forerunner of the decision made three days later when Communists were barred from membership in the union. All the denunciation, however, came from delegates supporting the committee report, which expressed the belief that "these emissaries of destruction" have received some of their financial support from non-union coal operators.

There was a minor flare-up when the committee refused to indorse an independent Labor Party movement. On Thursday morning the insurgents made a futile attack upon the management of the *United Mine Workers' Journal*. The same afternoon, however, they were able to rally some of the delegates who supported the administration on other questions in a fight against giving the international executive board



**William Green**

American Federation of Labor president reiterated aim for high wages and shorter work day.

unrestricted powers in levying assessments.

The committee on constitution, C. J. Golden, president of district 9, chairman, proposed to amend section 25 of article IX by eliminating the proviso that "no assessment levied by the international-executive board shall be collected for more than two months unless authorized by a referendum vote of the members" of the union. Many conservatives joined with the insurgents in opposing the change on the ground that it deprived the rank and file of their rights of self-determination and lodged autocratic power with the board.

On the other hand a number of delegates from local unions joined with district officers in defending the amendment. Their principal argument was that the delay occasioned by submitting a levy to a referendum vote might be fatal to the success of the project for which funds were desired. Speaker after speaker stressed the point that the amendment would be of inestimable value in furthering organization activities. "I say to you," shouted Van A. Bittner, "that the adoption of the report is an indication that we are going to take a position definitely here in this convention to raise the sinews of war, if necessary to do so, and it will mean more to our organization than any other policy I know of so far as an organizing campaign is concerned."

"What would you have thought," cried J. H. Morris, president of district 13, "if this country had sent Pershing to France with two months' supply of ammunition and had told him when that was exhausted it would be necessary to take a referendum vote about raising money to send him more? Do you want to send your officers into the front line without munitions?"

"No!" roared the supporters of the amendment.

On a demand for a division, 943 delegates were reported voting in favor of the committee report and 548 against the amendment. The announcement of the vote was followed by a turbulent demand for a roll call. After a rising vote, the secretary-treasurer reported that the demand had been lost by three

votes. Under the rules of the convention, a roll call will be granted at request of 30 per cent of the delegates. The count announced by the secretary showed only 444 members supporting the demand.

The next big clash was over the question of salaries. On Friday afternoon the committee on constitution recommended that the salary of the international president be increased from \$8,000 to \$12,000 and the salaries of the vice-president and secretary-treasurer from \$7,000 to \$9,000. This recommendation was offered as the committee's response to scores of resolutions from local unions suggesting increases to from \$10,000 to \$20,000.

This question was debated intermittently the rest of the afternoon and during the Saturday morning session. When put to a vote the motion was carried although opponents of the increase tried to equal the proponents in vocal volume in voting. On a demand for a roll call, only 262 supported the demand.

Between skirmishes President Lewis read a supplemental report calling for "a scientific revision" of freight rates and accusing the Interstate Commerce Commission of favoring the long-haul Southern fields.

William Green, president of the American Federation of Labor and formerly international secretary-treasurer of the United Mine Workers, arrived in the heat of the salary debate. Mr. Green reiterated the determination of the Federation to demand that wages increase in proportion to the productivity and efficiency of labor and to push its program for "a reasonable, constructive reduction in the hours of labor."

**Calls Low Wages Unsound**

"I know, and every thinking economist knows, that the theory of prosperity based upon low wages is unsound and uneconomic. It is an indefensible theory. You cannot have prosperity and low wages at the same time. If such a line of reasoning were correct, then the countries where low wages prevail ought to be the most prosperous nations under the sun. The reverse is true."

Mr. Green denounced the action of the operators who have broken away from the Jacksonville agreement as the greatest exhibition of perfidy and dishonor practiced by responsible employers since the signing of the Declaration of Independence. He exhorted the miners to support and follow their international officers and said the union alone could rescue the industry from ruthless internal competition. Mr. Green concluded his address by serving notice that Communists will be driven out of the ranks of organized labor.

The committee on resolutions gave short shrift to a number of resolutions from Illinois locals—apparently aimed at Frank Farrington, former president of district 12 and now an officer of the Peabody Coal Co.—to refuse to negotiate with representatives of the operators "who at any time held office in the United Mine Workers." The committee's recommendation of non-concurrence was adopted without debate. The committee also went on record in oppo-

**Urges Aim at Useful Life Rather Than Long One**

A plea for emphasis on the prolongation of usefulness rather than the prolongation of life and the decrease of the death rate, was made by State Health Commissioner Matthias Nicoll, Jr., at the New York Tuberculosis and Health Conference at the Hotel Biltmore, New York City, Jan. 19.

"The phenomenal increase in the expectancy of life throughout the civilized world is a well deserved reward for the adoption and application of modern principles of sanitation and hygiene; but the prolongation of life *per se* is not an end to which we should devote our major efforts, even though to every human being it seems the most important matter in the world," he said. "Our efforts should be directed to the prolongation of usefulness while life lasts, whether it be for fifty or one hundred years."

sition to the leasing of government coal lands for development while productive capacity of the mines now in existence so far exceeds demand.

A Congressional investigation of coal freight rates was demanded by the convention at its session Monday morning. The committee on officers' reports, in a memorial submitted to the delegates, charged that the present adjustment is destroying the coal industry of the Central Competitive Field and encouraging the uneconomic development of mining in the Southern states. Inequitable and unscientific readjustments and frozen differentials have driven the Central Competitive Field producers "out of their legitimate markets and brought them to a condition of depression and bankruptcy," asserted the committee.

"There is absolutely no excuse for the high fatality rates in American mining," said Francis Feehan of the field force of the U. S. Bureau of Mines, who addressed the afternoon session. Mr. Feehan suggested the appointment of pit safety committees to work with company officials as probably the best way to lower these rates. He asked for the co-operation of the industry in supporting the Bureau, which is without legal power to compel obedience to its recommendations. Everybody, according to Mr. Feehan, has been partially guilty for the existing state of affairs. Not enough attention and support has been given to state mining departments with authority. There also has been serious negligence on the part of some states in enforcing their safety statutes.

After spending the morning in hearing the conclusion of the report of the committee on appeals and grievances and electing Van A. Bittner and Rinaldo Cappellini as delegates to the next convention of the International Miners' Union the convention adjourned at noon Tuesday to meet again at 9 a.m. Wednesday, when the report of the scale committee was to be submitted to the delegates.

## Diversified Program Offered by A.I.M.E. For 135th Meeting

Variety marks the program arranged for the 135th meeting of the American Institute of Mining and Metallurgical Engineers, Feb. 14-17, Engineering Societies Building, New York City.

How trends in gas manufacture affect the coal industry, progress in mechanization, new data on timber preservation, evaluation of coals for byproduct coke making, liquid oxygen explosives and ground movement and subsidence, indicate the wide range of subjects that will be discussed. One morning session will be given over entirely to the presidential address and an address by Walter Barnum, president of the National Coal Association, on "Problems of the Coal Industry."

On Monday morning, Feb. 14, W. H. Fulweiler, W. J. Murdoch, and W. J. Rugg will discuss "Use of Coal for Making Water Gas"; H. J. Rose and D. J. Demarest will discuss "Mixing Coals for Gas Manufacture," and W. W. Odell will read a paper, "Western Coals for Gas Manufacture." A. C. Fieldner will be chairman of this meeting.

The afternoon meeting, presided over by Ralph H. Sweetser, will hear C. E. Leshner report for the committee on "Evaluation of Coals for Byproduct Coke Making." "Fine Coal Cleaning by the Hydrotator Process," by Walter Remick, should interest both bituminous and anthracite engineers. "Management in Mechanization," by J. C. White, offers a new approach to a growing problem. These papers are sure to evoke discussion among coal mining engineers. There also will be further discussion of G. St. J. Perrott's paper "Factors in the Ignition of Methane and Coal Dust by Explosives," previously published. On Monday afternoon, also, before the Mining Methods section, over which George A. Packard will preside, G. P. Boomsliker will discuss "Acceleration Stresses in Hoisting Cables in Theory and by Test." "Liquid Oxygen Explosives in Strip Coal Mining," by G. B. Holderer, will be presented at this session.

George M. Hunt will report for the committee on mine timber preservation "What Are the Limits to Mining Timber Preservation?"

Tuesday morning features the annual meeting and a special address by Walter Barnum, president of the National Coal Association. On Tuesday afternoon, with George S. Rice in the chair, the Mine Ventilation Section will hear William P. Yant discuss "Methane Contents of Coal Mine Air." He will be followed by J. T. Ryan, with a paper on "Devices for Detecting Dangerous Gases in Mine Air," and J. J. Rutledge, who will consider "Crosscuts or Break-throughs in Coal Mines." E. A. Holbrook and Frank Haas will then discuss "Standards of Ventilation in Coal Mines" and "U. S. Bureau of Mines Definition of the Gaseous Mine."

On Wednesday morning Robert C. Bosworth of the Colorado Bar will discuss from a legal point of view the responsibility of subsurface owners to support the surface. The afternoon

## Reed Derides Snooping By Government

Federal statutes have so clogged the books that they have become obnoxious to the individual citizen, who would break them if he had only time to learn what they are about, said Senator James A. Reed of Missouri, at the dinner of the Boot & Shoe Manufacturers at the Hotel Astor, New York City, Jan. 19.

Senator Reed derided the craze for centralization, the desire to set up super-governments, which, he said, found its climax in the League of Nations, the little-navy men, and the attitude of mind which minimizes America because of the wishes of foreign nations. Particularly, he criticized the numberless boards and commissions which have been set up to enforce laws.

"To enforce these innumerable laws, regulations and rules a horde of officials, tax gatherers, snoopers and spies swarm over the land like the lice of Egypt devouring the substance of the people; prying into their private affairs, regulating their trade and business and then poisoning their supply of alcohol," he said.

session, R. R. Sayers, chairman, will feature physiological effects of mine dust. Dr. Edgar Collis, Talbot Professor of Medicine, University of Wales, Cardiff, Wales, and Guest Professor at Harvard University, will be the principal speaker. Dr. Collis is one of the world's foremost industrial hygienists. "Investigation of Atmospheric Dusts in Coal and Metal Mines," by J. J. Forbes and A. H. Emery, will add interest to this session.

Competing with formal papers and discussions in interest will be the many excursions planned for visitors to engineering projects in and near New York City. Practically every type of engineering enterprise may be observed in the metropolitan area. Coal men will be particularly interested in the Eighth Avenue subway, now under construction; the Jersey terminals of the coal-carrying railroads; an immense new steam plant with its modern equipment, and the Holland vehicular tunnels for motor traffic. These tunnels represent the world's greatest underground ventilating problem.

The Institute smoker on Monday evening at Mecca Temple Mosque will bring together many engineers whose discussion of common problems in this informal way frequently aids in the solution of immediate problems and always inspires to new effort.

"The Women's Auxiliary" plans many gracious diversions. Among them are shopping tours, entertainment and tea at the Park Lane Hotel, a visit to the National Arts Club, and an informal dance on Tuesday evening preceded by a one-act play. The annual reception and dinner on Wednesday evening at the Waldorf-Astoria promises to be unusually well attended.

## Northeast Kentucky Coal Men Re-elect La Viers

Need for increased membership in the association, and the high rates of accident compensation in Kentucky were discussed at length at the annual meeting of the Northeast Kentucky Coal Association held at the Ventura Hotel, Ashland, Jan. 27. Henry La Viers, general manager of the North East and South East coal companies, who was re-elected president for another year, spoke convincingly of the need of more united effort in defense of the industry.

In the discussion of a report by C. H. Baidemiller, chairman of the compensation committee, it was shown that compensation rates in Kentucky are three to four times those in West Virginia. It appears that a principal cause is the board method of administration. There is a tendency to call a great number of witnesses in arriving at a compensation, thus incurring expense perhaps as great as in a court proceeding. An amendment to the state constitution is said to be necessary before a compensation law providing for the fixing of compensation by a commissioner, as in West Virginia, can be put into operation.

A report of the transportation committee showed that the activities of the association in that line have saved a handsome sum and that a wider market was created during the year. Approximately 2,500,000 tons were shipped to the lakes and about 1,500,000 tons to tidewater. The total production of the Big Sandy field in 1926 was 5.5 per cent more than in 1925, and practically double that of 1920.

Wm. N. Cummins, manager of the Red Jacket Coal Co., Red Jacket, W. Va., and F. C. Respass, secretary of the Bureau of Coal Statistics, Huntington, W. Va., explained the workings of that bureau, which is maintained by the Williamson and Kanawha operators' associations. Mr. Cummins stated that the past sales reporting has been a great help to the members.

At the banquet held in connection with the annual meeting, R. M. Lambie, chief, West Virginia State Mine Department, told of the safety club movement which was started in his state in January, 1925. There are now 350 safety clubs as the result of this move.

C. B. Huntress of the National Coal Association followed with a plea for work toward a larger membership in the Northeast association. He emphasized that it is a question of "every member work" rather than one of secretarial solicitation.

Other speakers at the banquet were George E. Brooks, general manager of the Chesapeake & Ohio Ry.; Lee Long, president of the Virginia operators' association, and Dr. Henry Mace Payne, consulting mining engineer of the American Mining Congress, who is now residing in Ashland.

Others elected were: First vice-president, Lew Roach, Powellton, W. Va., manager Elkhorn Piney Coal Mining Co.; second vice-president, T. T. Rogers, Virgie, president Rogers Elkhorn Coal Co.; treasurer, N. M. White, Prestonsburg; secretary, C. J. Nee-kamp, Ashland.

## Union Operators Adopt Resolution Demanding "Competitive Scale," for Presentation at Miami Conference

The operators' scale committee of the Central Competitive Field, consisting of Illinois, Indiana, Ohio and western Pennsylvania, meeting Jan. 28 at the Commodore Perry Hotel, Toledo, Ohio, adopted unanimously as a further step in their proposal for a continuing competitive wage scale, the following resolutions:

"That the wage scale for the Central Competitive Field, commencing April 1, 1927, must be continuing and at all times a competitive scale with the wages and conditions prevailing in West Virginia and Kentucky.

"That, in order to make the plan possible, a commission be selected by the respective parties to this agreement, consisting of four miners, four operators and three mediators, the mediators to be mutually chosen by such commission.

"Should such commission be unable to agree upon three persons to act as mediators or for any reason whatsoever shall fail, neglect or refuse to select such mediators, then the Chief Justice of the U. S. Supreme Court shall at once select such mediators and such selection shall be accepted by both parties to this contract.

"That the duties of such commission shall be as follows:

"(1) To determine a competitive wage scale for the Central Competitive Field.

"(2) To readjust such scale from time to time in order to maintain competitive conditions.

"(3) To have final jurisdiction in all grievances appealed from the several districts.

"(4) To perform such other duties as may be agreed upon by the joint conference of miners and operators."

The foregoing will be submitted at the joint conference of operators and miners scheduled to be held at Miami, Fla., Feb. 14.

### Will Pay Over Non-Union Scale

At a previous conference of the operators at Toledo ten days ago the "continuous competitive wage" plan contemplated a 10 per cent premium to be paid the union miners over the average wage paid in the non-union fields of West Virginia and Kentucky. This will be incorporated in the proposal submitted to the joint conference.

Last week's conference was unable to agree on a city other than Miami for the staging of the joint conference. Indiana delegates held strictly to the Jacksonville agreement and insisted that it be observed to the letter. The Jacksonville pact stipulates that the joint conference be held at Miami. Indications now point strongly to the holding of the meeting in the Florida city.

Operators from Ohio, Pennsylvania and Illinois strenuously objected to Miami, but without avail.

The conference was brief and orderly. It took only two hours and fifty minutes for the operators to dispose of the

resolution and the question of the joint conference city. A sub-committee which drafted the resolution on Thursday presented the plan to the meeting as a whole Friday, whereupon it was taken up seriatim. More time was consumed over the debate on the joint conference city than the wage proposal.

Operators complained about the destruction of collective bargaining in the Central Competitive Field owing to interference in the wage pacts between the union and the operators since 1917. It was declared that collective bargaining has been a lost art since 1916 and that the Jacksonville agreement was dumped on the operators by the government at Jacksonville three years ago.

In view of the attitude of the operators on the question of collective bargaining it is believed that when the coming joint conference begins its deliberations certain of the Central Competitive Field producers will not spend much time in pleading with the union for a modification of the scale.

It is predicted that the operators will offer the "continuous competitive wage" scheme and rest their case, leaving it entirely up to the miners for acceptance or rejection. Rejection will mean, it is declared, group action by the operators with the possibility of Ohio and Pennsylvania breaking from the United Mine Workers in an attempt to operate their mines on an open-shop basis.

### Walsh Resigns as Secretary; Made Hard-Coal Inspector

Joseph J. Walsh, of Wilkes-Barre, Secretary of Mines of Pennsylvania during the administration of Governor Gifford Pinchot, has resigned that office, and Governor John S. Fisher has appointed him as an anthracite mine inspector and assigned him to supervise the work of the Department of Mines, pending its reorganization and the selection of a Secretary of Mines. The appointment of Mr. Walsh as an inspector, a position he held for years prior to his promotion by Governor Pinchot, was the result of an understanding between the former Governor and the present Governor, it is said.

Frank J. Hall, of Harrisburg, long Deputy Secretary of the department, is in reality acting Secretary of Mines, as he has been designated by the Governor to sign all communications requiring the Secretary's signature.

The reorganization of the department, along the lines suggested by Governor Fisher in his inaugural address, with a bureau for anthracite and one for bituminous coal supervision, cannot come about until the necessary legislation is prepared, presented to the Legislature, passed and approved. The bill is being prepared at the present time.

Mr. Walsh was named to succeed Michael J. Brennan, an inspector who recently resigned.

### Stephen Arkwright Burned In Serious Mine Fire

Stephen Arkwright, general manager for the Paisley interests, Cleveland, in the Monongalia field of West Virginia, was painfully but not seriously burned on Jan. 29 in the No. 1 mine of the Connellsville By-Products Coal Co., at Morgantown, W. Va., by an explosion which resulted from a mine fire which had been burning for twelve hours. Nine miners also received slight burns.

A trolley wire is believed to have ignited the face of the coal after being short-circuited. Mr. Arkwright was superintending the work of bratticing off the fire area when the blast drove the entire party from the mine.

Chief Robert M. Lambie of the West Virginia Department of Mines, apprised of the fire, immediately left Northfork, in the extreme southern part of the state, for Morgantown and pending his arrival no further effort was made to enter the mine. The fire is regarded as one of the most serious which has broken out in the Monongalia section recently. The explosion is thought to have occurred when flames ignited gas.

### United States Coal & Coke Sets Safety Record

A world's record for mining coal with minimum fatalities was established in 1926 by the United States Coal & Coke Co. at Gary, W. Va. According to Edward O'Toole, general superintendent, only three lives were lost last year in the mining of 4,657,352 tons of coal. More than 1,500,000 tons were mined per fatality. This record represents the result of a mine safety drive which was commenced in 1904. No. 6 mine of the company has produced 6,030,862 tons of coal since its last fatality, which occurred in February, 1917.

Safety in the Gary mines does not start when a man comes to work for the company, but if a man has been living at Gary since childhood, as is the case with hundreds of employees, he is taught safety in the schools, taught how to be careful not only when he is at work but when he is on the road and when he is in the home. Safety not only means care of the workmen in the mines but in habits and education. Through the efforts of the United States Coal & Coke Co., the Gary schools teach safety in every walk of life.

### Island Creek Splits Stock

Stockholders of the Island Creek Coal Co., which operates in southern West Virginia, meeting Jan. 31 at Portland, Me., voted to increase the authorized common stock from 150,000 to 650,000 shares and to issue four additional shares for each present share. The par value of the shares will remain at \$1.

### Blast Kills 4 in Ilsley Mine

An explosion on Jan. 31 in the mine of the Ilsley Coal Co., a subsidiary of the Norton Coal Mining Co., at Ilsley, Ky., killed four miners. All the bodies were recovered. The blast is believed to have been caused by an electric spark igniting gas.

## Defeat of Woods Has Not Ended Fight Over Commerce Commission Vacancy; Reappointment of Cox Has Support

By Paul Wooton

Washington Correspondent of *Coal Age*

Rejection by the Senate of Cyrus E. Woods has not closed the controversy over the Interstate Commerce Commission appointment. There is some doubt, as this is written, whether Senator Reed, of Pennsylvania, will bring forward another candidate. If he does, there is more doubt whether his second candidate can be confirmed. Anyone he may indorse is certain to be regarded with suspicion. If it is true, as the Southern coal operators claim, that he chose a man likely to work for rates favorable to the coal industry of his state, or if it is true, as Northern coal operators claim, that he chose a man who would be inclined to favor unduly the railroad and steel industries, there would be little confidence in his ability to select a Pennsylvanian who would be entirely impartial. On the other hand, it is pointed out that the Senate would not reject a man just because he comes from Pennsylvania, and a second Reed candidate might have nothing in his record on which rejection could be based.

Some think, in view of what happened in the Woods case, that no one will be confirmed who hails from either of the competing coal-producing areas. In that case some expected the nomination to go to the Southwest—a section which has been clamoring for representation on the Commission.

### Sentiment for Cox Survives

There is some support for the reappointment of Frederick I. Cox, the member of the Commission who is said to have been sacrificed to make a place for Pennsylvania. Now that Senator Reed has had his chance and has failed to select a man who could command the confidence of the Senate, some think it would be the wise thing to return to the established policy and renominate him. This would indicate the principle of making virtually permanent appointments to the Commission during conscientious service. Some hold that this would do more than any other one thing to maintain the high character of the Commission and give it something of the stability of the federal judiciary. Mr. Cox has made a good record with the Commission and has established a splendid reputation in

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

traffic quarters. It is understood that he will become a member of a prominent law firm in Washington. Since that relationship has been arranged it is possible that he would not consider reappointment.

Another suggestion that has been made is that the place could be well filled by the promotion of George B. McGinty, the secretary of the Commission. Mr. McGinty, after sixteen years in the judicial atmosphere of the Commission, would be as free from prejudice as anyone who could be found. He was strongly urged as the successor of former Commissioner McChord. It is known that the President is much impressed with his qualifications.

### Wider Differential Urged Against Southern Carriers To Revive Baltimore Trade

A brief, the purpose of which, it is claimed, is to regain for the coal-carrying railroads which converge in Baltimore some of the coal business they have lost in the last eight years, has just been filed with the Interstate Commerce Commission by the Western Maryland Ry.

Southern railroads are said to have taken away from the Baltimore & Ohio, the Western Maryland and the Pennsylvania railroads a business of 2,000,000 tons annually which they formerly had but which has gone to the Hampton Roads ports, chiefly Newport News.

The Norfolk & Western, Chesapeake & Ohio and Virginian railways now are in possession of the business which the roads converging in Baltimore previously used to have.

This is largely due, it is declared, to the fact that the rate per ton from Maryland or Pennsylvania mines to tidewater in the case of the Baltimore & Ohio, Pennsylvania and Western Maryland for a haul of 238 miles is \$2.25, while the rate over the Southern roads from the Virginia mines to their ports is only \$2.50 per ton for a haul of 414 miles.

To remedy the situation, the Western Maryland asks the Interstate Commerce Commission to adopt any one of the following three plans:

To increase the rate on the Southern roads by 27c., making it \$2.77, or 52c. higher than the Northern. This is based on the greater distance it is necessary to haul the coal over the Southern roads.

If the Commission will not accept that proposal the brief suggests that it order a 12½c. increase in the rate of the Southern carriers, accompanied by a 12½c. decrease in the rate of the Northern carriers.

### World Trade Increases 5 per Cent. Since 1913

World trade has increased in volume about 5 per cent since 1913, according to the *Index* published by the New York Trust Co. It amounted to \$39,600,000,000 in 1925, as compared with \$37,900,000,000 in the pre-war period. In nominal value the increase amounts to about 63 per cent.

This growth has been accompanied by some notable changes in commercial ranking by the nations and the continents. Japan has risen from thirteenth place to seventh place; Belgium has fallen from fifth to tenth, Russia from sixth to twenty-third, and Spain from thirteenth to twentieth. Trade is more evenly divided among the nations than formerly, and the share of Great Britain and Germany is less than in 1913.

In 1925 the volume of imports of Europe and South America had not yet reached the prewar level. European imports amounted to about 94 per cent of the 1913 volume, and exports about 85 per cent. European trade, as a whole, constituted a smaller proportion of world trade in 1925 than in either 1924 or 1914.

In recent years almost every country of the world has bought relatively more from the United States than in 1913.

If the Commission will not accept the second proposal, the Western Maryland suggests that it is ready itself to take the whole of the cut—that is, to reduce its rate to \$2 a ton "to regain a fair share of its lost business and to put a stop to a continuing increase of that loss."

The Baltimore & Ohio and the Pennsylvania railroads have not joined the Western Maryland in the proposition to change rates.

The brief is a part of proceedings which have been before the Interstate Commerce Commission for a year. When the anthracite strike was on about a year ago, the Commission fixed an all-rail rate from the Southern fields to New England for certain sizes of soft coal because the people there learned to use that coal for domestic purposes. The order was rescinded when the strike ended, but the Southern roads are trying to get a permanent all-rail rate on all sizes. The New England people are reported to be aiding them in that fight.

### U. S. Fuel Imports in December

	(In Gross Tons)	
	1925	1926
Anthracite.....	186,480	234
Bituminous.....	60,419	34,042
From:		
United Kingdom.....	19,309	62
Canada.....	38,977	32,950
Japan.....	5	206
Other countries.....	2,128	250
Coke.....	63,509	11,138



## News Items From Field and Trade



### ALABAMA

**Coal Dock for Mobile.**—General William L. Sibert, president and chief engineer of the Alabama Docks Commission, in charge of construction of port facilities at Mobile, announces that a modern coal-handling plant will be included in the improvements. A site on the south bank of Three Mile Creek and Mobile River is being considered as the location of the terminals. Details of the plans have not been worked out as yet.

**To Expand Output.**—The Brookside-Pratt Mining Co., which recently acquired the properties of the New River Coal Co., near Brilliant, Marion County, with an active mining operation at Turner, is building a coal washery and installing picking tables. An electric locomotive has been added to the haulage equipment inside and hydro-electric power will be used instead of current now generated locally. It is planned to build about fifty new houses for employees. The Black Creek seam is being worked on this property. This company also is planning an increase of production at its Warrior River operations, Walker County, by the opening of another drift mine.

**Convict Miners Soon to Go.**—Charles A. Moffat, chairman of the state board of administration, which is in charge of convicts, announces that the removal of prisoners from the coal mines of the district will begin Feb. 13. Convicts have been extensively employed in the mining of coal in this district for many years, first being leased direct to the operators, but in later years they have been maintained and worked under jurisdiction of state officials entirely. There are approximately 1,500 in local mines at present, composing practically the entire working force of several of the largest operations. They will be replaced by free labor as they are gradually withdrawn.

### COLORADO

**State Coal Output Gains.**—Colorado coal mines produced 1,318,108 tons of coal in December last, an increase of 68,452 tons over the corresponding month a year ago. Total output for 1926 was 10,591,869 tons, compared with 10,440,387 tons in the preceding year. In a large measure the increase is attributed to lignite production in Weld County, which was approximately 200,000 tons in excess of the total for 1925. The average number of men employed at the mines last year was

11,690 and the average number of days worked per mine, 166.2, against 12,138 and 156.4, respectively, the year before.

### ILLINOIS

**Output Higher in December.**—Coal production in Illinois during December totaled 8,454,777 tons from 227 mines, working an average of 20 days, employing 71,805 men, according to a report of shipping mines just issued by the State Department of Mines and Minerals. Output in November totaled 7,900,478 tons, from 219 mines, working an average of 19.6 days and employing 69,273 men. The December output was approximately 1,000,000 tons ahead of December, 1925. Franklin County led in point of production in the state during December with eighteen mines producing 1,947,519 tons, working an average of 23.5 days and employing 14,713 men. Williamson County was second with twenty-seven mines hoisting 1,084,111 tons, working an average of 20.8 days and employing 8,854 men.

**Franklin County Mines Hum.**—Renewed activity in the coal industry in southern Illinois is bringing back a greater period of prosperity to this section than has been enjoyed since the World War. With the exception of three idle mines at Benton, the Rend mine at Rend and the two mines at Sesser, every mine in Franklin County that can be worked at a profit is operating now.

The Carlin Coal & Mining Co., Inc., has been organized to operate the mine at Bethalto. The capital will be 260 shares of no par value. The company will mine and sell coal. The incorporators are William Bell, Thomas Scott and Richard Dunn.

The Mount Olive & Staunton Coal Co. is installing new motors and equipment necessary to rebuild the crusher which was destroyed by fire in December. The mine is being operated but the coal cannot be crushed until the crusher is repaired.

### INDIANA

**More Strip Mines Planned.**—The Patoka Coal Co., which is operating a large strip mine at Blackburn, Pike County, three miles above Petersburg, is taking options on over 2,000 acres of stripping lands about five miles east of Petersburg and some time during the coming spring will open one of the largest operations of the kind in Indiana. James P. Goodrich, former

Governor of Indiana, is interested in the Patoka Coal Co. The coal in the land just taken over is found at depths ranging from 12 to 40 ft. and is from 4½ to 6½ ft. thick. The shallow coal is covered with earth and has no rock formation. The coal company is drilling out the territory and surveys are being made for a switch leading from the Big Four railroad. The Ingle Coal Co. also is taking options on large tracts of stripping lands south of Petersburg.

**Grays Take More Strip Land.**—Twelve hundred additional acres of coal lands in Pike County have been acquired by Gray Brothers, of Evansville. The prices paid ranged from \$80 to \$100 per acre, the deal involving an expenditure of over \$100,000. The land acquired by the Evansville concern lies in Lockhart township. No effort will be made to strip the land at present, it was said. Gray Brothers already own stripping lands valued at over \$500,000 in Pike County and are operating two large shovels. They plan to put a third in operation on the James Bottom farm, east of Arthur.

**Big Ben Co. Reforesting.**—The Big Ben Coal Co., operating stripping mines in the Center Point field, is co-operating with the state Department of Conservation in the reforestation of abandoned coal and shale lands. The first experiment will be the planting of ten acres of the company's abandoned land with native trees. John Megehard, superintendent of the company, is obtaining 12,000 trees from the state department, for planting on the land.

### KENTUCKY

Prof. C. J. Norwood, head of the department of mines and metallurgy of the College of Engineering of the University of Kentucky, died Jan. 20 at Lexington, Ky. Professor Norwood was stricken with paralysis on Jan. 3 and did not rally. He was chief mine inspector for the State of Kentucky for about thirty-five years before his connection with the university. Professor Norwood was eulogized at the annual meeting of the Hazard Coal Operators' Exchange, in Lexington, a few weeks ago, when that organization arranged for a \$1,000 scholarship annually to the University of Kentucky's mining department.

**Appeals Coal-Land Decision.**—Transcript of the record on appeal in the case of the Liberty Coal & Coke Co. vs. the Federal Coal Co., involving title to approximately 250 acres of coal

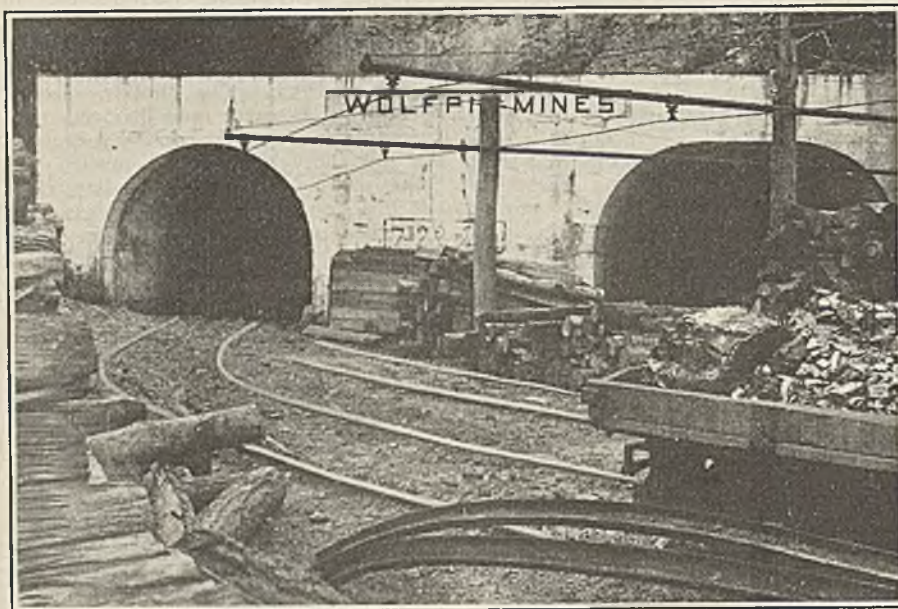
lands in Bell County, was filed in U. S. Circuit Court of Appeals in Cincinnati on Jan. 21. The Federal company seeks reversal of the decree of U. S. District Judge A. M. J. Cochran, Kentucky, finding the title to be in the Liberty company and enjoining the Federal company from further trespass on the land, and ordering it to pay a royalty of 20c. a ton for all coal mined by it since Jan. 2, 1919.

Development of the Elkhorn coal field has taken Letcher County out of

Patrick McKenna, Lexington, Mo. and secretary, George Cannington, Lexington. The district office probably will be maintained in Moberly, Mo.

## MONTANA

**To Lease Coal Tracts.**—Sale by public auction of leases on two tracts of public coal land in Montana has been authorized by the Interior Department. A unit of 75 acres in Richland County



Wolfpit Mine of The McKinney Steel Co.

These are the loaded main tracks of the Lower Elkhorn seam at Wolfpit, Ky. The low ash and low sulphur contents of Elkhorn coal make it in high demand by the steel industry.

the list of pauper counties, as it has taken numerous other counties into the list of prosperous districts. Letcher County today has a tax assessment value of sixteen million dollars, according to Henry R. Younts, tax commissioner for the county.

## MINNESOTA

**To Improve Ford Dock.**—Extensive improvements are planned at the Ford Motor Co.'s Duluth dock next summer, according to James Patten, superintendent. The work proposed would include a concrete foundation at estimated cost of \$100,000 and additional unloading equipment costing \$350,000. The Ford interests acquired the dock from the Superior Coal & Dock Co. under mortgage foreclosure proceedings about two years ago. Coal from the Ford Kentucky mines is being handled over the dock for distribution at points over this territory, including the Ford motor assembling plant at Minneapolis.

## MISSOURI

Frank Bunch, of Richmond, Mo., has been elected president of District No. 25, United Mine Workers. The district comprises all of Missouri and Leavenworth County in Kansas. Other officers elected were: Vice-president,

will be offered at the land office at Great Falls, at a date to be announced later. Terms of the lease provide for a royalty of 10c. per ton, an initial investment of \$1,000 during the first three years of the lease with a minimum production of 800 tons per year commencing with the fourth year of the lease. The second unit comprises 40 acres in Fergus County and will be disposed of at the land office at Billings. The successful bidder for this lease must pay a royalty of 15c. per ton, making an initial investment of \$500 during the first three years of the lease and a minimum production of 275 tons per year beginning with the fourth year of the lease.

## PENNSYLVANIA

**Warden Dines New Officials.**—One hundred and four officials and representatives of the Pittsburgh Coal Co. were guests of W. G. Warden, chairman of the board, at dinner Jan. 22 in the Blue Room of the William Penn Hotel, Pittsburgh. The affair was arranged to introduce the new officers. The guests included all the mine superintendents, engineering corps and representatives from all other departments and branches of the service, including executive, accounting, legal, traffic and

sales. Short talks were made by Mr. Warden, J. D. A. Morrow, president and sales vice-president; L. E. Young, production vice-president; C. E. Leshar, executive vice-president, and J. B. L. Hornberger, vice-president-comptroller. Mr. Warden, in his talk, reviewed the progress made in the last two years in reorganizing the forces at the mines on the open-shop plan and restated the firm purpose of the directors to continue on that basis. The other speakers discussed plans for mine development and plant construction now under consideration for the coming year. Mr. Hornberger stressed the side of safety and employee welfare.

**Would Revamp Examining Boards.**—Senator George Woodward, of Philadelphia, has introduced amendments in the Legislature at Harrisburg to the act of 1897 relating to the selection of miners' examining boards. The act now provides that the board in each district shall consist of nine miners, but the Woodward amendments provide that each board "shall consist of an anthracite miner, an owner, operator or superintendent of the anthracite mines and an anthracite mine inspector." These district boards are to be appointed by the Governor. It is further provided that the anthracite miners appointed shall be from the most skillful miners actually engaged in mining in their respective districts, and must have had five years' practical experience in the mines. Another amendment provides that at the expiration of ten days after the passage of the amendments the terms of the members of the Miners' Examining Board then in office shall terminate. The Governor during this period is empowered to appoint the new boards. The bill was sent to the Committee on Mines and Mining of the Senate.

**Plans Three Modern Tipples.**—The Pittsburgh Coal Co. is perfecting plans for three new steel tipples, to be fully equipped with shaker screens, picking tables and loading booms. These new structures will be located at Somers No. 1, Ocean and Banning No. 1 mines, on the Pittsburgh & Lake Erie Ry. Arrangements also are being made for installing similar equipment in Essen No. 3 tipple, on the Pittsburgh, Chartiers & Youghiogeny Ry.

**Call Anthracite Producers Utilities.**—Anthracite producers are classed as public utilities and made subject to the jurisdiction of the Public Service Commission under the provisions of a bill introduced in the House, at Harrisburg, Jan. 25 by Representative Richard D. Burns, of Philadelphia. The bill is similar to that introduced by the same sponsor in the legislative session of 1925. It is an amendment to the Public Service Company act of 1913, and in the first section of the act it interpolates the words "anthracite producers" with various utilities, such as water, gas, electric power and railway companies.

**Presents New Mine-Cave Bill.**—The first of the mine-cave bills has made its appearance in the Pennsylvania Legislature. Senator Albert, of Lacka-



wanna, who has sponsored similar bills in past sessions, introduced the new measure Jan. 17. The bill provides that 50 per cent of the tax on anthracite be turned over to the commission known as the Pennsylvania State Anthracite Mine Cave Commission. A special fund is to be created in the State Treasury for receipt of this money. This is to be known as the Anthracite Mine Cave Fund and is to be drawn upon by requisition of the commission for the payment of "salaries and other expenses of the commission, for the prevention and elimination of danger to life, limb and health and avoidance of grave public harm by surface subsidence resulting from past or future anthracite coal mining operations, and likewise for the prevention, ascertainment and remedying of damages to persons and property so resulting."

The tipple of the Reed Coal Co. at Colwell, was burned on Jan. 18. The loss is \$12,000 or more. The tipple stood on the line of the Shaumut R.R.

### UTAH

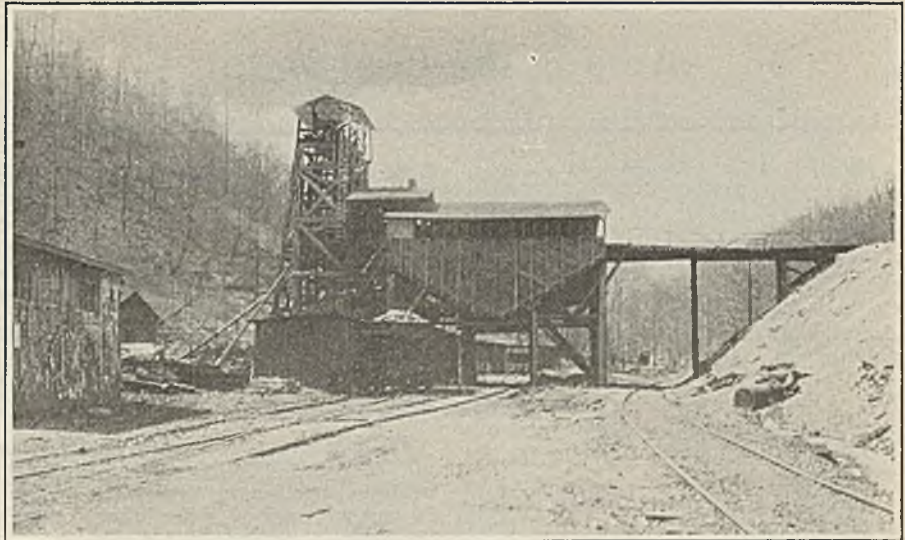
**Scant Attention for Coal.**—In his message to the State Legislature, which convened a few days ago, Governor George H. Dern dismissed the subject of coal and coal mining with the following short paragraph: "Coal mining is one of our leading industries. Last year Utah coal mines produced 4,656,287 tons, and gave employment to 4,798 men. Increasing quantities of Utah coal are being shipped to other states, but the demand is not yet sufficient to enable our mines to operate at capacity, and consequently they will have to carry a heavy burden until the market catches up with their development."

**Urge Electricity for Heat.**—The Utah Power & Light Co. has applied for permission to put into effect new rates with the view of encouraging greater use of electricity for heat and power purposes in the home.

### VIRGINIA

**To Enlarge Virginian Trackage.**—The Virginian Ry. will increase its track storage capacity at Sewalls Point to accommodate approximately 1,000 more coal cars, it has just been announced at the office of the president, C. H. Hix, at Norfolk. The Virginian now has trackage for 2,200 coal cars at its Sewalls Point terminals, where its big coal piers are located. The proposed improvements will cost about \$150,000. The Sewalls Point improvements are to start at once, and the work will be done by employees of the railroad. The work is to be completed in July. The Virginian will spend \$1,500,000 in improvements all over its system during the year. The largest single item is for \$500,000 to enlarge the trackage at Exmore, Va.

The preliminary report of the Virginia Iron, Coal & Coke Co. for 1926 shows a net income of \$87,215, after interest, depreciation, depletion and taxes, which is equal to \$3.49 a share earned on \$2,500,000 of 5 per cent pre-



Shaft Mine Between Pineville and Middlesboro, Ky.

This mine of the Low-Ash Mining Co. is in the Mason—also known as the Mingo—seam. The present production is approximately 300 tons per day.

ferred stock. This compares with \$193,297, or 68c. a share, after preferred dividends, on 100,000 shares of common stock in 1925. For the final quarter of 1926 earnings were \$100,466, after the same charges, or \$4.02 a share on the 5 per cent preferred, as against \$36,382, or \$1.45 a share, in the preceding quarter and \$9,752, or 39c. a share, in the last quarter of 1925.

### WEST VIRGINIA

**Fourth Tipple Fire in Two Weeks.**—The Cross Creek tipple of the Pittsburgh, Virginia & Kentucky Coal Co. was completely destroyed in a fire which started about midnight Jan. 17. The loss was placed at \$30,000 by Superintendent Rue. Coming close on the heels of three other tipple fires in the Panhandle non-union mines in two weeks, the Cross Creek fire will result in state fire marshals being called in, it is stated by Prosecuting Attorney James Wilkin. Arrangements are being made to construct a temporary tipple at once so that nearly 300 workmen can be put to work.

**Island Creek Pays Bonus.**—The sum of \$95,000 in gold was distributed to employees of the Island Creek Coal Co. as a bonus last year. About 3,500 employees shared in the distribution. The mine employees received \$5 for each year's service and the salaried men received approximately an extra month's salary. No less than 425 men working in the mines were recipients of \$50, having been with the company for ten consecutive years.

**Find Bodies of Blast Victims.**—Four machine men lost their lives in an explosion early Jan. 19 at the Caples mine of the Central Pocahontas Coal Co. The bodies were recovered on the night of Jan. 19 by rescue workers. With the finding of the four bodies all the men in the mine at the time of the explosion were accounted for. Rescue crews brought out alive and uninjured seven men who were in the section of the

mine where the explosion took place. The seven men were found within an hour after the blast. An accumulation of gas is thought to have been responsible for the explosion which did comparatively little damage to the interior of the mine.

### CANADA

**Nova Scotia Seeks New Records.**—Nova Scotia looks forward confidently to breaking in 1927 the production record of 5,400,000 tons attained during 1926. This is the largest output since 1916, when the total for the whole province reached 6,100,000 tons. Sydney Mines, long depressed by industrial woes, is cheered greatly by the news that recent adoption of the longwall mining method will mean a new lease of life for Princess Colliery. Since 1876 this pit has produced over 10,000,000 tons of coal.

**Would Encourage Coke Making.**—Charles Stewart will shortly introduce into Parliament a bill to encourage the manufacture of coke from Canadian coal by the payment of a bonus, the amount of which has not been definitely fixed. Plant owners are said to be asking 70c. per ton on the coke produced and also ask the right to use a proportion of American coal, declaring that Canadian coal alone is unsuitable for coking. The matter is somewhat complicated in view of possible changes in the coal tariff, and legislation may be delayed till the tariff question is settled.

**Railroad Goes Back to Coal.**—The Great Northern Railway Co., which prior to the long strike in 1924 was the Crow's Nest Pass Coal Co.'s best customer, is changing from fuel oil back to coal on its locomotives on its Whitefish-Spokane division. It is understood that, with orders in hand, the collieries of the district will be worked on a five-day per week basis. For some time past nearly all the collieries have been on short time.

## Among the Coal Men

Major K. C. Appleyard, general manager of the Birtley Iron Co., Birtley, England, and Mr. J. W. Stobart of the Horden Collieries, Ltd., County Durham, England, arrived in New York on the *Majestic*, Jan. 25. The Birtley Iron Co. is the sole British licensee for the American Coal Cleaning Corporations patents in Great Britain and will shortly erect for the Horden Collieries, Ltd., a plant having a capacity of 325 tons per hour. Major Appleyard and Mr. Stobart will be in this country for some weeks.

A dinner was given to R. V. Norris on Jan. 27 at the Union League Club, New York, by Walter H. Aldridge, in behalf of many friends on the directorate of the A.I.M.E. and others, and in recognition of his long service as a director. A silver loving flagon was presented to Mr. Norris.

J. F. Bohannon, general manager of the Elkhorn Coal Corporation, Wayland, Ky., has been so seriously ill that his son, Dr. Frank C. Bohannon, Louisville, has been called home.

J. G. Coutant, who has been for the last three years consulting and combustion engineer for the Furnace Engineering Co., manufacturers of Simplex pulverizers and water floor furnaces, has opened an office as consulting fuel engineer at 26 Cortlandt St., New York City. Mr. Coutant, who has had a wide experience applying pulverized fuel to boilers and industrial furnaces both here and abroad, will now specialize in reports and engineering assistance on fuel problems and the increased capacity of boilers and industrial furnaces.

L. E. Young, formerly general manager of the Union Colliery Co., of St. Louis, Mo., and of the Kathleen mine, at Dowell, Ill., was given a banquet at Duquoin by the superintendent and bosses of the Kathleen mine on the eve of his departure to take up his duties as vice-president of the Pittsburgh Coal Co., Pittsburgh, Pa. A gold watch suitably inscribed in recognition of his achievements at the Kathleen mine was presented to him. Newton Bayless, superintendent of the mine, presided and among those present was F. G. Tryon, of the Bureau of Mines, Washington, D. C., who was making a trip of inspection through the southern Illinois field.

Jay Short, formerly superintendent and purchasing agent for the Hugh Shirkie Coal Co., Terre Haute, Ind., has resigned his position with that company and purchased a half interest in the Hidden-Bell Insurance Co. Mr. Short had been with the Shirkie company for the past fourteen years. He has been elected as secretary of the Hidden-Bell company.

P. H. Greenlaw, assistant sales manager for the Southern Coal, Coke & Mining Co. of St. Louis, Mo., has been elected district secretary for the Missouri-Kansas-Arkansas district of the

Kiwanis Club. His election took place at a meeting of the lieutenant governors and district trustees held in Kansas City, Mo. Greenlaw, who edits the Southern company's employees' magazine, "Yours and Mine," has been a member of the Board of Governors of the Downtown St. Louis Kiwanis Club for several years and during 1926 was vice-president of the club.

William Russell, managing director of the Dorr Company, Ltd., London, England, arrived in New York on Jan. 10 and will make his headquarters with the Dorr Company, 247 Park Avenue, New York City. While in this country Mr. Russell will familiarize himself with engineering achievements in the United States since his last visit, eighteen months ago.

W. A. Reed, agent of the Philadelphia & Reading Coal & Iron Co. at Buffalo, having come into the position from the Detroit office of the company on the death of D. L. Tuttle in 1921, will retire on May 1. His place will be taken by James Hutton, for several years a member of the home office of the company. Mr. Hutton has now been appointed assistant sales agent under Mr. Reed and has already assumed the position.

L. H. Schnerr, formerly general superintendent, Inland Collieries Co., Indianola, Pa., has been appointed general superintendent, Elkhorn division, Consolidation Coal Co., Jenkins, Ky.

E. V. Walker, formerly engineer, New River & Pocahontas Consolidated Coal Co., Ashland, Ky., has been appointed superintendent of mines Nos. 206 and 207, Consolidation Coal Co., Jenkins, Ky.

## Obituary

Col. Henry G. Prout, editor in chief of *Railway Age* from 1887 to 1903 and a distinguished civil engineer in varied fields, died at his home in Summit, N. J., Jan. 26, in his 82d year. He retired from active business in 1915. He was educated at Stockbridge (Mass.) Academy, had private tutoring and matriculated at the University of Michigan, but left before the close of his senior year. Aside from his military experiences, covering two years in the Civil War with the Union forces, a reconnaissance expedition in Colorado in 1868 and four and a half years in the service of the Khedive of Egypt, from which he retired with the rank of colonel, most of his career was devoted to manufacturing and perfecting switch and signal devices. He resigned the editorship of *Railway Age* to become first president and general manager of the Union Switch & Signal Co., from which he resigned in 1914 and later be-

came president of the Hall Switch & Signal Co., remaining in that office for ten months, when he gave up active business.

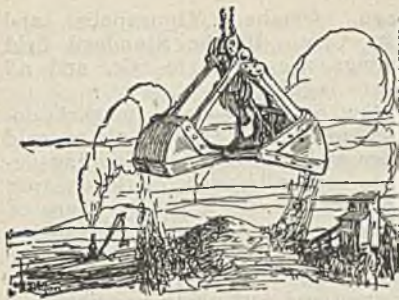
William L. Andrews, vice-president of the Consolidation Coal Co., in charge of operations, died in Baltimore, Jan. 15. Mr. Andrews had been a sufferer from heart disease for some time, but had been able to attend to his office duties until late in December. Mr. Andrews was born in Ohio, and early in life became associated with the late Oscar G. Murray in the West, following him to the Baltimore & Ohio R.R. in 1896. Mr. Andrews was at one time the coal and coke agent of the railroad at Pittsburgh. At various times he was with the Iron Mountain R.R., the Big Four and the Chesapeake & Ohio. In 1904 he became manager of transportation of the Consolidation Coal Co., and in 1920 was elected vice-president.

Thomas M. Jenkins, 65 years old coal operator and former street railway official, died Jan. 23, at his home, in St. Louis, Mo., of edema. He had been ill for about a month. Mr. Jenkins was born in Albany, N. Y., and as a youth served as a page in the New York Legislature. He started his street railway career as a driver for a horse-drawn car in Albany and later worked himself up to the position of superintendent of the trolley line. Later he went to St. Louis, Mo., where he climbed steadily in the railway industry. Leaving the railway field, Mr. Jenkins next entered the coal industry as president of the St. Louis & O'Fallon Coal Co., owned by the Busch interests of St. Louis. In more recent years he headed the Regal Coal Co. While head of the St. Louis & O'Fallon company he was a member of the executive committee of the Coal Operators Association for the Fifth and Ninth Districts of Illinois. He resigned from the St. Louis & O'Fallon company in 1925.

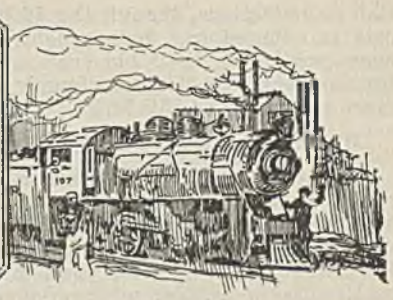
## Traffic

An amended application has been filed by the Guyan & Tug River Railway Co., a subsidiary of the Norfolk & Western, asking the Interstate Commerce Commission for a certificate of public convenience and necessity for a 53-mile extension of the line from Elmore, W. Va., to Wharnciff, W. Va. The extension would follow the Guyan River by water grade to Gilbert, thence up Gilbert Creek to Ben Creek to Wharnciff, connecting with the main line of the Norfolk & Western. The present terminal at Elmore affords a connection with the Virginian, which has assembling yards there. The Chesapeake & Ohio also seeks to construct an extension from Gilbert to Stonecoal, near Mullins, thence into Raleigh and to the main line.

The Brown Coal Co. and the Pioneer Coal Co., of Princeton, W. Va., have filed a complaint with the Interstate Commerce Commission against the application of a combination rate of \$2.90 from Matoaka, W. Va. The rate is held to be unreasonable to the extent that it exceeds \$2.27.



# Production And the Market



## Uneven Tone Pervades Bituminous Coal Market; Labor Element Looms Larger

Spottiness characterized the bituminous coal trade of the United States during the last week—a rather surprising state of affairs when the general situation is carefully sized up. Continuance of rigorous winter weather over a large portion of the country was perhaps the most important stimulus with production continuing to hover close to record figures.

Domestic demand reacted most favorably to the downward tendency of the thermometer, quickening consumer interest as well as moving retailers to replenish depleted yard stocks. Steam coals, on the other hand, were affected to a more moderate degree. Railroads, utilities and large industrial consumers continue to buy for storage purposes, but a tapering off in this class of purchasing is noticeable here and there. The importance of this business as a stabilizing factor was strikingly shown in the northern Ohio field, where a slackening of such buying was promptly followed by the appearance of distress coal. Contracting is backward and export trade has disappeared from the picture.

### Labor Issue Looms Larger

Even in the absence of definite developments (at this writing) at the United Mine Workers' wage convention at Indianapolis the labor situation takes on increasing importance in the bituminous industry as April 1 draws nigh. In the light of the latest reiteration of the old Lewis slogan "no backward

step," however, it is somewhat difficult to understand the apathy of some industrial consumers in the matter of adding to stockpiles as a safeguard in the event of strike when the Jacksonville agreement expires. It is possible, of course, that assurance has been created by the recent figures of the Bureau of Mines revealing that non-union operations produce nearly 65 per cent of the total coal output of the country.

### Price Index Still Slipping

Coal Age Index of spot bituminous prices on Jan. 31 was 185 and the corresponding average price was \$2.24. Compared with the figures for Jan. 24 this was a further decline of 3 points and 4c. Recessions in spot quotations on low-volatile coals of West Virginia and central Pennsylvania were responsible in large measure for the decline. There also was a falling off in the realizations for Pittsburgh gas coals and mine-run and screenings in the Pittsburgh No. 8 field, as well as for high-volatile mine-run and screenings from central West Virginia and southern Ohio. A softening tendency was in evidence at New York, with prices at Philadelphia and Baltimore unchanged. Changes were few also in quotations for Midwestern coals.

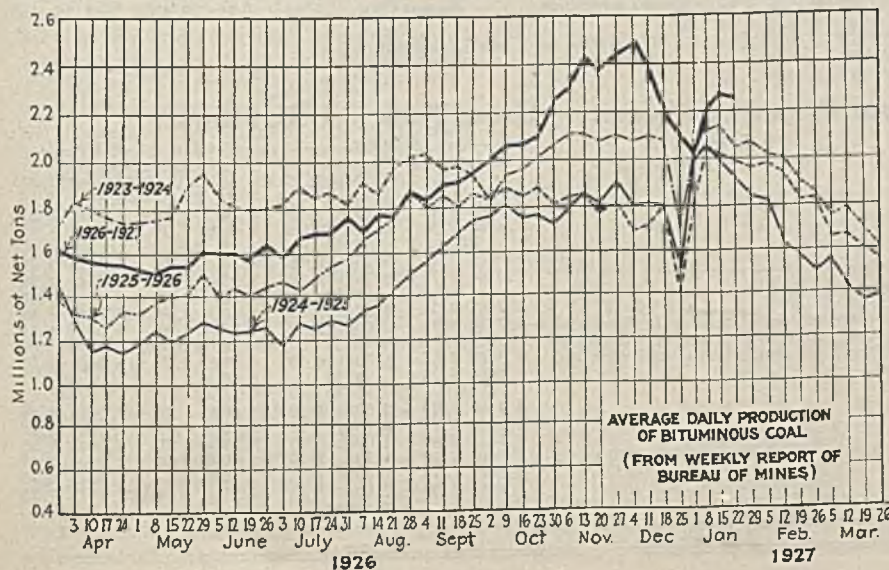
Bituminous production holds close to the dizzy height attained since the sharp upturn following the holiday decline. For the week ended Jan. 22 the total output, according to the estimate of the U. S. Bureau of Mines, was

13,498,000 net tons, a decrease of 73,000 tons from the revised figure for the preceding week. Cumulative production for the coal year to Jan. 22—472,874,000 tons—exceeds that for the corresponding period of the 1920 coal year by 13,088,000 tons.

Steam sizes—particularly No. 1 buckwheat—continue to hold the center of the stage in the anthracite market. Small lots of No. 1 brought as high as \$4.50 in Philadelphia last week and reports were current in the New York market that some of the railroads had decided to switch temporarily to soft coal because of the scarcity of buckwheat. Rice and barley also are moving easily. Egg and pea easily lead the domestic demand, and both sizes are well sold up. Stove and chestnut, however, are giving considerable trouble, some of the producers being compelled to store these sizes while keeping up with steam contracts. Production at the mines continues to be much curtailed, working time in some of the collieries being limited to three days a week. Output during the week ended Jan. 22, according to the Bureau of Mines, had fallen to 1,488,000 net tons, a decline of 346,000 tons from the preceding week.

### More Wage Cuts at Connellsville

General dullness prevails in the Connellsville spot coke market. Merchant operators have followed the lead of the Rainey company in reducing wages, the cut in some instances exceeding the



### Estimates of Production

(Net Tons)

#### BITUMINOUS

	1926	1927
Jan. 8.....	13,031,000	13,253,000
Jan. 15 (a).....	13,068,000	13,571,000
Jan. 22 (b).....	12,431,000	13,498,000
Daily average.....	2,072,000	2,250,000
Coal year to date (c).....	431,966,000	472,874,000
Daily average.....	1,732,000	1,894,000

#### ANTHRACITE

Jan. 8.....	47,000	1,368,000
Jan. 15.....	37,000	1,834,000
Jan. 22.....	47,000	1,488,000
Coal year to date (c).....	40,539,000	78,666,000

#### BEEHIVE COKE

Jan. 8.....	289,000	170,000
Jan. 15 (a).....	311,000	181,000
Jan. 22 (b).....	343,000	186,000
Cal. year to date (c).....	992,000	565,000

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

Rainy reductions, though the \$6 basic rate is adhered to. Independent steel operators retain their old scale. Spot furnace coke is \$3.25. Spot foundry has eased off 25c. to \$4.25@4.75.

Midwest Domestic Trade Stiffens

With the friendly assistance of the weather man the Midwest coal market last week showed some signs of activity. Low retail stocks brought a big demand for 6-in. lump and 6x3 furnace, with the smaller prepared domestic sizes lagging. February circular quotations on local coals, it is believed, will be held at approximately the levels they have maintained since last November. The demand for all Eastern coals, including smokeless and anthracite, has been only fair, with anthracite especially weak. The coke business has continued in moderate volume.

Midwest operators are receiving very few inquiries for storage supplies though West Virginia and eastern Kentucky producers report a number on

contemplated shipments of screenings between now and the end of March. The railroads are quietly building up supplies.

The situation in the southern Illinois fields was helped somewhat by colder weather. Domestic tonnage moved a little better and steam was fairly active, but several thousand "no bills" of all sizes still clutter the tracks. Railroad tonnage moves in good volume at most shaft mines, which are running from four to six days a week. The strip pits have been handicapped, however, by ice and sleet.

Domestic Demand Catches Up

In the Duquoin and Jackson County fields similar conditions prevail, with no change in prices and about the same proportion of "no bills." Movement of railroad coal continues good in the Mt. Olive district and domestic call is keeping pace with production for the first time in many weeks. Steam coal also is moving well and nut is in demand in

Chicago, Omaha, Minneapolis and Kansas City. In the Standard field screenings are down to 95c. and all sizes are lagging.

In the St. Louis local market domestic business is responding to cold weather and refill needs. Country demand is unusually good for the cheaper and middle grades, a goodly share of which comes from western Kentucky. Wagon demand for steam is strong, but carload orders are only fair, with screenings and nut going begging.

The union wage convention and strike talk are quickening the interest of large buyers of Kentucky steam coal for stocking. Inquiries have been more numerous and better business is being done. Domestic demand also has improved due to bad weather and low stocks in the hands of retailers and consumers. River coal is shut out of the market for the time being by the flood stage of the Ohio River.

Prices remain rather firm, though some western Kentucky nut can be had

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

Low-Volatile, Eastern	Market Quoted	Feb. 1	Jan. 17	Jan. 24	Jan. 31	Midwest	Market Quoted	Feb. 1	Jan. 17	Jan. 24	Jan. 31
		1926	1927	1927	1927†			1926	1927	1927	1927†
Smokeless lump.....	Columbus....	\$4.35	\$3.60	\$3.60	\$3.50@3.75	Franklin, Ill. lump.....	Chicago.....	\$3.50	\$4.00	\$4.00	\$4.00
Smokeless mine run.....	Columbus....	2.85	2.35	2.35	2.25@ 2.50	Franklin, Ill. mine run.....	Chicago.....	2.50	2.60	2.60	2.50@ 2.75
Smokeless screenings.....	Columbus....	1.60	1.75	1.85	1.60@ 1.75	Franklin, Ill. screenings...	Chicago.....	1.60	1.85	1.85	1.75@ 2.00
Smokeless lump.....	Chicago.....	4.35	3.60	3.50	3.25@ 3.75	Central, Ill. lump.....	Chicago.....	3.10	2.75	2.35	2.25@ 2.50
Smokeless mine run.....	Chicago.....	2.35	2.75	2.60	2.25@ 3.00	Central, Ill. mine run.....	Chicago.....	2.30	2.10	2.10	2.00@ 2.25
Smokeless lump.....	Cincinnati..	4.10	3.60	3.75	3.50@ 3.75	Central, Ill. screenings...	Chicago.....	1.25	1.40	1.40	1.35@ 1.50
Smokeless mine run.....	Cincinnati..	2.50	3.00	2.60	2.25@ 2.75	Ind. 4th Vein lump.....	Chicago.....	3.00	3.35	3.35	3.25@ 3.50
Smokeless screenings.....	Cincinnati..	1.35	2.35	2.20	1.75@ 2.25	Ind. 4th Vein mine run.....	Chicago.....	2.30	2.35	2.35	2.25@ 2.50
*Smokeless mine run.....	Boston.....	4.85	5.30	5.30	5.00@ 5.15	Ind. 4th Vein screenings...	Chicago.....	1.70	2.00	2.00	2.00
Clearfield mine run.....	Boston.....	2.05	2.40	2.45	2.25@ 2.50	Ind. 5th Vein lump.....	Chicago.....	2.55	2.50	2.50	2.40@ 2.65
Cambrin mine run.....	Boston.....	2.40	2.75	2.75	2.60@ 2.85	Ind. 5th Vein mine run.....	Chicago.....	1.95	2.10	2.10	2.00@ 2.25
Somerset mine run.....	Boston.....	2.20	2.55	2.55	2.40@ 2.60	Ind. 5th Vein screenings...	Chicago.....	1.25	1.50	1.50	1.40@ 1.60
Pool 1 (Navy Standard).....	New York....	3.95	3.25	3.25	3.00@ 3.25	Mt. Olive lump.....	St. Louis....	2.85	2.85	2.85	2.75@ 3.00
Pool 1 (Navy Standard).....	Philadelphia..	2.95	3.10	3.10	3.00@ 3.25	Mt. Olive mine run.....	St. Louis....	2.00	2.50	2.50	2.50
Pool 1 (Navy Standard).....	Baltimore....	2.30	2.60	2.60	2.50@ 2.75	Mt. Olive screenings...	St. Louis....	1.75	1.50	1.50	1.50
Pool 9 (Super. Low Vol.).....	New York....	2.55	2.55	2.55	2.25@ 2.65	Standard lump.....	St. Louis....	2.45	2.35	2.35	2.40@ 2.50
Pool 9 (Super. Low Vol.).....	Philadelphia..	2.60	2.55	2.55	2.45@ 2.65	Standard mine run.....	St. Louis....	1.80	1.80	1.80	1.75@ 1.90
Pool 9 (Super. Low Vol.).....	Baltimore....	2.15	2.15	2.15	2.05@ 2.25	Standard screenings...	St. Louis....	1.05	1.20	1.20	1.00@ 1.05
Pool 10 (H.Gr. Low Vol.).....	New York....	2.25	2.30	2.30	1.90@ 2.40	West Ky. block.....	Louisville..	2.00	2.60	2.60	2.50@ 2.75
Pool 10 (H.Gr. Low Vol.).....	Philadelphia..	2.35	2.35	2.35	2.25@ 2.45	West Ky. mine run.....	Louisville..	1.35	1.40	1.40	1.25@ 1.60
Pool 10 (H.Gr. Low Vol.).....	Baltimore....	1.95	1.90	1.90	1.85@ 2.00	West Ky. screenings.....	Louisville..	.90	1.15	1.35	1.20@ 1.50
Pool 11 (Low Vol.).....	New York....	2.10	2.00	2.00	1.60@ 2.10	West Ky. block.....	Chicago.....	2.35	2.35	2.35	2.25@ 2.50
Pool 11 (Low Vol.).....	Philadelphia..	2.10	2.10	2.10	2.00@ 2.20	West Ky. mine run.....	Chicago.....	1.50	1.85	1.85	1.75@ 2.00
Pool 11 (Low Vol.).....	Baltimore....	1.70	1.75	1.75	1.75@ 1.80						

High-Volatile, Eastern	Market Quoted	Feb. 1	Jan. 17	Jan. 24	Jan. 31	South and Southwest	Market Quoted	Feb. 1	Jan. 17	Jan. 24	Jan. 31
Pool 54-64 (Gas and St.)..	New York....	1.60	1.60	1.60	1.35@ 1.75	Big Seam lump.....	Birmingham..	2.75	2.60	2.60	2.50@ 2.75
Pool 54-64 (Gas and St.)..	Philadelphia..	1.60	1.60	1.60	1.50@ 1.70	Big Seam mine run.....	Birmingham..	2.10	2.00	1.75	1.75@ 2.00
Pool 54-64 (Gas and St.)..	Baltimore....	1.65	1.55	1.55	1.50@ 1.60	Big Seam (washed).....	Birmingham..	2.30	1.75	2.00	1.75@ 2.25
Pittsburgh acid gas.....	Pittsburgh...	2.65	2.60	2.55	2.40@ 2.60	S. E. Ky. block.....	Chicago.....	2.85	2.60	2.60	2.25@ 3.00
Pittsburgh gas mine run...	Pittsburgh...	2.10	2.20	2.10	2.00@ 2.15	S. E. Ky. mine run.....	Chicago.....	1.85	1.80	1.80	1.60@ 2.00
Pittsburgh mine run (St.)..	Pittsburgh...	2.05	2.10	1.95	1.90@ 2.00	S. E. Ky. block.....	Louisville..	2.75	2.60	2.60	2.50@ 2.75
Pittsburgh slack (Gas)....	Pittsburgh...	1.25	1.65	1.55	1.50@ 1.60	S. E. Ky. mine run.....	Louisville..	1.55	1.85	1.85	1.60@ 2.00
Kanawha lump.....	Columbus....	2.25	2.45	2.45	2.25@ 2.65	S. E. Ky. screenings...	Louisville..	1.00	1.35	1.35	1.10@ 1.50
Kanawha mine run.....	Columbus....	1.70	1.85	1.85	1.50@ 1.75	S. E. Ky. block.....	Cincinnati..	3.00	2.60	2.75	2.50@ 3.00
Kanawha screenings.....	Columbus....	.65	1.25	1.20	1.15@ 1.30	S. E. Ky. mine run.....	Cincinnati..	1.50	1.55	1.65	1.25@ 1.85
W. Va. lump.....	Cincinnati..	2.75	2.75	2.75	2.50@ 3.00	S. E. Ky. screenings...	Cincinnati..	.80	1.25	1.25	.90@ 1.40
W. Va. gas mine run.....	Cincinnati..	1.50	1.60	1.60	1.50@ 1.75	Kansas lump.....	Kansas City..	5.00	4.60	4.60	4.50@ 4.75
W. Va. steam mine run.....	Cincinnati..	1.35	1.40	1.40	1.35@ 1.50	Kansas mine run.....	Kansas City..	3.10	3.00	3.00	3.00
W. Va. screenings.....	Cincinnati..	.80	1.30	1.20	1.00@ 1.25	Kansas screenings.....	Kansas City..	2.30	2.35	2.35	2.35
Hocking lump.....	Columbus....	2.45	2.50	2.50	2.25@ 2.75						
Hocking mine run.....	Columbus....	1.75	1.85	1.85	1.75@ 2.00						
Hocking screenings.....	Columbus....	1.15	1.30	1.35	1.30@ 1.45						
Pitta No. 8 lump.....	Cleveland..	2.30	2.35	2.35	2.00@ 2.75						
Pitta No. 8 mine run.....	Cleveland..	1.80	1.90	1.85	1.80@ 1.85						
Pitta No. 8 screenings.....	Cleveland..	1.15	1.55	1.35	1.30@ 1.40						

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

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

Broken	Market Quoted	Freight Rates	Feb. 1, 1926		Jan. 24, 1927		Jan. 31, 1927†	
			Independent	Company	Independent	Company	Independent	Company
Broken	New York.....	\$2.34			\$8.50@9.25			\$8.50@9.25
Broken	Philadelphia..	2.39			8.50@ 9.15			8.50@ 9.15
Egg	New York.....	2.34			8.75@ 9.00	8.75@ 9.25	8.75@ 9.25	8.75@ 9.25
Egg	Philadelphia..	2.39			8.40@ 9.50	9.00@ 9.15	8.40@ 9.50	9.00@ 9.15
Egg	Chicago*.....	5.06			8.26	8.13	8.26	8.13
Stove	New York.....	2.34			9.00@ 9.50	9.25@ 9.50	8.50@ 9.25	9.25@ 9.50
Stove	Philadelphia..	2.39			9.35@ 9.75	9.25@ 9.50	9.35@ 9.75	9.25@ 9.50
Stove	Chicago*.....	5.06			8.71	8.58	8.71	8.58
Chestnut	New York.....	2.34			8.75@ 9.25	8.75@ 9.15	8.50@ 9.25	8.75@ 9.15
Chestnut	Philadelphia..	2.39			8.75@ 9.40	9.00@ 9.15	8.75@ 9.40	9.00@ 9.15
Chestnut	Chicago*.....	5.06			8.48	8.53	8.48	8.53
Pea	New York.....	2.22			6.50@ 7.25	6.00@ 6.50	6.50@ 7.25	6.00@ 6.50
Pea	Philadelphia..	2.14			6.00@ 6.75	6.50	6.00@ 6.75	6.50
Pea	Chicago*.....	4.79			6.03	6.10	6.03	6.10
Buckwheat No. 1.....	New York.....	2.22			4.25@ 5.00	2.50@ 3.50	4.00@ 4.50	2.50@ 3.50
Buckwheat No. 1.....	Philadelphia..	2.14			2.75@ 3.25	2.50@ 3.00	2.75@ 4.50	2.50@ 3.00
Rice.....	New York.....	2.22			2.10@ 2.40	2.00@ 2.25	2.10@ 2.60	2.00@ 2.25
Rice.....	Philadelphia..	2.14			1.90@ 2.00	1.75@ 2.25	1.90@ 2.00	1.75@ 2.25
Barley.....	New York.....	2.22			1.50@ 1.75	1.50@ 1.75	1.50@ 1.75	1.50@ 1.75
Barley.....	Philadelphia..	2.14			1.25@ 1.50	1.50@ 1.75	1.25@ 1.50	1.50@ 1.75
Birdeye.....	New York.....	2.22				2.00		2.00

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

at a little under the price of last week and some eastern Kentucky mine-run can be had at 15c. a ton less. Some eastern Kentucky screenings are offered at \$1.10, as against \$1.25 last week. Other prices are unchanged. Large domestic sizes are quite firm.

Activity on the Northwest docks is close to the peak. A return of near-zero temperature brought a fresh rush of orders from retailers and the larger industrial consumers. The latter are covering requirements as far ahead as possible as an assurance against a strike. Two of the dock companies have made contracts to take on storage cargoes of coal at Lake Erie ports to be ready to move up to this market at the opening of navigation. It is therefore thought that the rush of coal to the Head of the Lakes at the opening of navigation will surpass the opening movement of last year.

Smokeless is scarce and Kentucky coals are moving well. The tightness in screenings is growing more acute. Quotations are firm for both bituminous and anthracite. Hard coal demand is not coming up to expectations, and it is now figured that a moderate surplus will be carried over at the opening of navigation.

At Milwaukee all grades of coal are in strong demand, under the influence of severe winter weather. Prices continue unchanged except for West Virginia smokeless, which following a recession of \$1.50 for lump and \$1.25 for nut, is relatively close to its status before the autumn flurry.

Temperatures lower than for several years in the Twin Cities caused exceptional fuel consumption last week. Even so there was no noticeable effect on buying by retailers, who stocked heavily during December. Purchases are limited to current requirements. Steam buyers also are making supplies on hand serve as long as possible. The price schedule is unchanged.

**Kansas Cleans Up Tracks**

Coal on track at the mines in the Kansas field has been well cleaned up as the result of two solid weeks of freezing temperatures, but an actual shortage exists only in Kansas nut and slack. Operators in Arkansas and Oklahoma are still ahead of orders. Retailers report an excellent demand, but show no disposition to increase their stocks beyond current requirements. Snow and sleet have interfered only slightly with strip-pit operations in the southern Kansas field. Heavy storage of steam coal is reported, but there are practically no storage orders for domestic sizes. Prices are unchanged.

Unsteadiness continues in Utah, due to weather conditions. A recent flurry has taken many of the "no bills" from the tracks. Demand for steam coal is normal for the time of year. There is far too much nut coal on hand, but all other sizes are easy. Prices, however, are steady.

Heavy rains and snows, causing the Ohio River to swell far beyond its normal depth, with consequent disarrangement of railroad facilities, had an unsettling effect on the Cincinnati market. Price spread was especially marked on high-volatile, slack and mine-run held up south of the river selling down to

90c.@\$1.10 and as low as \$1.25 respectively, while cars above the stream brought \$1.25@\$1.50 and \$1.50@1.75. Prepared coals regained some of their waning strength in response to colder weather. Some Hazard block sagged to \$2.50, but better grades of lump from this district, as well as from Elkhorn and West Virginia, commanded \$3.

Some smokeless shippers are still quoting \$3.75 for lump and egg, but most of the companies ask \$3.50, with washed nut, \$3; mine-run, \$2.25@\$2.75.

Interchange of coal loads through the Cincinnati gateway last week totaled 12,065 cars—a decrease of 1,438 from the preceding week. The Louisville & Nashville showed a falling off of 1,057 cars and the Chesapeake & Ohio, 599. The number of empties en route to the mines declined from 10,918 to 10,156.

**Steam Grades Weak at Columbus**

Domestic trade is the strongest feature of an otherwise quiet market at Columbus. The weather has not been conducive to active buying, but consumers have been placing refill orders. The steam side is dull and featureless. The larger utilities and practically all the railroads it is true are accumulating storage stocks, but the rank and file show little concern. As a result virtu-

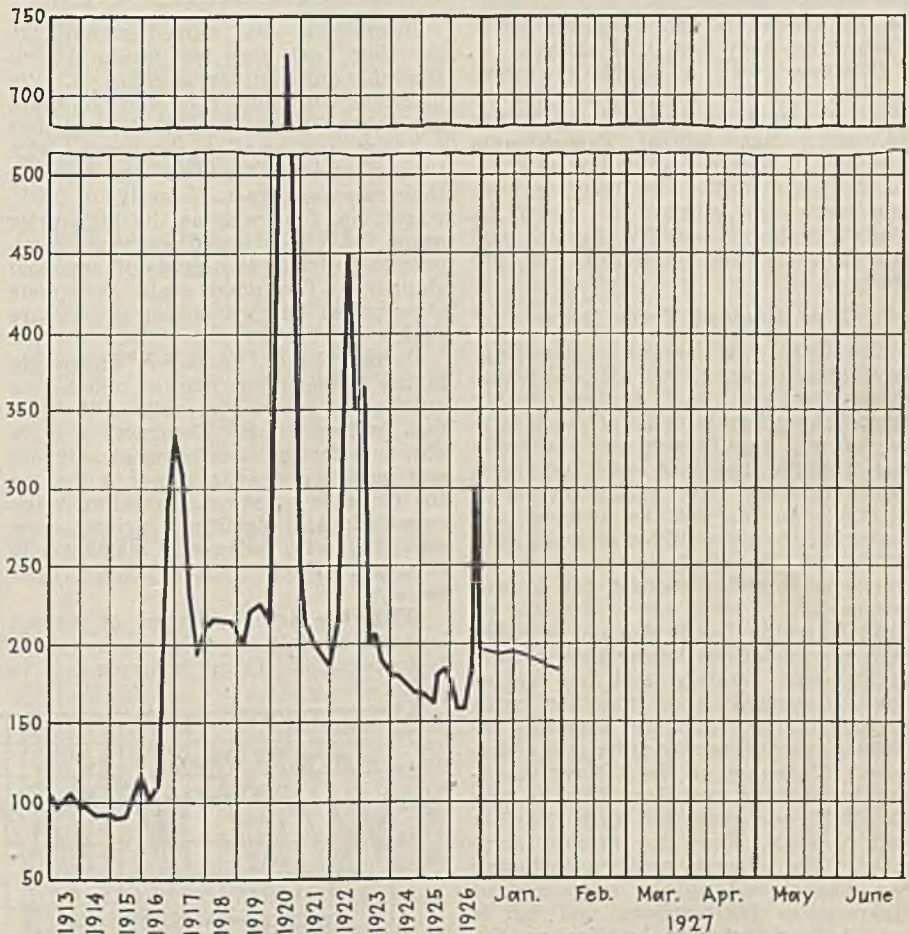
ally all steam grades show a weak tendency, with price levels close to those prevailing before the flurry last October. Many of the smaller mines in the southern Ohio field have closed down and the larger ones have curtailed working time; output is about 25 per cent of capacity.

**Northern Ohio Unusually Dull**

Apart from domestic buying brought about by low temperature extraordinary quiet characterizes the northern Ohio market for this time of year. Steam consumers show the utmost indifference. Utilities and a few industrial consumers are adding to storage piles, but some of the railroads have reached the quotas set for themselves. As a result distress coal is in evidence for the first time in a long while and screenings have softened 5c.@10c. Output in the No. 8 field during the week ended Jan. 22 was 360,000 tons, or approximately 52 per cent of capacity.

Gas-coal prices have softened a trifle further and more western Pennsylvania mines are closing, being unable to meet the market. It is difficult to sell even at the lowest prices and "no bills" are numerous.

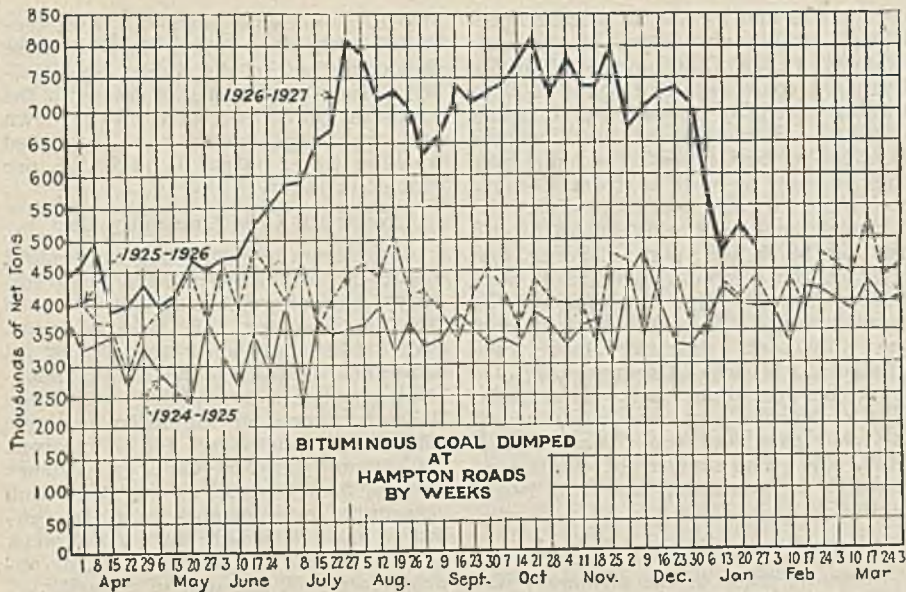
Steam mine-run and slack are unchanged from a week ago. The general market is very dull as to turnover.



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

	Jan. 31	Jan. 24	Jan. 17	Jan. 10	Feb. 1	Feb. 2
Index	185	188	192	194	178	169
Weighted average price	\$2.24	\$2.28	\$2.33	\$2.34	\$2.16	\$2.05

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



Wholesalers find very little on which to work, there being limited inquiry and such as there is cannot be met with prices that would be acceptable.

Conditions continue fairly stable in central Pennsylvania. During the week ending Jan. 22, 19,958 cars were loaded, as compared with 20,706 in the preceding week. The number of "no bills" in the district is approximately 1,000. Spot prices show but little change.

Slowness with a slight downward tendency is the keynote at Buffalo. West Virginia smokeless lump brings \$3.75@\$4, but central Pennsylvania low volatile may be had as low as \$2.75. In the high-volatile list Youghiogheny gas slack has climbed to \$2@\$2.25, while Pittsburgh and No. 8 slack and Allegheny Valley mine-run are unchanged.

**New England Trade Drags**

The steam coal market in New England shows very little life, although prices for spot coal are reasonably firm: There has been no advance buying of any significance and the trade has dragged the last week or more. Consumers are only mildly interested in strike gossip, but the agencies are featuring the possibilities of labor difficulties in their efforts to create a somewhat broader request for February coal.

At Hampton Roads demand is quiet, with accumulations larger than a fortnight ago. Western and line trades have slackened and, together with further letdown offshore, this has increased the pressure to move coal coastwise. The range on No. 1 Navy standard Pocahontas and New River is now \$5@\$5.15 per gross ton f.o.b. Norfolk and Newport News for prompt shipment. The adverse weather, including fog, has slowed up the movement of steamers to this territory, and that is yet another factor in building up the volume of coal standing at the piers.

For delivery inland from Boston and Providence there is moderate request at \$6.75@\$7 per gross ton on cars. The spread between these prices and quotations at Hampton Roads is occasioned largely by a slightly advanced marine freight market. The loss of practically half a trip on each steamer

in service is enough to create a temporary shortage.

All-rail from central Pennsylvania prices also are settling down. Buyers are being closely canvassed and efforts are made to interest them in contracts for the twelve months from April 1.

**Steady Movement at New York**

Bituminous coal moved steadily in the New York area last week, as considerable quiet buying is going on. Big interests with plenty of storage space are taking more than their contracts call for and smaller consumers with limited storing facilities are keeping their reserves intact. Scarcity of buckwheat No. 1 as well as the high price asked for it has caused some new business to fall into the hands of soft-coal shippers. The good coals have held their prices but the poorer grades are easier.

Current buying is slowly increasing in the Philadelphia market and as inquiries are growing in volume the outlook is improving. Contracting is in abeyance for the time being as shippers and buyers endeavor to get a line on the probable outcome of pending wage negotiations. Meantime prices show stability, with advances momentarily expected. Exports have almost trickled out.

With the total collapse of export business at Baltimore the market there is featureless. There is ample coal to

meet all requirements and competitive selling is keen for the little business to be had. Nevertheless prices remain pegged at the level touched when the export movement broke.

Inquiry for spot steam continues comparatively light at Birmingham. Movement on contracts is satisfactory as a whole, and interest in storage is increasing. Bunkering, however, is slow. As the weather is the dominating factor in domestic coal buying, a cold spell offers the only hope for bettered conditions during the next two months. Quotations are unchanged.

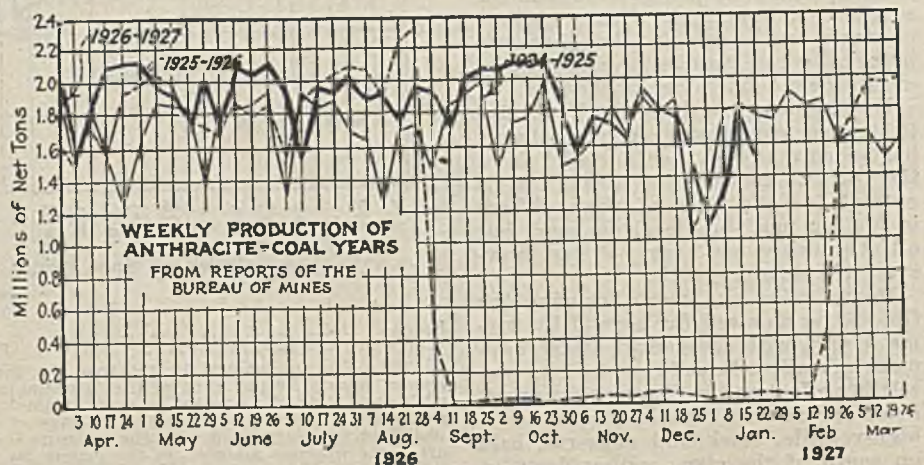
Foundry coke is in fairly good demand, contracts caring for the bulk of the production. Domestic sizes are moving slowly. Quotations are unchanged from a week ago.

**Egg Leads Hard-Coal Van**

Egg and No. 1 buckwheat led the anthracite market at New York last week, with stove and chestnut sizes trailing in that order. Demand for egg was particularly strong in inland districts. Buckwheat eased up somewhat about the middle of the week, but soon recovered. Coal is plentiful due to washery production and a switch by some consumers to bituminous coal. It is reported that in order to overcome the shortage for buckwheat some of the railroads have decided to use bituminous coal for the time being. Demand for pea is fair and prices are steady. A cargo of pea coal is reported to have been sold in the harbor during the week on a basis of \$6.75. Rice and barley are steady.

A much quieter tone prevailed in Philadelphia, householders maintaining their recent attitude of indifference. Stove and nut are giving trouble, whereas pea and egg are well sold up. Curtailed operations are still in evidence at most of the collieries. Steam sizes are closely sold up, small lots of No. 1 buckwheat bringing from \$4 to \$4.50. A slight spurt in domestic buying took place in Baltimore with the appearance of the coldest weather of the winter thus far. Severe weather has stiffened the anthracite trade at Buffalo. There has been no stir, however, in the lake trade.

Merchant operators in the Connellsville coke region, following the lead of W. J. Rainey, Inc., have reduced wages—in some respects below the Rainey scale, though the \$6 basic rate obtains. Independent steel companies, however,



**Car Loadings and Supply**

	—Cars Loaded—		All Cars	Coal Cars
	All Cars	Coal Cars		
Week ended Jan. 22, 1927.....	942,587	224,715	950,045	229,407
Week ended Jan. 15, 1927.....	921,734	180,923	936,655	192,820
Week ended Jan. 23, 1926.....	319,481	94,122	326,837	93,765
Week ended Jan. 16, 1926.....	309,956	117,032		

adhere to the Frick scale, with a \$7.50 basic rate. The latest cut makes prices on current contracts generally \$3.75 @ \$4. Spot furnace coke is \$3.25 in a dull market. Spot foundry has worked off 25c. to \$4.25 @ \$4.75 for standard brands and up to \$5.75 for premium qualities.

Production of beehive coke in the Connellsville and Lower Connellsville region during the week ended Jan. 22 was 133,020 tons, according to the Connellsville Courier. Furnace-oven output was 58,300 tons, a decrease of 500 tons from the preceding week. Merchant-oven output—74,720 tons—declined 260 tons from the week before.

**Railroads Consume More Fuel; Cost Advances**

Class 1 railroads of the United States consumed 9,104,412 net tons of coal in train locomotives in November, 1926, according to the monthly report of the Interstate Commerce Commission. This is an increase of 194,632 tons over the total for the corresponding month of the preceding year.

The average cost per net ton, including freight, of such fuel in November, last, was: Eastern district, \$2.80; Southern district, \$2.29; Western district, \$2.93; United States, \$2.72. The difference in the average for the country as a whole from the preceding month was 10c. increase, and from November, 1925, a like advance.

**Traffic News**

**Virginian's Westbound Case Reopened by I. C. C.**

Notwithstanding protests from about a score of other West Virginia coal companies, as well as of the Chesapeake & Ohio Ry., the Interstate Commerce Commission has granted the petition of the Virginian Ry. for a further hearing with regard to its order of May, 1925, which required the Virginian to establish, in connection with the Chesapeake & Ohio, through rates on coal westbound from mines on the line of the Virginian.

The Commission directed, however, that its order shall remain in full force and effect. Therefore the Virginian will have to publish the tariffs in connection with the Chesapeake & Ohio just as if the case had not been reopened.

The Virginian based its request for a rehearing of the case on the ground that since the order was issued there have been established in connection with the Norfolk & Western through rates from the Virginia mines which will accomplish substantially the same results as those which had been ordered in connection with the Chesapeake & Ohio.

Previous delay in the matter was due to an appeal to the courts by the Virginian, the Supreme Court finally upholding the order in a decision handed down a little over a month ago.

**Bill in Ohio Assembly Cuts Coal Rate to Lakes**

The Ohio General Assembly has been asked to take a hand in the coal freight rate controversy between Ohio, West Virginia and Kentucky mines as it applies to lake shipments and commercial shipments by fixing rates within the state. A bill was introduced in the

Ohio Legislature by Representative Mardis of Athens providing for the following reductions in rates on coal shipments:

Up to and including \$1 per ton, a reduction of 25 per cent.

Between \$1 and \$1.25 per ton, a reduction of 20 per cent.

Between \$1.25 and \$1.50 per ton, a reduction of 15 per cent.

Between \$1.50 and \$1.75 per ton, a reduction of 10 per cent.

Between \$1.75 and \$2 per ton, a reduction of 5 per cent.

The reductions would be effective as of Jan. 1 of this year and thus would be retroactive.

Representative Mardis, who comes from the heart of the southern field, says that he has made a careful study of the power of the state in rate fixing and believes that in case such a law is enacted it will be valid. He said, however, "I am aware of the fact that the Interstate Commerce Commission has assumed jurisdiction even over intrastate rates when they appear to conflict with interstate rates."

The Ohio Public Utilities Commission, although importuned on many occasions, both by the miners' union and operators, to reduce rates on shipments of coal from Ohio points, holds that it is without authority to do so because the I.C.C. has assumed authority over Ohio rates.

**Anthracite Circular Prices for February at New York**

(Per Gross Ton F.O.B. Mines)

	Broken	Egg	Stove	Chest-nut	Pea
Lehigh & Wilkes-Barre Coal Co. . . . .	\$8.25	\$8.75	\$9.25	\$8.75	\$6.50
D. L. & W. Coal Co. . . . .	8.25	8.75	9.25	8.75	6.35
Lehigh Valley Coal Sales Co. . . . .	8.50	9.00	9.35	9.00	6.50
Hudson Coal Co. . . . .	9.00	9.00	9.35	9.00	6.50
M. A. Hanna Co. . . . .	9.00	9.25	9.60	9.25	6.50
Phila. & Reading Coal & Iron Co. . . . .	9.15	9.15	9.40	9.15	6.50
Lehigh Coal & Navigation Co. . . . .	9.25	9.25	9.50	9.10	6.35
Buckwheat No. 1, \$3; rice, \$2 @ \$2.25; barley, \$1.50 @ \$1.75; birdseye, \$2.					

**Coal Produced in Iowa in 1925\***

(Exclusive of Product of Wagon Mines)

County	—Net Tons—			Total Quantity	—Value—		—Number of Employees—				Average Number of Days Worked	Average Tons per Man per Day	
	Loaded at Mines for Shipment	Sold to Trade and Used by Employees	Local Used at Mines for Steam and Heat		Total	Average per Ton	Underground		Surface				
							Miners, Loaders, and Shotfirers	Haulage and Track	All Others	Total			
Adams.....		4,881		4,881	\$19,000	\$3.89	16	2	3	25	155	1.26	
Appanoose.....	466,491	74,022	4,507	545,020	1,860,000	3.41	2,148	219	124	198	2,689	96	2.11
Boone.....	325,836	43,097	5,023	373,956	1,481,000	3.96	581	44	160	63	848	171	2.58
Dallas.....	363,810	9,826	1,527	375,163	1,178,000	3.14	541	91	126	65	823	154	2.97
Davis, Jefferson, and Van Buren.....	3,054	3,924	126	7,104	18,000	2.53	18	3	4	2	27	130	2.03
Greene, Story, and Webster.....	10,122	2,000		12,122	36,000	2.97	31	5	7	4	47	160	1.61
Guthrie.....	4,053			4,053	16,000	3.95	19	1	2	4	26	131	1.19
Jasper.....	5,615	32,180	3,539	41,334	140,000	3.39	145	19	39	34	237	70	2.48
Keokuk.....		6,877	5	6,882	21,000	3.05	16	2	3	2	23	145	2.06
Lucas and Warren.....	551,105	170,248	22,452	743,805	2,110,000	2.84	616	85	121	94	916	212	3.83
Mahaska.....	291	43,139	513	43,943	131,000	2.98	92	7	7	12	118	152	2.45
Marion.....	898,191	30,126	19,632	947,949	2,811,000	2.97	707	66	141	86	1,000	233	4.06
Monroe.....	765,105	24,393	24,869	814,367	2,393,000	2.94	985	199	109	100	1,393	188	3.11
Page and Taylor.....	4,207	29,254	150	33,611	146,000	4.34	79	9	11	11	110	205	1.49
Polk.....	322,586	336,266	12,020	670,872	2,179,000	3.25	1,123	158	230	120	1,631	139	2.97
Wapello.....	1,463	58,292	825	60,580	193,000	3.19	102	9	12	21	144	146	2.88
Wayne.....	3,900	25,140	161	29,201	75,000	2.57	83	14	3	10	110	128	2.08
<b>Total.....</b>	<b>3,711,654</b>	<b>905,840</b>	<b>97,349</b>	<b>4,714,843</b>	<b>\$14,807,000</b>	<b>\$3.14</b>	<b>7,302</b>	<b>933</b>	<b>1,102</b>	<b>830</b>	<b>10,167</b>	<b>153</b>	<b>3.02</b>

\*The figures relate only to active mines of commercial size that produced coal in 1925. The number of such mines in Iowa was 207 in 1925, 256 in 1924 and 151 in 1923, but the number reported in 1923 was incomplete. Methods of mining in 1925: The tonnage undercut by hand was 901,839; shot off the solid, 2,780,633; cut by machines, 922,405; mined by stripping, 229; not specified, 109,737.

Size classes of commercial mines in 1925: There were 5 mines in Class 1B (200,000 to 500,000 tons), producing 31.8 per cent of the tonnage; 7 in Class 2 (100,000 to 2,100,000 tons), with 22.8 per cent; 10 in Class 3 (50,000 to 100,000 tons), with 16.7 per cent; 44 in Class 4 (10,000 to 50,000 tons), with 20.6 per cent, and 141 in Class 5 (less than 10,000 tons), producing 8.1 per cent. Compiled by U. S. Bureau of Mines.

## Foreign Market And Export News

### Local and Export Trade Lag In British Market

At most British mines output is increasing and the prices tend to fall gradually. Output for the week ended Jan. 15 was 5,244,700 gross tons. This compares with 5,025,300 in the previous week, and is the highest since the resumption of general mining. It exceeds the output even of the week before the strike by 147,700 tons. Miners working number 977,900 against 1,100,000 before the strike.

Demand, on the other hand, shows little tendency to grow in volume and even the offer of substantial discounts to buyers prepared to take spot delivery attracts little business. Exports to continental Europe also are small. Belgium is buying practically nothing. France is taking only odd cargoes, while Holland and Germany are buying nothing worth mentioning. Italy and South America, on the other hand, show a fair trade although this is far below normal. Domestic consumers are buying as little as possible in the hope of still further concessions.

Best admiralty large is now selling at 26s. 6d., best steam smalls are 14s., best Durham steams 24s., unscreened bunkers are 19s. for best and 17s. for seconds.

During the week ended Jan. 7 coal exports to foreign countries from South Wales amounted to 393,233 tons as compared to 189,901 tons during the preceding week. This quantity is 30,000 tons more than that shipped during the corresponding period of 1926, this increase being due mainly to back deliveries on contracts to Spain.

### Mild Weather Hampers Trade In French Market

Paris, Jan. 13.—The senatorial elections have now passed but the political orientation is much the same as before. Sterling is practically unchanged, any small changes being in the direction of declines. No pronounced revival of activity is noticeable. A few orders have been received since the year opened, but these are more or less in the nature of refills. Consumers, as a rule, supply immediate needs, but no more.

The market still favors producers of industrial coals. Stocks have been quite generally drawn upon and must now be replenished. British imports are welcome; 57,000 tons of Cardiff coal were unloaded during the first week in January.

Decidedly mild weather does not stimulate any great demand for house coal; small quantities only are dealt in. Up to the present neither Belgian nor French collieries have reduced prices, but it is understood that the Belgians will have to do so before summer prices can even be considered.

Imports are coming in somewhat

more briskly from across the channel and have caused the French Government to cancel some of the exceptional measures adopted during the British strike. Thus coal may now be freely exported. Coke is an exception to this rule and for its export authorization is still necessary.

Freight service is now regular and canal transportation is not much restricted. Nevertheless the movement from Bethune to Paris still costs 35 fr. per ton for coal.

### U. S. Fuel Exports in December

	(In Gross Tons)	
	1925	1926
Anthracite.....	7,122	293,954
Bituminous.....	1,394,744	4,299,492
Exported to:		
France.....	580	180,835
Italy.....	17,916	242,329
Other Europe.....		1,784,739
Canada.....	1,135,558	1,283,396
Panama.....	22,857	57,652
Mexico.....	14,085	6,315
Newfoundland and Laborador.....		4,614
Br. W. Indies.....	10,764	22,667
Cuba.....	67,514	54,971
Fr. W. Indies.....	13,902	21,093
Other W. Indies.....	23,484	14,043
Argentina.....	18,063	200,570
Brazil.....	37,190	239,099
Chile.....		
Uruguay.....	6,019	11,851
Egypt.....		43,377
French Africa.....	8,053	42,884
Other countries.....	18,759	89,057
Coke.....	131,351	60,774
Twelve Months Ended December		
	1925	1926
Anthracite, tons.....	2,838,398	3,597,903
Value.....	\$31,760,627	\$41,085,593
Bituminous, tons.....	15,590,679	31,492,801
Value.....	\$68,402,668	\$155,838,572
Coke, tons.....	851,618	881,482
Value.....	\$6,871,962	\$6,979,896

### Belgian Market Featureless

Brussels, Jan. 13.—The Belgian market is in status quo—favorable yet without high spots. It is now obvious that the trend toward stabilization—which would not be altogether favorable for coal—is slowly but surely materializing.

Shipments are easier and delays are fewer. On the other hand some weakness has developed in some semi-bituminous fuels that feel competition. Some big contracts have been signed for British coals. There also is some slackening even in coke. Prices are not changed but purchases are more reserved. This affects adversely the sale of coking smalls.

In patent fuels the decline has been general and this is certain to go further under the influence of higher prices for British pitch. In short, relaxation is general and the impression prevails that this situation will continue without developing into a crisis. It is the almost universal opinion that prices will decline appreciably in March.

The price of German coke remains at 21 mks. It is believed that this figure will be maintained until May. If options were lifted before April 15 the price should be reduced to 19 mks.,

this price being retroactive to March 1, and to remain in force until Dec. 31, 1927.

German metallurgical coke is now reaching Belgian plants at a rate exceeding current needs; soon there will be a plethora. Some rather important long-time metallurgical contracts are reported as being made with new coking plants of Dutch Limburg. The prices are said to be in conformity with those for the German article. No agreement has been made with Germany covering coking smalls. It is believed that under the influence of British smalls Germany must reduce prices before long.

### Export Clearances, Week Ended Jan. 27 FROM HAMPTON ROADS

	Tons
For Italy:	
Ital. Str. Maria Rosa, for Porto	8,464
Ferrajo.....	
For Argentina:	
Nor. Str. Romsdalshorn, for Buenos Aires	4,735
For Cuba:	
Dan. Str. Nordamerika, for Santa Lucia	1,791
Dan. Str. M. C. Holm, for Havana	2,249
Br. Str. Laurelpark, for Manzanillo	1,396
For Danish West Indies:	
Dan. Str. Kronborg, for Curacao	5,122
For Bermuda:	
Amer. Schr. Virginia Pendleton, for St. Georges	2,181
For Falkland Islands:	
Br. Str. Strathfillan, for South Georgia	5,104
For Canal Zone:	
Amer. Str. Marore, for Cristobal	7,847
For Brazil:	
Br. Str. Arabian Prince, for Santos	4,747
For Martinique:	
Amer. Str. Dio, for Fort de France	6,440

### FROM BALTIMORE

For Germany:	
Ger. Str. Holstein, for Bremen (coke)	500

### FROM PHILADELPHIA

For Argentina:	
Ital. Str. Vesuvio, for Buenos Aires	
For Cuba:	
Nor. Str. Munorway, for Havana	
For Brazil:	
Br. Str. Kassala, for Pernambuco	
For Greece:	
Ital. Str. Carnia, for Piraeus	
For Porto Rico:	
Am. Str. Plow City, for San Juan	

### Hampton Roads Coal Dumpings\*

	(In Gross Tons)	
	Jan. 20	Jan. 27
N. & W. Piers, Lamberts Pt.:	197,231	184,213
Virginian Piers, Sewalls Pt.:		
Tons dumped for week.....	127,736	116,467
C. & O. Piers, Newport News:		
Tons dumped for week.....	154,215	135,538

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

### Pier and Bunker Prices, Gross Tons

	PIERS	
	Jan. 20	Jan. 27†
Pool 1, New York....	\$5.75@ \$6.00	\$6.00@ \$6.25
Pool 9, New York....	5.25@ 5.50	5.25@ 5.60
Pool 10, New York....	5.00@ 5.25	5.00@ 5.25
Pool 11, New York....	4.50@ 5.00	4.50@ 5.00
Pool 9, Philadelphia..	5.25@ 5.65	5.25@ 5.45
Pool 10, Philadelphia..	5.05@ 5.15	5.00@ 5.20
Pool 11, Philadelphia..	4.50@ 4.60	4.50@ 4.90
Pool 1, Hamp. Roads.	5.00	4.85@ 5.00
Pool 2, Hamp. Roads.	4.75	4.65@ 4.75
Pool 3, Hamp. Roads.	4.50	4.00@ 4.15
Pools 5-6-7, Hamp. Rds.	4.50	4.35@ 4.50

BUNKERS		
Pool 1, New York....	\$6.00@ \$6.25	\$6.25@ \$6.50
Pool 9, New York....	5.50@ 5.75	5.50@ 5.85
Pool 10, New York....	5.25@ 5.50	5.25@ 5.50
Pool 11, New York....	4.75@ 5.25	4.75@ 5.25
Pool 9, Philadelphia..	5.50@ 6.10	5.60@ 6.70
Pool 10, Philadelphia..	5.30@ 5.40	5.25@ 5.45
Pool 11, Philadelphia..	4.75@ 5.05	4.75@ 5.15
Pool 1, Hamp. Roads.	5.10	5.00
Pool 2, Hamp. Roads.	4.85	4.75
Pools 5-6-7, Hamp. Rds.	4.50	4.50

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



## Coming Meetings

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

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

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

## Trade Literature

**The Oxwelder's Manual.** Oxweld Acetylene Co., Long Island City, N. Y. Ninth edition. Pp. 216; 6x9 in.; illustrated. Instructions for welding and cutting by the oxyacetylene process.

**Hand and Power Pumps for All Uses.** The Deming Co., Salem, Ohio. Catalog No. 27. Pp. 222; 7x10 in.; illustrated. Covers complete line of pumps including those for mine service and water systems.

**Mine and Industrial Track Equipment and Other Products.** Bethlehem Steel Co., Bethlehem, Pa. Catalog K. Pp. 159; 9x6 in.; illustrated. Contains information relative to rails, ties, frogs, switches, etc., as well as other data, tables and calculations.

**The Warner Elevator Mfg. Co., Cincinnati, Ohio,** has issued a 12-pp. 8½x11-in. book entitled **Elevator Specifications for the Use of Architects and Engineers.**

"Thinking Thru" is the title of a booklet by C. D. Garretson, president of the Electric Hose & Rubber Co., Wilmington, Del. It discusses some of the more important phases of the jobbers' situation and outlines the policies of the business of the Electric Hose & Rubber Co.

General Electric Co., Schenectady, N. Y., has issued the following bulletins: **Mechanical Drive Turbines, GEA-578,** describing and illustrating the type D turbines. **Centrifugal Air Compressors, GEA-528;** constructions, details, installations and advantages of the small multi-stage centrifugal air compressors are illustrated and described. **Constant-Potential Arc Welding Sets, GEA-569,** designed for any number of operators up to capacity, metallic or carbon electrode welding. **Hand-Starting Compensators, CR1034, -K21 and -K22,** dead front cabinet type for squirrel-cage induction motors, two and three-phase. This bulletin is GEA-570.

Amtorg Trading Corporation, New York City, has issued a book of 1076 pp. entitled **Catalog of American Industry and Trade.** It is printed in Russian, 9x12 in.; illustrated. A section of the volume is devoted to various phases of American technical and manufacturing development.

## New Equipment

### Outdoor Substations Supply Required Reliability

During the past few months there has been a steady growth in the demand for outdoor station equipments, such as that shown in the accompanying illustration, and for disconnecting switches for potentials of 154 to 220 kv. This gives a clear indication that the application of these voltages to the transmission systems of the country is steadily increasing.

The demand for reliable service from transmission and distribution lines is just as pressing in the systems of coal-mining companies as it is in those of the public utilities. This is particularly true among coal companies who maintain their own central power-generating stations, and also those companies who take purchased power at a central point.

Further progress has been made in the standardization of outdoor stations, and a new line of standard equipment designed to take care of stub-end transformer step-down stations of voltages ranging from 37 kv. downward, and of transformer bank capacities of 3,000 kva. and below. Steel structures for such stations are produced in two sizes, which with slight modification, can be arranged for thirty-one different combinations of switch-gear.

According to the General Electric Co., Schenectady, N. Y., many new types of disconnecting switches are built, among them a horn gap type for voltages of 15 to 73 kv. and 400- and 600-amp. rating.

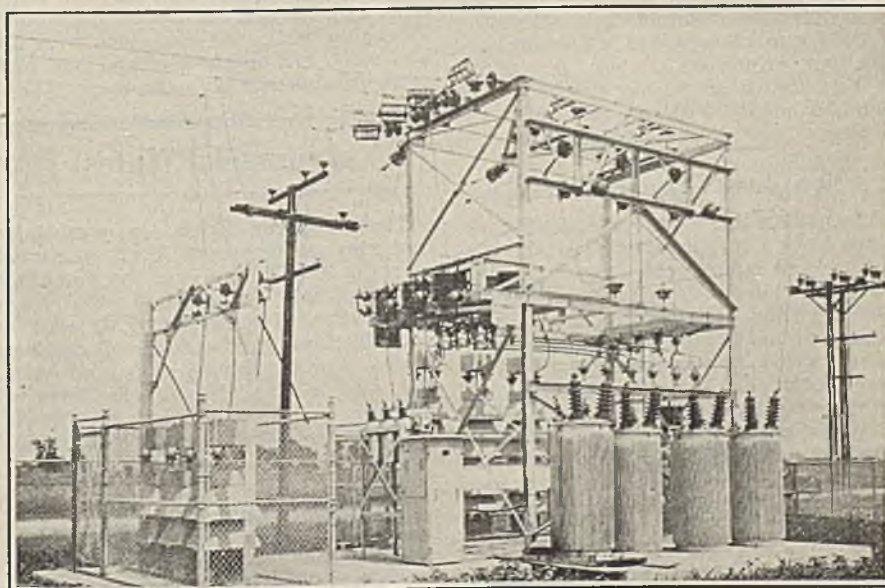
A switch of the tilting insulator type, with a short, stubby blade which closes with a chopping action into a floating contact made up of two half-cylinder

copper blocks acting against double helical springs is provided. These springs press the cylinders against the blade, establishing a line-pressure contact which has proven to be more satisfactory than surface contact. The chopping action of the blade, and the free movement of the floating contacts are effective sleet removing features which assure satisfactory operation of this type of switch under the sleet conditions usually encountered. The use of an insulated handle for the operation of the switch affords protection to the operator.

In the line of high-voltage disconnecting switches, ratings of 132 to 220 kv. and both 600 and 800 amp. capacity were produced with manual or motor-operating mechanisms. This type of switch is designed to isolate six poles of an oil circuit breaker by means of one operating mechanism which may be manually or motor actuated.

A new type of fuse has been developed for voltages of 73 kv. and below, and ampere ratings of 100 and below, which minimizes the faulty operation of fuses due to incorrect fusing by the operator. The fuse holder is made up in such a manner that the blowing of the fuse makes it necessary to discard the fuse holder, so that the operator has to install a new holder and fuse entire.

To meet this condition without involving considerable expense, a fuse holder is available in the form of an inexpensive impregnated fiber tube in which a fuse element of short length is suspended and connected to a flexible, copper pig-tail, which in turn is held taut by a bronze spring. The melting of the fuse wire releases the tension on the copper pig-tail and also allows the compressed spring to be released, forc-



Where Reliability of Service is Necessary

Exposed to all kinds of weather and load conditions, the equipment must not only be reliable but simple and safe in operation. The above is a 300-kva., 33,000-volt outdoor station equipped with an automatic reclosing feeder.

ing the copper pig-tail out of the fiber tube, and thus allowing a free path for the gas to be discharged. This type of fuse has exceptionally high interrupting capacity and a wide application on high tension systems.

A new line of resistors for 15-, 25-, and 37-kv. circuits permits fusing the potential transformer circuits on systems having short circuit kva. in excess of the interrupting capacity of the fuses used.

### Air Compressor Is Simple In Construction

As part of a complete line of centrifugal air compressors or blowers, ranging in capacity from 250 to 75,000 cu.ft. per minute and from 0.75 to 30 lb. pressure, the General Electric Co., Schenectady, N. Y., has been manufacturing for the past ten years small multi-stage units rated at 250 to 575 cu.ft. per min. and 0.75 to 4.0 lb. pressure. In line with recent improvements made in the large single- and multi-stage units, changes have been made in the design of the miniature multi-stage sets. Among advantages claimed for these small sets is the gear-type of oil pump driven from the motor shaft. This provides forced lubrication for the three bearings.

The casing is made of cast iron and is split vertically so that any number of stages from two to eight can be assembled to give the various pressures. The impellers are made of aluminum and are of the single-inlet type. Discharge vanes receive the air from the impellers and, in addition to conveying it to the next stage opening, also serve to convert a part of the velocity head into pressure energy. This, it is claimed, increases the efficiency of the compressor.

High efficiency is maintained over a wide load range with, as stated by the manufacturer, a lower power requirement which varies directly with the volume delivered. A constant pressure is maintained over a wide variation in volume, this latter varying according to requirements but being controllable.

Only small floor space is required and the foundations are simple. A machine of this kind is accessible and inspection can be made without removing the piping.

### Soapless Grease Found

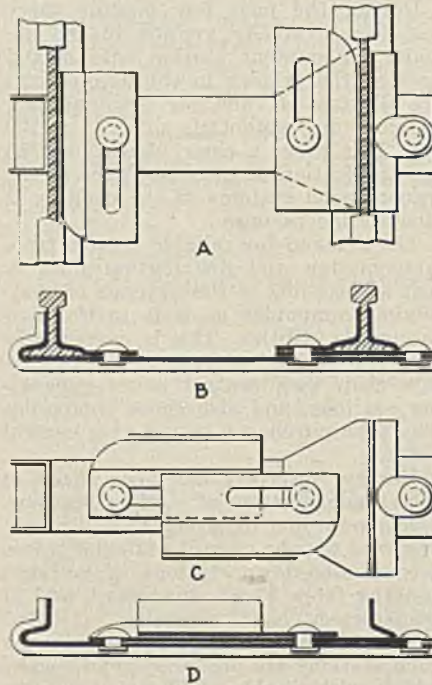
According to *Power*, to A. L. Nugey, New York City, is attributed the discovery and subsequent development of a soapless lubricating grease, which differs from the ordinary grease in that it possesses an exceptionally high lubricating value, and in addition creates a new outlet for many low-grade oil-refinery products and displaces the further use of expensive animal fats and alkalies as generally employed.

In general all greases are composed of mineral oils and soap, the soap content being a saponification of such fats as tallow, lard, oil, etc., which is produced by the aid of alkalies such as soda, lime, etc. These fatty ingredients, which form the soap properties in greases, contain little if any lubricating qualities and merely act as the carriers of the mineral oils.

It is claimed that in the new grease, through the introduction of certain ingredients, the ordinary fats are replaced advantageously by physical reaction.

### New Ties for Track Extensions

Designed especially for use in mines a new railway tie provides for track extensions to be easily and quickly



#### Track Extensions Easily Made

A and B in the above illustration is a general view of the new tie; C and D are details of the clamping device.

laid and, it is claimed, without the use of splice bars or angle plates and without the aid of nuts, bolts or wrenches.

This tie was designed by M. F. Suffridge, master mechanic of the Happy Coal Co., Happy, Ky. This device is provided at one end with a rail-engaging abutment and at the other end with a rail-engaging angle bar. Clamping plates are connected with the abutment and angle bar and are permanently connected to the tie.

### Industrial Notes

The American Brass Co. announces that arrangements have been completed whereby it will take over the manufacture and sale of Everdur metal from the Du Pont Everdur Co. This alloy is manufactured in the form of castings ingots, plates, sheets, rods and wire, and also is available in the form of washers, bolts, nuts, screws, rivets, wire cloth and the like. It casts readily, can be drop-forged, stamped and pressed.

The Botfield Refractories Co., manufacturers of fire brick cement, Philadelphia, Pa., have appointed the following concerns as distributors for their product: Southern Steel & Cement Co., Asheville, N. C.; Henry A. Petter Supply Co., Paducah, Ky.; Columbia Supply Co., Columbia, S. C.; Spartanburg Mill Supply Co., Spartanburg, S. C.

### Recent Patents

Weigh Basket; 1,606,757. Frank L. Fleming, Carrick Borough, Pa. assignor to Phillips Mine & Mill Supply Co., Pittsburgh, Pa. Nov. 16, 1926. Filed Nov. 30, 1923; serial No. 677,906.

Drying of Finely Divided Carbonized Fuel; 1,606,867. Walter Broadbridge, Edwin Edser and William W. Stenning, London, Eng., assignors to Minerals Separation North American Corp., New York City. Nov. 16, 1926. Filed Nov. 20, 1922; serial No. 602,251. Renewed April 22, 1926.

Method for Manufacturing Briquets from Lignite; 1,607,012. Charles L. McCrea, Oakwood, Ohio. Nov. 16, 1926. Filed Oct. 22, 1924; serial No. 745,181.

Drop-Bottom Dump Car; 1,607,035. Forrest Andrews, Knoxville, Tenn. Nov. 16, 1926. Filed Feb. 15, 1926; serial No. 88,458.

Portable Coal Tipple; 1,606,105. Grover C. Singer, Oakland City, Ind. Nov. 16, 1926. Original application filed July 22, 1924; serial No. 727,526. Divided and this application filed Oct. 12, 1925.

Mine Car; 1,607,566. Hugh W. Sanford, Knoxville, Tenn. Nov. 16, 1926. Filed April 16, 1925; serial No. 23,525.

Overturning Cage; 1,607,679. Daniel F. Lepley, Connellsville, Pa. Nov. 23, 1926. Filed Oct. 22, 1924; serial No. 745,196.

Shaker Screen; 1,607,761. R. B. Klees, Natalie, Pa. Nov. 23, 1926. Filed July 20, 1925; serial No. 44,838.

Protecting Device for Electric Detonators; 1,607,818. Alexander Djidics, Tamaqua, Pa., assignor to Atlas Powder Co., Wilmington, Del. Nov. 23, 1926. Filed Nov. 20, 1925; serial No. 70,282.

Device for Testing Water Tubes of Boilers; 1,608,093. George E. Fetzer, St. Louis, Mo. Nov. 23, 1926. Filed July 10, 1925; serial No. 42,855.

Coal-Mining Machine; 1,608,149. Charles A. Warden, Huntington, W. Va. Nov. 23, 1926. Filed May 21, 1924; serial No. 714,822.

Conveyor Chain; 1,608,340. John F. Scheidy, Upper Lehigh, Pa. Nov. 23, 1926. Filed March 31, 1926; serial No. 98,829.

Means for Operating Reciprocating Conveyors or Screens; 1,608,508. Richard S. Jacobsen, Chicago, Ill., assignor to Webster Mfg. Co., Chicago, Ill. Nov. 30, 1926. Filed Oct. 25, 1918; serial No. 259,609.

Mine Car; 1,608,682. John F. Streib, Los Angeles, Calif., and Minot C. Blest, Bellevue, Pa., assignors to Pressed Steel Car Co., Pittsburgh, Pa. Nov. 30, 1926. Filed May 25, 1922; serial No. 563,670.

Flotation Apparatus; 1,608,896. John C. MacIntosh, Douglas, Ariz. Nov. 30, 1926. Filed Nov. 13, 1925; serial No. 68,806.

Conveyer Control for Jigs; 1,603,351. Harry J. Moyer, Chicago, Ill. Oct. 19, 1926. Filed Oct. 31, 1922; serial No. 598,128.

Protecting Device for Electric Detonators; 1,606,414. Harry L. Grant, Tamaqua, Pa., assignor to Atlas Powder Co., Wilmington, Del. Nov. 9, 1926. Filed Nov. 20, 1925; serial No. 70,365.